

ELEXON

TAA WORKING INSTRUCTIONS

Desktop Audits

Public

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Background

The Technical Assurance of Metering (TAM) is a Performance Assurance Technique (PAT) within the wider Performance Assurance Framework (PAF). The TAM monitors the compliance of Metering Equipment and Metering Systems with the Balancing and Settlement Code (BSC) and the relevant Code Subsidiary Documents (CSDs) such as the Codes of Practice (CoPs).

The objectives of the TAM are twofold: to monitor compliance with BSC obligations to ensure Half Hourly metered data is complete and accurate; and to assess the overall health of all the HH Metering System population.

On 27 February 2020 BSC Modification P391 was implemented which enabled a TAM audit to be carried out via a Desktop Audit. This document details the evidence that will be submitted and the requirements of the Technical Assurance Auditor (TAA) when carrying out the audit.

Supplier Commitment

At least 15 Working Days (WDs) prior to the audit the TAA shall notify the Registrant of the Metering System that is to be audited that a Desktop Audit is to take place and the date on which the audit will go ahead. Within 5WDs of the notification the Registrant must confirm the visit by way of the response to a list of questions. These questions collectively are known as the Supplier Commitment questions and will drive the evidence required to be submitted by each BSC Party and BSC Party Agent.

The following questions are to be answered by the Registrant at the time of confirmation of the visit. Depending on the answers given additional evidence may be required as part of the Desktop Audit. This will be highlighted later in the document when describing the requirement for each item of evidence.

Questions	Possible answers
How many circuits are on site?	This should be a numerical figure. The Technical Assurance of Metering Management Tool (TAAMT) will only allow a figure of up to 50.
Is the site complex?	Yes; No;. This question will only be available where the MSID is registered in SVA.
Is this a Shared SVA site?	Yes; No;. This question will only be available where the MSID is registered in SVA.
Is there a Metering Dispensation?	Yes; No; Unknown
CoP of Metering System on site?	This should be a numerical figure of either: 1, 2, 3, 5 or 10.
Upcoming Change of Agent or Change of Supply?	Yes; No;
Are there any known faults on the Metering System?	Yes; No; Unknown
Provision of Aggregation Rules (CVA only)	Yes; No;. This question will only be available where the MSID is registered in CVA.
Is the site post P283?	Yes; No;
Are the CTs customer owned?	Yes; No;

Should the Registrant not confirm the audit by way of response to the above questions the TAA should issue a Category “**A.1X - Registrant failed to confirm or complete Desktop Audit notification**” non-compliance. This will prevent the Desktop Audit going ahead. Elexon will be informed of all Category A.1X non-compliances and will in turn report these to the Performance Assurance Board (PAB).

Evidence submission

Single Line Diagram

Responsible Parties:

Registrant.

Dependencies:

Required for CoPs 1, 2, 3, 5; or if the site is complex.

Potential non compliances

A.2X, A.2R, A.2M, A.2C, A.2Z

Data mismatch between Single Line Diagram, or other supporting documentation

A.4X, A.4R, A.4M, A.4C, A.4Z

Measurement transformer ratio mismatch

A.14X

Number of circuits mismatch

B.3R

Single Line Diagram not provided

Where the Metering System to be audited is Low Voltage¹ the LDSO may submit a generic Single Line Diagram(s). This generic diagram should include a drawing of the unit containing the CTs/VTs and how this interacts with the Metering unit. A wiring diagram that shows the CT/VT wiring may also be provided.

For High Voltage Metering Systems the LDSO must submit a site specific SLD, the requirements for which are described below.

The single line diagram (SLD) should include all circuits registered under the MSID. Where the SLD provided indicates a mismatch between either: the number of circuits provided by the Registrant or the number of circuits provided by ELEXON (CVA only), the TAA should raise an A.14X non-compliance.

