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Date:	1 December 2008
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Level 2

Product Specification for Telecoms Jumper Wire

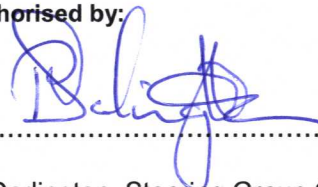
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Issue record

Issue	Date	Comments
1	December 2008	Original

Compliance

This Network Rail product specification is mandatory and shall be complied with by Network Rail and its contractors by 1st March 2009 for all new purchases. Existing stocks of jumper wire compliant with CW1257 and CW1423 issue 1 (with tinned copper conductor) may be used until the stocks have been exhausted.

Reference documentation

CW1423 (Issue 2)	British Telecommunications Plc Specification For Wire Jumper 9000
BS EN 610:1996	Tin and tin alloys. Ingot tin
BS EN 60228:2005	Conductors of insulated cables
BS 2782-9: Method 901 A	Plastics - Compression moulding test specimens of thermoplastic materials

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1 Purpose

This product specification details the requirements for single twisted pair telecommunications jumper wires which are suitable for use on Network Rail's telecommunications infrastructure.

2 Scope

This product specification is based on a BT specification for COTS jumper wires, with additional requirements. The additional requirements provide Network Rail with products which are suitable for use at environmentally controlled and non-environmentally controlled locations.

The jumper wire product approval certificate shall detail the distributors from which jumper wires can be purchased.

3 Definitions

BT

British Telecommunications Plc

COTS

Commercially Off The Shelf

Jumper wire

Generally a pair of twisted insulated solid core wires used to connect telecommunications circuits from one telecommunications cable to another telecommunications cable or equipment termination.

4 Specification

Issue 2 of BT CW1423, for 0.5mm solid bare copper conductor jumper wires forms the base line upon which the following are additional requirements;

- The bare copper conductors specified within BT CW1423 issue 2 shall be uniformly electroplated with pure tin. The quality of the tin shall comply with BS EN 610:1996, grade T2.
- The thickness of the tinning shall be demonstrated by compliance with the Tinning Test as specified in BS 6360:1991, where the persulphate value shall be less than or equal to 3g/ m^2 .
- The insulation shall be marked with a permanent black band of $3\pm 1\text{mm}$ wide, repeated every $9\pm 1\text{mm}$ on each leg. See figure 1. The black bands provide visual indication to Network Rail that jumper wire compliance with this specification has been used on the installation

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Figure 1: Banding on jumper wires

5 Product Approval.

Products for approval shall demonstrate compliance with BT CW1423, issue 2, and the requirements of this specification including the test plan requirements within Appendix A.

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Appendix A:

Jumper Wire Product Acceptance Requirements

A1: Testing for compatibility and suitability with cable termination practices commonly used by Network Rail

The list below is an indication of the termination practices commonly used by Network Rail;

- a. Krone LSA-PLUS series 2 disconnection module
- b. Porta Systems UD3 10 pair IDC module
- c. Mondragon VX module
- d. BT 50 pair Solder Tag Block
- e. Entrelec 115 120 17-M10/10 Block
- f. Weidmuller Type ST5 termination block
- g. 2BA sliding link termination block

To demonstrate compatibility and suitability, the high voltage insulation breakdown test and the conductor insulation resistance test should be conducted on all the identified termination practices in accordance to the set up in figure 2.

Figure 2 is the baseline test setup with the various termination practices. The 3m length of jumper wire shall be managed via the 4 jumper rings and tensioned as per a normal installation (not bow string tight and not loose from excessive slack). Two 1m lengths of jumper wire shall be used to connect from each type of termination practice giving an overall length of 5m.

Photos shall be taken to record the jumper wire testing set up.

Four samples shall be tested for each of the termination practice.

