

**COMPLIANCE TESTING REPORT FOR
AUSTRALIAN STANDARD AS/CA S008:2020
REQUIREMENTS FOR CUSTOMER CABLING PRODUCTS
(INCLUDING RELEVANT CLAUSES OF IEC 60603-7)***

Client: 4Cabling Pty Ltd

Address: 4/201 Parramatta Road, Homebush West, NSW 2140

Report Number: 12144CA004_S008

Date of Testing: 24 November to 04 December 2023

File Number: 4CA231101

Product Name Patch Cords

Brand Name 4CABLING

Product Model No.s: 004.650.2000, 004.650.2001, 004.650.2002,
004.650.2003, 004.650.2004, 004.650.2005,
004.650.2006, 004.650.2007, 004.650.2016,
004.650.2017, 004.650.2018, 004.650.2019 and
004.650.2020

Product Description: Cat 6A THIN U/UTP LSZH - 28 AWG - RJ45-RJ45
Network Cable

Result: **Comply**

Compiled by: Philip Hitchcock
Test Engineer



Reviewed by: Nina Rodoreda
Test Engineer



Date of Issue 14 December 2023

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

**SUMMARY OF COMPLIANCE WITH AUSTRALIAN STANDARD
AS/CA S008:2020 (Including relevant clauses of IEC 60603-7)***

The CAT 6A U/UTP Thin Patch Leads LSZH were supplied for AS/CA S008:2020 testing by 4Cabling Pty Ltd of 4/201 Parramatta Road, Homebush West, NSW 2140, Australia.

The Equipment Under Test (EUT) consisted of CAT 6A U/UTP Thin Patch Leads. The datasheet supplied by the client showed moulded, unshielded RJ45 plugs fitted to both ends of black cordage which was twisted 4 pair construction with Polyethylene (PE) insulation, a Low Smoke Zero Halogen (LSZH) sheath and conductors with seven strands of 0.127mm diameter bare copper. The client advised that the CAT 6A U/UTP Thin Patch Leads LSZH will be produced in 13 different lengths; 0.15m, 0.25m, 0.5m, 0.75m, 1.0m, 1.5m, 2.0m, 2.5m, 3.0m, 4.0m, 5.0m, 7.0m and 10.0m with the model numbers shown on page 1 of the report. Please also refer to the photos in Appendix B and Product Specifications in Appendix C, at the rear of the report.

Due to the construction of the cordage, the EUT was tested to the relevant cord/cordage clauses of this standard and is not suitable for use as building cable (fixed wiring).

This test report does not cover Patch Cords longer than 10 metres.

The EUT had the following sheath markings:

4Cabling E2369 E477034-C (UL) CM 75°C 4PR 28AWG FT4 CAT6A PATCH CABLE----UTP LSZH

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

The CAT 6A U/UTP Thin Patch Leads LSZH **COMPLY** with the tested clauses of AS/CA S008:2020.

Special conditions for compliance:

Patch cords longer than 10 metres must comply with Clause 5.6.3 requirements for insulation and sheath materials.

The Cabling Product must comply with Clause 5.1.2 and be fit for purpose for its intended use.

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 performed.....NT
- noted.....ND

AS/CA S008:2020			
Clause	Requirement - Test	Result - Remark	Verdict
5.	REQUIREMENTS		P
5.1	GENERAL		P
5.1.1	Physically distinguishable Cabling products, other than pits and access holes, shall be physically distinguishable from products used for distribution or connection of Mains Supply.		P
5.1.2	Fitness for purpose A Cabling Product shall be fit for purpose for its intended use, e.g. a Category 6 Cord that meets its performance requirements.		NT
5.1.3	Twisted pair and quad For the purposes of this Standard, a quad is deemed to satisfy a requirement for which a twisted pair has been specified.		N
5.2	MARKINGS		P
5.2.1	Labelling Instrument		ND
5.2.2	Inappropriate markings Cabling products intended solely for ES1 or ES2 telecommunications circuits 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
5.2.3.3	Marking durability		N
5.3	UNDERGROUND CONDUIT		N
5.4	CABLE DISTRIBUTION DEVICES		N
5.5	THIS CLAUSE IS DELETED		ND

