

SEC Modification Proposal

- **DCC Preliminary Assessment (PA)**
- **Mod Proposal Ref: SECMP 0012**
- **Mod Proposal Title: Channel selection to support Shared HAN solutions**
- **Mod Path: Path 2 - Authority determination**

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1.0

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DCC

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DCC PUBLIC

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1 Introduction

1.1 Document Purpose

The purpose of this DCC Preliminary Assessment (PA) is to provide the relevant Working Group with the information requested in accordance with SEC Section D6.9 and D6.10.

1.2 Previous information provided by DCC

This DCC Preliminary Assessment was requested of DCC on 23/12/2016.

1.3 DCC Contact Details

Please raise any queries regarding this DCC Impact Assessment using the contact details provided below.

Name	DCC - SEC Modification queries
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1.4 Modification description

This modification seeks to facilitate a channel selection capability so that Shared HAN infrastructure can be deployed cost effectively and efficiently in high density housing, using standard 2.4GHz equipment. Shared HAN infrastructure will form an important part of the overall suite of Alternative HAN technologies that will enable an estimated 2 million GB households to benefit from smart metering systems and near real time information on their energy consumption.

1.5 Requirements

The requirements for this modification have been developed by the Working Group during the Refinement phase. The impact on DCC has been assessed against the Business Requirements and the corresponding draft legal text set out in the Solution Design Document.

Based on the discussions at the Working Group and the Business Requirements as set out in the Solution Design Document, DCC consider the requirements for SECMP 0012 to be **STABLE**. Where the requirements or SEC obligations set out in the Solution Design Document above change, DCC will be required to carry out further impact assessment.

2 Impact on DCC's Systems, Processes and People

This section describes the impact of SECMP 0012 on DCC's Services and Interfaces that impact Users and/or Parties.

2.1 Summary

This CR applies only to the 2.4GHz Comms Hubs frequency range used by SMETS 2 Comms Hubs.

A future GBCS change will be required to enable Comms Hubs to use the new functionality in this requirement, and it is assumed that any Comms Hub using the version of GBCS in which the changes are introduced, or higher, will be able to use the new functionality, without any need to distinguish between Comms Hubs of different capabilities (as will be the case with Dual Band Comms Hubs).

There are various possible scenarios outlined in the requirements, however it is assumed that the requirements on DSP will be as follows:

1. New DUIS SRV and GBCS Use Case to read the 2.4GHz channel mask and active channel on which a Comms Hub is operating, which is Requirement BR02. It is assumed that this is the equivalent of two of the proposed new Dual Band Comms Hub sub-GHz read commands channels (read channel and read channel configuration) combined into one command for 2.4 GHz, since there is less complexity.
2. New DUIS SRV and GBCS Use Case to set the 2.4GHz channel mask with which a Comms Hub should operate. There are various possible scenarios outlined in the requirements regarding the timing of setting of channel configuration so it is not clear whether it will be feasible to use this only on a Comms Hubs with no whitelisted devices, or whether Comms Hubs with whitelisted devices will also be able to support the command. It is assumed that from a DSP point of view, requirements BR01 and BR03 can be combined and that by the time of design and implementation the requirements will have been established, and the impact on the DSP will be simply to validate whether the conditions are met by using the whitelist (device log) information maintained by the SMI.
3. Although the requirements do not define any DSP validation of channel masks, experience with Dual Band Comms Hub requirements suggests that DSP validation of channel masks will be needed. For the Dual Band Comms Hubs it is decided to be achieved by using reference data stored by the DSP and updated by DCC using an SSMI screen and a similar approach will be followed in this case as well. In such a scenario it is assumed that the security requirements will be such that a direct SSMI screen update function will provide sufficient security (rather than requiring upload of a signed file). The channel mask options for 2.4GHz are assumed to be simpler than for the sub-GHz frequencies covered by Dual Band Comms Hubs.
4. Although the requirements do not define any new Device Alerts, experience with Dual Band Comms Hub requirements suggests that new Device Alerts will be needed, e.g. to inform all suppliers with an interest in the HAN of a configuration change. For the purpose of estimation, this PA assumes that there will be four Device Alerts; two with payload and two without payload.

DCC Data Systems shall create a DCC Alert that supports alternative payloads to convert these Device Alerts to DCC Alerts and forward to the responsible suppliers.

5. Although the requirements do not define any new diagnostic information for Comms Hubs where channel masks have been configured, experience with Dual Band Comms Hub requirements suggests that additional diagnostic information will be needed in the SSI screen used for Comms Hub diagnostics. In the absence of firm requirements we assume that the SSI screen will be enhanced by 3 new simple attributes regarding 2.4GHz channels and channel mask configuration, and the CSP management gateway interface will be enhanced to retrieve the additional information coming from Comms Hubs via the CSP management interface. When requirements for diagnostic information are clearer this scope could be adjusted accordingly, with cost change if sufficiently different.

