**MP204 ‘Incorporation of Category 3 Issue Resolution Proposals into the SEC – Batch 8’**

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**Annex A**

**Legal text – version 1.0**

About this document

This document contains the redlined changes to the SEC that would be required to deliver this Modification Proposal.

SEC Schedule 8 ‘Great Britain Companion Specification (GBCS) version 4.x’

These changes have been redlined against SEC Schedule 8 version 4.1.

These changes will be applied to the next version of the GBCS v4.x series at the time the modification is implemented. These will also be applied to the next version of any subsequent GBCS series introduced on or before the modification is implemented.

## Amend Section 7.4 as follows:

**7.4 Device requirements – ZSE**

This Section 7.4 details the ZigBee clusters, attributes and commands that shall be supported by Devices in their interactions with other Devices on the same HAN, including whether the support is as a ZSE client or a server. Note, this Section does not detail the ZCL / ZSE commands that Devices will need to process as part of processing Remote Party Commands, or Commands sent by a PPMID to a GSME. Such requirements are detailed in Sections 18 and 19.

Only Devices capable of operating at Sub-GHz shall be required to support the requirements in rows of Table 7.4 where the cell in the column labelled ‘Sub GHz capable Devices only?’ contains ‘Yes’.

For clarity and as required by ZSE, all Devices shall support the Key Establishment Cluster as both Client and Server.

A GSME shall implement a ZSE *Metering Device* and shall implement all *the clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘GSME: Metering Device’.

A GPF shall implement a *ZSE Metering Device* and shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘GPF: Metering Device (Gas Mirror Endpoint)’.

A GPF shall implement a *ZSE Energy Services Interface* and shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘GPF: Energy Services Interface (Gas ESI Endpoint)’

A CHF shall implement a *ZSE Remote Communications Device* and shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘CHF: Remote Communications Device (Remote Communications Endpoint)’.

An SAPC shall implement a *ZSE Energy Services Interface* and shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘SAPC: Energy Services Interface (Electricity ESI Endpoint)’.

Where it supports the corresponding SMETS functionality, an SAPC shall implement the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘SAPC optional: Energy Services Interface (Electricity ESI Endpoint)’.

Additionally, an SAPC may support other *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘ESME: Energy Services Interface (Electricity ESI Endpoint)’.

An ESME which is not a Twin Element ESME shall implement a *ZSE Energy Services Interface* and shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘ESME: Energy Services Interface (Electricity ESI Endpoint)’.

An ESME which is a Twin Element ESME shall implement three *ZSE Energy Services Interfaces*:

1. the first which shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘ESME: Energy Services Interface (Twin ESME aggregate ESI Endpoint)’;
2. the second which, in relation to the primary measuring element, shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘ESME: Energy Services Interface (Twin ESME primary/secondary ESI Endpoint)’; and
3. the third which, in relation to the secondary measuring element, shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘ESME: Energy Services Interface (Twin ESME primary/secondary ESI Endpoint)’.

A PPMID shall implement a *ZSE In-Home Display*, shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘PPMID: In-Home Display’, and shall support the other clusters, attributes and commands necessary to meet the SMETS requirements.

An HCALCS shall implement a *ZSE Load Control Device* and shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘HCALCS: Load Control Device’.

An HHT shall implement a *ZSE Remote Communications Device* and shall implement all the *clusters, commands, attribute sets and attributes* in Table 7.4 where column A is ‘HHT: Remote Communications Device’.

An IHD shall implement all the clusters, commands, attribute sets and attributes in Table 7.4 where column A is ‘IHD: In-Home Display’ and shall support the other clusters, attributes and commands necessary to meet the SMETS requirements.

Where a row in Table 7.4 is required for a Device, that Device shall support the cluster, attribute or command specified in that row as client or server, as specified in column C (labelled ‘Client / Server’).

Support for *clusters, commands, attribute sets and attributes* shall be as defined in columns B (‘Cluster’), D (‘Command’), E (‘Attribute Set’) and F (‘Attribute’).

Note that the other columns in Table 7.4 are informative and for requirements traceability only.

Except where explicitly required by this Section 7.4 or by Section 19.3, a Device shall not execute any ZSE command, be that in a GBZ Command Payload or provided as a native ZSE command, that could, if executed, constitute a Critical action. For clarity, a Device shall not execute a ZSE *Publish Change of Supplier* command if bits 11-12 of the *Provider* *Change Control* parameter (*Meter Contactor State*) of that command has any value other than 0b11 (*Supply UNCHANGED*).