AS/CA S008:2020			
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 5.6.10 where specified in Clauses 5.6.11 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.	4 twisted pairs. Pairs are identified as: Blue, orange, green and brown. The matching mate in the twisted pair is white insulation with a matching coloured stripe.	P
5.6.3	Insulation and sheath material		NA
	(a) shall use insulation and sheath materials suitable for telecommunications purposes;	PE insulation LSZH sheath	N
	(b) Where PVC insulation or sheath materials are used, they shall comply with the requirements of Table 1 or 2, as applicable: and		N
	(c) Where non-PVC insulation or sheath materials are used, they shall comply with the requirements of AS 1049 for- (i) Tensile Strength Test (Aged/Unaged); (ii) Elongation Test (Aged/Unaged); and (iii) Shrinkback Tests for that particular type of insulation and sheath.		N
5.6.4	Flammability A Cable that is required to comply with this Clause shall pass both – (a) the resistance to vertical flame propagation test as specified in AS/NZS IEC 60332.1.2 including Annex A; and (b) the falling flaming droplets/particles test as specified in AS/NZS IEC 60332.1.3 including Annex A.	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

AS/CA S008:2020			
Clause	Requirement - Test	Result - Remark	Verdict
5.6.6.1	<p>Conductor composition</p> <p>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-</p> <ul style="list-style-type: none"> (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 	<p>Requirement: 248.0 Ω/km max.</p> <p>Measured: 237.2 Ω/km</p> <p>Seven stands of 0.127mm diameter bare copper</p> <p>All pairs measured and average calculated.</p>	P
5.6.6.2	<p>Electrical withstand voltage</p> <p>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;</p> <p>(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</p> <p>(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>		P
5.6.6.3	<p>Mutual capacitance</p> <ul style="list-style-type: none"> (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 	<p>Requirement: 80 nF/km max.</p> <p>Measured: 54.57 nF/km</p>	P

AS/CA S008:2020			
Clause	Requirement - Test	Result - Remark	Verdict
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.	Requirement: 300 pF per 500m max. Measured: 22.13 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. ± 50 Vd.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.	Requirement: 100 M Ω /km min Measured: > 100 M Ω /km	P
5.6.7	Continuous metallic shield (a) any continuous metallic shield provided in the Cable shall be electrically conductive; and (b) Where a continuous foil shield is employed, a drain wire shall be placed in continuous contact with the metallic surface of the shield.		N
5.6.8	Water penetration test Water Penetration specified in Clause 5, Method-F5B or F5C of IEC 60794-1-22:2017.		N
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		N
5.6.12	Cordage with metallic conductors	Cordage not supplied separately	N

AS/CA S008:2020			
Clause	Requirement - Test	Result - Remark	Verdict
5.6.13	Cords with metallic conductors		P
5.6.13.1	General requirements A Cord with metallic conductor shall comply with the following Clauses: 5.6.2, 5.6.4, 5.6.5, 5.6.6.1, 5.6.6.2, 5.6.6.5, 5.6.7 and 5.6.10		P
5.6.13.2	Cords exceeding a length of 10m A Cord with metallic conductors that exceeds a length of 10m shall comply with Clause 5.6.13.1 and the following Clauses: 5.6.3, 5.6.6.3 and 5.6.6.4.	Patch cords do not exceed a length of 10 m	N
5.6.13.3	Cord anchorage or strain relief A Cord with metallic conductors-		P
	(a) shall be secured in any plug or socket connected to a Cord by an appropriate anchorage or strain relief; and		P
	(b) When subjected to a force of 45 N gradually applied between the Cord and the plug or socket for a period of 60s, the Cord shall not be longitudinally displaced by more than 2mm, nor show any appreciable strain at the connection.		P
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
5.6.19	ES3 generic cable		N

