COMPLIANCE TESTING REPORT FOR AUSTRALIAN STANDARD AS/CA S008:2010 INCLUDING AMENDMENT NO 1/2014 REQUIREMENTS FOR CUSTOMER CABLING PRODUCTS

Client:	Siemens Limited
Address:	885 Mountain Highway, Bayswater, Victoria 3153, Australia
Report Number:	1128SIEPC28S-CAT7_S008
Date of Testing:	16 November to 17 November 2017
File Number:	SIE171023
Product Name:	Elevator Cable
Brand Name	SIEMENS
Product Model No:	PC28S-CAT 7 (106329629)
Product Description:	4(2x0.5)+2(4x2x0.14)+4x1.5 + Steel Support
Result:	**Complies**
Compiled by:	Zhimou Qin Testing Engineer
Approved by:	Nina Rodoreda Lab supervisor
Date of Issue	28 November 2017

*** Refer to summary page for any conditions.**

SUMMARY OF COMPLIANCE WITH AUSTRALIAN STANDARD AS/CA S008:2010 (Including Amendment No 1/2014)

Elevator Cable, model number: PC28S-CAT 7 (106329629) was supplied for AS/CA S008:2010 testing by Siemens Limited of 885 Mountain Highway, Bayswater, Victoria 3153, Australia.

The Equipment Under Test (EUT) consisted of a length of Elevator Cable, consisting of two sets of four twisted pair Cat.7 data elements and four sets of single twisted pair data elements, four large power conductors, and two strain bearing members. Only the data elements were tested. Each Cat.7 data element pair was individually shielded with aluminium/PET foil. The entire Cat.7 data element was shielded with a copper braid. The conductors were stranded copper consisting of 7 strands of 0.22mm diameter copper. The conductors were insulated with Polyethylene (PE). The single twisted pair data element was individually shielded with aluminium/PET foil and a stranded drain wire. The conductors were stranded copper consisting of 16 strands of 0.19mm diameter copper. The conductors were insulated with Polyethylene (PE). The entire cable assembly was covered with PVC jacket. Please also refer to the photo in Appendix B and Product Specifications in Appendix C, at the rear of the report.

The EUT had the following sheath markings:
Siemens Australia (106329629)-PC28S Cat 6-Flat PVC Cable 4x(2x0.5)+2(4x2x0.27)+4x1.5 + steel support 000118M

The client has advised the production versions of the cable will have the corrected sheath markings as follows:

Siemens Australia (106329629)-PC28S Cat 7-Flat PVC Cable 4x(2x0.5)+2(4x2x0.27)+4x1.5 + steel support 000118M

Refer to Appendix D - Client declaration.

The requirements for labelling cable and cable products are specified in the ACMA Telecommunications Cabling (Customer Equipment and Customer Cabling) Notice.

The Elevator Cable, model number: PC28S-CAT 7 (106329629) **COMPLIES** with the tested clauses of AS/CA S008:2010.

SPECIAL CONDITIONS FOR COMPLIANCE:
The cable must comply with Clause 5.6.3 requirements for insulation and sheath materials.

This cable is compliant for indoor use only.

Possible Test Case Verdicts:

- test case does not apply to the test object .....N(.A)
- test object does meet the requirements .....P(ass)
- test object does not meet the requirements .....F(ail)
- testing was not performed.....NT
- noted.....ND

AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
5.	REQUIREMENTS		P
5.1	GENERAL Cabling products shall be physically distinguishable from products used for distribution or connection of AC mains supply.		P
5.2	MARKINGS		P
5.2.1	Labelling Notice		ND
5.2.2	Inappropriate markings Cabling products intended solely for telecommunications use shall not bear markings indicating hazardous services.		P
5.2.3	Additional markings (excluding cable markings)		N
5.2.3.1	International protection (IP) rating		N
5.2.3.2	Multidiscipline telecommunications connecting hardware		N
5.3	UNDERGROUND CONDUIT		N
5.4	CABLE DISTRIBUTION DEVICES		N
5.5	OPTICAL FIBRE DISTRIBUTION DEVICES AND ENCLOSURES Optical fire distribution devices and splice enclosures shall comply with AS/NZS 2211.1		N

AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
5.6	CABLES		P
5.6.1	General A customer cable shall meet the requirements of Clauses 5.6.2 to 5.6.9 where specified in Clauses 5.6.10 to 5.6.18 of this Standard.		P
5.6.2	Conductor and optical fibre identification Shall use a system of identification such that all conductors, coaxial tubes or optical fibres within the cable are readily distinguishable visually form one another.	Cat.7: 4 twisted pairs. Pairs are identified as: Blue, orange, green and brown. The matching mate in the twisted pair is white insulation. Twisted pair: 4 sets of twisted pairs. Pairs are identified as: Blue, orange, green and brown. The matching mate in the twisted pair is white insulation.	P
5.6.3	Insulation and sheath material		NT
	(a) shall use insulation and sheath materials suitable for telecommunications purposes;	PE insulation PVC sheath	ND
	(b) Where PVC insulation or sheath materials are used, they shall comply with the requirements of Table 1 or 2, as applicable: and		NT
	Table 1 - PVC Insulation Requirements Tensile strength (unaged): 13 MPa Elongation (unaged): 100% Elongation (Aged): 50% of initial after 100C at 120h Volatile Loss: 20 g/m2 after 80C aging for 120h Volume Resistivity: 400GΩ m at 23C, 0.4GΩ m at 60C		N
	Table 2 - PVC Sheath Requirements Tensile strength (unaged): 12 MPa Elongation (Unaged): 100% Elongation (Aged): 50% of initial after 100C at 120h Volatile Loss: 20 g/m2 after 80C aging for 120h		NT
	(c) Where non-PVC insulation or sheath materials are used, they shall comply with the requirements of AS 1049 for-		NT
	(i) Tensile Strength Test (Aged/Unaged);		NT

AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
	(ii) Elongation Test (Aged/Unaged); and		NT
	(iii) Shrinkback Tests for that particular type of insulation and sheath.		NT
5.6.4	Flammability A cable that is required to comply with this Clause shall pass the combustion propagation test of Method 5.6 including Appendix A and B of AS 1660.5.6.	Refer to table in Appendix A.	P
5.6.5	UV resistance Requirements of AS 1049 for cables exposed to UV radiation.		N
5.6.6	Metallic conductors		P
5.6.6.1	Conductor composition Any metallic conductors, other than copper-clad steel used as an inner conductor in coaxial cable, or copper-clad aluminium with a centre conductor greater than 2mm used as an inner conductor in coaxial cable- (1) shall be either plain or plated copper; (2) may be either a single, solid conductor or multi-stranded; (3) the DC resistance shall be less than the values given in Table 3; and (4) the conductor finish should be plain or tinned	Cat.7: Requirement: 82.64Ω/km max. Measured: 69.29Ω/km Twisted pair: Requirement: 48.48Ω/km max. Measured: 38.05Ω/km All pairs measured and average calculated.	P
5.6.6.2	Electrical withstand voltage A multi-conductor cable that is required to comply with this Clause by any of Clauses 5.6.10 to 5.6.18 of this Standard, when tested at a frequency of 50 Hz on at least 1 m length; (a) shall be able to withstand the appropriate AC voltage levels and test method listed in Table 4, without breakdown for a period of 60 s or a period of 2 s as stated; and (b) for Test 2 and 3, all cables/cordages shall comply to the Table 4 limits using the test specified in AS/NZS 3191 Table 2.1, test number 8(a), and using test method referred in Clause 3.5.1 of AS/NZS 1660.3.		P

AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
5.6.6.3	Mutual capacitance (a) The maximum mutual capacitance between the two wires forming a pair measured at any frequency in the range 800 Hz to 1000 Hz shall not exceed the relevant value given in table 5. (b) The measurement, referred to in Clause 5.6.6.3 (a) shall be performed on a minimum cable length of 100m (c) The mutual capacitance shall be corrected to a length of 1000m	Cat.7 requirement: 120 nF/km max. Measured: 46.17 nF/km Twisted pair requirement: 120 nF/km max. Measured: 75.05 nF/km	P
5.6.6.4	Capacitance unbalance (a) The maximum capacitance unbalance between pairs measured at any frequency in the range 800 Hz to 1000 Hz shall not exceed the relevant value given in Table 5. (b) During the measurement referred to in Clause 5.6.6.4 (a), all conductors, other than those under test and the metallic shield (where applicable) shall be connected to earth. (c) The measurement shall be performed on a minimum cable length of 100m. (d) The capacitance unbalance between two pairs of wires with one pair designated ‘A’ and ‘B’ and the second pair designated ‘C’ and ‘D’. (e) The capacitance unbalance shall be corrected to a length of 500m.	Cat.7: Requirement: 300 pF per 500m max. Measured: 0 pF per 500m Twisted pair: Requirement: 300 pF per 500m max. Measured: -22.32 pF per 500m	P
5.6.6.5	Insulation resistance (a) shall not be less than the relevant value given in Table 5; (b) the measurement shall be made on a minimum length of 100m of cable or cordage at a potential of 500Vd.c. ±50Vd.c. and the reading taken after the application of the voltage for 60s; and (c) the insulation resistance shall be corrected to a length of 1000m.	Cat.7 requirement: 1000 MΩ/km min Measured: > 1000 MΩ/km Twisted pair requirement: 1000 MΩ/km min Measured: > 1000 MΩ/km	P
5.6.7	Metallic shield (a) any shield provided in the cable shall be electrically continuous; and (b) Where a foil shield is employed, a drain wire shall be placed in continuous contact with the metallic surface of the shield.	 Foil shield and Braid provided	P P P
5.6.8	Water penetration test Water Penetration specified in Clause 25, Method-F5B of IEC 60794-1-2.		N

AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
5.6.9	Integral bearer or strengthener		N
5.6.10	Cable with specific attributes Where a cable is claimed to have specific attributes, such as rodent or termite resistance or armouring strength, evidentiary documentation shall be made available on request to support the claim.		N
5.6.11	Metallic paired cable		P
5.6.11.1	General requirements Metallic paired cable, other than cordage, a cord or a special application cable, shall comply with the following Clauses: 5.6.2, 5.6.3, 5.6.4, 5.6.5, 5.6.6.1, 5.6.6.2, 5.6.6.3, 5.6.6.4, 5.6.6.5, 5.6.7, 5.6.8 and 5.6.9.		P
5.6.11.2	Construction A cable intended to carry a frequency of 300 Hz or greater shall be shielded or of twisted pair construction.		P
5.6.12	Cordage with metallic conductors		N
5.6.13	Cords with metallic conductors		N
5.6.14	Metallic jumper wire and jumper cable		N
5.6.15	Coaxial cable		N
5.6.16	Optical fibre cable		N
5.6.17	Blown fibre tube systems		N
5.6.18	Special application cables		N
5.7	CONNECTING HARDWARE, INCLUDING PLUGS AND SOCKETS OF ALL DESIGNS		N
5.8	CABLING PRODUCTS FOR UNDERGROUND AND AERIAL INSTALLATIONS		N

****** END OF REPORT BODY ******

Appendix A – Additional Test Data
Appendix B – Photographic Record of Sample
Appendix C – Product Specifications provided by the client
Appendix D – Client declaration

Appendix A – Additional Test Data

5.6.4	TABLE: Flammability Test	P

No	Object	Duration of application of flame (S)	Time object remained alight after removal of flame (S)	Time until ignition of tissue paper (S)	Time until ignition of particle board (S)	Ignition of tissue paper	Particle board scorching	Extent of burning upwards (mm)*	Extent of burning downwards (mm)*	Result
1	PC28S-Elevator Cable	120 sec	5 sec	NI	NI	NI	NI	155 mm	510 mm	Pass

* Measured from lower edge of upper clamp. Start of burn was 475 mm from upper clamp. Limit for upward burn is > 50 mm and limit for downward burn is <540 mm from upper clamp (AS 1660.5.6).

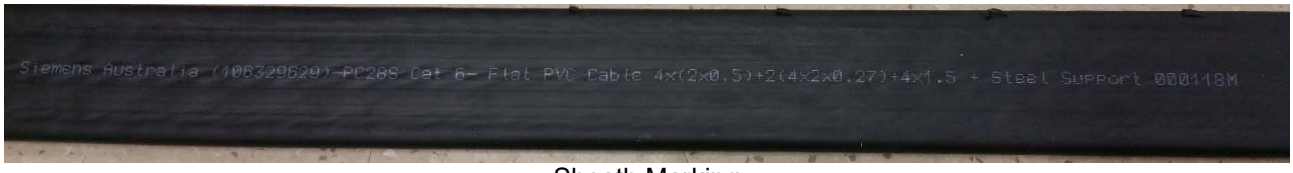
LEGEND	
P	Pass
F	Does not comply
NA	Not applicable
NI	No ignition

NOTE:
INDIVIDUAL ITEMS OF THIS TEST REPORT SHOULD NOT BE QUOTED IN ISOLATION AS PROOF OF PRODUCT ACCEPTABILITY NOR APPLIED TO DIRECTLY ASSESS PERFORMANCE UNDER CONDITIONS OTHER THAN AS ENVISAGED BY THE REFERENCE SPECIFICATION, E.G. INDIVIDUAL FIRE TESTS TO PROVE AN OVERALL ACCEPTABLE FIRE HAZARD LEVEL.