The SLD should also show that all Metering Equipment comprised within the Metering System should be located at the Defined Metering Point (DMP), as defined in Appendix A of the relevant CoP. Where the SLD shows the Actual Metering Point (AMP) to be different from that of the DMP (and the Supplier did not indicate that the MSID was subject to a Metering Dispensation in their commitment questions) then the TAA should raise a A.2X and an A.2R non-compliance with a comment in the additional notes section detailing "AMP not at DMP – potential Metering Dispensation required".

In addition to the SLD a more detailed diagram can be provided that shows the Measurement Transformer connections so long as the diagram includes enough detail to determine the physical location of the Meter Point in relation to the Total System.

The SLD should provide the ratio of all measurement transformers comprised within the Metering System where possible. Where the ratio provided on the SLD does not match with any other item of evidence provided by any other party then an A.4R non-compliance should be raised. Another A.4 non-compliance should be raised against the party responsible for providing the item(s) of evidence on which the mismatch occurred.

Where a SLD has not been provided then a B.3R non-compliance should be raised.

¹ Below 1000v

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Meter Technical Details (MTDs)

Responsible Parties: Registrant, Meter Operator (MOA), Data Collector (DC) – if MSID is registered in SVA, Central Data Collection Agent (CDCA), - if MSID is registered in CVA.

Dependencies: None

Potential non-compliances

A.2X, A.2R, A.2M, A.2C, A.2Z

Data mismatch between Single Line Diagram, or other supporting documentation

A.4X, A.4R, A.4M, A.4C, A.4Z

Measurement transformer ratio mismatch

A.8M, A.8C

Complex Site supplementary form mismatch

A.9X, A.9M, A.9C

D0268 mismatch (key fields)

A.13X, A.13M, A.13Z

BSCP20 4.3 mismatch

B.1X, B.1M, B.1C

D0268 not provided

B.2X, B.2M, B.2Z

BSCP20/4.3 not provided

B.17X, B.17M, B.17Z

D0268 mismatch (non-key fields)

The MTDs required are dependent on whether the MSID is registered in SVA or CVA. Where the MSID is registered in SVA the D0268 dataflow is required. Where the MSID is registered in CVA then the BSCP20/4.3 form is required.

The following data items should be checked against all other items of evidence submitted by each party involved in the audit. Where there is a mismatch in any of the below data items with another item of evidence submitted then a non-compliance should be raised. Where the mismatch occurs between two MTD submissions from differing parties (i.e. two D0268 dataflows, or two BSCP20/4.3 forms) then an A.9/A.13 non-compliance should be raised against each party for which the mismatch occurs. Where the mismatch occurs between an MTD submission and a different item of evidence which is not an MTD submission then an A.2 non-compliance should be raised. Where the mismatch occurs between evidence submitted by differing parties then a non-compliance should be raised against each party responsible for submitting each item of evidence. Where the mismatch is in relation to measurement transformer ratios then an A.4 non-compliance should be raised. Where the mismatch occurs between evidence submitted by differing parties then a non-compliance should be raised against each party responsible for submitting each item of evidence.

Where the Metering Equipment comprised within the Metering System is registered against CoP5 and above then the Measurement Class should be C. Where there is a discrepancy between the registered CoP and Measurement Class then a B.1 non-compliance should be recorded.

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Key MTD fields

- VT Ratio
- CT Ratio
- Feeder Status
- Meter Register Id
- Outstation Id
- Channel Number
- Pulse Multiplier
- Meter Register Multiplier
- Outstation Multiplier
- Measurement Quantity Id

Where the Registrant has indicated in their commitment questions that the site is not complex then the Complex Site indicator should be set to false. Where this is not the case, the TAA should raise an A.8 non-compliance against the parties responsible for each offending item of evidence. Similarly where the Registrant has indicated that the site is complex in their commitment questions but the Complex Site indicator is marked as false, then an A.8 non-compliance should also be raised.

