



## Technical Assurance of Half Hourly Metering: Categories of common non-compliance

Technical Assurance of Half Hourly Metering Systems (TAM) is an assurance technique described in [Section L](#) of the Balancing and Settlement Code (BSC) and in BSC Procedure 27 ([BSCP27](#))<sup>1</sup>. The technique involves inspecting a sample of Half Hourly Metering Systems by the Technical Assurance Agent (TAA). We provide examples of the common types<sup>2</sup> of non-compliance that the TAA may identify.

The TAA audits Metering Systems against a set of checks prescribed in [BSCP27 Appendix 4](#). Checks may differ according to Metering Equipment and version of the applicable [Code of Practice](#) (CoP). Where the Metering Equipment or the related documentation does not comply at the time of the inspection, the TAA will raise a non-compliance.

Non-compliances fall under one of these categories:

### Consumption Data Comparison Check (CDCC) Failure

- **NC:** Consumption Data Comparison Check identified inconsistent data and is deemed to affect the quality of data for Settlement Purposes;
- **NP:** Consumption Data Comparison Check not performed. It is deemed to have the potential to affect the quality of data for Settlement purposes

**Category 1:** currently affecting the quality of data for Settlement purposes;

**Category 2:** potentially affecting the quality of data for Settlement purposes (but not currently affecting it); and

**Observation:** an inconsistency with CoP requirements, but neither affects or potentially affects the quality of data for Settlement purposes.

Details of the planned site visits, information relating to the Metering Systems inspected and non-compliances raised by the TAA are all available on the [Technical Assurance Agents Management Tool \(TAAMT\)](#) – the TAA's online system<sup>3</sup>.

The appropriate party (e.g. the Registrant, the Meter Operator Agent or the Data Collector) is expected to provide information on the rectification/rectification plan to the TAA. Once provided by the party, rectification details are also available on the [TAAMT](#).

Non-compliance categories previously removed from the non-compliance list are marked as such. Existing non-compliances relating to removed categories remain open and rectification is still required.

<sup>1</sup> [BSCP27: Technical Assurance of Half Hourly Metering Systems for Settlement Purposes](#)

<sup>2</sup> This guidance does not provide an exhaustive list of non-compliances that the TAA identifies.

<sup>3</sup> The TAAMT is accessed via [www.elexon-assurance.co.uk](http://www.elexon-assurance.co.uk). If you want to register for access, please contact the TAA at [taa\\_service@candc-uk.com](mailto:taa_service@candc-uk.com)

## 2. Non-compliances and Observations

### 2.1 Consumption Data Comparison Check

The TAA carries out a Consumption Data Comparison Check (CDCC), which compares the energy recorded by the Metering System during the inspection visit with the consumption data held at the Half-Hourly Data Collector (HHDC) or Central Data Collection Agent (CDCA) for the same Half-Hour. This provides greater assurance of the quality of data entering Settlement by ensuring that it is consistent with the energy recorded by the Metering System. If the values differ by more than the agreed tolerance, currently  $\pm 5\%$ , the TAA raises a non-compliance; as an 'NC'. If the TAA cannot carry out the check for any reason, it records this as an 'NP' ('not performed') as shown in the table below.

Consumption Data Comparison Check (CDCC)	
NC	Comparison identified inconsistent data
	Consumption data held by Data Collector outside tolerance when compared with metered energy data
NP	Comparison not performed
	Check not performed

