Detailed Level Changes to CoP4 Issue 5 (v4.0) Requirements

The following table lists the detailed changes between the requirements set out in CoP4 Issue 5 (v4.0) and those set out in the new draft version of CoP4 Issue 5 (v4.1) as recommended by the CoP4 Review Group and ELEXON:

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
1. Scope	This section sets out the Scope of CoP4:	Section 1. Scope	This section sets out the Scope of CoP4:
	Practice that shall be employed and apparatus used for calibration, testing and commissioning Metering Equipment.		Changed to 'Practice that shall be employed and apparatus used for Calibration, sample Calibration and commissioning Metering Equipment'. Specifies which other CoPs CoP4 applies to and which testing requirements it supersedes (i.e. in the alpha CoPs).
			New paragraph states that if Meter accuracy is outside defined limits then adjust and re-calibrate.
	Dispensation shall not normally be granted.		Dispensations against CoP4 not normally granted. Clarification added that despite Dispensations against other CoPs Metering Systems will still need to comply with CoP4.
	Meters certified under the Electricity Act 1989 shall be calibrated and tested in accordance with the Act and shall be deemed to meet this CoP4.		Paragraph on Act removed.

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CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
			Clarification added that ultimately Registrant is responsible for compliance with CoP4. Queries and disputes must be raised in accordance with BSCP27. BSCCo acts under delegated authority from Panel and may delegate to a Third Party.
2. Application to Metering Codes of Practice	This section sets out the application of CoP4 to other Metering CoPs: CoP4 specifies Overall Accuracy limits for Meters and these are equal to or lower than those in the relevant CoPs in recognition that error at the Actual Metering Point or the Defined Metering Point will be greater than the error of the Meter alone	Section 2. Application to Other Codes of Practice	This section sets out the application of CoP4 to other Metering CoPs: Same as CoP4 Issue 5 (v4.0) but specifies CoP4 instead of 'This CoP'.
3. References	This section sets out the References used in CoP4:	Section 3. References	This section sets out the References used in CoP4:

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CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	References: BSC, NAMAS, Electricity Act and BS5750.		References: BSC, UKAS, Electricity Act, BS EN ISO 9001 (Quality management systems), BS EN ISO/IEC 17025 (competence of Calibration labs), relevant Meter/Current Transformer/Voltage Transformer BS EN Standards and the Meter Operator Code of Practice Agreement (MOCoPA).
4. Definitions and Interpretations	This section defines the terms used in CoP4: See summary of changes to CoP4 Issue 5 (v4.1) in last table column.	Section 4. Definitions and Interpretations	This section defines the terms used in CoP4: 'Accredited Laboratory' - Director General of Electricity Supply removed. 'AC/DC Transfer Standard' and 'AC Transfer Standard' - definition combined under Transfer Standard. 'Adjustment' - defined. 'Blank Calibrated Meter' - definition clarified. 'Calibration' - Standards added to definition. 'Commissioning' - defined 'Compensation' - defined. 'Compensated Meter' - clarification added as to why Compensation is applied.

Detailed Level Changes to CoP4 Issue 5 (v4.0) Requirements

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
			'Defined Metering Point' - definition narrowed to physical location only. 'Dispensation Application' - removed 'Electricity' - term capitalised. 'Meter Type' - defined 'Metering Equipment' - double asterisk removed (definition matches the Code definition exactly). 'Meter Register' - definition removed. 'Mobile Standard' - definition removed. 'on-site accuracy test' - definition removed. 'Outstation' - 'inter-alia' replaced with 'amongst other things'. 'Overall Accuracy' - term capitalised + pointer to relevant CoP for Overall Accuracy of Metering System. 'Settlement Instation' - definition removed. 'Standards' - terms AC/DC and AC Transfer Standards replaced with Transfer Standards. 'Traceable' - defined in relation to Calibration certificates, sealing and Calibration equipment. 'Transfer Standard' - definition modified to include

