

SSI Applications Group

Approved Discussion Document

SSIDIS146

Simple Application of Two and Three Aspect LED Banner Repeaters

Issue 7

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This document contains 17 pages and was approved at Issue 7 by SSIAG at its meeting of 23/01/2013

This document forms SSIAG's interim guidance on this topic pending the production of an update to the relevant chapter(s) of the SSI Applications Manual.

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SSI Applications Group**SSIAG DIS-146****Simple Application of Two and Three Aspect LED Banner
Repeaters.****1. DOCUMENT STATUS**

This is the seventh draft discussion paper prepared for SSI Applications Group (SSIAG). Issue 6 updated the paper to ensure the controls are correct to NR/L2/SIG/30009/F210 issue 1, to enable use on East Midlands Signalling Renewal part 3 and other projects on Network Rail Infrastructure. Issue 7, which includes data for two aspect LED banner signals, as well as three aspect, and includes the minor updates to text in NR/L2/SIG/30009/F210 issue 2, was approved at the SSIAG meeting on 18th July 2012.

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3. PURPOSE OF PAPER

The purpose of this paper is to obtain approval from SSIAG for the application of simple two and three aspect LED banner repeater data in accordance with Network Rail Company Standard NR/L2/SIG/30009/F210 issue 2, for signalling schemes on Network Rail Infrastructure.

4. BACKGROUND

This document develops on the data structures introduced in issue 5 of this DIS paper, bringing them into line with the new Network Rail Company Standard NR/L2/SIG/30009/F210 issue 2.

This SSIAG paper considers only the simple application of a single banner repeater and does not consider the scenarios of multiple applications of splitting repeaters or where there may be more than one repeater on an approach to a signal. Where splitting and multiple banner repeaters are to be used the appropriate data shown in SSI8003-67 Section 8 shall be applied.

5. PRINCIPLES

The principles of operation of the two and three aspect banner repeaters are defined in NR/L2/SIG/30009/F210 issue 2. The main divergence from the controls described in SSI8003-67 is that for three aspect banner repeaters the white off indication now repeats a restricted aspect, not just that the signal is off.

5.1 Two/Three Aspect Control

There is an additional requirement on the WCRM and EMSR part 3 projects for three aspect banner signals to be commissioned with the ability to operate as two aspect or three aspect banner repeaters without the requirement for a data change. The selection of two/three aspect mode will be carried out by sensing the presence of an external Banner Aspect Selection Link, (BASL), installed in a position away from any other general links in the same location as the banner repeating signal:

- if the BASL is present the banner will operate as a three aspect banner repeater as defined in NR/L2/SIG/30009/F210.
- if the BASL is absent the banner will operate as a two aspect banner repeater as defined in NR/L2/SIG/30009/F210.

The philosophy behind using a BASL per banner repeater signal is to allow two modes of operation without the inclusion of "redundant" data, and without the requirement for excessive numbers of interface relays with temporary

meshing for the conversion. Installing or recovering a fitted link will require a controlled design process; this should deter the arbitrary swapping between two and three aspect modes once commissioned, but will allow a quick controlled method of switching over. The control tables will reflect both banner repeater sequences and the method of switching between the two modes of operation and the trackside design will show if the BASL is fitted. This will allow testers to fully principles test both sequences prior to commissioning. The use of the BASL will allow the signal to be commissioned in either mode after having been tested in both modes.

The SSI data will be capable of driving the banner repeater as either a two or a three aspect banner repeater depending on whether the BASL is present or not.

If an area is designated as a three aspect banner repeater area, the failure mode of the BASL will revert to the NR/L2/SIG/30009/F210 two aspect controls and not to the typical banner lamp or controls described in SSI8003-67.

A fault message will be generated by the Technician's Terminal if the BASL is not present, i.e. the banner repeater is operating in two aspect mode as defined in NR/L2/SIG/30009/F210, however the signaller will not be made aware.

5.2 Degraded Mode Working

NR/L2/SIG/30009/F210 has rephrased most of the controls that were documented in NR/L2/SIG/30009/F220 for Degraded Mode Working, but has changed one, this section compares the two standards to highlight changes.

'In the event of a banner repeater failing to light, no attempt shall be made to revert to an alternative aspect on the banner repeater.'

This statement has not changed.

F220 stated:

'The loss of an On aspect in any banner repeater will cause signals in rear to be held at danger.'

This has been reworded in F210 as:

'Failure of a banner to display an on indication shall result in the signal in rear being held at red.'

F220 stated:

'When a three aspect repeater is attempting to display a white off indication but has failed to light, the signal(s) in rear should be restricted to no better than single yellow.'

'When a two aspect repeater is attempting to display a white off indication but has failed to light, the signal(s) in rear may display their normal aspect sequence in line with GK/RT0060. In areas where three aspect repeaters are