



## AUSTRALIAN RAIL TRACK CORPORATION

### INFRASTRUCTURE, STRATEGY AND PERFORMANCE

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#### **Engineering Standards and Documents**

The following recommendation, together with the attached supporting documentation, has been considered at the ARTC Safety Committee Meeting held on 12<sup>th</sup> December 2005.

#### ***Documents:***

Ref No:	<b>08-08-10-021</b> - Systems & Equipment Approval
Subject:	'Westinghouse Signals Australia' RM4 range of LED signal light units
Dated:	22 <sup>nd</sup> November 2005.

Prepared By: Arthur Haberlin, Signalling Engineer

Endorsed by: Trevor Moore, Signalling Standards Engineer

#### ***Items Considered for Approval:***

Manufacturer:	Westinghouse Rail Systems Australia.
Product:	LED signal light units
Item Identification:	See list <b>02-0511-015a</b> .

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	Issue1 Revision 2	May '05
SPS 05	Electrical & Electronic Components (Ratings & Construction Requirements)	Issue 1 Revision 3	May '05
SPS 11	Light Signals	Issue1 Revision 3	May '05

*Specific Conditions of Approval:*

- i. For use in accordance with ARTC specification SDS 25 and standard typical circuits only.
- ii. Not suitable for use in tunnels.
- iii. Requires isolation of non-urgent alert (filament failure) circuitry to interlocking if previously installed.
- iv. All RM4 light units shall be scheduled for routine replacement after 12 years in service.
- v. 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 60% failed (before failure alarm is activated).
- vi. Only components from the list in **02-0511-015a** may be utilised.
- vii. Green light unit serial no. less than 709332 not to be used for new works or maintenance replacements.
- viii. All main 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.

*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.

**APPROVAL No: 08-08-10-021**



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John Cowie  
Manager Standards & Systems



**AUSTRALIAN RAIL TRACK CORPORATION LTD**

Ref No: 02-0511- 015a

Date: 22<sup>nd</sup> November 2005

**System & Equipment Approval**

**Subject: ‘Westinghouse Signals Australia’ RM4 range of LED signal light units**

The following lists the individual types (by catalogue number) of LED signal light units manufactured by Westinghouse Australia which are approved for use in signalling circuits on ARTC infrastructure under System & Equipment Approval Certificate **08-08-10-021** subject only to any conditions shown on that Certificate and the Conditions of Use shown against individual types.

Catalogue No.	Aspect	Type Description	Conditions of Use
RM4 Extended Range Mainline			Sighting distance $\geq$ 2.3km.
RCFB85 -(A or B)#	200mm	Red - LED lamp unit.	¶ Minimum drop away for ‘lamp proving’ current sensing element shall be; $\geq$ 20mA ( $\geq$ 35mA with extra resistors drawing $\leq$ 20mA load) for -A; $\geq$ 180mA ( $\geq$ 260mA with extra resistors drawing $\leq$ 150mA load) for -B.
YCFB85 -(A or B)#	200mm	Yellow - LED lamp unit.	
GCFB85 -(A or B)#	200mm	Green - LED lamp unit.	
RM4 Long Range Mainline			Sighting distance $\geq$ 1.0km.
RCFB75 -(A or B)#	200mm	Red - LED lamp unit.	¶ Minimum drop away for ‘lamp proving’ current sensing element shall be; $\geq$ 20mA ( $\geq$ 35mA with extra resistors drawing $\leq$ 20mA load) for -A; $\geq$ 180mA ( $\geq$ 260mA with extra resistors drawing $\leq$ 150mA load) for -B.
YCFB75 -(A or B)#	200mm	Yellow - LED lamp unit.	
GCFB75 -(A or B)#	200mm	Green - LED lamp unit.	
WCFB75 -(A or B)#	200mm	White - LED lamp unit.	As ¶ above. May be used as Standard Range Mainline if required beam spread $\leq$ $\pm$ 11°.
WCFB85 -A or B	200mm	White - LED lamp unit.	As ¶ above. Sighting distance $\geq$ 1.5km.



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Catalogue No.	Aspect	Type Description	Conditions of Use
RM4 Standard Range Mainline			Sighting distance $\geq$ 0.5km.
RCFB25 -(A or B)#	200mm	Red - LED lamp unit.	¶ Minimum drop away for 'lamp proving' current sensing element shall be; $\geq$ 20mA ( $\geq$ 35mA with extra resistors drawing $\leq$ 20mA load) for -A; $\geq$ 180mA ( $\geq$ 260mA with extra resistors drawing $\leq$ 150mA load) for -B.
YCFB43 -(A or B)#	200mm	Yellow - LED lamp unit.	
GCFB25 -(A or B)#	200mm	Green - LED lamp unit.	
RM4 Short Range Aspect			Sighting distance $<$ 0.5km
WCFB25 -(A or B)#	200mm	White - LED lamp unit.	As ¶ above. May be used as Standard Range Mainline if required sighting distance $\leq$ 300m.

# -A for 110v to 120v AC operation; -B for 10v to 12v DC operation.