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
			verification method and its purpose.
5. Reference Standards	This section sets out the requirements for Reference Standards: *Temperature Tolerance*: appropriate Reference Temperature within +/- 2 C. *Calibration intervals*: Other than CT and VT Standards – depends on spec but in no case less frequently than every 24 months. CT and VT Standards – not exceeding 5 yrs. TAA may permit this to be increased by submitting records (no limit specified). *Use:* During use satisfactory evidence to be produced and made available to TAA to substantiate stability.	Section 7 Calibration Equipment for Meters	Section 7.1 Reference Standards sets out the requirements for Reference Standards: *Temperature Tolerance*: appropriate Reference Temperature (RT), effects of temp variation shall be accounted for in uncertainty budget. Alternatively max tolerance of +/- 2 C. CT and VT Standards need not be maintained at RT where impractical. *Calibration intervals*: Same as in CoP4 Issue 5 v4.0 for Meter, CT and VT Standards but Parties must apply to BSCCo with supporting evidence to permit intervals to be increased. *Use:* No sub-section on Use.
6. AC/DC Transfer Standards	This section sets out the requirements for AC/DC Transfer Standards:	See table row below.	See table row below (Section 7.2 Transfer Standards) for requirements as AC/DC Transfer Standards were

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	Temperature Tolerance: appropriate Reference Temperature within +/- 2 C. *Calibration intervals*: in no case less frequently than every 24 months. TAA may permit this to be increased to 5 years by submitting records. *Use:* Prior to use calibrate against Reference Standard or not if records show negligible deviation then possible for interval to be increased to 6 months *Outside specification*: notify BSCCo, take remedial action and supply results of investigation to BSCCo.		incorporated into this section of CoP4 Issue 5 v4.1.
7. AC Transfer Standards	This section sets out the requirements for AC Transfer Standards: *Temperature Tolerance*: need not be maintained at a given temperature as long as accuracy requirements of CoP4 Issue 5 v4.0 met.	Section 7 Calibration Equipment for Meters	Section 7.2 Transfer Standards This section sets out the requirements for Transfer Standards: *Temperature Tolerance*: appropriate Reference Temperature (RT), effects of temp variation shall be accounted for in uncertainty budget. Alternatively max tolerance of +/- 2 C.

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	Calibration intervals: need not be verified at an Accredited lab provided they are calibrated against a Reference or AC/DC Transfer Standard at monthly intervals or TAA may permit this to be increased to 6 months by submitting records. *Use:* Where used for on-site calibrations calibrate before and after use. Period between calibration and use and use and calibration not to exceed 1 week. *Outside specification*: notify TAA within 3 WD with details of Metering Equipment calibrated and reason why Standard is outside calibration.		*Calibration intervals*: verify at an Accredited lab or against Reference Standard at intervals dependent on specification but in no case less frequently than 6 months. Parties may apply to BSCCo with supporting evidence to permit intervals to be increased to 12 months. *Use:* No sub-section on Use. *Outside specification*: notify BSCCo promptly and take action to remedy situation. Provide details of Metering Equipment calibrated and reason why Standard is outside Calibration.
8. Working Standards	This section sets out the requirements for Working Standards: *Temperature Tolerance*: need not be maintained at a given temperature as long as accuracy requirements of CoP4 Issue 5	Section 7 Calibration Equipment for Meters	Section 7.3 Working Standards sets the requirements for Working Standards: *Temperature Tolerance*: need not be maintained at a given temperature as long as accuracy requirements of CoP4 Issue 5 v4.1 met.

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	v4.0 met. *Calibration intervals*: need not be verified at an Accredited lab provided they are calibrated against a Reference or Transfer Standard at monthly intervals or TAA may permit this to be increased to 6 months by submitting records. *Outside specification*: notify TAA within 3 WD with details of Metering Equipment calibrated and reason why Standard is outside calibration.		*Calibration intervals*: need not be verified at an Accredited lab provided they are calibrated against a Reference or Transfer Standard at 3 monthly intervals or BSCCo may permit this to be increased to 6 months by submitting records. *Outside specification*: notify BSCCo promptly and take action to remedy situation. Provide details of Metering Equipment calibrated and reason why Standard is outside Calibration.
9. Location and Mobility of Standards	This section sets out the requirements for the location and mobility of Calibration Standards: *Location:* Standards of any Meter Operator Agent (MOA) do not need to be maintained or used at any one location. *Mobility:* Reference Standards and AC/DC Transfer Standards shall not be mobile (only moved for verification at an Accredited lab). AC Transfer and Working Standards may be	No section on location and mobility.	No specified requirements for location and mobility of Calibration Standards.

