



Report No. TC.18.05.002603

Date of Issue 08/16/2018

Applicant: Caledonian Cables Limited

Applicant address: 1/F., CMA Building, 64-66 Connaught Road Central, Hong Kong

Description of the test subject:

Sample	Description	Photo
001	Name: Fire Resistant Electric Cables Style No: RE-2X(St)HSWAH...CI Ratings: 50Cx2.5mm <sup>2</sup> Brand name: CALEDONIAN	

Receipt Date of Sample: 07/27/2018

Date of Testing: From 07/27/2018 to 08/16/2018

Sample submitted: The sample(s) was (were) submitted by applicant and identified.

Conclusion:

Test Items			Conclusion
No.	Items	Standard	
1	Vertically-mounted bunched wires or cables burn testing	IEC 60332-3-24:2009	Pass
2	Smoke density testing	IEC 61034-2:2013	Pass

Note: (1) General Terms & Conditions as mentioned overleaf,(2)The results relate only to the items tested,(3)The test report shall not be reproduced except in full without the written approval of the company. (4) Samples are tested as received.



Report No. TC.18.05.002603

Date of Issue 08/16/2018

3	Determination of the halogen acid gas content	IEC 60754-1:2011	Pass
4	Determination of acidity (by PH measurement) and conductivity	IEC 60754-2:2011	Pass
5	Method for assessment of fire integrity of large diameter power cables for use as components for smoke and heat control systems and certain other active fire safety systems	BS 8491:2008	Pass

Test Results

1. IEC 60332-3-24:2009 Tests on electric and optical fibre cables under fire conditions — Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables — Category C

1.1 Sample details

Specimen size	3.5m
Cable diameter	45mm
Conductor diameter	0.9mm

Precondition	Temperature (°C)	Humidity (%)	Duration(h)
	20±10	50±20	16

1.2 Test results

Measurements/ observation	Result
The extent of damage	0.80m

Requirement: The maximum extent of the charred portion measured on the sample shall not have reached a height exceeding 2.5m above the bottom edge of the burner.

Conclusion: Pass

2. IEC 61034-2:2013 Measurement of smoke density of cables burning under defined conditions Part 2: Test procedure and requirements

2.1 Sample details

Diameter	45mm
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Report No. TC.18.05.002603

Date of Issue 08/16/2018

Pre-conditioning	Indoor		Duration
	Temp: 23±2°C	Humidity: 50±5%	16 h
Ignition Source	Fire source 1		

2.2 Test Result

The minimum light transmittance within 40 minutes; (%)	91.7
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Requirement: Within the first 40 minutes, the light transmittance shall not drop to below 60%.

Conclusion: Pass

3. IEC 60754-1:2011 Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content

3.1 Sample details

Weight	Sheath:1.03 g Insulation:1.04 g
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Precondition	Temperature (°C)	Humidity (%)	Duration(h)
	23±2	50±5	16

3.2 Test Result

Sheath	Gas (mg)	1	2	3	Average
	HF	0.3	0.4	0.3	0.3
	HCl	0.5	0.6	0.5	0.5

Insulation	Gas (mg)	1	2	3	Average
	HF	0.3	0.4	0.4	0.4
	HCl	0.6	0.6	0.5	0.6

Clients' requirement: < 5mg/g

Conclusion: Pass

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**4. IEC 60754-2:2011 Test on gases evolved during combustion of materials from cables—part 2: Determination of acidity (by PH measurement) and conductivity**

**4.1 Sample details**

Sample name	Cable
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Precondition	Temperature (°C)	Humidity (%)	Duration(h)
	21±2	50±5	24

**4.2 Test Result**

Test Item(Sheath)	Result			Average
PH	7.13	7.16	7.14	7.14
Conductivity(µs/mm)	0.46	0.49	0.47	0.47

Test Item(Insulation)	Result			Average
PH	6.94	6.97	6.94	6.95
Conductivity(µs/mm)	0.43	0.46	0.44	0.44

**Requirement:** PH ≥ 4.3, Conductivity ≤10 µs/mm

**Conclusion: Pass**

**5. BS 8491:2008 Method for assessment of fire integrity of large diameter power cables for use as components for smoke and heat control systems and certain other active fire safety systems**

**5.1 Sample details**

Specimen size	1500mm
Number of cores	50
Voltage	1000V
Temperature attack	830 <sup>+40</sup> °C
Test time	120min
Shock time	Once every 10min
Water drenching phase	Five minutes before the end of the test apply a burst of water of 5 s duration, sixty seconds intervals.
Atmosphere	10°C-40°C

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Date of Issue 08/16/2018

5.2 Test Result

Sample	1 <sup>st</sup>
Phenomenon	
Fuses ruptures, lamps is extinguished (Y/N)	N

Requirement: If, when the cable sample is tested, none of the fuses ruptures and none of the lamps is extinguished during the period of the test the cable shall be deemed to have passed the test.

Conclusion: Pass

Statement: The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to the sole criterion for assessing the potential smoke and toxicity hazard of the product in use.

Changzhou Jinbiao Railway Transportation Technical Service Co., Ltd.

Drafted by:

Lynn liu

Approved by:

Shen hui

-End of Report-

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