



AUSTRALIAN RAIL TRACK CORPORATION LTD

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**Discipline**  
**Engineering Standard – NSW**

**Category**  
**Signalling**

**Title**  
**Cables for Railway Signalling Applications - High Frequency Screened Track Circuit Cables.**

**Reference Number**  
**SPS 48 - (RIC Standard: SC 11 11 13 00 SP)**

**Document Control**

<b>Status</b>	<b>Date</b>	<b>Prepared</b>	<b>Reviewed</b>	<b>Endorsed</b>	<b>Approved</b>
Issue 1 Revision 3	May 05	Standards and Systems	Standards Engineer	GM Infrastructure Strategy & Performance	Safety Committee
		Refer to Reference Number	H Olsen	M Owens	Refer to minutes of meeting 12/08/04

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## **About This Standard**

This Specification describes the technical requirements for data cables used for railway signalling track circuits operating at audio frequencies. These cables are used extensively in the NSW railway network in audio frequency track circuits. These cables are also being used for Impulse track circuits.

This document details the specification for the manufacture of this cable. Screenings against electro-magnetic and electro-static effects and mechanical protection have been specified.

## Document History

**Primary Source** – RIC Standard SC 11 11 13 00 SP Version 3.0

### List of Amendments –

<b>ISSUE</b>	<b>DATE</b>	<b>CLAUSE</b>	<b>DESCRIPTION</b>
1.1	01/09/2004		Reformatting to ARTC Standard
1.2	14/03/2005	Disclaimer	Minor editorial change
1.3	06/05/2005	All	Document reformatted

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## 1. Introduction

This Specification describes the general requirements for single pair shielded cables, to be manufactured and supplied to Australian Rail Track Corporation for the use in signalling applications in the NSW rail network.

The cable shall consist of 2 x 7/0.50mm White, Black PVC/Aluminium shield/Black PVC/Nylon (core colours White & Black)

Specification SPS 40 Cables for Railway Signalling Applications - General Requirements shall form part of this Specification.

## 2. Applicable Documents

### 2.1 Australian Standards

This Specification refers to the following Australian Standards:

AS 1125: Conductors in Insulated Electric Cables and Flexible Cords

AS 5000-1999 Electric Cables – Polymeric insulated for working voltages up to and including 0.6/1KV

### 2.2 ARTC Specifications

This Specification refers to the following Australian Rail Track Corporation Specifications:

Specification SPS 40: Cables for Railway Signalling Applications-General Requirements

## 3. Ratings

### 3.1 Voltage

Voltage rating shall be 0.6/1KV.

### 3.2 Maximum Continuous Conductor Temperature

75 C

## 4. Construction

### 4.1 Length

Length shall be as specified in Specification SPS 40 Cables For Railway Signalling Applications - General Requirements

### 4.2 Conductor

The conductor shall be annealed, un-tinned, high conductivity copper consisting of seven (7) strands of 0.5mm wire laid up with a length of lay between 28 and 45mm.

### 4.3 Insulation

Each conductor shall be individually insulated with V75 P.V.C. to a nominal radial thickness of 0.8mm. One conductor shall be coloured black, the other white.

#### **4.4 Twisting**

Conductors shall be laid up with a lay as short as good construction will permit but not exceeding 50mm.

#### **4.5 Screen**

The laid up cores are to be covered with a Polyester (Mylar) backed Aluminium tape 0.05mm thick giving 100% coverage at the prescribed minimum bending radius of the cable. A drain wire consisting of seven (7) strands of 0.25mm is to be provided continuously throughout the cable so as to give intimate electrical contact with the Polyester (Mylar) backed aluminium tape

Non-hygroscopic cable filler may be used if required.

#### **4.6 Supplementary Insulation (Sheath)**

The supplementary insulation shall be black V75 PVC. The sheath shall have a nominal thickness of 2mm but shall not be less than 1.7mm thick at any point.

#### **4.7 Nylon Covering**

A Nylon covering shall be provided, having an average radial thickness as specified in Specification SPS 40 Cables For Railway Signalling Applications - General Requirements. The nylon shall be ultra-violet stabilised type 11 or 12 and coloured black.

### **5. Identification**

#### **5.1 Marking on Cables**

Additionally, the size of the conductors shall be marked on the cables.

#### **5.2 Marking on Reels**

An additional legend "T.T. Screened Underground" shall be marked on the reels.

### **6. Tests**

In addition, the cores shall be spark tested at 6kV before laying up. The results of the tests shall be recorded in the attached test report.

### **7. Inspection & acceptance testing**

The results of the tests shall be recorded in the test report specified in Specification SPS 40 Cables For Railway Signalling Applications - General Requirements.

Inspection and acceptance test procedure shall be as detailed in Specification SPS 40.