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	mobile.		
10. Accuracy Requirements for the Calibration and On-site Testing of Electricity Meters	This section sets out the requirements for the Accuracy Requirements for the Calibration and On-site Testing of Electricity Meters: *Overall Uncertainty* - Calculate according to NAMAS NIS3003, confidence level 95% or greater. *Calibration* - Meters should be calibrated so that overall accuracy is within % error limits set out in Table1 (Active Energy) or Table 3 (Reactive Energy). Initial calibrations - performed in lab or test house. Periodic calibration - can be performed on site for all Meters except 0.2s Active Energy Meters which must be done in a lab or test house. Reference conditions as in appropriate Meter specification or Class 2.0 Active Energy Meters as in Electricity Act.	5. Half Hourly Metering Systems**	Section 5.1 Meter - Calibration sets out the Calibration types and criteria, sealing arrangements and production (and maintenance) of records associated with Meter Calibrations: *5.1.1 Types of Calibration* - Three types of Calibration are defined as: - Type A (initial Calibration under reference conditions) - Type B (periodic Calibration) - Type C (periodic Calibration similar to Type A but not necessarily under reference conditions) Meter Calibrations shall be carried out in accordance with the dates/frequencies set out in Appendix A and at the test points set out in Appendix B. Appendix A Summary: CoP1 & 2 Type A cal at yr 0, then B by yr 5 then B by yr 10, then C (main Meter) + B (check Meter) at yr 15 or

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	On-site calibrations - provide adequate evidence of influence quantity conditions. *On-site accuracy tests* - overall accuracy within % error limits in Table 2 (Active Energy) or Table 4 (Reactive Energy). Overall uncertainty below limits specified in Table 2 or 4. On-site tests of Active Energy Meters - by injection or prevailing load: - Prevailing load between 10% and 120% (or 100% for whole current Meters), Power Factor (PF) between 0.8 lead and 0.5 lag. - Injection test between 5% and 120% (100% for whole current) at unity PF Reactive Energy Meters - injection only (between 20% and 120% (100% for whole current Meters) at zero PF. If on-site tests show Meter outside error limits then return Meter to lab for re-testing or re-calibration, or if prevailing influence quantities (where temporary) are different to reference conditions Meter may be left in. Signed record of		Type A cal at yr 0 then C at yr 10, then C at yr 20... CoP3 & 5 Type A cal at yr 0, then B at yr 15, then C at yr 20... For on-site Calibrations - where a Meter is found to be outside accuracy it must be Adjusted and re-Calibrated or replaced. BSCP06 and BSCP514 are pointed to in regards to such adjustment/re-Calibration/replacement. For Calibrations in a lab - where a Meter is found to be outside accuracy it must be Adjusted and re-Calibrated or replaced before returning it to service. Following changes to Meter Compensation, Meters should be re-Calibrated to achieve CoP4 compliant accuracy before return to service. *5.1.2 Meter Calibration Criteria* - Type A shall be carried out in accordance with the relevant product standard (appropriate to the Meter's Class). For one load point confirm that physical display and pulse output (where used for Settlement) are registering to required accuracy.

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	calculations to justify this. Reactive Meters - those with higher accuracy than class 2.0 use limits for class 2.0 in table 3 and 4 and Phase-advanced Reactive hour (PARh) Meters accuracy limits as in table 3 and 4.		Type A Calibration Certificate shall confirm tests undertaken at the test points given in Appendix B. Type B may be conducted on site. Type C can be carried out in Accredited lab, test house or on-site (uncertainties depend on where tested). *5.1.2.4 Calibration of 'existing installed' CoP1 and 2 Meters* - if installed at least 5 yrs prior to CoP4 Issue 5 (v4.1) effective date (CoP4ED) Calibrate at least 20% of total of each type for a 10 yr period from CoP4ED effective date and record results. Any installed in the 5 yrs preceding CoP4ED shall be calibrated in accordance with Appendix A. *5.1.3 Sealing* - Meters shall be sealed immediately after Calibration and prior to leaving the test facility. Points to BSCP06 and BSCP514 in this regard. *5.1.4 Records* - Section split into Calibration Certificates, Annual Calibration Report, Inspection of certificates, records and testing, Technical Audit and Quality Assurance.

