Ref No: I16-016

Wire and Cable No. 214
(Supersedes Wire and Cable Informs No. 174, Ref No: I13-064)

Date: February 5, 2016

Existing Certification not affected
Apply any time to have your products evaluated

Announcing: Publication of CSA C22.2 No. 2556-15 - Wire and Cable Test Methods (Tri-national with ANCE NMX-J-556 and UL 2556)

See Attachment 1 for affected Class Numbers.
To purchase the Standard, visit us at www.shop.csa.ca

Who is affected?
Manufacturers of wires and cables.

What do you do?
1. This publication outlines certification revisions that do not affect your currently certified product designs.
2. Please contact CSA technical staff if you have questions or need information concerning this publication and how it applies to you.
3. If you would like to arrange for an evaluation of new products to the revisions, initiate a certification project by contacting our Client Services Centre at 1-866-797-4272. Please supply appropriate supporting documentation*. If testing is needed, we will inform you of the samples required.

*which includes technical information, company name, address, factory locations and CSA file number or master contract number (if assigned), and any other relevant documentation.

Introduction:
This is the common ANCE, CSA Group, and UL standard for wire and cable test methods. It is the fourth edition of CSA C22.2 No. 2556 and supersedes the previous edition published in 2013.

Major Revisions:
1. Some procedures have been revised to allow for referee measurements in the event of non-compliance.
2. New test procedures have been added to account for additional products beyond thermoplastic- and thermoset-insulated wires and flexible cords such as mineral insulated and armoured cables.
3. New ozone resistance test method has been added which describes the actual apparatus and method that reflect current industry practice.
4. The method for FT5 flame test rating for portable power cables, has been added as a new section in clauses 9.12.1 to 9.12.6.
5. Numerous clauses have been revised to improve clarity.

See attachment 2

For technical questions on this Informs
Contact Evangeline Cometa
by phone 416.747.2671, fax 416.747.4149
or e-mail evangeline.cometa@csagroup.org

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# ATTACHMENT 1

Affected Class Numbers

<table>
<thead>
<tr>
<th>Class No:</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5721 01, CABLE</td>
<td>Control</td>
</tr>
<tr>
<td>5721 02, CABLE</td>
<td>Photovoltaic</td>
</tr>
<tr>
<td>5721 11, CABLE</td>
<td>TC-Control</td>
</tr>
<tr>
<td>5721 81, CABLE</td>
<td>Control - Certified to US Standards</td>
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<tr>
<td>5722 01, CABLE</td>
<td>Power - Paper-insulated</td>
</tr>
<tr>
<td>5722 02, CABLE</td>
<td>Power - Commercial and Industrial</td>
</tr>
<tr>
<td>5722 03, CABLE</td>
<td>Power - Portable</td>
</tr>
<tr>
<td>5722 04, CABLE</td>
<td>Power - Mine Power and Feeder</td>
</tr>
<tr>
<td>5722 05, CABLE</td>
<td>Power - For Distribution Utilities</td>
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<tr>
<td>5722 12, CABLE</td>
<td>TC-Power - Thermoplastic and Thermosetting-Insulated</td>
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<tr>
<td>5722 82, CABLE</td>
<td>Power - Commercial and Industrial - Certified to US Standards</td>
</tr>
<tr>
<td>5722 83, CABLE</td>
<td>Power - Portable - Certified to US Standards</td>
</tr>
<tr>
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<td>Airport Lighting</td>
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<tr>
<td>5724 01, CABLE</td>
<td>Marine Shipboard</td>
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<tr>
<td>5724 81, CABLE</td>
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<tr>
<td>5731 01, CABLE</td>
<td>Communications</td>
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<tr>
<td>5731 02, CABLE</td>
<td>Communications (Optical Fiber)</td>
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<td>5731 81, CABLE</td>
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<td>5731 82, CABLE</td>
<td>Communications (Optical Fiber) - Certified to US Standards</td>
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<tr>
<td>5731 83, CABLE</td>
<td>Communications, Miscellaneous - Certified to US Standards</td>
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<tr>
<td>5731 84, CABLE</td>
<td>Data Processing - Certified to US Standards</td>
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<tr>
<td>5735 01, CABLE</td>
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<td>5735 81, CABLE</td>
<td>Fire Alarm and Signal - Certified to US Standards</td>
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<td>5811 01, CABLE</td>
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<td>5811 02, CABLE</td>
<td>Armoured - ASPCA</td>
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<td>5811 81, CABLE</td>
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<td>5812 01, CABLE</td>
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<td>5812 81, CABLE</td>
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<td>5821 02, CABLE</td>
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<td>5821 82, CABLE</td>
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<td>5822 01, CABLE</td>
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<td>5822 81, CABLE</td>
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<td>5823 01, CABLE</td>
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<td>5831 01, WIRES</td>
<td>Flexible Cord</td>
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<td>5831 81, WIRES</td>
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<td>5832 12, WIRES</td>
<td>TC-Thermoplastic</td>
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<td>5832 13, WIRES</td>
<td>TC-Thermosetting</td>
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<td>5832 82, WIRES</td>
<td>Thermoplastic - Certified to US Standards</td>
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<td>5832 83, WIRES</td>
<td>Thermosetting - Certified to US Standards</td>
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<td>5834 01, WIRES</td>
<td>Control-circuit Wire For Extra Low Voltage</td>
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<td>5834 03, WIRES</td>
<td>Oil-burner Ignition and Gas-tube Sign</td>
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<tr>
<td>5834 83, WIRES</td>
<td>Oil-Burner Ignition and Gas-Tube Sign-Certified to US Standards</td>
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<tr>
<td>5835 01, WIRES</td>
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<td>5835 81, WIRES</td>
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<td>5851 01, WIRES</td>
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<td>5851 81, WIRES</td>
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<tr>
<td>5853 01, WIRES</td>
<td>Coll-lead</td>
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## ATTACHMENT 2

