

## DRAFT

## Utility revenue grade Meter + Home Area Network (“HAN”) protocol

[This is a work in progress.]

Background – Under the existing PJM tariff, PJM may approve non-utility meters/devices as long as they meet the +/- 2% accuracy standard. Some new utility meters do not have XYZ pulses and therefore the only mechanism to get more granular load data is through a Home Area Network (HAN) type device.

PJM will approve the use of a HAN device to meet the DR interval meter data requirements based on the following. Note: the HAN device is either a wireless pulse data recorder or wireless receiver that collect interval kwh readings.

## HAN/ Pulse Generator at 1-minute interval readings

1. In the case where the Utility formally approves the HAN device for use with their metering equipment:
  - a. Tested/certified successfully as per the following **in the field** test procedure for a location.
    - i. CSP to record a day worth of data (1,440 minutes)
      1. The HAN must successfully receive/record at least 98% of the minutes (1,411 minutes)
      2. Must successfully achieve not more than 2% error (accuracy) based upon EDC interval KWH comparison (based on finest EDC interval available but no greater than hourly interval).
      3. Timestamp on first and last pulse/reading must match with NIST atomic clock reading.

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- ii. For residential applications, the steps in i. above applied to a random sample of locations based on a 90% confidence/10% error representative design.
  1. Sample size determined by a variance study (see Manual 19 Attachment C: Residential Non-Interval Metered Guidelines).
    - a. If no data is available for such a variance study (e.g. first year in field), then CSP may use a default size of 150 sample points with a variance study to be conducted in subsequent year(s) based on sample data.
    2. The sample must achieve not more than 2% error based on pass/fail test (e.g. out of 100 sample points at least 98 must pass the test regimen)
  - b. The steps outlined in a. above must be performed for each installation or sample.
    - i. Based on results PJM will either approve or deny the HAN device for the installation.
    - ii. It is possible that if enough installations/samples pass that PJM may be able to add device to the RTO wide accepted meter list in DRHub.

Ongoing Requirement if meter/device is approved:

Calibrate device to NIST Atomic Clock once a day.

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Data must be validated and estimated in accordance with the NAESB Validating, Editing, and Estimating (VEE) Protocol (for example - see Manual 19 Attachment C: Residential Non-Interval Metered Guidelines).