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# *Cable Fire Performance: Internal Copper and Fibre Cables*

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# *About this document ...*

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## Content approval

This is the Issue 7 of this document.
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# Version History

| Version No. | Date | Author | Comments |
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| Issue 7 | 26-Apr-2023 | Steven Miles | Change of author |
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| Issue 5 | 03-Apr-2020 | Ian Gauntlett | Enhanced information to section 2. (IG). |
| Issue 4 | 04-Dec-2019 | Ian Gauntlett | Use Case Risk Assessment document and link to components and materials associated with installing and securing / fixing cables in buildings included. (IG). |
| Issue 3 | 23-Oct-2019 | Ian Gauntlett | Improved information on acceptabl and non-acceptable cables. (IG). |
| Issue 2 | 05-Apr-2019 | Ian Gauntlett | Editorial changes (IG). |
| Issue 1 | 28-Mar-2019 | ISIS co-ordinator Network Engineering | New document (IG) |

Table of Content

# 1 *Introduction*

Internal communication cables for installation within buildings must meet recognised fire standards.

This document provides information on the fire performance classifications for cables that BT, Openreach and their contractors must use when installing in non-BT / 3rd Party buildings and in BT Operational buildings.

# 2 *Cable Fire Standards*

The requirements of BS 6701:2017, Telecommunications Equipment and Telecommunications Cabling have been placed within the IET Wiring Regulation BS 7671: 2018, a standard with special legal standing within UK law. Cable fire performance is an integral part of this documentation.

As a consequence of this BT and Openreach safety and technical experts have assessed our various internal copper and fibre cable types and the application within which they are used to determine the required fire classification(s) that needed to be met.

The required fire classification(s) to be met are from a range of standards defined by the CPR. The CPR (Construction Products Regulations) a set of European fire standards for the materials used in the construction of buildings, these include cables. The cables in scope for this encompass all copper and fibre communication cables whatever their physical size and application.

This assessment takes into account who the buildings are occupied by or owned by. Plus also whether the cables are concealed behind / within the building fabric or installed on non-concealed parts inside of the building. This latter matter of concealed vs non-concealed cabling is one of the key factors in BS 6701 that has been considered as part of this work.

The safety team ruled that for non-BT / 3rd party buildings only one minimum standard cable fire performance was acceptable for both concealed and non-concealed installations in these buildings. This is to ensure engineers are equipped with cables meeting the required standard for all installations. All of the cable types assessed with the exception of one type can be installed in both concealed and non-concealed building areas. The exception refers to a specific manufacturer type of cabling known as Invisilight which is in either a single (1) fibre format or a cable containing 12 fibres. Due to the nature of its construction Invisilight can only be installed in a non-concealed manner.

Please refer to appendix A for the Use Case Risk Assessment document compiled for the above assessment by the BT and Openreach safety and technical experts.

# 3 *Required Fire Performance Classifications / Application*

## 3.1 Non-BT / 3rd Party Buildings – Acceptable & Non-Acceptable Cables

### 3.1.1 Cable Minimum Requirements – Acceptable Cables

Cables for installation in these buildings must meet a minimum of CPR classification of Cca s1b d1 a2.

The above includes values for smoke (s), flaming droplets (d) and acidity (a) measured under a fire test load condition.

Cables of a higher / better performance classification to the above are also acceptable in these buildings. Examples of such are B2ca, B1ca and Aca. Plus their s, d and a values are the same as detailed for the minimum Cca standard or are of a higher / better performance, e.g. s1a d0 a1. This means that the lower the number associated with each of the letter s, d and a, the better the performance. Also specifically for the s letter, s1a, is a better performance than s1b.Therefore an overall better performing cable compared to Cca s1b d1 a2 for example would be B2ca s1a d0 a1.

### 3.1.2 Cables Below Minimum Requirements - Unacceptable Cables

Cables with a classification of Cca s1b d2 a2 or lower / worse performance, plus cables with a classification of Dca and Eca are unacceptable for installation in these buildings as they do not meet the minimum requirement as per 3.1.1 above

### 3.1.3 Exception for These Buildings

As per section 2, Invisilight can only be installed and fixed to non-concealed parts inside of buildings. Its fire classification does not meet the standard detailed in section 3.1.1. However Invisilight is designated Eca and as such BS 6701 permits this type of cabling for non-concealed building areas. The safety team considered the physical small size and material composition of Invisilight with the conclusion that its performance would not have any significant impact under a fire load condition.

### 3.2 BT Operational Buildings

Cables with a classification of Eca, Dca, Cca, B2ca, etc. are all acceptable for use in the operational areas of the buildings that we operate in and have control over. We can therefore continue to use our existing portfolio of cables in these locations. Please note that for a cable to meet with any of the CPR standards, they all have to pass defined tests. Our buildings contain a considerable amount of legacy cables installed over many years. These legacy cables under CPR would meet at least a minimum of Eca standard.

### 3.3 Office Accommodation in BT Operational Buildings

Where a cable transitions past / through office accommodation to reach an operational area, it must meet the Cca s1d d1 a2 standard. Cables with a lower classification must not be used in such circumstances.

# 4 *Cable Installation – Identifying Compliant Cable*

Under the rules of the CPR, the cable supply reel/drum and / or its packaging is required to be CE marked and include the fire classification, this will shown as the “reaction to fire” (e.g. Cca s1b d1 a2). Manufacturers may at their discretion, also mark the cable sheath with the fire classification.

# 5 *CPR Certification*

Once a cable has undergone CPR testing and met with a defined fire classification, a DoP (Declaration of Performance) certificate is published by the cable manufacturer. This DoP details the fire performance classification that the cable has met, this will be detailed as the “reaction to fire”. The DoP is the document to be used, if required, to prove to buildings owners, architects, etc. that a cable for intended installation meets with a particular CPR standard.

# 6 *Further Information*

This ISIS, EPT/CFP/001, is complemented by additional documents in this series, i.e. EPT/CFP/A0XX. These documents provide the details on the actual cables intended for installation in; (1) non-BT / 3rd buildings, (2) for cables intended to transition past / through office accommodation to reach an operational area of a BT building and (3) cables for use in operational areas of BT buildings only. Each one is for a specific cable type or range and includes (as a minimum), the DoP and the applicable cable data sheet. The BT item

codes for the cables are listed in either the data sheets or in some documents listed in the main body of the document.

# 7 Appendix A


HERE

Click for the Use Case Risk Assessment document.

# 8 Appendix B

The components and materials associated with installing and securing / fixing cables in buildings is detailed in the information below:

https://openreach.office.bt.com/sites/pan-openreach-comms/Shared%20Documents/Health%20and%20Safety/Documents/TBT/Toolbox%20Talk%20-%20Firestopping.pdf

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