**2.2 The following tables contain the common non-compliances, listed by non-compliance reference number**

**Table 1**

<b>Category 1 Non-Compliances</b>	
1.01	<p><b>Inaccuracy of Standing Data (Key MTD fields) held by Data Collector<sup>4</sup></b></p> <p>Outstation serial number</p> <p>Meter ID (serial number)</p> <p>Outstation number of channels</p> <p>Measurement Quantity ID</p> <p>Pulse multiplier</p> <p>Channel configuration</p> <p>Outstation multiplier/Outstation channel multiplier</p> <p>Complex Site Supplementary Information Form (SVA only)</p>
1.02	<p><b>Metering Equipment Incorrect or Unsatisfactory</b></p> <p>Metering Equipment not functioning correctly</p> <p>Metering Equipment not programmed correctly</p> <p>Overall accuracy of Metering System not maintained</p> <p>Summation CTs used<sup>5</sup></p> <p>Correct Energy Measurement Check (Primary/Secondary conductor prevailing load test) indicates an error in the metered volume Measurement Transformers not located at Defined Metering Point</p>
1.03	<p><b>Timing Error (Major)</b></p> <p>Outstation clock outside agreed tolerance<sup>6</sup></p>
1.04	<p><b>Measurement Transformer Ratios Physically Incorrect</b></p> <p>Measurement transformer ratios different from those set up in Meter (except for any difference being consistent with a measurement error compensation applied within the Metering Equipment)</p>
1.05	<p><b>Compensation Calculations Incorrect</b></p> <p>Meter compensation for Measurement Transformers Incorrectly applied or not applied</p> <p>Meter compensation for Power Transformers incorrectly applied or not applied</p>
1.06	<p><b>Miscellaneous</b></p> <p>Other non-compliance not covered elsewhere</p>

<sup>4</sup> More information about Meter Technical Detail non-compliance is in section 3.2.

<sup>5</sup> Metering and Data Collector Sub-Committee ruling 2 April 1998 (MDC 86/1972). See 'Summation CTs' in the section 4 glossary.

<sup>6</sup> More information about Outstation clock timing errors is in section 3.1.

**Table 2**

Category 2 Non-Compliances	
2.01	<p><b>Inaccuracy of Standing Data held by Meter Operator Agent<sup>4</sup></b></p> <p>Outstation serial number            Meter ID (serial number)            Outstation number of channels            Measurement Quantity ID            Meter Register Multiplier            Pulse multiplier            Channel configuration            Outstation multiplier/Outstation channel multiplier            Measurement Transformer Ratios            Complex Site Supplementary Information Form (SVA only)</p>
2.02	<p><b>Inaccuracy of Standing Data (non-Key MTD fields) held by Data Collector<sup>4</sup></b></p> <p>Data Collector's Meter Technical Details do not match on site equipment due to recent Meter Exchange            Other non-Key fields (e.g. Measurement Transformer Ratios, Meter Register Multiplier)</p>
2.03	<p><b>Non-provision of Standing Data</b></p> <p>Meter Technical Details not provided<sup>4</sup> – Meter Operator Agent and Data Collector            Complex Site Supplementary Information Form not provided (SVA only)</p>
2.04 <sup>7</sup>	Not used
2.05 <sup>8</sup>	Not used
2.06	<p><b>Metering Equipment Incorrect or Unsatisfactory</b></p> <p>Incorrect CoP applied            Check Meter missing            Main Meter missing, Check Meter present and accurate            Voltage selection relay not installed/working when Summation CTs used<sup>5</sup>            Meter Accuracy class incorrect            CT accuracy class incorrect            VT accuracy class incorrect            Unapproved data format and protocol in use            Possibility that overall accuracy of Metering System not maintained</p>
2.07 <sup>9</sup>	<p><b>Measurement Transformer and/or Meter Certificates</b></p> <p>Certificates not provided            Certificates do not match on-site equipment</p>

<sup>7</sup> 2.04 has never been used

<sup>8</sup> 2.05 has never been used

<sup>9</sup> 2.07 was removed in February 2009 (PAB93/08) and replaced with 2.16 and 2.17