### Major Revisions

<table>
<thead>
<tr>
<th>CLAUSE NO.</th>
<th>TITLE</th>
<th>REVISION FROM 2013 EDITION</th>
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</thead>
<tbody>
<tr>
<td>2.2</td>
<td>Normative references</td>
<td>The list of referenced publications have been updated.</td>
</tr>
<tr>
<td>2.4</td>
<td>Definition</td>
<td>New definitions for the terms “flame” and “glowing combustion” have been added.</td>
</tr>
<tr>
<td></td>
<td><strong>3</strong> Conductor tests</td>
<td></td>
</tr>
<tr>
<td>3.1.5.2</td>
<td>Conductor diameter</td>
<td>The method for determining the diameter of a member in a rope-lay conductor has been added.</td>
</tr>
<tr>
<td></td>
<td><strong>4</strong> Insulation, overall covering, and jacket material tests</td>
<td></td>
</tr>
</tbody>
</table>
| 4.1.2      | | b) Revised to allow for referee measurements in the event of non-compliance in accordance with 4.1.4.1.3, 4.1.4.1.4, or 4.1.4.2.4.  
|            | | c) Revised to allow a spindle and anvil having a nominal diameter of 6.4 mm (0.25 in) which is appropriate for round specimens.  
<p>|            | | f) Added new item to include a steel gauge wire of a specified diameter for mineral insulated cable. |
| 4.1.3.1.2, | Added new subclauses applicable to mineral insulated cables. |
| 4.1.4.1.3, | Added procedures in the event of non-compliance. |
| 4.1.4.2.3, | |<br />
| 4.1.4.2.4 | |<br />
| 4.2.4.2.3(b) | | Revised to indicate that the thickness shall not be reduced by more than 50% except for specimens with an as-received thickness of 5 mm (0.2 in) or more. |
|            | <strong>6</strong> Electrical tests for finished wire and cable | |
| 6.4.4.2.1.1, | Long-term insulation resistance | Revised the wording to allow additional length of cable required to connect the specimen to the voltage source. |
| 6.4.4.2.2.1 | |<br />
| 6.5.3      | Capacitance and relative permittivity | Revised the length of specimen to take into account a typical 5m sample that is used. |
| 6.5.4.1    | Corrected the metric unit for the length of section immersed in tap water. |
| 6.5.5      | Revised the constant in the relative permittivity equation to provide a value that corresponds with the actual immersed length during the test. |
| 6.8.2 f)   | Standard arcing test | Corrected the references from IEC 60695-11-20 to IEC 60695-11-3 |
| 6.9.2 g)   | Flex arcing test | Corrected the metric dimensions of the cheesecloth |
| 6.11       | AC leakage current test through insulation | Revised the title to clarify that this method applies to leakage current through the insulation. |
| 6.12       | AC leakage current test through jacket | This is a new test method for the AC leakage current test through jacket which is the appropriate test to be referenced in the binational standard, CSA C22.2 No. 214/UL 444. |</p>
<table>
<thead>
<tr>
<th>CLAUSE NO.</th>
<th>TITLE</th>
<th>REVISION FROM 2013 EDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.13</td>
<td>Resistance of armour</td>
<td>New test section adopted from CSA C22.2 No. 0.3-09, clause 5.23.8 (Resistance of interlocking armour or metal sheath).</td>
</tr>
<tr>
<td>7</td>
<td>Mechanical tests for finished wire and cable</td>
<td></td>
</tr>
<tr>
<td>7.3.4.3</td>
<td>Heat shock resistance</td>
<td>Revised to include a dielectric test. Some product standards require a dielectric test after conducting the heat shock resistance test.</td>
</tr>
<tr>
<td>7.8.2 c)</td>
<td>Deformation</td>
<td>Revised to include a dial micrometer with a rectangular and slightly convex anvil to account for the slight curvature typically seen on as-received specimens.</td>
</tr>
<tr>
<td>7.17</td>
<td>Flexibility of armored cable and metal-sheathed cable</td>
