International Compliance Testing

Compliance Testing Report for

AS/ACIF S008:2001

Report No	:	**NTR-4093**
Date of Issue	:	**23 December 2004**
Equipment	:	**Elevator Travelling Cable, Shielded Pairs - Bunched**
Customer	:	DRAKA Elevator Products Inc
Address	:	2151 North Church Street Rocky Mount NC 27802-0400 USA
File Reference No	:	23/153

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Sample Description, Compliance Summary and Notations

The sample is a “travelling cable” for use with elevators and similar conveyances. The outer sheath contains four separate, shielded pairs each of which is contained within their own sheath. The cable can be used with indoor campus wiring systems via non-specified termination systems.

The complete cable assembly was tested against the requirements of S008:2001 including those which apply to cables for fixed campus installations. The requirements of AS/NZS1979:1993 were not applied and this report must not be used to claim compliance with AS/NZS1979.

COMPLIANCE SUMMARY

Following type testing there were no measurements or test results observed that indicate non-compliance with relevant mandatory clauses of AS/ACIF S008:2001. There are no test results affected by measurement uncertainties. This summary is only valid when read in conjunction with the rest of the report.

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I attest that the contents of this report truly and accurately represent the results of tests performed by International Compliance Testing (ICT) on the supplied sample and that all procedures used in the conduct and reporting of tests conform with ICT's ISO/IEC 17025 Laboratory Quality Management System.

David Stocks
Authorised Signatory

Test Result Interpretation

PASS: Where the absolute measurement value only complies with the given limits or nominated requirements the result is shown as PASS.

Although the measurement uncertainty is not taken into account when making the pass/fail decision the test result is shown as affected by a measurement uncertainty if the uncertainty is equal to or greater than the margin of compliance.

(Example: Limit ≤ 5.0 V, Absolute Value = 4.8 V, Uncertainty = 0.3 V ; Result is PASS)

FAIL: Where the absolute measurement value only does not comply with the given limits or nominated requirements the result is shown as FAIL.

Although the measurement uncertainty is not taken into account when making the pass/fail decision the test result is shown as affected by a measurement uncertainty if the uncertainty is equal to or greater than the margin of non-compliance.

(Example: Limit ≤ 5.0 V, Absolute Value = 5.1 V, Uncertainty = 0.3 V ; Result is FAIL)

N/A Not Applicable

N/T Not Tested

Noted Advisory or application notes were taken into account, or general directions or requirements applicable to sub-clauses are acknowledged but there are no specific compliance criteria specified. This term is used to indicate the test was conducted in accordance with or with regard to information referred to.

Assessment of Test Results Affected by Uncertainties

All measurement uncertainties have been determined in accordance with the requirements for NATA accreditation and using the processes of the ISO Guide to Uncertainties of Measurement. Significant effort has been made to reduce measurement uncertainties to the smallest practical values.

It should be noted that the above methods of judging compliance may not be used by all regulators. When a test result is affected by measurement uncertainty the method by which the market regulator or technical regulator judges compliance should be applied.

In some jurisdictions compliance can only be achieved if the absolute measurement value and the associated uncertainty lie within the limits or requirements. In this case the test has to be passed by a margin exceeding known measurement uncertainties, and thus extends the given limits or requirements by the amount of the relevant uncertainties. Pass decisions may be adversely affected by this compliance assessment method.

Although care and attention has been applied to the forming of appropriate pass/fail judgements any result that is affected by a measurement uncertainty should be considered carefully. It is strongly recommended that remedial action is taken with the object of obtaining a test result that complies without being influenced by measurement uncertainties.

		Results PASS	FAIL	N/A	N/T
1.	**INTERPRETATION**		**NOTED**		
2.	**SCOPE**		**NOTED**		
3.	**REFERENCES**		**NOTED**		
4.	**ABBREVIATIONS AND TECHNICAL DEFINITIONS**		**NOTED**		
5.	**REQUIREMENTS**				
5.1	**GENERAL**				
5.1.1	*CABLING PRODUCTS*	[✓]	[ ]	[ ]	[ ]
5.1.2	*DISTRIBUTORS*	[ ]	[ ]	[✓]	[ ]
5.1.2	*NTDE'S*	[ ]	[ ]	[✓]	[ ]
5.1.2	*CABLE*	[ ]	[ ]	[✓]	[ ]
5.2	**MARKINGS**				
5.2.1	*GENERAL*				
5.2.1.1	Labelling	[✓]	[ ]	[ ]	[ ]
5.2.2	*REQUIREMENTS*				
5.2.1.2	Cabling Products	[✓]	[ ]	[ ]	[ ]
5.2.1.3	Cabling Products (excluding cables)	[ ]	[ ]	[✓]	[ ]
5.3	**OUTDOOR TELECOMMUNICATIONS CONDUIT/PIPE** Sub clauses 5.3.1 to 5.3.1.2 are not applicable.	[ ]	[ ]	[✓]	[ ]
5.4	**CABLE DISTRIBUTION DEVICES** Sub clauses 5.4.1 to 5.4.2.5 are not applicable.	[ ]	[ ]	[✓]	[ ]
5.5	**NTD ENCLOSURE** Sub clauses 5.5.1 to 5.5.1.12 are not applicable.	[ ]	[ ]	[✓]	[ ]