## Category 2 Non-Compliances

2.08	<b>Unsuitable Environment</b> Environmental conditions likely to cause Metering Equipment failure
2.09	<b>Inadequate Over-current Protection</b> Insufficient discrimination between source and local fusing No local isolation Main and check Meters not separately fused Other Metering Equipment not separately fused Non-settlement Meters not separately fused
2.10	<b>Separate Phase Failure Alarms not Installed or Inadequate/Failed – Local and Remote</b> Alarm not fitted where required Alarm not functioning
2.11	<b>Inadequate Metering Equipment Integrity</b> Settlement Metering Equipment not sealed Password functionality not included in Outstation <sup>10</sup>
2.12 <sup>11</sup>	<b>Metering Equipment Test Facilities</b> Lack of adequate Metering Equipment test facilities
2.13	<b>Miscellaneous</b> Other non-compliance not covered elsewhere
2.14	<b>Timing Error (Minor)</b> Outstation clock outside agreed tolerance <sup>12</sup>
2.15	<b>Commissioning Records</b> Commissioning records not provided Commissioning records incorrect Commissioning records incomplete
2.16	<b>Measurement Transformer Certificates not provided or incorrect</b> Measurement Transformer Certificates not provided Measurement Transformer Certificates do not match site equipment
2.17	<b>Meter Certificates not provided or incorrect</b> Meter Certificates not provided Meter Certificates do not match site equipment

<sup>10</sup> Password functionality in Outstation is not required in some earlier issues of CoPs

<sup>11</sup> 12 removed in February 2007

<sup>12</sup> More information on Outstation Clock Timing Errors is in section 3.1.

**Table 3**

Observations	
0.01-0.14 <sup>13</sup>	Not used
0.15 <sup>14</sup>	Suitable Environment (minor) Environmental conditions not likely to cause immediate Metering Equipment failure
0.16	Labelling Inconsistency Main/Check/Import/Export Circuits (feeders) Measurement Transformer ratio and/or polarity Test Terminal Block connections
0.17	Standing Data (excluding Key MTD fields) (see 'Meter Technical Detail non-compliance') Inaccuracy in any fields other than those in 1.01 and 2.01 or incorrect site contact name Miscellaneous
0.18	Other inconsistency not covered elsewhere
0.19	Test Terminal Block Test Terminal Block not fitted/inappropriate
0.20	Unauthorised Access Possible unauthorised access to Meter location which could lead to interference with Metering Equipment

### 2.3 Use of 'Notes' by the TAA

Occasionally, the TAA Inspector will record additional information about a visit, to provide more information to a party about that inspection or any non-compliance found. The TAA use a 'Note' for this function; they are visible in TAAMT with the non-compliances.

<sup>13</sup> 0.01 to 0.14 have never been used.

<sup>14</sup> 0.15 was removed in February 2009 (PAB93/08).

### 3. More information about non-compliances

This section provides more information on the category of non-compliance considered when a failure is identified for clock timing errors and Meter Technical Details (MTDs).

#### 3.1 Outstation clock timing errors (NC 1.03 and 2.14)

The relevant CoP for a Metering System defines the tolerance levels of Outstation clock timing errors. Any error outside these tolerances is a non-compliance. The table below defines when a timing error against Co-ordinated Universal Time (UTC) is categorised as either a Category 1 or Category 2 non-compliance based on the extent of the error:

Code of Practice <sup>15</sup>	Category 1 Non-Compliance	Category 2 Non-Compliance
CoP 1	>± 30 seconds	± 20 - 30 seconds
CoP 2	>± 30 seconds	± 20 - 30 seconds
CoP 3	>± 1 minute	± 20 seconds to 1 minute
CoP 5	>± 2 minutes	± 20 seconds to 2 minutes

#### 3.2 Meter Technical Detail non-compliances (NCs 1.01, 2.01, 2.02 and 2.03)

This section details the process that the TAA follows when reviewing the accuracy of MTDs and determining the category of non-compliances. The workflow diagrams in Appendix 1 outline this process.

Only the Meter Operator Agent<sup>16</sup> (MOA) and HHDC<sup>17</sup> need to provide MTDs to the TAA<sup>18</sup>. However, the Registrant may want to seek assurance that the MTDs it holds are correct and may want to submit its own data to the TAA for validation. If the HHDC or MOA does not provide MTDs, a Category 2 non-compliance (NC 2.03) is raised against each agent that does not provide these.

