

What is CPR?

The Construction Products Regulation (CPR) replaced the original Construction Product Directive in 2011. To give it its formal name 'EU/305/2011' its reach has broadened over time, in terms of the products that it applies to. In 2016 a series of characteristics relating to a cables reaction to fire were published. This led to legislation that sets out to harmonise these characteristics across all EU countries, via a classification structure.

In this short paper we will concentrate on how the CPR regulation affects the specification of cables installed in new construction and refurbishment products.

Why CPR for cables?

There is currently no harmonised structure for how a cable reacts to fire, therefore resulting in varying safety standards at a national level. The introduction of CPR, and specifically a series of classification criteria, known as 'Euroclasses', creates a common set of performance characteristics, test and documentation processes and a timeline for compliance for all those in the supply chain, from specifiers, through manufacturing and distribution to installation organisations.

Ultimately the objective of CPR is to improve in building safety, this will be achieved through this new set of reaction to fire specifications, enabling local regulators and clients to select the performance requirement at national or even project level from the Euroclasses which are defined in EN 50575:2014.

Which products are in the scope?

Any cable which is deemed to be permanent once installed is within scope of the CPR.

This covers power, data and communications cables. In the case of data and communications cables copper, fibre, coax, and multiconductor cables are covered, with the exception of patch leads.

What are the timeframes?

The transitional period, known as 'co-existence' began on 1st June 2016 and is scheduled to operate for 12 months. From the 1st July 2017 cables placed on the market that are within scope must meet the requirements of the CPR.

Manufacturers of such cables must demonstrate this compliance through Declarations of Performance (DoP) and CE marking applied to either product and/or packaging. The performance requirements to which DoPs are issued against,

and the associated processes for certification and labelling are found in the aforementioned EN 50575:2014 specification.

Placed on the market is legally defined 'as the supply of the (individual) construction product for the first time within the European Internal Market for distribution or use in the course of a commercial activity.'

Product which is in the market prior to the 1st July and is not CE marked can be sold and installed without breaching the CPR regulation.

What characteristics are tested?

CPR focuses purely on a product/materials reaction to fire. All other performance and specification criteria for cables are defined in separate, established standard or vendor specific documents.

In the case of cable, four key characteristics are measured and are central to the classification matrix that customers and regulators will use to specify the minimum and maximum required specification, these are.

- Propagation and heat emission
- Smoke emission
- Burning droplets
- Acid gas emission

The individual performance standard required for each of these four measures is found in the aforementioned EN50575:2014 standard documentation.


How do I ensure I have CPR compliant products?

As previously mentioned processes have been defined within European standards to enable customers to purchase and install product in a confident and traceable manner. Specifically, what are known as Declarations of Performance (DoP's) and a standardised method of labelling on the product packaging. Whilst it is not a requirement to mark products to denote CPR compliance, or the related Euroclass, it is expected that most manufacturers, including Excel will do so.

Declaration of Performance (DoP's) are legal documents prepared by manufacturers and are placed in the public domain, following testing by independent organisations known as 'notified bodies'.

The degree of testing required is dependent on the Euroclass to which the declaration is required. At the lower end of the range, for example Eca and Dca product samples are tested, at the higher end – from Cca and above – this test process includes both a factory audit and product test.


An example DoP is included below, copies of these will be included in relevant product and technical sections of the Excel web site.

| | |
|---|------------|
|  | |
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| Doc No. | DOP-EXL004 |
| Declaration of Performance | |
| 1 - Unique identification code of the product-type: | |
| 100-071 | |
| 2 - Type, batch or serial number or any other element allowing identification of the construction product as required | |
| <i>The type number of 100-071: see the print on the cable or sticker on the box</i> | |
| 3 - Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer: | |
| <i>Supply of communication in buildings and other civil engineering works with the objective of limiting the generation and spread of fire and smoke</i> | |
| 4 - Name, registered trade name or registered trade mark and contact address of the manufacturer as required under Article 11(5): | |
| <i>Excel Networking Excel House, Junction Six Industrial Estate Electric Avenue, Birmingham, UK, B6 7JJ Tel : +44 (0)121 326 7557 Fax : +44 (0)121 326 1537 e-mail : CPR@excel-networking.com</i> | |
| 5 - Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2): | |
| <i>N/A</i> | |
| 6 - System or systems of assessment and verification of constancy of performance of the construction product as set out in CPR, Annex V: | |
| <i>System 3</i> | |
| 7 - In case of the declaration of performance concerning a construction product covered by a harmonized standard: | |
| <i>Notified body number: 0199 performed the determination of product type.</i> | |

EN50575:2014 also defines clearly the labelling requirements for CPR compliant product, regardless of Euroclass. Product labelling should be fixed to the box or drum of cable supplied and clearly show the following together with any market or manufacturer specific markings.

- The CE mark
- Euroclass
- DoP Reference Number
- Assessment scheme and notified body that completed the testing

An example label is shown below

| |
|--|
|  0199 |
| Excel Networking Solutions Ltd Excel House, Junction 6 Industrial Park Electric Avenue Birmingham, B6 7JJ UK 17 DOP-EXL222 |
| EN 50575:2014 100-074 Supply of communication in buildings and other civil engineering works with the objective of limiting the generation and spread of fire and smoke Reaction to Fire: D Additional Requirements S2, d2, a2 Dangerous substances: none |

What are Euroclasses?

