

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:	0222SIEPC20_S008
Date of Testing:	8 January to 21 February 2018
File Number:	SIE171220
Product Name:	Elevator Cable
Brand Name	SIEMENS
Product Model No:	PC20 CAT 6 (105959736), PC20 CAT 6 LSOH (107127292)
Product Description:	PVC Flat Travelling Cable - PC20 CAT 6 4x1.5mm ² + 8X(2X0.22mm ²)SH + (Cat 6) Flat
Result:	Comply*
Compiled by:	Zhimou Qin Testing Engineer
Approved by:	Nina Rodoreda Lab supervisor
Date of Issue	22 February 2018

Zhimou Qin

Nina Rodoreda

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

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

The Elevator Cable, model numbers: PC20 CAT 6 (105959736) and PC20 CAT 6 LSOH (107127292) were 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. The cable consisted of eight sets of twisted pair data elements and four power conductors. Only four sets of data elements grouped on the same side of the cable were tested. Data elements (pairs one to four) of the elevator cable were tested. Each data element pair was individually shielded with aluminium/PET foil screen and tinned copper wire braiding. The conductors were stranded copper consisting of 28 strands of 0.10mm diameter copper. The conductors were insulated with Form-PE. The conductor insulation was coloured coded for identification. The entire cable assembly was covered with either PVC or LSOH jacketing. 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 on PVC jacketing version:
Siemens Australia (105959736)-PC-20 Cat 6-Flat PVC Cable 4x1.5mm² + 8x(2x0.22mm²) SH+(Cat 6) Flat 000583M

The EUT had the following sheath markings on LSOH jacketing version:
Siemens Australia 107127292 - PC-20 Cat 6-Flat Halogen Free 4x1.5mm² + 8x(2x0.22mm²) SH+(Cat 6) Flat 000184M

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 numbers: PC20 CAT 6 (105959736), PC20 CAT 6 LSOH (107127292) **COMPLY** 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 objectN(.A)
- test object does meet the requirementsP(ass)
- test object does not meet the requirementsF(ail)
- testing was not performedNT
- notedND

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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

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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 from one another.	The data elements were coloured coded	P
5.6.3	Insulation and sheath material		NT
	(a) shall use insulation and sheath materials suitable for telecommunications purposes;	Foam PE insulation PVC or LSOH 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
	(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

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AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
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	Requirement: 100 Ω /km max. Measured: 83.46 Ω /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
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	Requirement: 120 nF/km max. Measured: 45.45 nF/km	P

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AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
5.6.6.4	<p>Capacitance unbalance</p> <p>(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.</p> <p>(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.</p> <p>(c) The measurement shall be performed on a minimum cable length of 100m.</p> <p>(d) The capacitance unbalance between two pairs of wires with one pair designated 'A' and 'B' and the second pair designated 'C' and 'D'.</p> <p>(e) The capacitance unbalance shall be corrected to a length of 500m.</p>	<p>Requirement: 300 pF per 500m max.</p> <p>Measured: -88.09 pF per 500m</p>	P
5.6.6.5	<p>Insulation resistance</p> <p>(a) shall not be less than the relevant value given in Table 5;</p> <p>(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</p> <p>(c) the insulation resistance shall be corrected to a length of 1000m.</p>	<p>Requirement: 1000 MΩ/km min</p> <p>Measured: > 1000 MΩ/km</p>	P
5.6.7	<p>Metallic shield</p> <p>(a) any shield provided in the cable shall be electrically continuous; and</p> <p>(b) Where a foil shield is employed, a drain wire shall be placed in continuous contact with the metallic surface of the shield.</p>	<p>Foil shield and Braid provided</p>	<p>P</p> <p>P</p> <p>P</p>
5.6.8	<p>Water penetration test</p> <p>Water Penetration specified in Clause 25, Method-F5B of IEC 60794-1-2.</p>		N
5.6.9	Integral bearer or strengthener		N
5.6.10	<p>Cable with specific attributes</p> <p>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.</p>		N

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AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
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

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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	PC20 PVC	120 sec	61 sec	NI	NI	NI	NI	220 mm	500 mm	Pass
2	PC20 LSOH	120 sec	175 sec	NI	NI	NI	NI	250 mm	485 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.

