NEMA C12.29 TR-2022

Field Testing of Electricity Meters

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Secretariat:

National Electrical Manufacturers Association

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(This Foreword is not part of NEMA C12.29 TR-2022.)

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This technical report provides guidance for expected performance for electricity meters tested in the field.

Suggestions for improvement to this technical report are welcome. They should be sent to:

NEMA Technical and Industry Affairs Department
National Electrical Manufacturers Association
1300 North 17th Street, Suite 900
Rosslyn, VA 22209

This technical report was processed and approved for submittal to ANSI by Accredited Standards Committee for Electricity Metering, C12. At the time the committee approved this standard, the C12 Committee had the following members:

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1 Scope

This document establishes guidelines for the testing of electricity meters in the field.

2 Background

Testing of electricity meters in the field is significantly different than testing meters in a laboratory. In the field there may be little control of the environment or load conditions. The purpose of this document is to describe the conditions under which field test can be expected to provide useful results and the errors one might encounter.

The philosophy behind the approach taken here is quite different from the normal laboratory approach. In the laboratory the technician carefully establishes the environmental conditions then performs the testing. In the field we generally have neither control over the environment nor detailed knowledge of it. Therefore, the approach of this document is to perform the test without prior consideration of the details of test conditions. If the results fall within the expected errors, then the meter is accepted as passing the test. If the results fall outside of the expected range, then further investigation is done to determine if the test conditions fall outside the normal range. If they are within the normal range, then the meter has failed the test. If the operating conditions fall outside the normal range, then further evaluation is required.

3 References

ANSI C12.1 *American National Standard for Electric Meters—Code for Electricity Metering*

ANSI C12.20 *American National Standard for Electricity Meters—0.1, 0.2, and 0.5 Accuracy Classes*

Where the date of the referenced document is not shown, the latest published version of the document applies.

4 Environmental conditions

In field testing we do not have control of the test environment.

4.1 Temperature

For the purpose of field testing, temperature has been broken into three ranges:

Table 1 – Temperature ranges

Low Temperature Range (LTR)	Tmin < T < 0°C	Where Tmin is the lowest operating temperature certified by the meter manufacturer.
Normal Temperature Range (NTR)	0°C ≤ T ≤ 50°C	Range over which performance is expected to match the “Nominal” requirements.
High Temperature Range (HTR)	50°C < T < Tmax	Where Tmax is the highest operating temperature certified by the meter manufacturer.