The following data items should be checked against all other items of evidence submitted by each party involved in the audit. Where there is a mismatch in any of the below data items with another item of evidence submitted then a B.17 non-compliance should be raised. Where the mismatch occurs between evidence submitted by differing parties then a non-compliance should be raised against each party responsible for submitting each item of evidence.

Non-key MTD fields

- CoP
- Outstation Id
- Outstation Number of Channels
- Outstation Pin
- Outstation Password Level 1
- Outstation Password Level 2
- Communications Address
- Meter Id

Where the MTDs have not been provided then a B.1/B.2 non-compliance should be raised against each party that did not provide an MTD submission.

Three Days of HH Settlement Data

Responsible Parties: MOA, DC – where MSID is registered in SVA, CDCA – where MSID is registered in CVA.

Dependencies Where the Registrant has indicated via the commitment questions that there is a known communications fault on the Metering System, the following tests will not be conducted. However in the case that the fault is rectified between the initial notification date and the Desktop Audit date; and the rectification date gives sufficient time for the HHMOA and HHDC to collect three days of HH Settlement (three days prior to the audit date) then the HH Settlement data should be submitted and the tests carried out.

Where the communications method (J0386) in the D0268 indicates that remote communications are not installed (“HT or HP”) then the following tests will not be conducted.

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Potential Non-compliances

A.6M, A.6C, A.6Z

Settlement data mismatch

A.10C, A.10Z

Mini-Mar is outside of tolerance

B.9M, B.9C, B.9Z

Settlement data (3 days) not provided

The MOA and DC/CDCA are required to submit three days of Half Hourly data for comparison. Where the data is submitted by the HHDC it should also include a cumulative advance reading from the first Settlement period of the first day and the last Settlement period of the last day. Where it is not possible to submit a cumulative read from the first Settlement period of the first day or the last Settlement period of the last day then the cumulative advance should be as close as practicable to these Settlement Periods. The MOA and DC/CDCA must agree the dates for which the data will be provided. Where communication between the MOA and DC has failed to agree a date then it is recommended that as a default, the first three days following the initial notification from the TAA are used.

For SVA registered Metering Systems the data should be in kWh. For CVA Metering System the data should be in MWh.

The TAA should conduct a comparison between the Half Hourly values provided by the HHDC/CDCA and MOA. The Settlement values provided by the MOA and HHDC/CDCA should match for each Settlement period provided. Where the values do not match for any Settlement period an **A.6** non-compliance should be recorded against the MOA and the HHDC/CDCA. For the avoidance of doubt, a mismatch should not include instances where the format or granularity of the data does not meet the requirements of this document. In these cases the data shall be considered as incomplete and a B.9 non-compliance should be raised against the Party that has submitted the data.

The Settlement data provided should show any alarm flags against the Settlement period for which it relates. The party responsible for submitting the data should communicate, through the additional notes feature, the reason for any alarm flags recorded on the data submitted. Where the Settlement data submitted shows an alarm flag which has not been explained by the party responsible for submitting the data then an **A.6** non-compliance should be raised the party responsible for submitting the data for which the non-compliance relates to.

The TAA should conduct a comparison between the cumulative advance readings provided and the HH Settlement data provided by the HHDC/CDCA for the same period. This process is outlined in BSCP05 Section 3.1 for CVA (Meter Advance Reconciliation) and BSCP502 Section 4.1.5 (Cumulative/Total Consumption Comparison). Where the difference between the cumulative reads and the total of the HH Settlement periods exceeds a defined tolerance then an **A.10** non-compliance will be raised against either the HHDC or the CDCA dependant on which party submitted the data. For MSIDs registered in CVA this tolerance is $\pm 5\%$. For MSID registered in SVA this tolerance is $\pm 2\%$.