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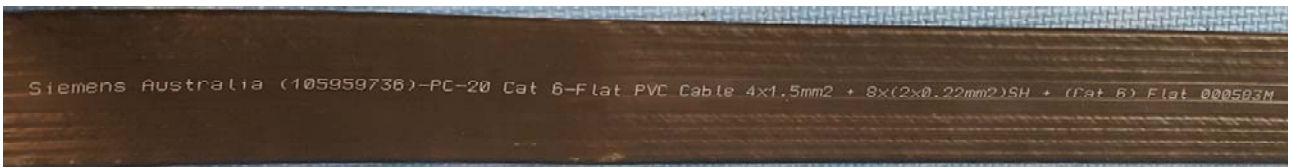
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Appendix B – Photographic Record of Sample



Cable



Sheath marking (PVC)



Sheath marking (LSOH)

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Appendix C – Product Specifications provided by the client

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

**PC20-CAT 6
Flat Travelling Cable**

- Compatible with all current Cat 6 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 wiring codes
- AUSTEST AS/CA S008:2010 Approvals

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Appendix C – Product Specifications provided by the client

Siemens Part Number	105959736	
Cable	PC20-CAT 6	
Suspension Device	FCSD-3 100205441	

Specification		4x1.5+8x(2x0.22)	
Standard reference		EN 50214-2006, GB/T5023.6-2006, IEC /EN60227-6	
Conductor	Material		Bare CU conductor (Class 5) according IEC 60228
	Nominal area	mm ²	1.5
	Conductor resistance	Ω/km	Max.13.3
	Quantity		4
Insulation	Material		PVC
	Normal thickness	mm	0.7
	Insulation resistance	MΩ.km	Min. 0.11
	Identification		Black with White numbered 1~3,G/Y
Data elements	Type		Cat.6 shielded pairs
	Quantity		8
	Conductor	mm ²	0.22
	Insulation		Form-PE
	Colour		Pair 1:wh-bu, Pair 2:wh-or Pair 3:wh-gn, Pair 4:wh-bn Pair 5:wh-bu, Pair 6: wh-or Pair 7:wh-gn, Pair 8: wh-bn
	Shield		AL/PET foil screen and tinned copper wires braiding
	Capacitance at 800 Hz	nF/km	Nom.43
	Impedance at 100 MHz	Ω	100 ± 5
	Velocity of propagation	%	Approx. 76
Jacketing	Material		PVC
	Normal thickness	mm	See drawing
Completed cable	Approximate weight	kg/km	370
	Nominal diameter	mm	47x5.3
	Min. Bending radius	mm	Static application10x cable thickness
	Bending Test		Min 30000 bending cycles according to EN50214
	Test voltage		2 kV for 1.5mm ² conductors
	Operating temperature	°C	-20 to +70
	Free suspension length	m	≤45
	Max. travelling height	m	≤80
	Max. travelling speed	m/s	≤4 (Acc. EN50214)
	Acceleration	m/s ²	<1.2