<td>New sections added to account for armored cable and metal sheathed and metal-clad cables.</td>
</tr>
<tr>
<td>7.17.4.1</td>
<td>(Method 1 – interlocking armored cables)</td>
<td>Adopted from CSA C22.2 No. 0.3, clause 5.16.1 Method No.1 (armoured cable)</td>
</tr>
<tr>
<td>7.17.4.2</td>
<td>(Method 2 – metal sheathed cables)</td>
<td>Adopted from CSA C22.2 No. 0.3, clause 5.16.2 Method No.2 (metal-sheathed cable)</td>
</tr>
<tr>
<td>7.17.4.3</td>
<td>(Method 3 – continuously corrugated welded sheath)</td>
<td>Adopted from UL 1569, Section 19 Flexibility test.</td>
</tr>
<tr>
<td>7.22</td>
<td>Strength and elongation of cable in tension</td>
<td>Adopted from CSA C22.2 No. 0.3, clause 5.14 Strength and elongation of cable in tension.</td>
</tr>
<tr>
<td>7.25</td>
<td>Tightness of armour</td>
<td>Adopted from CSA C22.2 No. 0.3, clause 5.15 Tightness of armour.</td>
</tr>
<tr>
<td>7.30</td>
<td>Armoured cable bushing insertion</td>
<td>Adopted from CSA C22.2 No. 0.3, clause 5.17 Armoured cable bushing insertion.</td>
</tr>
<tr>
<td>8</td>
<td>Environmental tests for finished wire and cable</td>
<td></td>
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<tr>
<td>8.2</td>
<td>Ozone resistance</td>
<td>This is a new section which describes the apparatus and test method for the ozone resistance test that reflects current industry practice.</td>
</tr>
<tr>
<td>8.3</td>
<td>Copper sulfate test for zinc coatings on formed and unformed steel strip</td>
<td>Adopted from CSA C22.2 No. 0.3, clause 5.19 Copper sulphate test for zinc coatings on steel strip and interlocking cable armour (Preece test).</td>
</tr>
<tr>
<td>9.4.5.8</td>
<td>FV-2/VW-1</td>
<td>Revised to indicate that if flaming ceases and glowing combustion continues for 15 seconds, the burner flame shall be re-applied.</td>
</tr>
<tr>
<td>9.11.5.1 (Method 1) and 9.11.5.2 (Method 2)</td>
<td>Acid gas emission</td>
<td>Revised to better define the scope and when to use each method</td>
</tr>
<tr>
<td>9.12</td>
<td>Flame test for portable cables/FT5</td>
<td>Adopted from CSA C22.2 No. 0.3, clause 5.10.5 Flame test for portable cables/FT5</td>
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<tr>
<td>Table 5 (new)</td>
<td>Specimen preparation for tension and elongation test</td>
<td></td>
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<tr>
<td>Table 7 (new)</td>
<td>Mandrel diameters for ozone test</td>
<td></td>
</tr>
<tr>
<td>Table 9 (previously Table 7)</td>
<td>Cables 13 mm (0.51 in) or larger in diameter</td>
<td>Revised to include three significant digits for cable diameters over one inch to ensure that the same number of test specimens would be applied for samples that are measured in metric and English units.</td>
</tr>
<tr>
<td>CLAUSE NO.</td>
<td>TITLE</td>
<td>REVISION FROM 2013 EDITION</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Figure 29</td>
<td>Flame application on vertical specimen</td>
<td>Revised to show that the 20-mm flag dimension should be from the rear of the specimen and include the diameter of the specimen.</td>
</tr>
<tr>
<td>(previously Figure 27)</td>
<td></td>
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<tr>
<td>Figure 38</td>
<td>Arrangement of test equipment for halogen acid gas emission test</td>
<td>Replaced the figure to more accurately depict the assembly of the apparatus used.</td>
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<tr>
<td>(previously Figure 36)</td>
<td></td>
<td></td>
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<tr>
<td>Figure 39</td>
<td>Typical titration plot</td>
<td>Added new figure to more closely represent the plots seen during an actual test.</td>
</tr>
</tbody>
</table>