Overall Accuracy

Responsible Parties MOA

Dependencies None

Potential Non-compliances

A.2X, A.2R, A.2M, A.2C, A.2Z

Data mismatch between Single Line Diagram, or other supporting documentation

A.4X, A.4R, A.4M, A.4C, A.4Z

Measurement transformer ratio mismatch

A.7M

Overall Accuracy outside of limits

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B.10M

Compensation figures not provided (where applicable)

B.14M

CT/VT Certificates or supporting evidence for overall accuracy calculation not provided

B.16M

Overall accuracy calculation not provided

An MOA is required to assess the Overall Accuracy of the Metering System and ensure that it does not exceed the Overall Accuracy limits defined in the relevant CoP. These limits are shown in the table below (at unity power factor).

CoP	Meter Requirement	CT Requirement	VT Requirement	CoP Requirement (@UPF)	Class Accuracy (@UPF)
10 & whole current	As per Schedule 7 of Electricity act	Class 0.5	-	As per Schedule 7 of Electricity act	
5 LV	Class 2	Class 0.5	-	1.5%	2.5%

5 HV	Class 2	Class 0.5	Class 1	1.5%	3.5%
3	Class 1	Class 0.5	Class 1	1.5%	2.5%
2	Class 0.5S	Class 0.2S	Class 0.5	1.0%	1.2%
1	Class 0.2S	Class 0.2S	Class 0.2	0.5%	0.6%

Overall Accuracy is calculated as the sum of the errors of the Meter, voltage transformer and current transformer.

The MOA should submit their calculation of the Overall Accuracy limits. This will include an error for each item of Metering Equipment. The MOA should also submit the evidence to support the error provided for each item of Metering Equipment. Where the MOA is unavailable to determine the actual errors of the item of Metering Equipment (or provide supporting evidence to justify such determination) then the MOA should submit evidence clearly showing the class of the Metering Equipment. Where the class of the Metering Equipment is used in the Overall Accuracy calculation, the TAA should assume the worst case extreme error. So for example a class 1 item of Metering Equipment should be assumed to have an associated error of $\pm 1\%$ where the actual errors are not presented or supported.

The following is a list of acceptable evidence that the MOA can provide to justify an actual error for an item of Metering Equipment:

- Calibration Certificate for the item of Metering Equipment comprised within the Metering System being audited.
- Calibration Certificate of a similar manufacturer, class, ratio and burden of the item of Metering Equipment comprised within the Metering System being audited.
- An error value taken from the National Measurement Transformer Error Statement (NMTES).

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The following is a list of acceptable evidence that the MOA can provide to justify the class accuracy of the item of Metering Equipment comprised within the Metering System.

- Commissioning Certificate
- Photo of rating plate/label
- D0215 dataflow
- D0383 dataflow

Where a photograph of the rating plate/label is used as a means of evidence then that photograph should clearly show the serial numbers of the Metering Equipment for which it is being used. A photograph should only be accepted as evidence by the TAA where the serial numbers of the Metering Equipment are visible on at least one other piece of evidence linking those serial numbers to the MSID being audited.

It is possible to reduce the Overall Accuracy of the Metering System by applying a compensation figure to the Meter. Where compensation has been applied the factor applied should be included in the figure for the Meter accuracy. So for instance if the Meter error was +0.8% and a compensation factor of -8% has been applied then the error inputted against the Meter would be 0%. The MOA should highlight via the additional notes feature where compensation has been applied. Additional evidence must be provided to support the compensation factor applied.

Where the Overall Accuracy limit provided exceed the limit defined in the CoP that the Metering System is registered against then the TAA will issue an **A.7M** non-compliance.

Where using the evidence provided the TAA calculates a different Overall Accuracy figure, the TAA will issue an **A.7M** non-compliance.

Where the TAA does not feel that the evidence provided adequately justifies the errors submitted by the MOA then a **B.14M** non-compliance should be raised. Where the MOA has indicated that compensation has been applied to the Meter but has not provided adequate evidence to support the compensation factors applied; or the MOA has submitted evidence indicating that compensation has been applied but has not outlined this in the additional notes feature; then the TAA should raise a **B.10M**.