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
			5.1.4.1 Calibration Certificates - produce and maintain evidence of Calibrations conducted. This shall be in the form of a certificate (a 'Calibration Certificate'), either a traceable certificate of conformance to an accuracy class or actual errors determined. They should identify serial number and type of Meter Calibrated, name of testing body, location of Calibrations and date on which the Calibration was concluded. Can be held as hard copies or in non-editable electronic format. Existing certs with no date - date of manufacture to be used. Manufacturer's certs shall include statements of measurement uncertainties covering all measurement points. Retain for life for CoP1 and 2. Latest set of A, B C certificates for CoP3, 5, 6 and 7. If B performed after C then keep both. If C carried out B need not be retained. Record on cert whether Meter was Blank Calibrated or Compensated Meter. Keep auditable trail evidencing Calibration activity carried out in timely manner. Where no cert available, inform BSCCo and upon instruction carry out Type C Calibration. 5.1.4.2 Annual Calibration Report - For B and C Calibrations MOA to provide report (treated confidentially) annually detailing no. of Meters Calibrated for each type

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
			and age together with no. found outside limits (with measured accuracies). See Appendix E. Record Format under Appendices for suggested format. MOA may be required to justify any bias towards extremes of error band. 5.1.4.3 Inspection of certificates, records and testing - MOA to ensure Accredited lab or test house will make available for review and confirmation to BSCCo all test reports, records and certificates. 5.1.4.4 Technical Audit - MOA shall ensure co-operation of Accredited lab or test house or its representative on-site and itself with BSCCo during a technical audit. 5.1.4.5 Quality Assurance - Registrant shall ensure quality assurance system (preferably to BS EN ISO 9001) in place at Accredited lab or test house Section 5.2 Sample Calibrations

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
			Sample calibrate all newly installed Meter types and any installed Meter types that have been approved in the 5 years preceding COP4ED. Undertake Type B Calibration on a sample of 1% of each new Meter type per CoP per annum starting from year 8 (after A Calibration) MOA to provide annual report to BSCCo detailing no. of Meters sampled per Meter type, timescale since Type A Calibration, if Meter was found within limits and no. found outside limits (with measured accuracies). Appendix E contains suggested format. Keep evidence for audit trail showing sample Calibrations carried out in a timely manner. Example given showing that sample Calibration is included in the periodic Calibration process.
11. Accuracy Requirements for the Testing of New or Replacement Measurement Transformers	This section sets out the requirements for the Accuracy Requirements for the Testing of New or Replacement Measurement Transformers: Calibrate using Standards complying with CoP4 Accuracy tests results shall include measurement uncertainty value (>95% confidence level). CoP1 and 2 errors including uncertainty shall not exceed 1.5 x permitted error in relevant	5. Half Hourly Metering Systems	Section 5.3 Measurement Transformers sets out the requirements for initial and periodic Calibration for Measurement Transformers: *5.3.1 Initial Calibration* - New MTs shall be Calibrated prior to installation. Multi ratio VTs and CTs shall be calibrated for all ratios. Calibrate against appropriate BS EN standard. Accuracy test results shall include measurement uncertainty value (in accordance with UKAS Directive

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	product standard (IEC 185 and 186). Test certificates for new or replacement - provide full details of test burden conditions.		M3003 to a confidence level of >95%). *5.3.2 Periodic Calibration* - Not required for MTs *5.3.3 Records* - All records shall be traceable, complete with statements of measurement uncertainties covering all test points. Where MT certs are missing (installed prior to CoP4ED and where information is listed on national NT error statement those errors shall be applicable. Requirement for inspection of Calibration Certificates, technical audit and quality assurance as detailed in Sections 5.1.4.3 - 5.1.4.5 shall apply to MTs. For existing MTs installed prior to CoP4ED Parties may (in exceptional circumstances) apply to BSCCo regarding requirements to inspect certs, technical audit and quality assurance and may provide other types of evidence as to the accuracy of the MTs.
12. Frequency of Calibration and Testing of Metering Equipment	This section sets out the requirements for the Frequency of Calibration and Testing of Metering Equipment: **Meters**	5. Half Hourly Metering Systems*	**Meters** - See requirements set out in Section 5.1 Meters -

