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Rochester Gas and Electric Corporation  
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## GENERAL INFORMATION

### 14. DISTRIBUTED GENERATION INTERCONNECTION REQUIREMENTS (Cont'd)

by phase A voltage depressed to 88% of rated (105 V rms) for two seconds (120 cycles) beginning and ending at a zero crossing while B and C phases continue at 100% of rated voltage (120 V rms). Repeat the same test with B and C phases depressed to the same level and for the same duration holding the other two phases at 100%.

**Waveform 4:** A three-phase sinusoidal operating at 60 Hz and 100% of rated voltage (120 V rms) interrupted by phase A voltage increased to 111% of rated (133 V rms) for two seconds (120 cycles) beginning and ending at a zero crossing while B and C phases continue at 100% of rated voltage (120 V rms). Repeat the same test with B and C phases increased to the same level and for the same duration.

**Waveform 5:** A three-phase sinusoidal operating at 60 Hz and 100% of rated voltage (120 V rms) interrupted by phase A voltage increased to 138% of rated (166 V rms) for two cycles beginning and ending at a zero crossing while B and C phases continue 100% of rated voltage (120 V rms). Repeat the same test with B and C phases increased to the same level and for the same duration.

**Waveform 6:** A three-phase sinusoidal operating at 60 Hz and 100% of rated voltage (120 V rms) interrupted by phase A voltage increased to 138% of rated (166 V rms) for two cycles beginning and ending at a zero crossing while B and C phases are decreased to 83% of rated voltage (100 V rms) beginning and ending at the same point of discontinuity. Repeat the same test with B phases increased and A and C phases decreased and for C phase increased and A and B phases decreased to the same levels and for the same duration.

**Waveform 7:** A three phase sinusoidal operating at 60 Hz and 100% of rated voltage (120 V rms) ramped to 59.2 Hz at 0.2 Hz/second, held for six cycles and ramped back to 60 Hz at 0.2 Hz/second beginning and ending at the zero crossing on A phase (or the phase on which the device frequency trip measurements).

**Waveform 8:** A three-phase sinusoidal operating at 60 Hz and 100% of rated voltage (120 V rms) ramped to 59.3 Hz at 0.2 Hz/second, held for six cycles and ramped back to 60 Hz at 0.2 Hz/second beginning and ending at the zero crossing on B phase. At the same time, A and C phase voltages are to be ramped down to 58% of rated (70 V rms) at a rate of at least 10 volts per cycle and held at that depressed voltage during the six cycles when the frequency on B phase is at 59.3 Hz before ramping back to normal voltage.

**Waveform 9:** A three-phase sinusoidal operating at 60 Hz and 100% of rated voltage (120 V rms) ramped to 60.6 Hz at 0.2 Hz/second, held for six cycles and ramped back to 60 Hz at 0.2 Hz/second beginning and ending at the zero crossing on A phase (or the phase on which the device performs frequency trip measurements).

Recognizing that the waveform testing method may not be practical for larger inverters, alternate testing methods will be acceptable if it can be demonstrated that the alternate methods verify the test points and time delays of the interconnection functions prescribed in the SIR interconnection requirements. The independent testing laboratory will be responsible to determine if the alternate testing method sufficiently verifies the interconnection functions and can be used as a replacement for the waveform testing method.

The tests shall include:

**Non-Volatile Memory Test:** Prior to waveform testing, all batteries shall be disconnected or removed for a minimum of ten (10) minutes. If the system requires no battery, then the device shall be disconnected from its source of power for a minimum of ten (10) minutes. This test is to verify the system has a non-volatile memory and that the protection settings are not lost. A test shall also be performed to determine that failure of any battery used in the power conversion and control process will result in an automatic shutdown.

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