BCA – Technical Newsletter – Issue No. 42
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1 Construction Products Regulation (CPR)

The BCA Status Document has been updated and re-issued (C 3660/C 3660A). In particular it now reflects key recent events, which are summarised thus:

- The listing of the key product standard covering reaction to fire cables (EN 50575) was re-stated in OJEU;
- The Date of Applicability (DoA) was moved to 1st July 2016;
- By extension the end of co-existence was moved to 1st July 2017.

This has been supported by progress with the administrative amendment to EN 50575 which has been:

- Cleared by the European Commission, CENELEC and the consultant;
- Allowed to have a special short voting period (4 weeks) in CENELEC;
- Received support from the CENELEC national committees.

Having passed all those stages, it would take a most unexpected interference for there to be any further delay in the DoA.

The updated Status Document also includes a useful EC summary document on CE marking under CPR.

It remains the intention to keep the Status Document up-to-date and, unless Council advises to the contrary, to maintain it only for the internal use of members.

2 LV energy cables for fixed wiring – National standards

Over the last 3-4 years, Council has been advised of a gradual programme to update the national standards for the major products covering LV fixed wiring cables, including for fire-resistant (circuit integrity) types. This programme is close to completion, and has embraced the nine standards shown in the table below.

BS number	Brief title/subject	Date of publication
BS 6004	Flat wiring cables – PVC	September 2012
BS 7211	Flat wiring cables - LSHF	September 2012
BS 7889	Non-armoured 1 kV - PVC	October 2012
BS 8573	Non-armoured 1 kV - LSHF	October 2012
BS 7629-1	Multi-core fire resistant cables	August 2015
BS 7846	Armoured 1 kV fire resistant cables	November 2015
BS 5467	Armoured 1 kV & 3.3 kV- PVC	Q1 2016
BS 6724	Armoured 1 kV & 3.3 kV- LSHF	Q1 2016
BS 8592	Single-core fire resistant cables	Q1 2016

In all cases a primary objective has been to enhance the required outer marking on the cable, such that the origin (Manufacturer's name and a factory identifying code) is visible.

Secondary objectives have included the adoption of as many harmonized European test methods (usually based on IEC equivalents) as possible, and the use of consistent wording for common features or requirements.

Under BSI procedures, a national standard is subject to review after a maximum of 5 years.

3 HV cables and accessories

The work to update and extend IEC standards in the HV and EHV areas continues to advance. This includes for DC as well as AC, and submarine as well as land-based applications. The latest position is:

a) **Land-based AC** cables

- **IEC 60840**, covering cables above 30 kV and up to and including 150 kV. This is a mature standard (Edition 4, 2011), but needs key amendments on which work has started. The standard is used as the baseline in Europe for the equivalent standard HD 632, the difference being that the HD has a series of national variants which in the UK are principally expressed in BS 7912.

- **IEC 62067**, covering cables and systems above 150 kV and up to and including 500 kV. The 2011 version is Edition 2. Key amendments are being worked on in parallel with IEC 60840. There is no separate European standard.

b) Land-based DC cables

- **IEC 62895**, covering cables and their accessories up to and including 320 kV. This is a new standard which is at its penultimate procedural stage in IEC. In the absence of major issues, it should be completed and published before the end of 2016.

c) Submarine cables AC

- **IEC 63026**, covering cables and their accessories from 6 kV up to and including 60 kV. This recently approved project is at an early stage. A first draft is unlikely until later in 2016, and it will probably limit the applications to relatively shallow waters (maximum 200m depth). For the future, a recently authorised study within CIGRE could eventually lead to an extension of the standard to deeper, more onerous, operating conditions.

4 Other recent publications

Between last autumn and now several relevant standards have been published by CENELEC and adopted by BSI. Some are completely new, others are new editions.

a) Fire tests for cables

CENELEC number	Brief title	Comments
EN 50200	Resistance to fire – Small cables	3rd edition – PH classification test for CPR
EN 50577	Resistance to fire – Furnace test	New – P classification test for CPR
EN 60332-1 (series) - amendments	Single flame tests	Part 1-2 is the Bunsen burner test

b) Metallic data cables

CENELEC number	Brief title	Comments
EN 50288-9.2	Multi-element metallic cables - screened cables characterized from 1 MHz up to 1 000 MHz for work area, patch cord and data centre applications	New
EN 50288-10.2	Multi-element metallic cables - screened cables characterized from 1 MHz up to 500 MHz for work area, patch cord and data centre applications	New
EN 50288-11.2	Multi-element metallic cables – un-screened cables characterized from 1 MHz up to 500 MHz for work area, patch cord and data centre applications	New
EN 50289-1-17	Exogenous crosstalk ExNEXT and ExFEXT – Test method	New
EN 61196-10	Coaxial cables - semi-rigid cables with polytetrafluoroethylene (PTFE) dielectric	Re-published with corrigendum

c) Optical fibre cables

CENELEC number	Brief title	Comments
EN 60793-2-10	Category A1 multimode fibre	2nd edition
EN 60793-2-20	Category A2 multimode fibre	2nd edition
EN 60793-2-30	Category A3 multimode fibre	2nd edition
EN 60793-2-40	Category A4 multimode fibre	2nd edition
EN 60793-2-50	Class B single-mode fibres	New
EN 60794-1-1	Cables - Generic specification – General	2nd edition
EN 60794-3-21	Outdoor cables - Optical self-supporting aerial telecommunication cables for use in premises cabling	2nd edition

5 Conductor types – Metric and AWG

It is over 40 years since UK formally adopted metric sizes for the conductors of power cables. They range from 0.5 mm^2 up to 2,500 mm^2. The relevant international standard, IEC 60228, is adopted in UK as BS EN 60228. This feeds through to the power cable product standards in IEC, CENELEC and BSI, all of which use the metric standard.

