

# Changes to the Intimate Communications Hub Interface Specification (ICHIS)

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## Table of Contents

<b>1</b>	<b>Introduction and Background to Document</b> .....	<b>3</b>
<b>2</b>	<b>Amendments to ICHIS</b> .....	<b>3</b>
2.1	Introduction of Fylingdales frequency band and CHAS .....	3
2.2	Additional changes to ensure specification remains fit for purpose .....	6
2.2.1	Updates to Part C DC Power .....	6
2.2.2	Other updates to ICHIS .....	7
<b>3</b>	<b>Consultation Questions</b> .....	<b>7</b>
<b>4</b>	<b>How to respond</b> .....	<b>8</b>
<b>5</b>	<b>Next Steps</b> .....	<b>8</b>

# 1 Introduction and Background to Document

The purpose of this DCC consultation is to invite views on amendments to the Intimate Communications Hub Interface Specification (ICHIS<sup>1</sup>), which is a specification required under H12 of the Smart Energy Code (SEC).

- SEC Section H12.5 requires DCC to keep the ICHIS under review to ascertain whether the specification remains fit for purpose envisaged by the SEC.

DCC has reviewed the ICHIS, with the assistance of the ICHIS Working Group (WG)<sup>2</sup> and is now seeking views on proposed amendments to ICHIS 2.1. These are:

- The inclusion of testing with a Communications Hub Antenna Structure test equipment (CHAS) designed for the Fylingdales geographic area.
- Additional lower-level changes to ensure specification remains fit for purpose:
  - Updates to the DC Power section in ICHIS to ensure this does not conflict with testing required by the manufacturers' notified body.<sup>3</sup>
  - An update to correctly clarify the application of the standard deviation variability limits in the introduction of the eight-meter testing in ICHIS 2.0.

## 2 Amendments to ICHIS

### 2.1 Introduction of Fylingdales frequency band and CHAS

In our July 2019 consultation response document, DCC confirmed that it was working with its Communications Services Provider (CSP) to fully analyse the impact of ESMEs that would be deployed on the Fylingdales frequency band. DCC further committed to consult Industry on the introduction of a new CHAS device and frequency in regard to the proposed RF noise limit for the new frequency, and any changes to the CHAS units, following analysis by the ICHIS WG.

DCC has been working with meter manufacturers via the ICHIS WG to evaluate the impacts of introducing the Fylingdales frequency band with existing approved meters. Initial testing focused on the EDM1 DBCH CHAS device using the Fylingdales (454MHz) frequency band.

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<sup>1</sup> ICHIS defines a Communications Hub as an object that is mounted on a Host to draw power from that Host. Host is defined as any equipment which powers a Device

<sup>2</sup> The ICHIS Working Group (WG) is a technical forum chaired by the DCC and attended by meter manufacturers, Communication Service Providers (CSPs), Comms Hub Manufacturers and observed by the Department for Business, Energy and Industrial Strategy (BEIS). The first meeting was held on 11 July 2018 and a total of 15 sessions have been held to date. The WG engages with industry through Energy UK and forums such as the Technical and Business Design Group (TBDG). The ICHIS WG has an advisory role in guiding DCC policy on the topic of the ICHIS.

<sup>3</sup> an organisation designated by an EU country to assess the conformity of certain products before being placed on the market

Once available, additional testing was carried out with the EDM I Fylingdales DBCH CHAS devices across the Fylingdales frequency band.

The current testing to conform to ICHIS at the Plextek test laboratory is based on rotating eight-meter samples through four test fixtures, with each fixture supporting a unique CHAS device. These four CHAS devices are the EDM I SBCH<sup>4</sup>, EDM I DBCH<sup>5</sup>, Toshiba DBCH<sup>6</sup> and WNC DBCH<sup>7</sup> CHAS devices. The initial testing to evaluate the potential Fylingdales introduction was to add a test for the Fylingdales frequency band to all meters being tested on the EDM I DBCH CHAS test fixture as the new EDM I Fylingdales DBCH CHAS design is very similar to the existing EDM I DBCH CHAS. This testing provided a good indication of the likely performance in the Fylingdales area, however, as the antenna is de-tuned at the Fylingdales frequency band on the EDM I DBCH CHAS it could not reliably identify noise peaks. The eight-meter test on the standard EDM I DBCH CHAS device could be seen to provide an effective measure of variability across the meters but may not necessarily provide an accurate assessment of the mean value.