AS/CA S008:2020			
Clause	Requirement - Test	Result - Remark	Verdict
5.7	CONNECTING HARDWARE, INCLUDING PLUGS AND SOCKETS OF ALL DESIGNS		P
5.7.1	General		P
5.7.1.1	Insulation resistance The insulation resistance between any two points which are required to be electrically insulated shall be a minimum of 100 MΩ. The insulation resistance measurement is to be made after 500V ± 50 V d.c. has been applied for a period of 60 s	Measured: > 100 MΩ	P
5.7.1.2	Contact resistance		N
5.7.1.2.1	Insulation Displacement contacts The contact resistance in connecting hardware other than the types of plugs and sockets covered in Clauses 5.7.2, 5.7.3 and 5.7.4 shall comply with the requirements of IEC 60352-4 Clause 12.3.1.		N
5.7.1.2.2	Plug and socket connection For connectors using a plug and socket, other than the types of plugs and sockets described in Clauses 5.7.2, 5.7.3 and 5.7.4, the interface resistance of the overall mated connection or shield connection shall not exceed 50mΩ using the test method described in Clause 12.3.1 of IEC 60352-4.		N
5.7.1.3	Electric strength The insulation of electrically conductive elements in Connecting Hardware shall have a minimum dielectric withstand capability of 1.5 kV for 60 s in accordance with Clause 6.4.2 of IEC 60603-7.	Refer to Appendix A.	P
5.7.1.4.	Protection against contact with exposed circuits Connectors, plugs and sockets with metallic conductors and shields shall comply with the blunt probe test of Clause 5.4.10.1 (b) (Separation requirements) of AS/NZS 62368.1.		N
5.7.1.5	Weather resistance Plugs and sockets exposed to weather and damp areas shall have a minimum degree of protection of IPX3 against the ingress of water when tested in accordance with AS 60529.		N
5.7.1.6	Access to cable terminations All telecommunications terminations shall be enclosed or located to prevent unintentional contact with voltages other than ES1 by an Ordinary Person.		P

AS/CA S008:2020			
Clause	Requirement - Test	Result - Remark	Verdict
5.7.1.7	Prohibited arrangements A connecting device's faceplate for telecommunications wiring shall not incorporate a low voltage fixed socket-outlet or switch.		N
5.7.2	Eight (8) position modular plugs and sockets In addition to the general requirements of Clause 5.7.1, eight (8) position modular plugs and sockets shall comply with the following Clauses of IEC 60603 7: 6.4.2 Voltage proof 6.4.3 Current - temperature derating 6.4.4 Initial contact resistance 6.6.1 Mechanical operation (Cycle) 6.6.2 Effectiveness of a connector coupling device	Refer to Appendix A.	P
5.7.3	Six (6) position modular plugs and sockets		N
5.7.3.1	Modular Plugs and sockets Six (6) position modular plugs and sockets shall- (a) be mechanically designed according to CFR FCC 47 Figure 68.500 (a) and (b) ; and (b) In addition to the general requirements of Clause 5.7.1, shall comply with the following Clauses of IEC 60603-7: 6.4.2 Voltage proof 6.4.3 Current - temperature derating 6.4.4 Initial contact resistance 6.6.1 Mechanical operation (Cycle) 6.6.2 Effectiveness of a connector coupling device		N
5.7.3.2	Modular 6P plug compatibility with 8P sockets A six (6) position modular plug (for compatibility with eight (8) position sockets (8P8C)) should— (a) be mechanically designed according to CFR FCC 47 Figure 68.500(a)(2)(i) including Notes 6,7,8 and 9; and (b) to avoid possible damage to the 8P8C socket, incorporate two additional grooves/slots in the plug moulding according to CFR FCC 47 Figure 68.500(a)(3)(i) – Note 3; to suit contacts 1 and 8 of 8P8C socket CFR FCC 47 Figure 68.500(d)		N