Appendix B – Photographic Record of Sample

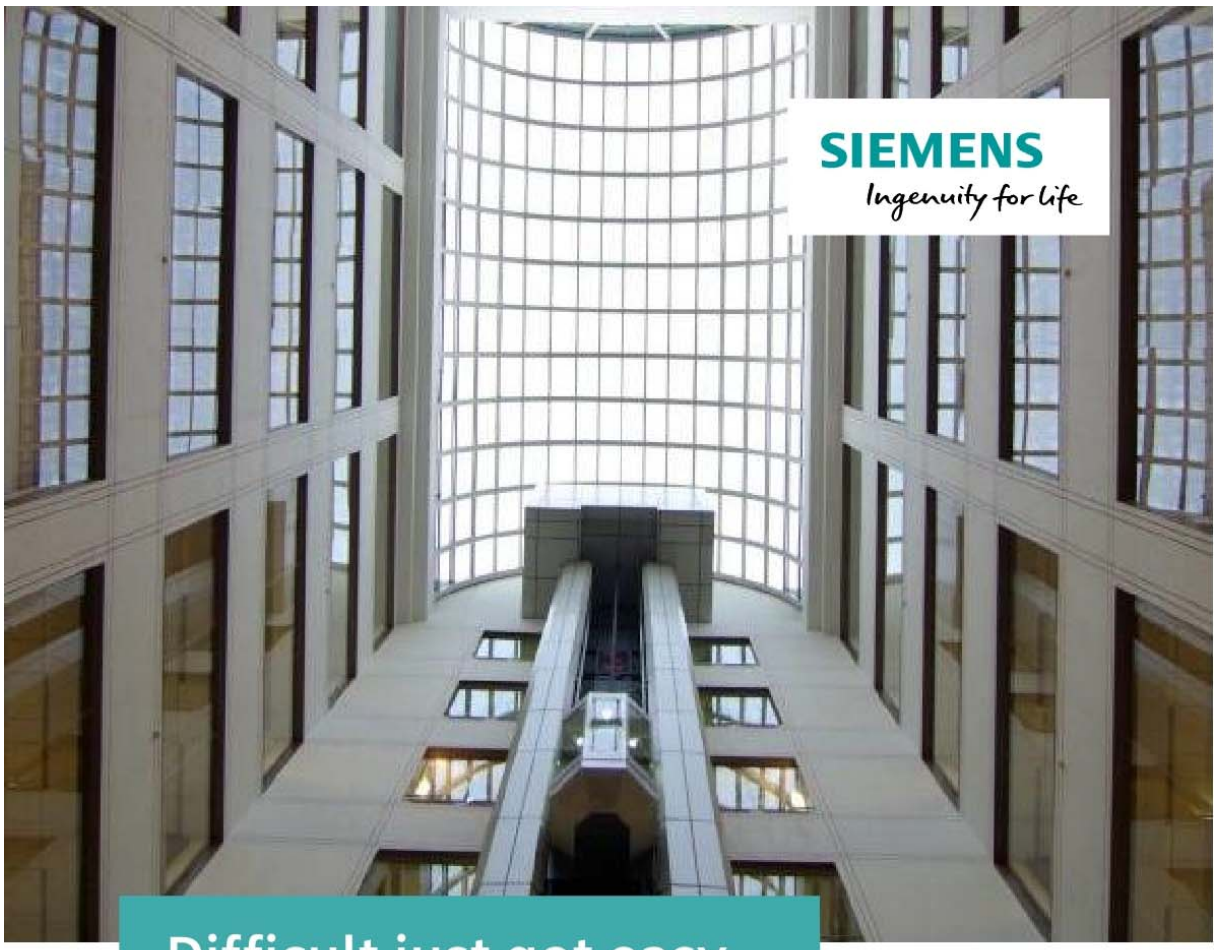
Cable - Insulation

Cable – Copper Conductors



Sheath Marking

Appendix C – Product Specifications provided by the client



Difficult just got easy

We provide the industry with high-quality elevator cables, backed by decades of experience in the Australian market.

