Memo

To	Approved Test Houses
Copies	Metering Equipment Providers Approved Auditors
From	Jonathon Staite
Date	29 October 2021
Subject	Clarification on raw meter data output tests for category 1 and 2 metering installations where the least significant digit is not a numeral

For your information

The raw meter data output test is necessary to confirm the metering installation is functioning following installation

Table 3 of Schedule 10.1 requires the raw meter data output test when certifying category 1 and 2 metering installations, and clause 9(1)(c) of Schedule 10.7 sets out the requirements for the test. This test is intended as a final check to confirm the register advances at a rate that is relative to the load applied after installation and helps identify site or meter specific issues such as non-visible damage within the meter or simple wiring errors.

The raw meter data output test requires the ATH to record the resulting meter increment or accumulation of pulses over a period of time

The raw meter data output test requires the meter register to increment. This means there should be a measurable change in the register, either through an increment in the least significant digit or mark if the least significant digit does not have markings.

Traditionally a mark has been considered a minor increment on register

Historically a mark has been considered a measurable, but non-numerical increment of the register. A mark includes any non-numerical increment that represents a measurable specific unit of energy smaller than the one represented by the least significant digit.

However, a mark can be any measurable increment

Some electronic meters include a register with a numerical element that displays the reading in kWh as well as a non-numerical element, such as the flow direction symbol. Where the non-numerical element is programmed to display or pulse at a rate proportional to the electricity flowing through the meter, it can be used to measure consumption over time at a more granular level than the least significant digit. This non-numerical element can also be referred to as a mark.

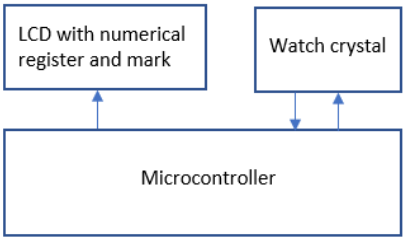
Increments in non-numerical elements of register can be used to measure the meter register advance when conducting a raw meter data output test

Where the non-numerical elements, such as a pulsing flow direction symbol have been confirmed by the certifying test house to be physically and programmatically integrated into the numerical elements of the register, counting these over an appropriate period of time can meet the outcomes of the raw meter data output test required as part of clause 9(1)(c) of Schedule 10.7.

Where the certifying test house is unable to confirm during the installation certification process that the non-numerical elements are physically and programmatically integrated into the numerical elements of the register it can rely on an assertion from the Class A ATH that batch sample tested the type of meter installed.

For example, a meter register may display readings in kWh and have an integrated flow direction symbol that pulses every Wh. Because the pulsing of the flow direction indicator can be used to measure the electricity conveyed and the mark is integrated into the numerical advance, then counting the number of pulses over a period of time will achieve the outcome and confirm that the register will advance at a rate that is relative to the load applied.

Because the meter is electronic, it is unlikely the certifying test house will be able to physically check that that flow direction symbol is physically and programmatically integrated onsite, however the certify test house can rely on confirmation from the Class A ATH that batch sample tested the specific meter type as evidence the numerical and non-numerical elements of the register are linked.



The increment in the least significant mark cannot be used if the mark is not integrated into the register

Where non-numerical element is not integrated into the numerical elements of the register, this approach cannot be used as it will not confirm that the register will advance accurately relative to the load applied. This includes where the non-numerical element is connected to the same controller but is physically or electronically separate from the meter register. In these instances, the numerical register must still be used.