AS/CA S008:2020			
Clause	Requirement - Test	Result - Remark	Verdict
5.7.3.3	Adaptor ('8P-to-6P insert') In this clause, an 'adaptor' is a device used to align a six (6) position modular plug in an eight (8) position modular socket. The adaptor, which restricts the socket entry width to that of a six (6) position modular socket, is intended to prevent sideways or angular movement of the plug, which may damage the contacts of the wider socket. An adaptor should be mechanically designed in accordance with Figure C2.		N
5.7.4	600 series plugs and sockets		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 – Specifications provided by the client

Appendix A	Additional test data		
Clause	Requirement - Test	Result - Remark	Verdict

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)* (>50mm)	Extent of burning downwards (mm)* (<540mm)	Result
1	Cat 6A patch cord	60 sec	2 sec	NI	NI	NI	NI	395mm	485mm	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/NZS IEC 60332.1.2 and AS/NZS IEC 60332.1.3).

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 A	Additional test data		
Clause	Requirement - Test	Result - Remark	Verdict

Appendix A – Additional Test Data

5.6.6.2	TABLE: Cable – Electrical Withstand Voltage		P
Test voltage applied between:		test voltage (V)	breakdown Yes / No
Blue wire to all other conductors		700 V a.c. rms	No
White Blue wire to all other conductors		700 V a.c. rms	No
Orange wire to all other conductors		700 V a.c. rms	No
White Orange wire to all other conductors		700 V a.c. rms	No
Green wire to all other conductors		700 V a.c. rms	No
White Green wire to all other conductors		700 V a.c. rms	No
Brown wire to all other conductors		700 V a.c. rms	No
White Brown to all other conductors		700 V a.c. rms	No
All conductors to sheath		700 V a.c. rms	No

5.6.6.5	TABLE: Insulation Resistance		P
Test Voltage applied between:		Test Voltage (V)	Insulation Resistance (MΩ/km)
Wires forming a pair		500Vdc	>100 MΩ/km

Appendix A	Additional test data		
Clause	Requirement - Test	Result - Remark	Verdict

Appendix A – Additional Test Data

IEC 60603-7 Clauses of Section 5.7 Connecting hardware, including plugs and sockets of all designs

5.7.1.3	IEC 60603-7 Clause 6.4.2 Voltage proof Connecting Hardware shall have a minimum dielectric withstand capability of 1.5 kV for 60 s		P
	IEC 60512, Test 4a Standard atmospheric conditions. Mated connectors. 1500 VDC or AC peak, contact to all contacts.		P
	Test method used (A, B or C) and details to be specified.	Method = A Duration = 60 seconds Current Limit = 2 mA	P

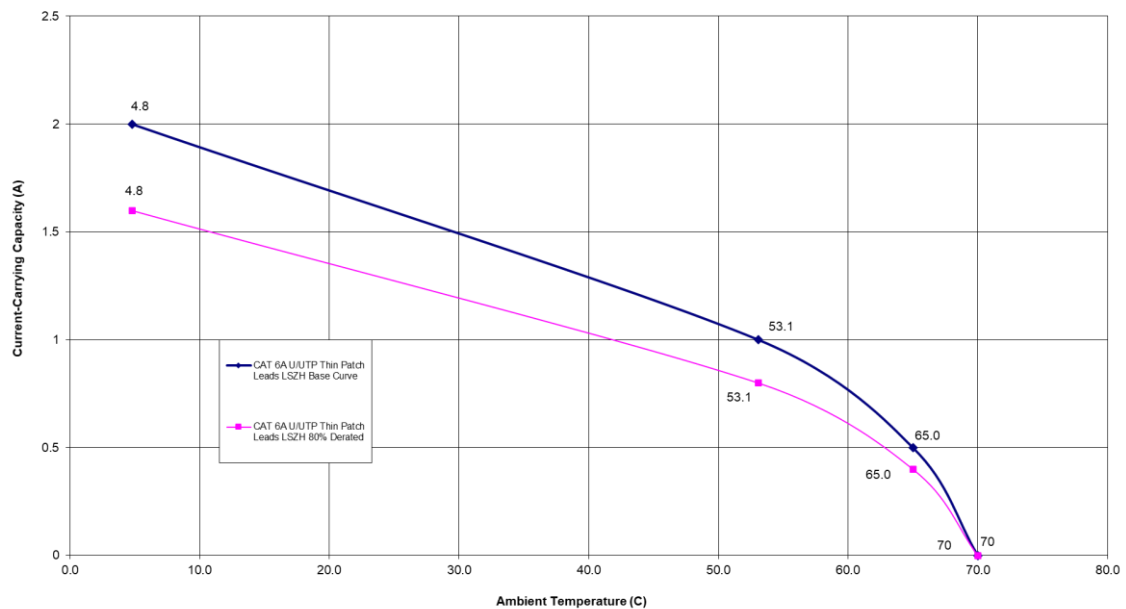
5.7.2 & 5.7.3	IEC 60603-7 Clause 6.4.2 Voltage proof		P
	IEC 60512, Test 4a Standard atmospheric conditions. Mated connectors. 1000 VDC or AC peak, contact to all contacts.		P
	Test method used (A, B or C) and details to be specified.	Method = A Duration = 60 seconds Current Limit = 2 mA	P