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	Initial calibration - calibrate all prior to installation and provide a traceable calibration record from manufacturer or lab/test house. *Periodic testing* - Calibration - Calibrate Electromechanical Meters at intervals not exceeding 10 years, specific types more frequently. - Calibrate Electronic Meters on an evenly phased schedule for each Meter type on-circuit. Over 10 year period at least 20% of the total of such type of Meter - record results and send to TAA. Adjust and recalibrate where necessary. MOA must calibrate at least one Meter of each type in any 5 year period. *Periodic testing* - On-site Accuracy Tests		Calibration of Section 5. Half Hourly Metering Systems, above. Duplicated below for convenience: *Initial Calibration* - Type A carried out before installation. *Periodic Calibration* - See 5.1.1 Types of Calibration. Meter Calibrations shall be carried out in accordance with the dates/frequencies set out in Appendix A and at the test points set out in Appendix B. Appendix A Summary: CoP1 & 2 Type A cal at yr 0, then B by yr 5 then B by yr 10, then C (main Meter) + B (check Meter) at yr 15 or Type A cal at yr 0 then C at yr 10, then C at yr 20... CoP3 & 5 Type A cal at yr 0, then B at yr 15, then C at yr 20...

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	In addition to calibrating Meters carry out on-site accuracy tests. - Electromechanical - Class 0.5 on-site test at intervals not exceeding 5 yrs. No testing required for other types. - Electronic - if main and check Meters (CoP1, 2 and 3) are of same manufacturer and type test Active Energy Meters at intervals not exceeding 5 yrs and for Reactive Energy Meters, 10 yrs. No testing if of different manufacturer or type. CoP5 test at intervals not exceeding 10 yrs. Where only a main Reactive Energy Meter is used test at intervals not exceeding 10 yrs. **Measurement Transformers**	Section 5. Half Hourly Metering Systems*	*Sample Calibrations* - See Section 5.2 Sample Calibrations Sample calibrate all newly installed Meter types and any installed Meter types that have been approved in the 5 years preceding COP4ED. Undertake Type B Calibration on a sample of 1% of each new Meter type per CoP per annum starting from year 8 (after A Calibration) MOA to provide annual report to BSCCo detailing no. of Meters sampled per Meter type, timescale since Type A Calibration, if Meter was found within limits and no. found outside limits (with measured accuracies). Appendix E contains suggested format. Keep evidence for audit trail showing sample Calibrations carried out in a timely manner. Example given showing that sample Calibration is included in the periodic Calibration process. **Measurement Transformers** - See requirements set out in Section 5.3 Measurement Transformers under Section 5. Half Hourly Metering Systems, above. Duplicated below for convenience:

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	Initial Calibration - calibrate new Measurement Transformers (MT) prior to installation. Provide evidence 'wherever possible and economic' to Technical Assurance Agent (TAA) to show MTs comply with their accuracy class. *Periodic Testing* - Not normally required except Voltage Transformers (VT) which do not have voltage monitoring alarm facilities and which are on-circuit with demand metering and influence the Transmission Company's system losses. Burden tests every 6 months to confirm absence of fuse failure. Results to TAA. **Outstation** Outstations must meet the functional requirements of the relevant CoP as evidenced to Panel or TAA.		*5.3.1 Initial Calibration* - New MTs shall be Calibrated prior to installation. Multi ratio VTs and CTs shall be calibrated for all ratios. Calibrate against appropriate BS EN standard. Accuracy test results shall include measurement uncertainty value (in accordance with UKAS Directive M3003 to a confidence level of >95%). *5.3.2 Periodic Calibration* - Not required for MTs. No requirements specified.
13. Maintenance	This section sets out the requirements for the Maintenance of Metering Equipment:	No equivalent section in CoP4 Issue 5 v4.1.	No requirements specified.

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	Metering Equipment shall be routinely maintained in accordance with manufacturer's recommendation or so that MOA complies with obligations under the Code.		
14. Commissioning	This section sets out the requirements for Commissioning Metering Equipment: Carry out a commissioning programme for all new Metering Equipment (ME). If replacement ME is fitted to an existing Metering System (MS) carry out commissioning programme to cover changes. Signed and dated commissioning record.	Section 5.5 Commissioning	This section sets out the requirements for Commissioning, sealing and the production and maintenance of records relating to Commissioning Metering Equipment: Purpose of Commissioning explained - to ensure energy flowing across the Defined Metering Point (DMP) is accurately recorded by MS. *5.5.3 Records* - Traceable and dated Commissioning record. As a Minimum and where applicable it should contain: Site name, address, Metering Systems Identifier, MOA name, date of Commissioning, name of person conducting it, reason for Commissioning, CoP applicable, Dispensation applicable, Meter/CT/VT details, circuit name (where more than one) and any results of inspections tests and observations. See MOCoPA Appendix 2 Section A2.3.

