

# Transmission Line & Substation Hardware







Visual corona and RIV testing on double v-string transmission line assembly.

## Transmission Line & Substation Hardware

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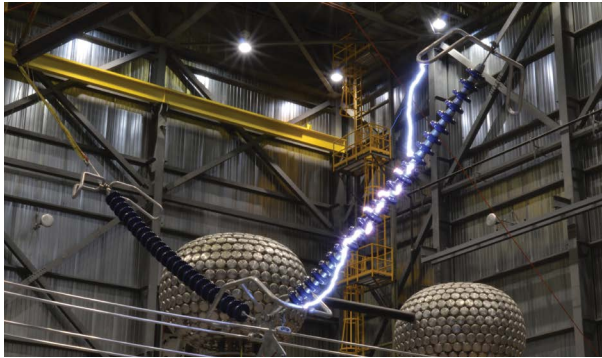
Manitoba Hydro International Ltd. understands the importance of minimizing the impact of transmission line and substation hardware on communication devices. We also recognize the need for these devices to sustain specific voltages.

We offer electrical tests for overhead transmission and substation hardware up to 765 kV AC and 800 kV DC, including:

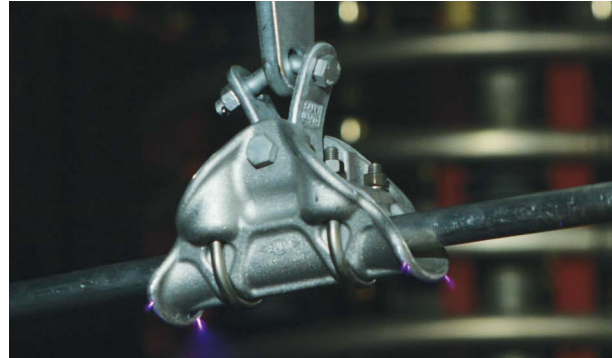
- Lightning and switching impulse tests;
- Wet and dry withstand tests;
- Visual corona tests for HVAC and HVDC applications in accordance with IEC 61284 and CSA C83-96;
- Radio interference voltage (RIV) tests in accordance with IEC 61284, CISPR 16-1, and NEMA 107-2016;
- Determination of critical flashover voltage (CFO) for arcing horns and insulator assemblies.

# Visual Corona & Radio Interference Voltage

We specialize in visual corona and radio interference voltage (RIV) testing. These tests are performed to determine the maximum conductor surface voltage gradient in kV/cm, where transmission line hardware is free from corona discharge and is not a source of RIV.



Critical Flashover Test (CFO) performed on a 500 kV AC transmission line arcing horn assembly.



Visual corona test performed on a 550 kV AC line assembly. This long exposure photograph shows streamer discharges occurring at the edges of the bottom clamp.