Appendix A	Additional test data		
Clause	Requirement - Test	Result - Remark	Verdict

Appendix A – Additional Test Data

5.7.2 & 5.7.3	IEC 60603-7 Clause 6.4.3 Current-temperature derating		P
	IEC 60512, Test 5b Standard atmospheric conditions. All contacts.		P

Current Carrying Capacity: Connector Derating Curve

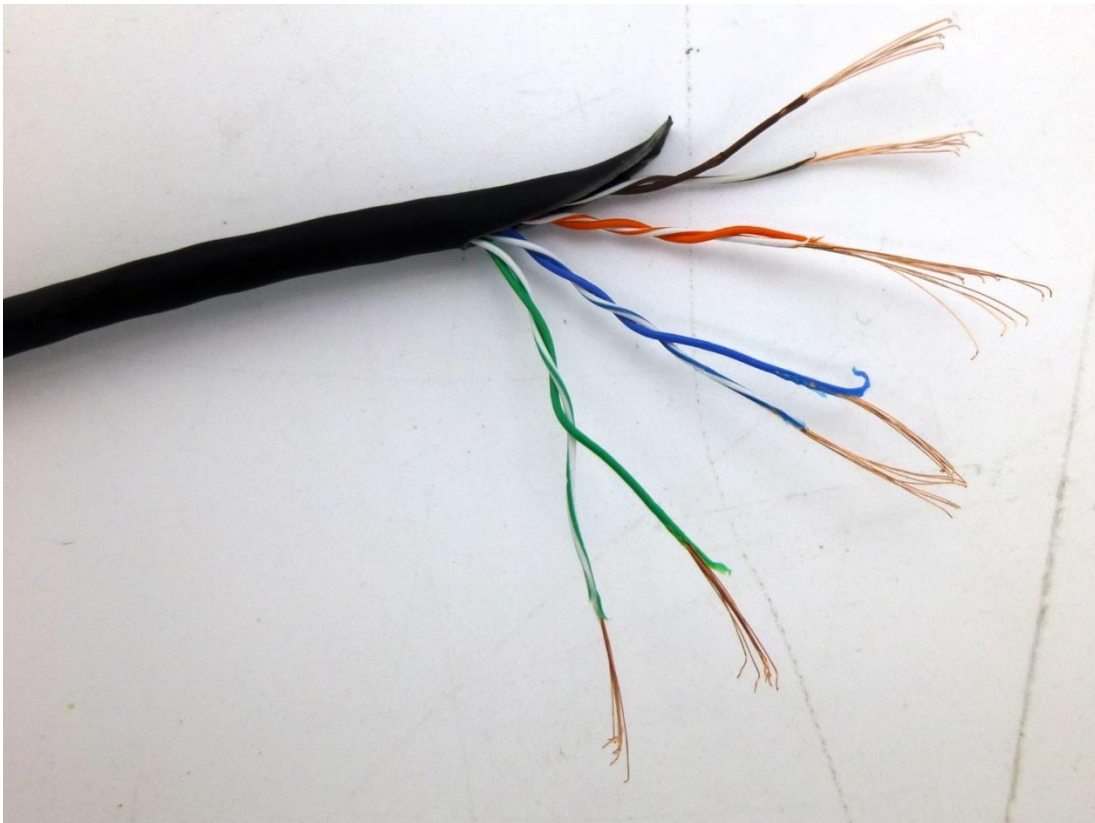


Appendix A	Additional test data		
Clause	Requirement - Test	Result - Remark	Verdict

Appendix A – Additional Test Data

5.7.2 & 5.7.3	IEC 60603-7 Clause 6.4.4 Initial contact resistance		P
	IEC 60512, Test 2a Standard atmospheric conditions Mated connectors. Connection points as specified in IEC603-7 figure 27. Requirement = 20mΩ max	Test current <100mA DC, emf of test circuit <20mV DC. Both polarities. Measured: < 18.13 mΩ	P
5.7.2 & 5.7.3	IEC 60603-7 Clause 6.6.1 Mechanical operation (Cycle)		P
	IEC 60512, Test 9a Speed 10mm/s max. Rest: 1s min. (unmated) PL1: 750 operations; PL2: 2500 operations.	Compliance is checked by visual inspection, contact resistance, insulation resistance and voltage tests. PL1	P
5.7.2 & 5.7.3	IEC 60603-7 Clause 6.6.2 Effectiveness of connector coupling devices		P
	IEC 60512, Test 15f All types: 50 N for 60 ± 5 s. Requirement: Connectors shall remain fully engaged and there shall be no loss of electrical continuity. Latching and unlatching of coupling locks shall be operational and certain.		P