If the TAA finds a non-compliance in the MTDs held by the DC, it determines whether the inconsistency is against those items in the Key MTD Fields. If this is the case, the TAA raises a Category 1 non-compliance (NC 1.01). This is because the DC's MTDs are used in Settlement and affect the quality of Settlement data. If the TAA determines that the inconsistency is not against Key MTD Fields, the TAA raises a Category 2 (NC 2.02). The DC needs the assistance of the MOA to rectify the non-compliance, but it is likely to be the DC who provides rectification details to the TAA.

Any non-compliance found in the MTDs held by the MOA may potentially impact Settlement and therefore a Category 2 non-compliance (NC 2.01) is raised.

If the TAA finds the Registrant's MTDs to be non-compliant, the TAA only 'Notes' that the Registrant's MTDs are incorrect, as these MTDs are not used directly in Settlement.

<sup>15</sup> All CoPs, including Scottish and historical CoPs (e.g. A to K2) are available on the [BSC Website](#)

<sup>16</sup> This includes Supplier Volume Allocation (SVA) HHMOAs and Central Volume Allocation (CVA) MOAs.

<sup>17</sup> This includes Half Hourly Data Collectors (HHDCs) and the Central Data Collection Agent (CDCA).

<sup>18</sup> Responsibilities and timescales for submission of MTDs are detailed in [BSCP27](#)

## Recent Meter Exchanges

Where there is evidence of a recent Metering Equipment exchange, the TAA follows a slightly different process when reviewing the DC's MTDs.

Where the HHDC has provided incorrect MTDs and there is evidence they are incorrect because of a recent change, the TAA initially raises a Category 2 non-compliance (NC 2.02) and requests that the DC provides a new set of MTDs.

If the new MTDs submitted are correct, the Category 2 non-compliance (NC 2.02) is closed. If the new MTDs are still incorrect, the TAA retains the non-compliance (NC 2.02).

Meter Technical Details – Non-compliances applied by party type:			
	CDCC - NC	Category 1	Category 2
<b>Registrant</b>	None	None	None
<b>HHDC</b>	If the consumption Data Comparison Check identifies inconsistent data	If Key MTD Fields are incorrect (NC 1.01)	If MTDs are not provided (NC 2.03) or if non-Key MTD Fields are incorrect (2.02)
<b>MOA</b>	None	None	If MTDs not provided (NC 2.03) or if MOA MTDs are incorrect (NC 2.01)

## 4. Definition of Key Terms

Term	Definition
Recent Meter Exchange	An exchange of Metering Equipment between notification of inspection visit and date of inspection visit
Key MTD fields	Those data items in the Meter Technical Details (MTDs) used by the MOA to request a proving test
Measurement Transformers	Means Current Transformers (CT) and Voltage Transformers (VT) in the context of this document
Summation CTs	The Metering and Data Collector Sub-Committee ruled on 2 April 1998 (MDC 86/1972) that Summation CTs were no longer acceptable for Settlement use and no retrospective action was required. Metering Systems installed prior to this with Summation CTs shall not have a non-compliance applied for the use of such CTs.
Metering definitions	Metering Equipment is a BSC defined term and refers to all equipment associated with the metering installation. Such as Meters, Outstation. CTs, VTs and any communication equipment. When this Metering Equipment is commissioned by the MOA is comprises the Metering System
Consumption	In the case of the CDCC, the check can be applied to either or both import and export quantities as determined by the TAA



## Contact Us

If you have any queries on this document, or if you'd like to know more about the Technical Assurance of Metering process, please contact us at [tametering@elexon.co.uk](mailto:tametering@elexon.co.uk)

You can also find out more from the [Technical Assurance of Metering Systems](#) pages of our website.

## Need more information?

For more information please contact the **BSC Service Desk** at [bscservicedesk@cgi.com](mailto:bscservicedesk@cgi.com) or call **0870 010 6950**.

All other terms used and their definitions are in the [BSC](#), [BSCP27](#), the [Codes of Practice](#) and the [Glossary](#) on the [BSC Website](#):

[Balancing and Settlement Code \(BSC\)](#)

[BSCP27](#)

[Codes of Practice \(CoPs\)](#)

[Glossary](#)

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