Once the new Fylingdales CHAS was available DCC worked with the ICHIS WG to agree some further limited testing on the Fylingdales CHAS device with each approved meter model.

DCC reviewed testing options with the ICHIS WG on the basis that the testing should be proportionate to the Fylingdales area (circa 200k sites) and minimise additional testing time for all meters (existing and new). Given the eight-meter test gave a broad indication of variability, the group agreed to test two of the eight samples on the EDM I Fylingdales DBCH CHAS<sup>8</sup> device in order to determine the mean noise rise. The two samples for each model were selected from meters with a noise result close to the mean when tested at the Fylingdales frequency on the standard EDM I DBCH CHAS. Manufacturers supported this additional testing for their current approved models. Alternative testing options were considered. These included testing only one of the eight meters on the EDM I Fylingdales DBCH CHAS device or testing all eight meters on the EDM I Fylingdales DBCH CHAS device.

The ICHIS WG (which includes both CSPs) agreed that the eight-meter option was disproportionate for the Fylingdales population because eight meters could be easily tested on the EDM I DBCH CHAS and two meters were agreed to be sufficient to determine the mean noise level rise between the two CHAS devices.

All meter manufacturers were approached to complete testing based on the agreed tests for the EDM I Fylingdales DBCH CHAS device. Some manufacturers had multiple models as they were planning phased updates early in 2020. DCC agreed with the manufacturers to test approved meters that are planned to be in production and ready for deployment prior to mid-2020 (this being the earliest projected date for the first Fylingdales installations). All manufacturer models completing testing with the EDM I Fylingdales DBCH CHAS device had a mean result within a 7dB Noise Limit allowing for the standard test 0.5dB tolerance. 7dB is the Noise Limit agreed for the wider CSP-N 423MHz WAN network as tested with the standard EDM I DBCH CHAS at 423MHz.

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<sup>4</sup> EDM I Single Band Communications Hub

<sup>5</sup> EDM I DBCH CHAS – EDM I Dual Band Communications Hub CHAS

<sup>6</sup> Toshiba Dual Band Communications Hub

<sup>7</sup> WNC Dual Band Communications Hub

<sup>8</sup> EDM I Fylingdales DBCH CHAS - Variant of the Fylingdales CHAS

The Fylingdales network is planned on a similar basis to the wider CSP N network and therefore can support meter deployments based on the same Noise Limit.

One manufacturer who only undertook initial testing and observed a high level of noise in the Fylingdales band, accepts the result on the basis that it does not affect their existing meter result from Plextek for the other CSP areas and they may have alternative models that meet the Noise Limit in the which could be deployed.

DCC therefore presented a proposal to the ICHIS WG to proceed with Fylingdales introduction based on the eight-meter test on the EDM I DBCH CHAS at the Fylingdales frequency plus an additional two-meter test on the EDM I Fylingdales DBCH CHAS with the Noise Limit at the same value as the EDM I DBCH CHAS Noise Limit. This was supported unanimously by the ICHIS WG in the November 2019 meeting.

- The proposed changes to ICHIS version 2.1 have been tracked and included with this consultation. In summary the changes are:
- Section F2.0 - A new row has been added for the Fylingdales (454MHz) Frequency band
- Section F4.0 Subsection numbering has been added through F4.0 to enable cross referencing.
- Section F4.2, F4.5 – These sub-sections have been expanded to include testing at 454MHz in the eight-meter test on the EDM I DBCH CHAS
- Section F4.7 – An addition to include the two-meter test on the EDM I Fylingdales DBCH CHAS
- New Section F9.0 – This section ensures an individual meter model only needs to be ICHIS compliant for the WAN and HAN noise limits in the CSP area it is being installed in (and referenced in appendix B).
- Appendix A CHAS details – A paragraph added for EDM I Fylingdales DBCH CHAS
- Appendix B Noise Limits –The addition of the CSP area to the table (linked with F9.0) and a new row added for the 454MHz noise limit.

Q1

Do you agree with the proposals in Section 2.1 of this document as summarised above? Please provide your rationale.

## 2.2 Additional changes to ensure the specification remains fit for purpose

### 2.2.1 Updates to Part C DC Power

In line with DCC's responsibility to keep the ICHIS under review, changes are proposed to Part C of the ICHIS (DC Power) to ensure is not seen to replace or conflict with testing required to demonstrate compliance with applicable EU directives as part of a product's CE<sup>9</sup> approval.