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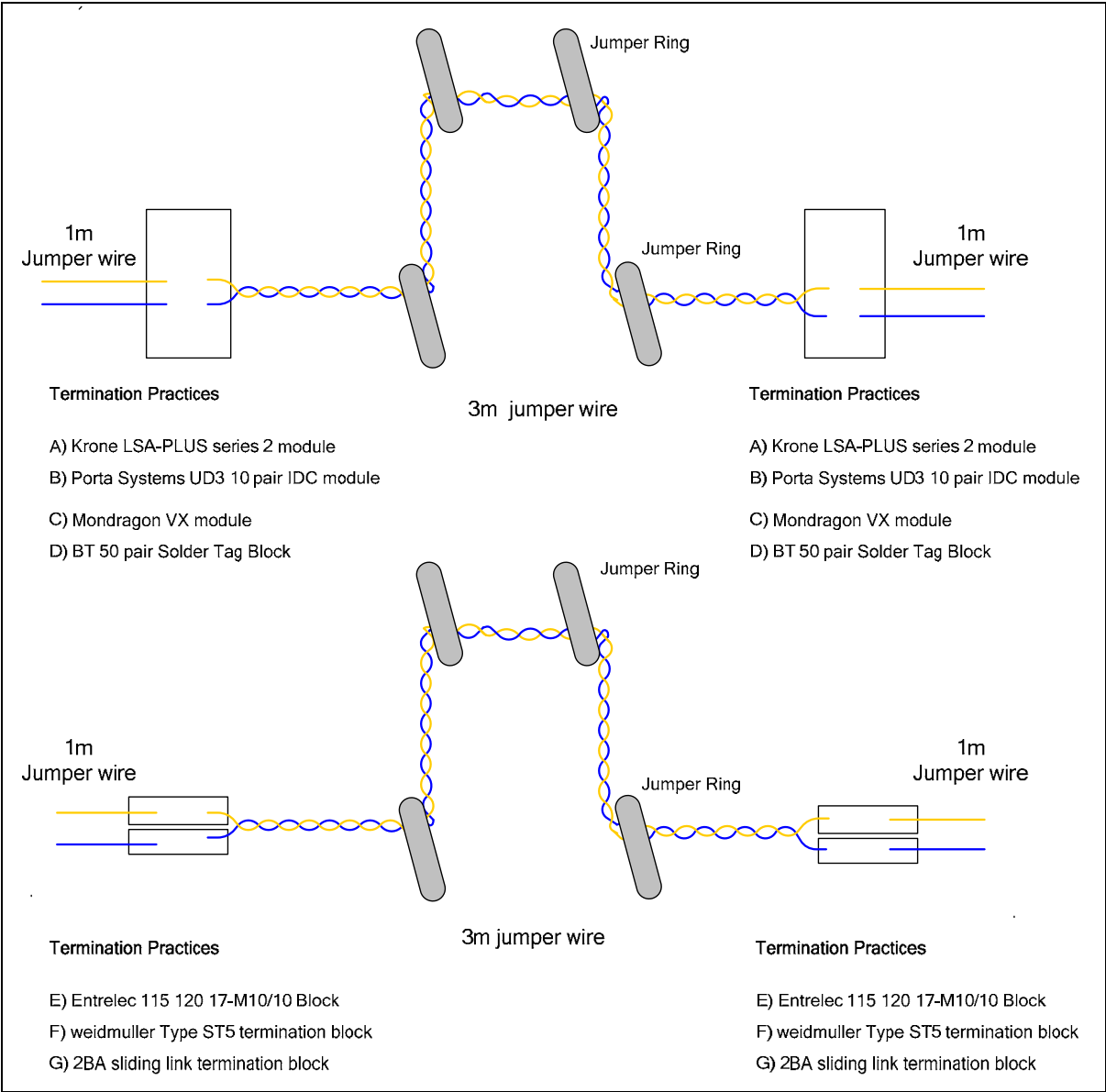


Figure 2

Leg to Leg Insulation Resistance Test

This test requires the use of a suitable megohmmeter to charge the jumper wire to a potentially dangerous voltage level. Only competent person shall conduct this test.

The insulation resistance test shall be performed between the legs of the jumper wire via the termination practices. The legs shall be charged at 500V DC for 1 minute to 5 minutes until the megohmmeter reading shows a stable measurement for no less than 30 seconds.