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	Refers to Appendix A for tests and checks expected in a commissioning programme.		Requirements for inspection of certs, technical audit and QA detailed in 5.1.4.3 - 5.1.4.5 equally apply to Commissioning. *5.5.1 Commissioning Tests* - perform Commissioning tests to confirm and record: • CTs (correctly located)/VTs are correct ratio and polarity • Relationships between V and I are correct and phase rotation is standard at Meter terminals • Burden on MTs within limits • Meter have been compensated correctly • Output of MS correctly records energy at DMP *5.5.2 Sealing* - Seal ME after Commissioning as per relevant BSCP. A Proving test shall be performed in accordance with the relevant BSCP to ensure metering data can be transferred

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	Sealing - After commissioning ME shall be sealed in accordance with relevant BSCP. *Metering System Commissioning and Validation Procedure* - After completing commissioning tests MOA shall register Meter Technical Details into Settlement. Then MS must undergo Proving Test as defined in relevant BSCP.	Section 5.6 Proving	from the Settlement Outstation to the Settlements.
15. Associated Records	This section sets out the requirements for Associated Records: *Records of Standards* - MOA must maintain a permanent signed record of each calibration and test of Standards	See appropriate Section*	These requirements are set out in Section 5 Half Hourly Metering Systems, Section 7 Calibration Equipment for Meters and Section 8 Calibration Equipment for Measurement Transformers: See 7.4 Records under Calibration Equipment for Meters and 8.1 Records under Calibration Equipment for Measurement Transformers

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	employed. Records shall include overall accuracy and uncertainty measurement. Where Standard is used on-site overall accuracy and uncertainty measurement shall be as determined in a lab. *Inspection of certificates, records and testing* - MOA shall ensure lab or test house makes test reports, records and certificates available for inspection by the TAA. Results of all calibrations and on-site tests performed on ME must be retained as permanent signed records - available for inspection by the TAA. MOA shall ensure relevant records relating to quality assurance are made available to the TAA.		Section 5.1.4.3 Inspection of certificates, records and testing under Section 5. Half Hourly Metering Systems, option (iii) under Section 7, Calibration Equipment for Meters and option (ii) under Section 8 Calibration Equipment for Measurement Transformers
16. Technical Audit	This section sets out the requirements for Technical Audit: During a Technical Audit the MOA shall ensure co-operation by relevant lab or test house, on-site representative and itself with the TAA.	See appropriate Section*	These requirements are set out in Section 5.1.4.4 Technical Audit under Section 5. Half Hourly Metering Systems Same requirement but TAA replaced by BSCCo.
17. Quality	This section sets out the requirements for Quality Assurance:	See appropriate Section*	These requirements are set out in Section 5.1.4.5 Quality

Detailed Level Changes to CoP4 Issue 5 (v4.0) Requirements

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
Assurance	A quality assurance (QA) system (in accordance with Part 3 of BS5750 or ISO 9003) shall cover activities and equipment used for calibration and testing in lab or test house and for on-site accuracy checks. TAA has right to establish confidence where QA system not in accordance with BS 5750 or ISO 9003 and recover costs from MOA.		Assurance under Section 5. Half Hourly Metering Systems Registrant shall ensure a QA system in accordance BS EN ISO 9001 is in place covering activities and equipment used for Calibration and testing in lab or test house and for sample Calibrations. BSCCo has right to establish confidence where not in accordance with BS EN ISO 9001.
Tables	This section sets out the requirements for standards of accuracy and overall uncertainty for laboratory calibrations and on-site testing of Active and Reactive Energy Meters: Table 1: Active Energy Meters - Accuracy and overall uncertainty for lab calibrations. Class 2.0/2.0S, Transformer Operated Class 2.0/2.0S, Class 1.0/1.0S, and Class 0.5/0.5S, and Class 0.2S. Table 2: Active Energy Meters - Accuracy and overall uncertainty for on-site accuracy tests. Class 0.2/0.5/1.0/2.0.	See equivalent tables in Appendix C and Appendix D.	The requirements for Meter accuracy and measurement uncertainty are set out in Appendix C Measured Errors and Appendix D Measurement Uncertainty. Table C1: Active Meters Class 0.5, 1 and 2 Table C2: Active Meters Class 0.2S and 0.5S Table D1: Laboratory conditions Active Meters(Type A and C) Table D2: Site Calibrations Active Meters (Type B and C)