		Results PASS	FAIL	N/A	N/T
5.6	**OPTICAL FIBRE ENCLOSURES** Sub clause 5.6.1 is not applicable.	[ ]	[ ]	[✓]	[ ]
5.7	**CUSTOMER CABLES**				
5.7.1	Application	[✔]	[ ]	[ ]	[ ]
5.7.2	General requirements				
5.7.2.1	Cable	[✔]	[ ]	[ ]	[ ]
	(a) Solely for telecommunications usage - not mains type. (b) The cables are not for outdoor use or installation. (c) Clause 5.10 to apply for MIMS or other special types.				
5.7.2.2	Insulation and sheath materials	[✔]	[ ]	[ ]	[ ]
5.7.2.2.1	Non-PVC Insulation and sheath	[ ]	[ ]	[✔]	[ ]
5.7.2.2.2	PVC Insulation and sheath	[✔]	[ ]	[ ]	[ ]

(a) comply with Table 1 and Table 2 requirements - refer to this report
(b) comply with Clause 10.3 of AS1049 - manufacturers data sheets

The worst case test results are reported upon. Other results had a greater margin of compliance and were not reported upon.

The outer protective sheath was not tested as the inner sheaths fulfilled the requirements of the Standard.

Table 1 - Conductor Insulation

Calculated cross-sectional area of 0.526 mm^2

Property	Measurement	Specified
Tensile Strength	19.12	18 MPa
Elongation (no aging)	320	150%
Elongation (after aging)	190	75%
Volatile Loss	< 10 g/m^2	20 g/m^2
Volume Resistivity (5 m nominal length)	> 500 GΩ m @ 23C *1 > 10.0 GΩ m @ 60C *2	400 GΩ m 0.4 GΩ m

*1 & *2: Volume resistivity is normally expressed in Ohm - Centimetres and these units have been converted for compatibility with the given values.

Results
PASS FAIL N/A N/T

Table 2 - Inner sheath (that surrounding the shielded pairs)

Calculated cross-sectional area of 7.45 mm^2

Property	Measurement	Specified
Tensile Strength	13.30	12 MPa
Elongation (no aging)	> 500	200%
Elongation (after aging)	> 200	75%
Volatile Loss	< 10 g/m^2	20 g/m^2

5.7.2.3 Wire and optical fibre identification [✔] [ ] [ ] [ ]

5.7.2.4 Flammability [✔] [ ] [ ] [ ]

In accordance with Clause 3.8, Table 3.3 of AS 3191:1996.

PART	Time $T=60+^{m}/_{25}$	Sample Behaviour				Tissue/Board		Result
		Colour	Flame Distance	Burning Duration	Particle Release	Tissue Burnt	Board Colour	
Whole	90	Black	310	37	No	No	No	PASS

5.8 METALLIC CUSTOMER CABLES

5.8.1 CONDUCTORS [✔] [ ] [ ] [ ]

The metallic conductors are 10 x 0.25 mm stranded plain copper. In accordance with Table 3, the DC resistance must be less than 44.8 Ω/ km. Resistance is specified by the manufacturer to be less than 39 Ω/ km.

5.8.1.1 Shield [✔] [ ] [ ] [ ]
The shield surrounding each pair is of woven copper construction.

5.8.2 ELECTRICAL CHARACTERISTICS OF METALLIC CUSTOMER CABLES

5.8.2.1 Withstand voltage [✔] [ ] [ ] [ ]

In accordance with Table 4 of the Standard:

Conductor to core : 2000 V RMS / 60 sec.
Core to Sheath : 4500 V RMS / 60 sec.
Shield to sheath : 4500 V RMS / 60 sec.

5.8.2.2 Mutual Capacitance [✔] [ ] [ ] [ ]
Refer Table 5

5.8.2.3 Capacitance Unbalance [✔] [ ] [ ] [ ]
Refer Table 5

		Results PASS	FAIL	N/A	N/T
5.8.2.4	Insulation Resistance Refer Table 5	[✔]	[ ]	[ ]	[ ]