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Sydney Office

Brisbane Office

Perth Office

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National Contact Number

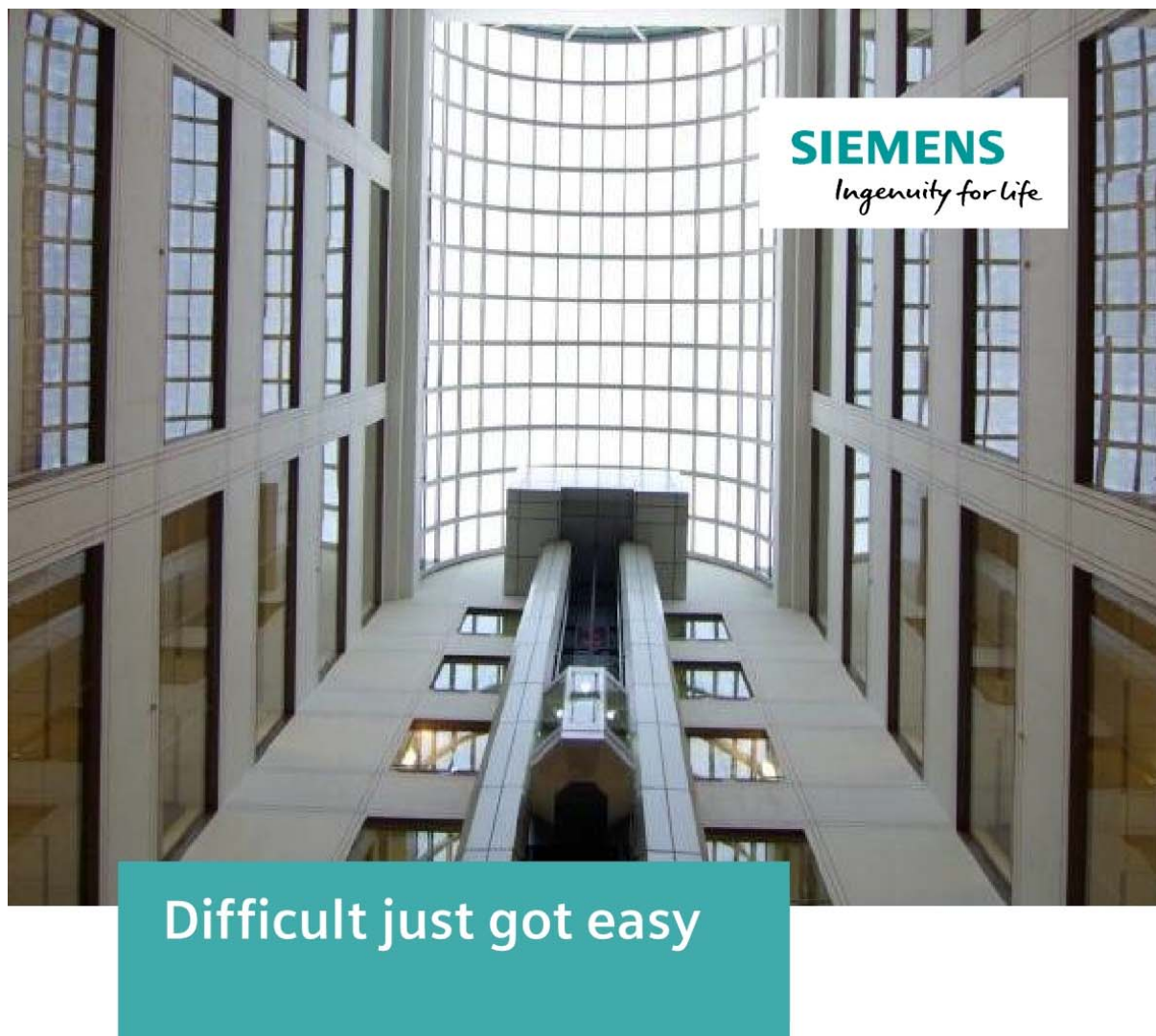
Cables: 131 773 (opt 1)

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Appendix C – Product Specifications provided by the client

Siemens Part Number	107127292	
Cable	PC20-CAT 6 HAL	
Suspension Device	FCSD-3 100205441	

Specification		4G1.5+8x2x0.22 LSOH	
Standard reference		EN 50214-2006, GB/T5023.6-2006, IEC /EN60227-6	
Conductor	Material		Bare CU conductor (Class 5) according IEC 60228
	Nominal area	mm ²	1.5
	Conductor resistance	Ω/km	Max.13.3
	Quantity		4
Insulation	Material		LSOH
	Normal thickness	mm	0.7
	Insulation resistance	MΩ.km	Min. 0.11
	Identification		Black with White numbered 1~3,G/Y
Data elements	Type		Cat.6 shielded pairs
	Quantity		8
	Conductor	mm ²	0.22
	Insulation		Form-PE
	Colour		Pair 1:wh-bu, Pair 2:wh-or Pair 3:wh-gn, Pair 4:wh-bn Pair 5:wh-bu, Pair 6: wh-or Pair 7:wh-gn, Pair 8: wh-bn
	Shield		AL/PET foil screen and tinned copper wires braiding
	Capacitance at 800 Hz	nF/km	Nom.43
	Impedance at 100 MHz	Ω	100 ± 5
	Velocity of propagation	%	Approx. 76
Jacketing	Material		LSOH
	Normal thickness	mm	See drawing
Completed cable	Approximate weight	kg/km	380
	Nominal diameter	mm	47x5.3
	Min. Bending radius	mm	Static application10x cable thickness
	Bending Test		Min 30000 bending cycles according to EN50214
	Test voltage		2 kV for 1.5mm ² conductors
	Operating temperature	°C	-20 to +70
	Free suspension length	m	≤45
	Max. travelling height	m	≤80
	Max. travelling speed	m/s	≤4 (Acc. EN50214)
	Acceleration	m/s ²	<1.2

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