The ICHIS working group agreed the following principles to guide the proposed changes to ICHIS:

- Safety of the Communications Hub (and Hosts<sup>10</sup>) is covered by overarching product safety regulation (e.g. CE approvals including Radio Emissions Directive and Low Voltage Directive) and approved by the manufacturer working with their notified body.
- ICHIS should not define the detailed safety tests for each device, instead the responsibility for this should remain with those putting the devices onto the market.
- ICHIS should continue to provide clear information on any aspects of the interface that a notified body needs to be aware of, to determine the applicable CE safety testing. For example, although the power to the Communications Hub is DC, it can be referenced to the live or neutral mains supply and may not be isolated by the meter.

Based on these principles the ICHIS WG has reviewed ICHIS version 2.1 and is proposing changes to the following sections:

- Proposal to update Section C1.3 (Power Supply Safety Considerations – Intimate Connection) to ensure that information pertaining to the safety risks on the interface is clear. This includes sub-sections to cover the power supply (C1.3.1) as well as external metal and Insulation (C1.3.2 formerly C1.4).
- Proposal to remove Section C2.1 (specific requirements for the provision of DC power for Communication Hubs). The power and safety design guidance points are included in the proposed update to C1.3. The remainder of the current section C2.1 relates to detailed test instructions that could conflict with guidance from the manufacturer's notified body.
- Sections 2.2 to 2.5 are proposed to remain unchanged. These are short paragraphs to describe the source of the power from electricity meters and a Hot Shoe.
- Proposal for a small change Section 2.6 (specific requirements for Adaptors and Cradles) to the final paragraph to avoid referencing detailed tests in section 2.1 (which is proposed to be deleted). Instead, the last paragraph is proposed to require testing to be advised by the manufacturer's notified body to meet applicable EU directives.

**Q2**

Do you agree with the proposed changes to ICHIS Parts C1.3, C1.4, C2.1 C2.6  
Please provide your rationale.

<sup>9</sup> CE marking is a **certification mark** that indicates conformity with health, safety, and environmental protection standards for products sold within the European Union (EU).

<sup>10</sup> The side of an ICHIS interface which provides power and a physical mount for a Device.

## 2.3 Other updates to ICHIS

During the reviews for the changes to update ICHIS an error was identified in section F4.0 in the description of how the limits of the standard deviations are applied to the eight-meter tests. This has been reviewed with the ICHIS WG and an update to correct this included in the ICHIS part F4.5.

As the ICHIS Test Specification and testing at Plextek test laboratory were already aligned with the April ICHIS WG minutes, DCC can confirm that all ICHIS 2.0 results are based on the correct interpretation. The change from ICHIS 2.0 to 2.1 was solely to extend the derogation dates and had no impact on the test limits.

**Q3**

Do you agree with the proposal to update ICHIS Part F4.5 to correct the description in ICHIS F4.0? Please provide your rationale.

## 3 Consultation Questions

DCC would like stakeholders' views on the following consultation questions:

**Q1**

Do you agree with the proposals in Section 2.1 of this document as summarised above? Please provide your rationale.

**Q2**

Do you agree with the proposed changes to ICHIS Parts C1.3, C1.4, C2.1 C2.6 Please provide your rationale.

**Q3**

Do you agree with the proposal to update ICHIS Part F4.5 to correct the description in ICHIS F4.0? Please provide your rationale.

## 4 How to respond

Please provide responses by 17:00 31 January 2020 to DCC at [consultations@smartdcc.co.uk](mailto:consultations@smartdcc.co.uk). If you have any questions about the consultation documents, please contact Aniru Shyllon at [aniru.shyllon@smartdcc.co.uk](mailto:aniru.shyllon@smartdcc.co.uk).

Consultation responses may be published on our website [www.smartdcc.co.uk](http://www.smartdcc.co.uk). Please state whether all, or any part, of your consultation response is confidential. Please note that responses in their entirety (including any text marked confidential) may be made available to the Department Business, Energy and Industrial Strategy (BEIS) and the Gas and Electricity Markets Authority (the Authority). Information provided to BEIS [or the Authority], including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004). If BEIS [or the Authority] receive a request for disclosure of the information [we/they] will take full account of your explanation (to the extent provided to them), but [we/they] cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

## 5 Next Steps

Following this consultation, DCC will consider the responses received and finalise the amended ICHIS and publish it on the DCC website.