



中国认可  
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检测  
TESTING  
CNAS L6069



# Test Report


**Report No.** TC.22.06.002954

**Date of Issue** 06/17/2022

**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	<p>Sample Description: RS485 Cable RE-02Y(St)H 2P0.5MMSQ, TC/FPE/OS/LSZH</p> <p>Style No.: RS485 Cable RE-02Y(St)H 2P0.5MMSQ</p> <p>Manufacturer: Caledonian Cables Limited</p>	

**Receipt Date of Sample:** 06/02/2022

**Date of Testing:** From 06/02/2022 to 06/14/2022

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

**Conclusion:**

Test Items			Conclusion
No.	Items	Standard	
1	Test for vertical flame spread of vertically-mounted bunched wires or cables - Category C	IEC 60332-3-24:2018	Pass
2	Single wire or cable burn testing	IEC 60332-1-2:2015	Pass
3	Halogen acid gas content	EN 60754-1:2014 (IEC 60754-1:2011+AMD1:2019#)	Pass
4	pH and conductivity	IEC 60754-2:2011 +AMD1:2019	Pass
5	Smoke density testing	IEC 61034-2:2005+AMD1:2013+AMD2:2019	Pass

**Remark:** #The test item is not included in CNAS Accredited Scope.

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### Test Results

#### 1. IEC 60332-3-24:2018 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

Length of test sample(m)	3.5
Cable diameter (mm)	10.4
Conductor diameter (mm)	1.0
Non-metallic volume per metre of test sample(L)	1.5
Number of cores	4
Range of conductor cross-sections (mm <sup>2</sup> )	≤35
Number of strands in the bundle	1
Number of bundles	22
Number of layers	1
Number of burners	1
Positioning of test pieces	Touching
Flame application time(min)	20

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

##### 1.2 Test results

Measurements/ observation	Result
The extent of damage(m)	0.95

#### Recommended performance 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

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**2. IEC 60332-1-2:2015 Tests on electric and optical fibre cables under fire conditions —Part 1-2: Test for vertical flame propagation for a single insulated wire or cable —Procedure for 1 kW pre-mixed flame**

### 2.1 Sample details

Length of test sample	600 mm
Cable diameter	10.4 mm
Conductor diameter (mm)	1.0
Core	4

Precondition	Temperature (°C)	Humidity (%)	Duration (h)
	23±5	50±20	≥16

### 2.2 Test results

Measurements/ observation	1 <sup>st</sup> Test
The distance between the lower edge of the top support and the onset of charring (mm)	405
The distance between the lower edge of the top support and the charring downwards (mm)	515

**Note:** If a failure is recorded, two more tests shall be carried out. If both tests result in passes, the single insulated conductor or cable shall be deemed to have passed the test.

#### Requirement:

- 1) The single insulated conductor or cable shall pass the test if the distance between the lower edge of the top support and the onset of charring is greater than 50 mm.
- 2) In addition, a failure shall be recorded if charring extends downwards to a point greater than 540 mm from the lower edge of the top support.

**Conclusion: Pass**

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**3. EN 60754-1:2014 (IEC 60754-1:2011+AMD1:2019\*) Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content**

### 3.1 Sample details

Weight	S1: 1.0023 g; S2: 1.0041 g
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Precondition	Temperature (°C)	Humidity (%)	Duration (h)
	23±2	50±5	≥16

Test apparatus	Method 2: Use of laboratory compressed air supply
Temperature of thermocouple	800 °C
Test time	20 min

### 3.2 Test result

Gas (mg/g)	1	2	Average
HCl	5	5	5

**Remark:** 1) Record = 5 when the amount of halogen acid is less than 5 mg/g.  
2) Halogen acids evolved, except hydrofluoric acid, was expressed as hydrochloric acid (HCl).

**Client's requirement:** ≤0.5%

**Conclusion:** Pass

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**4. IEC 60754-2:2011+AMD1:2019 Test on gases evolved during combustion of materials from cables—  
part 2: Determination of acidity (by PH measurement) and conductivity**

**4.1 Sample details**

Weight	S1: 1.0020 g; S2: 1.0031 g; S3: 1.0009 g
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Precondition	Temperature (°C)	Humidity (%)	Duration (h)
	23±2	50±5	≥16

**4.2 Test result**

	Result			Average
pH	4.8	5.2	5.4	5.1
Conductivity(µs/mm)	0.832	0.908	1.056	0.932

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

**Conclusion: Pass**

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**5. IEC 61034-2:2005+AMD1:2013+AMD2:2019 Measurement of smoke density of cables burning under defined conditions Part 2: Test procedure and requirements**

**5.1 Sample details**

Diameter	10.4 mm
Number of cores	4
Number of bundles	3
Number of strands in the bundle	1

Precondition	Temperature (°C)	Duration (h)
	23±5	≥16

**5.2 Test result**

The minimum light transmittance within 40 minutes; (%)	98.62
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**Requirement:** Within the first 40 minutes, the light transmittance shall not drop to below 60%.

**Conclusion: Pass**

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**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 be the sole criterion for assessing the potential smoke and toxicity hazard of the product in use. Test results are just for internal reference.

TÜV SÜD SW Rail Transportation Technology (Jiangsu) Co., Ltd.

Drafted by:

Wayne Wang

Approved by:

Yanan Liu

-End of Report-

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