In relation to the *calendar cluster’s* use for exchanging information about the Auxiliary Controller Calendar (with its SMETS meaning) between Devices:

* the *Calendar Type* value of 0x04 (named *Auxillary Load Switch Calendar*) shall be used, to differentiate from the values of 0x00 (named *Delivered Calendar*) and 0x03 (named *Friendly Credit Calendar*) for the Tariff Switching Table and Non-Disablement Calendar, respectively (with their SMETS meanings); and
* the *Auxiliary Load Switch State* parameters in *PublishDayProfile* commands shall be set so that:
  + - * *bit0* to *bit4* have values corresponding to Auxiliary Controller [1] to Auxiliary Controller [5] respectively, with each such bit being 0b1 where the commanded output state is 100 for the switching instruction in question (so the value of ‘p’ with its Section 7.3.6.1 meaning), or 0b0 otherwise; and
      * *bit5* to *bit7* have the value 0b0.

For clarity, this means that settings related to commanded input states are not shared, and commanded output settings of 99 or less on an Auxiliary Proportional Controller (with its SMETS meaning) are all represented as 0b0 to other HAN Devices.



Table 7.4: Device Requirements

## Add Section 10.4.3 as follows:

**10.4.3 Sequence of actions where snapshots and attributes are taken**

Except where the Technical Specifications explicitly require otherwise, GSME should undertake all actions that may affect the contents of a ZigBee snapshot or value of a ZigBee attribute, before providing such snapshots or attributes to the GPF.

## Amend Section 10.6.3 as follows:

**10.6.3 Sub GHz End Devices - functional requirements**

A Sub GHz End Device shall:

* not act as a ZigBee router when operating on a Sub GHz Channel;
* where the Device can also support 2.4 GHz operation:
  + - * on first connecting to a ZigBee network, attempt to establish network communication in the 2.4GHz band. Only where communications are not of sufficient quality, shall the Device attempt to establish network communications in the Sub GHz band; and
      * having connected to a ZigBee network at either 2.4 GHz or at Sub GHz, not attempt to change to the other of 2.4 GHz or Sub GHz; and
* not use the *Mgmt\_NWK\_Unsolicited\_Enhanced\_Update\_notify* command to notify the CH of problems with its communications link more frequently than once in any 30-minute period.

## Amend Section 13.3.5.10 as follows:

***13.3.5.10 Required Processing on Change of Remote Party Control***

If:

* the targetTrustAnchorCell is {supplier, digitalSignature, management}; and
* the Entity Identifier in the targetTrustAnchorCell is changed by the replacement; and
* the Device is an ESME or a GSME,

then the Device shall:

* set the Supplier Name which it displays to the Common Name in the subject field of the certificate that was used to populate the targetTrustAnchorCell; and
* add an entry in the Billing Data Log with a snapshot cause of 0x00002000 (Change of Supplier) (with the entry added having the same content as is required on Set Payment Mode Or Tariff change);
* reset the Tariff Block Counter Matrix; and
* where the Device is an ESME, end any currently active Boost Period, ALCS [n] Setting Period, APC [n] Limit Period, APC [n] Setting Period and HCALCS [n] Setting Period, where those terms have their SMETS meanings.

If the targetTrustAnchorCell is {root, keyCertSign, management} and there are any future dated Update Security Credentials or Activate Firmware Commands held on the Device that have not yet executed, and so the executionDateTime is in the future, then the Device shall set each executionDateTime to '99991231235959Z'.

If the Device is an ESME, GSME or HCALCS, the targetTrustAnchorCell is {supplier, digitalSignature, management} and there are any future dated Update Security Credentials or Activate Firmware Commands held on the Device that have not yet executed, and so their executionDateTime is in the future, then the Device shall set each such executionDateTime to '99991231235959Z'.

If the Device is a CHF, the targetTrustAnchorCell is {wANProvider, digitalSignature, management} and there is any future dated Activate Firmware Command held on the Device that have not yet executed, and so its executionDateTime is in the future, then the Device shall set each such executionDateTime to '99991231235959Z'.

If the Device is a GPF, the targetTrustAnchorCell is {supplier, digitalSignature, management} and there are any future dated Update Security Credentials Commands held on the Device that have not yet executed, and so their executionDateTime is in the future, then the Device shall set each such executionDateTime to '99991231235959Z'.

If:

* the targetTrustAnchorCell is {supplier, digitalSignature, management}; and
* the Entity Identifier in the targetTrustAnchorCell is changed by the replacement

then the Device shall set the execution date-time of any other future dated Commands, that are held on the Device but not yet executed, to ‘never’, as detailed in Section 9.2. If the deviceType of the Device is gSME then the Device shall also delete any future dated data items that are pending activation.