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CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	Table 3: Reactive Energy Meters - Accuracy and overall uncertainty for lab calibrations. Class 2.0 and Class 3.0. Table 4: Reactive Energy Meters - Accuracy and overall uncertainty for on-site accuracy tests. Class 2.0/3.0		Table C3: Reactive Meters Class 2 and 3 Table D3: Laboratory conditions Reactive Meters (Type A and C) Table D4: Site Calibrations Reactive Meters (Type B and C)
Appendices	Appendix A sets out the tests and checks required for commissioning:	Appendices**	The appendices (A-F) set out the requirements for Calibration Period Tables, Test Points, Measured Errors, Measurement Uncertainty, Records Formats and guidance notes for Half Hourly Commissioning. Appendix A. Calibration Period Tables and B. Test Points see Section 5.1 Meters - Calibration under Section 5. Half Hourly Metering Systems for reference to these appendices. Appendix C. and D. see above table row for references.

Detailed Level Changes to CoP4 Issue 5 (v4.0) Requirements

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	Appendix A: *Measurement Transformers* - for new/replaced MTs MOA to confirm and record installed unit details (serial numbers, rating accuracy class, ratio(s)), CT ratio and polarity and VT ratio and phasing. As a minimum confirm CT ratio, if not, record reason and liaise with Distribution System Operator or Transmission Company to obtain. *MT leads and burdens* - Wherever practically possible confirm VT and CT connections are correct, VT and CT burden ratings are not exceeded and determine and record value of any burdens necessary to provide evidence of overall metering accuracy. *Metering* - Split into two sections		Appendix E. Records Format gives sample formats for E1 the Annual Calibration Report (E1) and Annual Sample Calibration Report (E2). Appendix F - Guidance Notes for Half Hourly Commissioning. See Section 5.5 Commissioning for references. This appendix gives detailed guidance to Commissioning engineers and is split into the following sections: F1 Introduction F1.1 Scope of Commissioning Tests F1.2 Commissioning Tests • F1.2.1 Inspection/Tests • F1.2.2 Installation Data • F1.2.3 Proving Transformer Ratios • F1.2.4 Burden Tests • F1.2.6 Secondary Injection Tests • F1.2.7 Phase Failure Detection Tests • F1.2.8 Commissioning Test with the System Live F2 Records

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
	General Tests and Checks. Record MS details required by relevant BSCP (or MOCoPA), confirm VT/CT ratios applied to Meter(s) agree with site MTs, confirm correct operation of test terminal block, check all cabling and wiring (new or modified), confirm registers advance (and pulses are produced for separate Outstations) for Import and Export flows, confirm Meter operation for each phase and polyphase, where separate Outstation is used confirm channel allocation and pulse multipliers are correct and confirm local interrogation facilities and local displays operate correctly. Site Tests. Check any cabling, wiring and connections not already checked, confirm Meter/Outstation is set to UTC within +/- 5 seconds, check that voltage and phase rotation of measurement supply is correct at Meter terminals, record Meter 'start' readings (+ date and time), wherever possible a primary prevailing load check shall be performed, if not, record on commissioning sheet and perform a secondary prevailing load or injection test, record values of the Meter/Outstation displayed or stored data (minimum one half hour) on commissioning record and confirm operation of ME alarms (not data alarms or flags in data).		

Detailed Level Changes to CoP4 Issue 5 (v4.0) Requirements

CoP4 Issue 5 (v4.0)		CoP4 Issue 5 (v4.1)	
Section	**Requirement(s)**	**Section**	**Requirement(s)**
		New Section 6 Non Half Hourly Metering Systems	This section will be updated with in-service testing and commissioning requirements in the future.

*Some of the requirements in this table row are duplicated for comparative purposes.

**This table row does not show a one-to-one comparison between existing and new requirements