Appendix B – Photographic Record of Sample



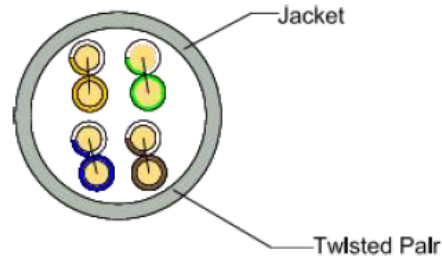
Appendix C – Specifications provided by the client

STANDARDS

 ANSI/TIA-568-C.2
EN 50575

APPLICATIONS

Connection between computer network card and module, connection between distribution frame and wiring, connection between distribution frame and HUB or switch



CERTIFICATION



CONSTRUCTION

Conductor Material		Stranded Bare Copper
Conductor Number		8C(4 pairs)
Cable AWG		28
Construction(±0.01mm)		7*0.127
Insulation	Material	PE
	Nom. Thickness(mm)	0.10
	Diameter(±0.08mm)	0.60
Jacket	Material	LSZH
	Nom. Thickness(mm)	0.50
	Diameter(±0.30mm)	3.8

COLOR CODES

Insulation Color:

- P1: White / Blue & Blue
- P2: White / Orange & Orange
- P3: White / Green & Green
- P4: White / Brown & Brown

Jacket Color:

Option

CABLE PRINTING

Option

PACKAGING

Option

TEST REQUIREMENT

FLUKE PATCH CORD TEST

ELECTRICAL PERFORMANCE

Max. Conductor DC Resistance (Ω/km)		237
Min. Insulation Resistance (MΩ-KM)		5000
Dielectric Strength		DC-1KV/1 Min
1.0-250MHZ Characteristic Impedance(ohms)		100±15
1.0-250MHZ Delay Skew(ns/100m)		≤45
Resistance Unbalance(%)		≤4
Max Mutual Capacitance(nF/100m)		5.6
Before Aging	Tensile Strength(Mpa)	≥9
	Elongation(%)	≥100
After Aging 100℃*24h*7d	Tensile Strength	≥75%
	Elongation(%)	≥50
Velocity of Propagation NVP		69%

Approved By		Designed By	
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