Relevant Execution Counters’ shall be those which relate to types of Commands:

* which originate from the remotePartyRole of this targetTrustAnchorCell; and
* whose cryptographic protection is checked using the Public Key in this targetTrustAnchorCell.

Where this Update Security Credentials Command contains an otherRemotePartySeqNumberChange in which otherRemotePartyRole is the remotePartyRole of this targetTrustAnchorCell, the Device shall set all Relevant Execution Counters to be the corresponding value in otherRemotePartyFloorSeqNumber. For clarity, this applies to the loadController remotePartyRole when executing a loadControllerBySupplier CS02g Update Security Credentials Command.

If:

* remotePartyRole of targetTrustAnchorCell and that of authorisingRemotePartyControl is supplier; and
* keyUsage of targetTrustAnchorCell is digitalSignature

then the Device shall set all Relevant Execution Counters to the value in newRemotePartyFloorSeqNumber. For clarity, this applies to the Execution Counter for the loadControllerBySupplier CS02g Update Security Credentials Command.

If the deviceType is eSME or gSME and (targetTrustAnchorCell is {supplier, digitalSignature, management}, the Device shall:

* clear all values from the UTRN Counter Cache; and
* place a single value in the UTRN Counter Cache. If newRemotePartySpecialistFloorSeqNumber is present and the seqNumberUsage in that newRemotePartySpecialistFloorSeqNumber is prepaymentTopUp then that value shall be the 32 most significant bits of the seqNumber in the newRemotePartySpecialistFloorSeqNumber. Otherwise the value shall be the 32 most significant bits of whichever of the newRemotePartyFloorSeqNumber or the otherRemotePartyFloorSeqNumber fields present in the Command.

Note, where SeqNumber values are to be used to populate Execution Counters on the Device, these SeqNumber values shall be processed as unsigned 64 bit integers, so 8 octets in length. This is because Execution Counters are required to use this representation. Correspondingly, in relation to values in the UTRN Counter Cache (so UTRN Counters), references to the 32 most significant bits of SeqNumbers are references to the 32 most significant bits when the value is represented as a 64 bit unsigned integer.

## Amend Section 16.2 as follows:

**16.2 Event and Alert Codes**

Table 16.2 lists the valid Event and Alert Codes, and sets out their requirements.



Table 16.2: Event and Alert Codes

## Amend Section 18.2 as follows:

**18.2 DLMS COSEM Message Templates**

Table 18.2 contains Message Templates for all Use Case with DLMS COSEM payloads. These Message Templates are derived from the Mapping Table, and shall be complied with in the construction and population of all such Messages.



Table 18.2: DLMS COSEM Message Templates

## Amend Section 19.3 as follows:

**19.3 Embedded Use Cases**

Table 19.3 contains the Use Cases that fulfil the interface requirements to cover Commands (and their Responses) and Alerts (where applicable). In addition, it includes ZSE Message Templates.

Note: DLMS COSEM methods that have values which have an impact on the execution of the method (that is, methods with input values that are not integer(0)), the DLMS part of the Mapping Table and the Use Case include two or more rows. One row contains the method, and the subsequent row(s) contain the value(s) to be sent with the method.

A number of Use Cases are also covered in GBCS main body. These are identifiable from the Table of Contents.



Table 19.3: Use Cases

**20 Mapping Table**

Table 20 contains the Mapping Table from which the Use Cases and Message Templates were generated. These tables map between SMETS attributes and methods, SEC Service Requests, Use Cases, DLMS COSEM attributes and methods and ZSE clusters, attributes and commands.

In addition to the Use Cases, certain columns in the Mapping Table are directly referenced from this document.

Please note that in the SMETS required objects tab only rows marked ‘E’ (External to HAN) in column F are fully specified, since those rows relate to Remote Party Messages. Other rows are only specified to the extent that these elements of Remote Party Messages rely on them.



Table 20: Mapping Table

SEC Schedule 9 ‘Smart Metering Equipment Technical Specifications’ – Glossary version 5.x

These changes have been drafted against the SMETS Glossary v5.0.

These changes will be applied to the next Sub-Version of the SMETS Glossary v5.x series at the time the modification is implemented. These will also be applied to the next Sub-Version of any subsequent SMETS series introduced on or before the modification is implemented.

## Amend Glossary v5.0 as follows:

Debt to Clear

Shall mean the value calculated according to Sections 4.4.7.2, 5.5.7.2, 5.11.2.2, 7.4.3.1 and 7.4.3.2.