Where the measurement transformer ratios; or Meter ratios, differ from any other evidence provided as part of the Overall Accuracy calculation then an **A.4M** non-compliance should be raised.

Where any other characteristic of the items of Metering Equipment (such as those included in the MTD submission) differs from any other evidence provided by any other party as part of the audit then an **A.2** non-compliance should be raised against the parties responsible for submitting the evidence on which the mismatch has occurred.

Where the MOA does not submit an Overall Accuracy calculation; or the calculation is not supported by adequate supporting evidence; then the TAA should raise a **B.16M** non-compliance.

Commissioning

Responsible Parties	LDSO, MOA
Dependencies	Where the Registrant has indicated via the commitment questions that the "site" is post P283 and the measurement transformers are not customer owned then the LDSO will be responsible for submitting any Commissioning information related to the measurement transformers. In all other cases the MOA will be responsible for submitting all evidence related to Commissioning.

Potential Non-compliances

A.2X, A.2R, A.2M, A.2C, A.2Z

Data mismatch between Single Line Diagram, or other supporting documentation

A.4X, A.4R, A.4M, A.4C, A.4Z

Measurement transformer ratio mismatch

A.5X, A.4R, A.4M

Suspect data on Commissioning evidence provided

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B.11R, B.11M

Commissioning record (part 1) not provided (Post Nov 2018)

B.12M

Commissioning record (part 1) not provided (Pre Nov 2018)

B.13M

Commissioning record (part 2) not provided

Section 5.5 of CoP4 details the obligations for the Commissioning of Metering Equipment for Settlement purposes. For the purposes of the Desktop Audit, any evidence related to the Commissioning of measurement transformers should be considered as a “part 1 Commissioning record”. Any evidence related to the Commissioning of Meters should be considered as a “part 2 Commissioning record”.

The Commissioning record(s) should demonstrate that tests have been completed to confirm the requirements of Section 5.5.2 of CoP4. The Commissioning record should include the results of inspections, tests and observations. As there is no standard commissioning method it is up to judgement of the TAA as to whether the Commissioning record is acceptable. Should the TAA have any doubt or concerns as to the completeness of the Commissioning Record, or feels that the evidence of the tests provided does not adequately confirm the requirements of Section 5.5.2 of CoP4, or that a mistake has been made in the Commissioning process then an **A.4** non-compliance should be raised against the party responsible for submitting the evidence that the non-compliance is raised against.

Where the Commissioning record has not been provided, the below list details which non-compliance should be raised against which party.

- Where the MSID is identified as pre 283, or the measurement transformers **are** customer owned, then an omission of a “part 1 Commissioning record” will be raised as a **B.12M**.
- Where the MSID is identified as post P283 and the measurement transformers are **not** customer owned then an omission of a “part 1 Commissioning record” will be raised as a **B.11R**

An omission of a “part 2 Commissioning record” will be raised as a **B.13M**.

Where any other characteristic of the items of Metering Equipment (such as those included in the MTD submission) differs from any other evidence provided by any other party as part of the audit then an **A.2** non-compliance should be raised against the parties responsible for submitting the evidence on which the mismatch has occurred.

Open Fault Comparison

Responsible Parties

HHMOA, HHDC

Dependencies

Where the Registrant has confirmed via the Supplier Commitment questions that there is an open fault, then both the MOA and HHDC will be required to submit “D0001 - Request Metering System Investigation” dataflows (SVA only). The TAA will conduct a comparison between these dataflows. Where the fault is rectified in the period between the initial notification and the Desktop Audit date, the MOA and HHDC will be required to submit the “D0002 - Fault Resolution Report or Request for Decision on Further Action”.