2.2 Impact on DSP Systems

- Request Management:
 - Request Management shall handle the SRV specific validations for the 2 new SRVs introduced.
 - Request Management shall add support to convert the Device Alerts to DCC Alerts to forward them to the responsible suppliers.
- Transform Libraries:
 - New libraries for each unique GBCS Use Case need to be implemented. Two new GBCS Use Cases are expected in the current scope.
- Data Management:
 - Data Management shall add support for additional reference data that provides lookup of channel mask validation rules.
- SSI / SSML:
 - It is expected that a new SSML screen shall be introduced that will allow DCC to maintain the reference data.
 - The SSI screen used for Communication Hub diagnostics (UC_HubStatus_001) is expected to change with details of the channel information.
- CSP Management Gateway:
 - CSP Management Gateway is expected to change in order to support the potential changes in Comms Hubs diagnostic information.

Changes are also expected to the ESI Reporting since there is a need to introduce Channel Configuration Reference Data and the same shall be included as part of the inventory extracts reports

There will be no specific material impact on processing or storage as a result of this change although the overall impact of aggregated changes across a release will need to be assessed.

2.3 Impact on CSP Systems

Uplift to the Communications Hub SBCH and DBCH software to support the following requirements

2.4 Impacts on DCC Services and Interfaces

DUIS and DUGIDS:

The changes in DUGIDS involve new Service Request definitions, Response definitions, updating MMC Schema and updating the DUIS XML schema.

These new SRVs are expected to work on both single and Dual Band Comms Hubs as long as their firmware supports the corresponding GBCS Use Cases.

The following table captures the general attributes of the new SRVs.

Service Reference	Service Reference Variant	Name	Critical	Sensitive Response	Protection Against Replay	On Demand	Future Dated	DSP Scheduled	DCC Only	Eligible User Role
6.33	6.33	Set CHF Channel Configuration	No	No	No	Yes	No	No	No	EIS GIS
6.34	6.34	Read CHF Channel Mask and Active Channel	No	No	No	Yes	No	No	No	EIS GIS

The parse response shall also be updated for all the SRVs listed in the table above.

DUGIDS shall also include the definition of the DCC Alert required.

3 Impact on Security

This section describes the impact DCC considers SECMP 0012 will have on Security of DCC's Total System.

DCC has carried out a security risk assessment for SECMP 0012 and determined that **there are no material security risks** associated with the implementation of DCC's proposed solution.

4 Testing Considerations

This section describes the testing phases required to support the implementation of SECMP 0012.

4.1 Summary

- DCC will be required to carry out Pre-Integration Testing and System Integration Testing for SECMP 0012

- DCC anticipates that Users will require User Integration Testing to support their implementation of SECMP 0012. DCC asks that the Working Group considers and compiles the User testing requirements with DCC support, to ensure an optimal approach is taken for User Integration Testing for the relevant release.

4.2 Pre-integration Testing

Pre-Integration Testing comprises the tests that each Service Provider performs on its respective System changes, prior to the integration of all Service Provider Systems. DCC has factored the cost of Pre-Integration Testing (including DCC assurance) into this Impact Assessment.

Suggested PIT scope would include:

- Production, review and agreement of a design to enable development;
- Low level design production, development, unit test and any rework to achieve PIT complete status;
- Data generation and loading into the Test environment;
- Execution of System Tests through sufficient iterations to enable PIT complete;
- Design, implementation and execution of FAT scripts in accordance with assurance procedures used for Release 1.2; and
- Achieving PIT complete status and subsequent reporting.

4.3 Systems Integration Testing

Systems Integration Testing (SIT) is the testing of DCC's Total System, which brings together the component parts of DCC's System (e.g. DSP and CSP Systems) to allow testing of the end-to-end solution by DCC. The SIT activity is done for every DCC System release and incorporates the test and integration of multiple changes.

Additional SIT is recommended by DCC for a modification of this type. It should however be noted that the scope of SIT is likely to be more focused on regression testing to confirm that the changes applied as part of this modification have not had an impact on the wider DCC Total Systems.

Suggested SIT scope would at a high level typically include:

- System Test script and data design;
- Data generation and loading into a co-ordinated System Test environment;
- Execution of System Tests through sufficient iterations to enable SIT complete.

4.4 User Integration Testing

User Integration Testing enables Users to run specific tests to support their implementation of a change.

DCC expects that User Integration Testing will be required in order to support User implementation of this modification.

Individual changes are collected into a DCC release. In order to achieve more efficient User Integration Testing for all parties, the DCC will coordinate specific testing

requirements for all changes that comprise a release and issue a testing release approach document.

5 Implementation Timescales and Releases

5.1 Change Lead Times

From the date of approval, (in accordance with Section D9 of the SEC), in order to implement the changes proposed DCC requires a lead time between **9 and 12 months**.