Table 5

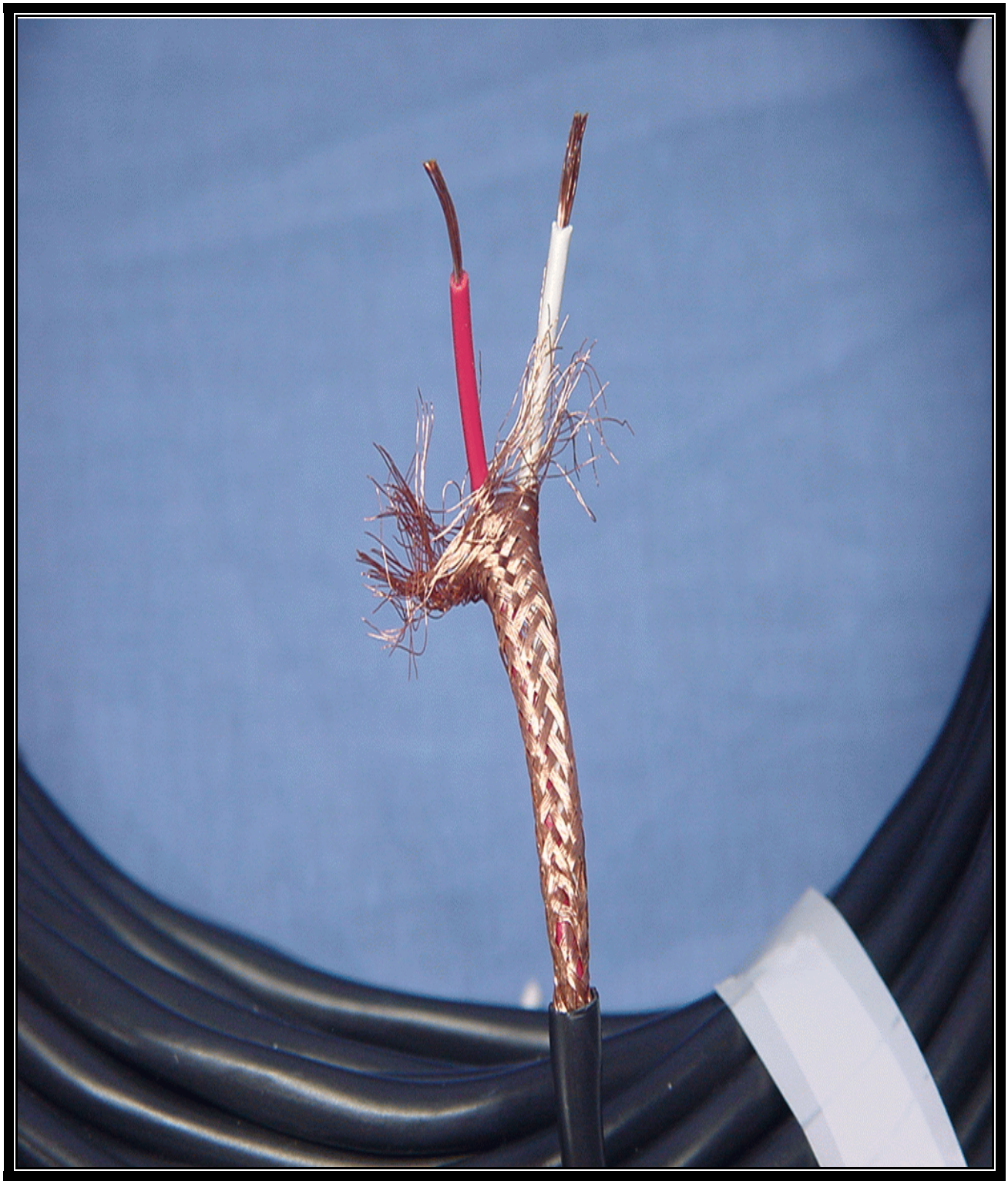
Parameter	Units	Measured	Specified
Max. Mutual Capacitance	nF/km	78.72 *	80
Max. Capacitance Unbalance	pF/500m	< 500	1000
Min. Insulation Resistance	MΩkm	> 10,000	1000

* Determined by calculation following reference to manufacturer's data.

5.8.2.5	Additional electrical requirements of coaxial cable.	[ ]	[ ]	[✔]	[ ]
5.8.3	JUMPER WIRE Sub clauses 5.8.3.1 and 5.8.3.2 are not applicable.	[ ]	[ ]	[✔]	[ ]
5.8.4	METALLIC CORDAGE a) Stranded construction used b) Complies with referred clauses c) Displacement of cord measured less than 1 mm. The test cord was assembled using commercially available 8 Position plugs.	[✔]	[ ]	[ ]	[ ]
5.9	**REQUIREMENTS OF OPTICAL FIBRE CUSTOMER CABLES AND CORDS** Sub clauses 5.9.1 to 5.9.3 are not applicable.	[ ]	[ ]	[✓]	[ ]
5.10	**REQUIREMENTS OF CABLES INTENDED FOR SPECIAL APPLICATIONS**	[ ]	[ ]	[✓]	[ ]
5.10.1	GENERAL Compliance with 5.7.2.4 (flammability)	[✔]	[ ]	[ ]	[ ]
5.10.2	METALLIC CABLES Cables shall meet either the Standard relevant to the type of intended application as per sub-clause (a) or, the given list of clauses of S008:2001 as per sub-clause (b). Option (b) was selected and compliance against one or more of the standards listed in Table 6 was not assessed.	**NOTED**			
5.11	**CONNECTING HARDWARE, PLUGS AND SOCKETS OF ALL DESIGNS**	[ ]	[ ]	[✓]	[ ]
5.12	**CABLING COMPONENTS FOR USE ON UNDERGROUND AND AERIAL INSTALLATIONS**	[ ]	[ ]	[✓]	[ ]

APPENDIX A - PHOTO SUPPLEMENT

Expanded view of components



Detail of shielded pair

END OF TEST REPORT