Potential Non-compliances

A.2X, A.2R, A.2M, A.2C, A.2Z

Data mismatch between Single Line Diagram, or other supporting documentation

B.8C, B.8M

Request for Metering System investigation (D0001) and fault resolution report (D0002) not provided

Where the Registrant has confirmed via the Supplier Commitment questions that there is an open fault; and the Metering System is registered in SVA; then both the MOA and HHDC will be required to submit a D0001 dataflow. The D0001 is sent from HHDC to the MOA. The dataflow transmitted and received should be identical. If any of the data items within the two dataflows are misaligned then the TAA should raise an **A.2** non-compliance against both the MOA

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and the HHDC. An **A.2** non-compliance should also be raised where any of the content within the data items differs from the same content provided in any other item of evidence submitted by any other party. The non-compliance should be raised against whichever party is responsible for submitting the item of evidence which misaligns with the dataflow.

Where the fault is rectified in the period between the initial notification and the Desktop Audit date, the MOA and HHDC will be required to submit the D0002. The D0002 is sent from the MOA to the HHDC. The dataflow transmitted and received should be identical. If any of the data items within the two dataflows are misaligned then the TAA should raise an **A.2** non-compliance against both the MOA and the HHDC. An **A.2** non-compliance should also be raised where any of the content within the data items differs from the same content provided in any other item of evidence submitted by any other party. The non-compliance should be raised against whichever party is responsible for submitting the item of evidence which misaligns with the dataflow.

Where the D0001 and/or D0002 dataflow is not submitted (where required) then the TAA shall issue a **B.8** non-compliance.

Appendix 1 – Category A non-compliances

Non-compliance	Codes				
	Registrant	LDSO	MOA	HHDC	CDCA
Registrant failed to confirm or complete Desktop Audit notification	A.1X				
Data mismatch between Single Line Diagram, or other support documentation	A.2X	A.2R	A.2M		
Allocation schedule mismatch	A.3X			A.3C	
Measurement transformer ratio mismatch	A.4X	A.4R	A.4M	A.4C	A.4Z
Suspect data on Commissioning evidence provided	A.5X	A.5R	A.5M		
Settlement data mismatch			A.6M	A.6C	
Overall Accuracy outside of limits			A.7M		
Complex Site supplementary form mismatch			A.8M	A.8C	
D0268 mismatch (standing data)	A.9X		A.9M	A.9C	
Mini-Mar is outside of tolerance				A.10C	A.10Z
Incorrect aggregation rule	A.11X				A.11Z
Compensation factors incorrect			A.12M		
BSCP20 4.3 mismatch	A.13X		A.13M		A.13Z
Number of circuits mismatch	A.14X		A.14M	A.14C	A.14Z

Appendix 2 – Category B non-compliances

Non-compliance	Codes				
	Registrant	LDSO	MOA	HHDC	CDCA
D0268 not provided	B.1X		B.1M	B.1C	
BSCP20/4.3 not provided	B.2X		B.2M		B.2Z
Single Line Diagram not provided	B.3X				
Complex Site Supplementary Information form not provided			B.4M	B.4C	
Aggregation Rule not provided	B.5X				B.5Z
Evidence of Metering Dispensation not provided	B.6X				
Allocation Schedule not provided	B.7X			B.7C	
Request for Metering System investigation (D0001) and fault resolution report (D0002) not provided			B.8M	B.8C	
Settlement data (3 days) not provided			B.9M	B.9C	B.9Z
Compensation figures not provided (where applicable)			B.10M		
Commissioning record (part 1) not provided (Post Nov 2018)		B.11R			
Commissioning record (part 1) not provided (Pre Nov 2018)			B.12M		
Commissioning record (part 2) not provided			B.13M		
CT/VT Certificates (pre-November 2018) or supporting evidence for overall accuracy calculation not provided			B.14M		
CT/VT Certificates (post-November 2018) or supporting evidence for overall accuracy calculation not provided		B.15R			
Missing Meter Certificates, or other supporting evidence			B.16M		
Missing D0215		B.17R			
Overall accuracy calculation not provided			B.18M		
Data for Mini-MAR not provided				B19.C	B19.Z
D0215 flow missing fields		B.20R			