## Standards

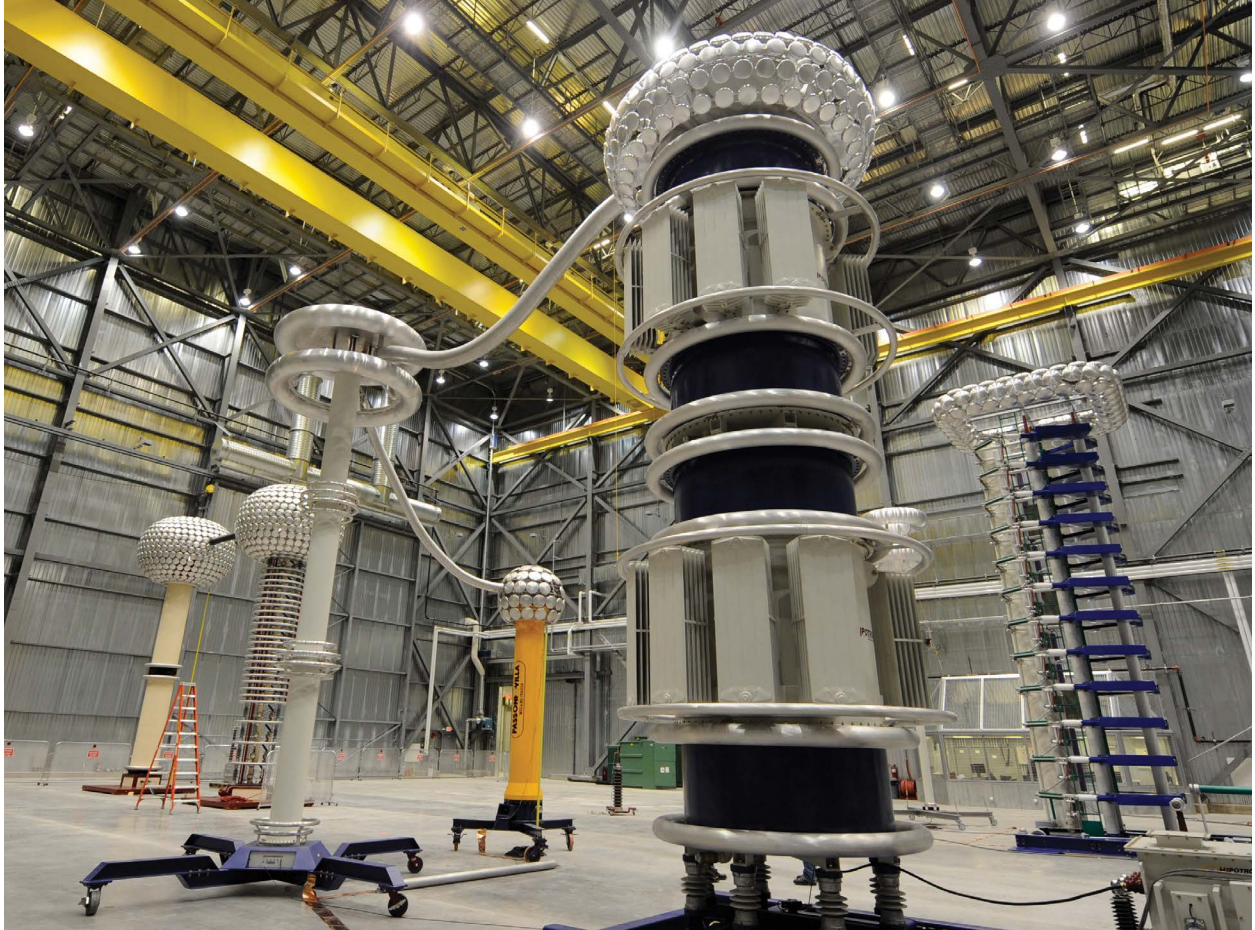
We offer visual corona and radio interference voltage (RIV) tests compliant with the following standards:

- CSA C83-96 Appendix A – Corona testing of fittings;
- IEC 60437 – Radio interference test on high-voltage insulators;
- CISPR 16-1-1 – Part 1-1: Radio disturbance and immunity measuring apparatus;
- ANSI/NEMA CC 1-2009 (R2015) – Electric power connection for substations;
- NEMA 107-2016 – Methods of Measurement of Radio Influence Voltage (RIV) of High Voltage Apparatus.

### Test Capabilities for Transmission Line & Substation Hardware

Capabilities	Voltage Rating
Direct Voltage with Polarity Reversal (DC)	± 1,200 kV
50 / 60 Hz Voltage (AC)	800 kV
Switching Impulse	± 1,300 kV
Lightning impulse	± 2,400 kV





## High Voltage Test Services

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In partnership with Manitoba Hydro's High Voltage Test Facility, we provide commercial testing services for a wide variety of high voltage electrical equipment. All testing is performed at Manitoba Hydro's leading-edge facility, where services are tailored to meet each customer's specialized needs in accordance with IEEE, ANSI, IEC, and CSA standards.

Contact us today to discuss your testing requirements:

[hvts@mhi.ca](mailto:hvts@mhi.ca)  
**+1 (204) 480-5806**

[mhi.ca](http://mhi.ca)

Available in accessible formats upon request.