This includes twelve months as stated in the DCC Release Management Policy plus an additional one month to allow for integrated release planning. Integrated release planning can only begin once all Authority Determinations have been received for all modifications proposed to be included within each Release.

6 DCC Costs and Charges

6.1 Cost impact

6.1.1 Implementation costs

The table below details the cost of delivering the changes and Services required to implement this Modification Proposal.

Implementation costs							
Implement ation Phase:	Design	Build	Pre- Integration Testing	System Integration Testing	User Testing	Impleme ntation to Live	Total
SECMP 0012	Between £784,000 and 1,048,000			TBD in full IA	TBD in full IA	TBD in full IA	£7,552,000 - £9,872,000
Implementation costs – supplementary information							
Implementati on cost assumptions	A. Costs are exclusive of VAT and any applicable finance charges B. Majority of the costs above represent labour costs. C. Costs provided for Design, Build and Pre-Integration Testing are quotes provided by the Service Providers and assuming there is no scope change can be considered the final costs. DCC have reviewed and challenged the costs from the Service Providers to ensure this reflects best price to date.						
Explanation of Implementati on Phases	DCC’s implementation costs are provided by implementation phases. The following describes the purpose of each phase: Design: The production of detailed System and Service design to deliver all new requirements.						

- *Build: The development of the designed Systems and Services to create a solution (e.g. code, systems, or products) that can be tested and implemented.*
- *Pre-integration Testing: Each Service Provider tests its own solution to agreed standards in isolation of other Service Providers. This is assured by DCC.*
- *System Integration Testing: All Service Providers' PIT-complete solutions are brought together and tested as an integrated solution, ensuring all Service Provider solutions align and operate as an end to end solution.*
- *User Integration Testing: Users are provided with an opportunity to run a range of pre-specified tests in relation to the relevant change.*
- *Implementation to Live Costs: The solution is implemented into production environments and ready for use by Users as part of a live service. This service is subject to implementation costs.*

The fixed price cost for a Full Impact Assessment is **£111,708**.

6.1.2 On-going operational costs

The table below details the additional cost associated with the on-going operation of the new Systems or Services introduced through this Modification Proposal.

6.2 Impact on Charges

The following section describes the potential impact on Charges levied by DCC in accordance with the SEC.

DCC notes that SECMP 0012 does not propose any changes to the charging arrangements set out in SEC Section K. DCC has made the assumption that, in the absence of an agreed alternative arrangement by the Working Group, the costs associated with the implementation of SECMP 0012 will be allocated to DCC's fixed cost based and passed through to Parties via Fixed Charges.

Subject to the commercial arrangements put in place to support the relevant Release, DCC expects the increase in Charges associated with the implementation of SECMP 0012 to commence in the month following the modification's implementation.

7 RAID

The detail below provides a summary of the risks, assumptions, issues, dependencies and clarifications observed during the production of a DCC Impact Assessment. DCC requests that the Working Group consider this section and consider any material matters that have been identified during this Impact Assessment phase. Any changes may impact the proposed solution, implementation costs and/or implementation timescales.

7.1 Risks

Ref	Risk Description	Probability	Impact
None identified			

7.2 Assumptions

DCC would like to confirm the validity of assumptions listed below with the Working Group. These assumptions have been used in the creation of this DCC Impact Assessment. Any changes to the assumptions may require DCC to undertake further assessment, prior to the contracting and implementation of this change. Any changes may impact the proposed solution, implementation costs and/or implementation timescales.

Ref	Description	Assumption Accepted
A-001	Design Assumption The business requirements mention there being separate SRVs for updating the Channel Configuration before and after installation with different access permissions for different user roles. It is assumed that a single SRV with specific validations can handle this scenario.	TBC

Ref	Description	Assumption Accepted
A-002	Structure of the HAN This PIA assumes that the term 'Shared HAN' in the title of the CR does not imply any changes to the logical structure of a HAN and that each household will continue to have its own dedicated Comms Hub / HAN. We assume that use of range extending equipment between Comms Hubs and other devices will be invisible to the DSP and will have no impact on inventory information used by the DSP	TBC
A-003	Structure of the HAN The solution presented here enables sending new types of commands to the Comms Hubs that can change the HAN parameters. DCC Data Systems has no control over the way these changes affect the other devices in the HAN and cannot guarantee that they communicate as intended with each other. In particular the SECAS working group may wish to consider interactions where Alt HAN range extending equipment is used on a HAN managed by a Dual Band Comms Hub where some of the device communications are on sub-GHz channels.	TBC

7.3 Issues

Ref	Issue Description	Severity	Priority
None Identified	n/a	n/a	n/a

7.4 Dependencies

Ref	Dependency	Dependency Accepted
None identified	n/a	n/a

7.5 Clarifications Required

Ref	Dependency	Status
None identified	n/a	n/a