



AUSTRALIAN RAIL TRACK CORPORATION

INFRASTRUCTURE, STRATEGY AND PERFORMANCE

Engineering Standards and Documents

The following recommendation, together with attached supporting documentation, has been considered by the Manager Standards & Systems on 30th November 2006.

Documents:

Ref No:	08-08-10-042 Systems & Equipment Approval
Subject:	'Westinghouse Rail Systems Australia' LED Banner Repeater signal units
Dated:	29 th November 2006.

Prepared By: Arthur Haberlin, Signalling Engineer

Endorsed by: Trevor Moore, Signalling Standards Engineer

Items Considered for Approval:

Manufacturer:	Westinghouse Rail Systems Australia.
Product:	LED Banner Repeater signal unit (3 aspect H, UQ, V, White band)
Item Identification:	Cat. No. 1200103201

The items in the form they were presented at the review date were approved for System & Equipment Approval to be used on all ARTC jurisdictions in accordance with the manufacturers published performance criteria and subject to the following.

Relevant ARTC Specifications:

Ref. No.	Title	Status	Date
SPS 02	Environmental Conditions	Issue 1 Revision 2	May '05
SPS 05	Electrical & Electronic Components (Ratings & Construction Requirements)	Issue 1 Revision 3	May '05

Specific Conditions of Approval:

- i. For use in accordance with ARTC standard typical circuits which shall be developed and approved specifically for Banner Repeater signals applied to Victorian Speed Signalling system only.
- ii. Repeater shall be sighted or controlled such that an approaching train cannot see a repeater aspect showing proceed when a short train is between the repeater and the parent signal.
- iii. Minimum drop away of any aspect current sensing element in the interlocking equipment shall be $\leq 25\text{mA}$ ($\leq 35\text{mA}$ with extra resistors drawing $\leq 20\text{mA}$).
- iv. May be used within the Victorian Jurisdiction only.
- v. All LED banner repeater light units shall be scheduled for routine replacement after 10 years in service.
- vi. Maintenance schedules for sites with these units installed shall include requirements to note the number of failed LEDs in each aspect and arrange for replacement when 30% failed (before failure alarm is activated).
- vii. All banner repeater signal heads at a site (included in the same circuit book), which use LED signal light units, shall use units from one supplier's range.
- viii. Operations and Safeworking procedures, including meaning of indications and procedures in event of failure, shall be published before the equipment is commissioned.
- ix. For trial use within the geographical area of Victoria between North Geelong (72.1 km) and Gheringhap (83.3km) only.

Certificate Issued to:

Westinghouse Signals Australia
179-185 Normanby Rd.
South Melbourne Vic. 3205

A general condition of approval is that the supplier remains accredited to ISO 9001 specifically for these products and ARTC is advised on a 12 monthly basis that accreditation is current. ARTC reserves the right to conduct its own audit of the manufacture and supply of these components to AS 19011:2003.

Any subsequent change to the design, materials or manufacturing process is not covered by this approval.

Approved for use in the ARTC.



John Cowie

APPROVAL No: 08-08-10-042

Manager Standards & Systems

Approval Date: **30th November 2006**