Euroclasses are a hierarchical series of test's and measurement's defined with the European Standard EN50575:2014. Classes are designated through the use of codes, prefixed with letters that declare reaction to fire, from A (no reaction) to F (undetermined).

The reaction to the fire parameter is mandatory from July 1st 2017, the remaining elements of the Euroclass and subsequent coding are optional but are expected to be followed closely by regulators and specifiers.

| Euroclass (ca) | Classification Criteria | Additional Criteria | Attestation of conformity system |
|----------------|--|---|---|
| A | EN ISO 1716 Gross heat of combustion | | |
| B1 | EN 50399 Heat release Flame spread | Smoke production (s1a, s1b, s2, s3) EN50399/EN61034-2 | 1+ Initial type-testing and continuous surveillance with audit testing of samples by 3rd party certification body factory production control (FPC) by manufacturer |
| B2 | | | |
| C | | | |
| D | EN 50575 Flame propagation | Acidity (a1, a2, a3) EN 50267-2-3 Flaming droplets (d0, d1, d2) EN 50399 | 3 Initial type testing by 3rd party laboratory |
| E | EN 50575 Flame propagation | | FPC by manufacturer |
| F | | | 4 Initial type testing and FPC by manufacturer |

How are Euroclass codes constructed?

There are up to four elements within each Euroclass code namely,

| Propagation & Heat Emission | Smoke Emission |
|--|---|
| Options: Aca They do not contribute to the fire. B1ca - B2ca Minimum contribution to the fire. Cca - Dca - Eca Combustible, they contribute to the fire. Range from low (Cca) to higher (Eca) Fca Undetermined contribution properties. | Options: S1 Little smoke production and slow smoke propagation S1a Transmittance >80% S1b Transmittance >60% and <80% S2 Average smoke production and propagation S3 None of the above |
| Burning Droplets | Acid Gas Emission |
| Options: d0 No burning droplets d1 No burning droplets for more than 10 seconds d2 None of the above | Options: a1 Conductivity <2.5 µS/mm and pH > 4.3 a2 Conductivity <10 µS/mm and pH > 4.3 a3 None of the above |

At a national or specification level the required characteristics will be specified resulting in codes such as C_{ca} s1b d2 a2, where:

- Cca = Does not propagate fire, reduced heat emission
- s1b = Reduced levels of smoke emission, between 60% and 80%
- d2 = Burning droplets maybe possible
- a2 = Acid gas emission conductivity of <10us/mm and Ph>4.3

Is Euroclass criteria a legal requirement?

This depends on the country in which the question is raised.

The way in which the Euroclass hierarchy is applied in each country is the responsibility of the local regulatory body, or where this does not exist the equivalent. It is expected that in most markets a minimum and maximum classification will be defined by these bodies, which will then be selected by the user, based on a range of criteria from budget, building type and use, corporate standard etc.

The UK market is not regulated, the responsible authority is the Department For Communities and Local Government, as of May 2017 the department has not defined any minimum or maximum Euroclass.

Other markets within the EU are declaring minimum and maximum classification requirements as we get closer to the 1st July date for CPR compliance.

How do we meet current, and advise on future customer requirements?

To provide some guidance on this question we need to separate CPR from Euroclass.

CPR is EU wide regulation, it is mandatory, product supplied into the market from 1st July 2017, must be CE marked and hold DoP's to confirm testing completed, and certification gained.

Euroclasses provide a range of low to high reaction characteristics, how these are applied will vary from country to

country, and in some instances building type to building type.

In the majority of countries within the EU the directive over choice of Euroclass will be driven by regulators, or equivalent bodies, and customers should seek this local clarification either via our sales teams, distributors or independent sources.

In the UK, which we have established is not regulated, it is likely the market will be driven by related BS standards documents and transition from Eca to Cca as the recommended minimum classification over the coming months.

A transition period? What standards?

In August 2016 BS8492:2016 was published as an interim guide for the UK market and specified a minimum class of Eca (which meets the minimum requirements of EN60332-1, which in turn is equivalent to and complies with the current standard LSOH cables sold today) and a maximum/upper requirement of Cca.

However it is envisaged that the next revision of BS6701 will outline the long term UK requirements.

BS6701 is a widely used standard in the telecommunications industry, and is titled 'Telecommunications equipment and telecommunications cabling. Specification for installation, operation and maintenance' first published in 2010, revised in 2016 we expect the next revision to be published in Autumn 2017.

BS6701 is one of the standard referenced by BS7671 17th Edition which is the tool of the Electricity at Work Act, and the relevant part of the building regulations.

In its current draft the 2017 revision will include the requirement that for new installations, and the refurbishment or extension of existing installations of cables, which are within the scope of the CPR, should meet a minimum Euroclass of Cca s1b d2 a2.

Keep an eye on www.excel-networking.com for further updates on CPR.

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