Our cables have been developed to provide optimum performance, maximum safety and extended life for applications requiring power and control.

Features include ease of installation for high levels of efficiency, and options for maintenance, service and modernisation.

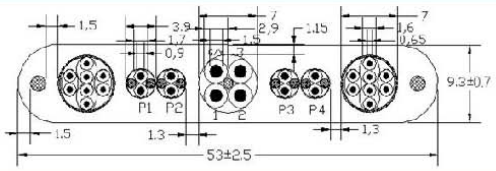
For more information visit:
www.siemens.com.au/auto-cables

PC28S-CAT 7
Flat Travelling Cable

- Compatible with all current Cat 7 compliant connecting hardware
- Industry compatible construction and design
- Applications such as CCTV, swipe cards, security, card readers, telephone and display screens
- Capacity to provide application to multiple devices in one single cable
- Adheres to CAT 6 and CAT 7 wiring codes
- AUSTEST AS/CA S008:2010 Approvals

www.siemens.com.au/auto-cables

Appendix C – Product Specifications provided by the client

Siemens Part Number	106329629	
Cable	PC28S-CAT 7	
Suspension Device	FCSD-3 100205441	Flat cable suspension device to suit PC28S

Specification			4 x1.5+4x2x0.5+2(4x2x0.27) + Steel Support	
Standard reference			EN 50214-2006, GB/T5023.6-2006, IEC /EN60227-6	
Strain bearing member			2 xΦ1.8mm steel rope	
Conductor	Material		Bare CU conductor (Class 5) according IEC 60228	
	Nominal area	mm^2	1.5	
	Conductor resistance	Ω/km	Max .13.3 at 20℃	
	Quantity		4	
Insulation	Material		PVC	
	Normal thickness	mm	0.7	
	Insulation resistance	MΩ.km	Min. 0.11 at 70℃	
	Identification		Black with White numbered 1~3,G/Y	
Data elements	Type		Cat.7	Twisted Pair
	Quantity		2	4
	Conductor	mm^2	0.27	0.5
	Conductor resistance	Ω/km	Max.69	Max .39
	Insulation		PE	PE
	Colour		Pair 1:white-blue, Pair 2:white-orange Pair 3:white-green Pair 4:white-brown	Pair 1:white-blue, Pair 2:white-orange Pair 3:white-green Pair 4:white-brown
	Shield		AL/PET foil around each pair ,copper braid overall pairs	AL/PET foil+Drain wire
	Impedance		100 ± 5 Ω @ 100 MHz	/
	Nom. Capacitance	nF/km	43	/
	Velocity of propagation	%	76	/
Jacketing	Material		PVC	
	Normal thickness		See drawing	
Completed cable	Approximate weight	kg/km	690	
	Nominal diameter	mm	53x9.3	
	Bending Test		Min 30000 bending cycles according to EN50214	
	Min. Bending radius	mm	Static application10x cable thickness	
	Test voltage		2kV for 1.5mm2conductors,750V for data elements	
	Operating temperature	℃	-20 to +70	
	Free suspension length	m	≤100	
	Max. travelling height	m	≤180	
	Max. travelling speed	m/s	≤6.3(Acc. EN50214)	
	Acceleration	m/s2	＜1.2	

Appendix D – Client declaration

SIEMENS

Austest Laboratories
53 Latitude Blvd, Thomastown VIC
3074 Australia

Siemens Ltd
(A.B.N. 98 004 347 880)

Your Reference	Our Reference	Date
SIE171023	PC28S CAT 7	Melbourne, 28/11/17

Dear Austest,

We would like to advise that the markings on the PC28S CAT 7 cable is incorrect.

Markings are:
Siemens Australia (106329629) - PC28S Cat 6- Flat PVC Cable
4x(2x0.5)+2(4x2x0.27)+4x1.5 + Steel Support

Should be:
Siemens Australia (106329629) - PC28S Cat 7- Flat PVC Cable
4x(2x0.5)+2(4x2x0.27)+4x1.5 + Steel Support

This cable is actually CAT 7 cable as per the datasheet.

Kind Regards,

Roseann Sheridan
Business Development

Siemens Ltd.
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Unrestricted

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