Adoption of IEC 60228 has never been universally accepted, with North America especially retaining the American Wire Gauge (AWG), with the variant for larger sizes expressed as kcmil (or MCM). The smaller sizes of AWG are also found for a variety of communication cables in all parts of the world.

Ten or more years ago and arising from extreme political pressure within IEC, the technical committees were instructed to embrace “Global Relevance” within standards. This was an attempt, especially by USA, to challenge what was seen as the Eurocentric nature of IEC’s portfolio of standards and to acknowledge within them for the future, technical practices that had existed at national or regional levels. The single significant proposal for energy cables was a direct request from USA to include AWG conductor types and sizes into IEC 60228.

The eventual solution was to create a parallel document for AWG as a Technical Report (TR), i.e. something that did not interfere with the established metric conductors. The agreed caveat was that, over time, rationalisation would be attempted, for instance by fully aligning very close sizes and types and/or introducing to IEC 60228, fully-metricated intermediate sizes where no close equivalent existed.

USA has now re-opened the question with a proposal that the TR for AWG should be revised as a full International Standard without any of the previously agreed rationalisation. It is too early to predict the eventual outcome, but it could result in a proliferation of conductor types and sizes for commonly quoted cable types to IEC standards, which would be the complete opposite of what standardization is supposed to achieve.

6 BSI Standards Award

In 2014 BSI inaugurated high level annual awards aimed at UK experts who had given outstanding service in the development of standards. We are delighted to report that, in the 2015 awards announced in last November, Terry Journeaux (Prysmian) received the one for "International Standards Maker". We offer our congratulations.

The award was in recognition of 30 years work in the key area of standards covering fire performance of cables, including the recent contributions towards the entry of cables under the Construction Products Regulation. Terry received his award from Dr Scott Stedman (left – BSI Director of Standards) and Carol Sergeant (right, who chairs BSI's Standards Policy and Strategy Committee)

7 Electrotechnology – Raising the UK profile

Ever since the inception of IEC in 1906, the UK has played a major role in electrotechnical standardization. Initially this derived from the needs of power generation and distribution, and included switchgear, transformers, overhead lines and cables. Later came the domestic infrastructure of plugs and sockets, lamps and lighting, and household appliances. In recent times IT related businesses and products have played a strong role. In all cases it has been a requirement for 'safety in use' that has loomed large.

Recent years have witnessed a decline in UK influence, especially from manufacturing industry. Whilst no rigorous research has been done, the apocryphal evidence relates to ownership of Tier 1 companies, with a disproportionate number from UK now owned and run

externally. This in turn, and not unnaturally, leads to the longer-term technical functions, such a standardization, being drained from UK and concentrated elsewhere.

BSI is concerned about this and in the next 2 years will seek to address the issue in an attempt to establish what is or is not possible for the future. Two specific initiatives will be:

- Engagement meetings/events with senior executives (MD/CEO level) in UK. These are likely to seek guidance on future imperatives for standardization, and the willingness to resource them.

- The hosting of key standardization events, at which there will be a place for industry to be present and raise its profile. One such will be the General Assembly of CEN/CENELEC, scheduled for 3 days in Edinburgh over mid-summer 2017.

It is very probable that BCA will be invited to take part in both initiatives in some form or another.

8 IET/BSI Workshop

As reported previously, the next Workshop event for Young Engineers and Professionals is confirmed for 28 April 2016 at the refurbished IET building (Savoy Place). It will continue to embrace selection of those to represent UK at IEC's annual Young Professionals event. This year's event, which remains free of charge, will cover "The Future of Engineering: Societal Challenges", and look at ways in which the Internet of Things could enhance subjects such as energy efficiency and smart cities.

Full details are at:

http://www.bsigroup.com/en-GB/our-services/events/2016/2016-04-28-YEP-Conference/

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Previous Newsletters- Restricted to BCA members only

All back numbers of the Technical Newsletter are available on the restricted (Members-only) section of the BCA website (www.bcauk.org). Please ask Paul Sweet for username and password for the Members-only section if you do not already have them. Please note that the username and password were last updated in February 2016.

1 May 2001 (C/2851);
2 September 2001 (C/2872);
3 February 2002 (C/2910);
4 June 2002 (C/2925);
5 September 2002 (C/2938);
6 March 2003 (C/2974);
7 July 2003 (C/3003);
8 November 2003 (C/3026);
9 March 2004 (C/3039);
10 September 2004 (C/3055);
11 February 2005 (C/3067);
12 May 2005 (C/3094);
13 October 2005 (C/3121);
14 February 2006 (C/3135);
15 May 2006 (C/3160)
16 October 2006 (C/3177);
17 Special CPD issue –December 2006 (C/3197)
18 March 2007 (C/3202)
19 June 2007 (C/3220)
20 October 2007 (C/3231)
21 March 2008 (C/3247)
22 May 2008 (C/3269)
23 September 2008 (C/3286)
24 January 2009 (C/3320)
25 June 2009 (C/3352)
26 Autumn 2009 (C/3396)
27 February 2010 (C/3407)
28 April 2010 (C/3420)
29 October 2010 (C/3468)
Special issue – Standards – January 2011 (C/3473)
30 April 2011 (C/3480)
Special issue – EN 50525 – June 2011 (C/3487)
31 September 2011 (C/3493)
32 December 2011 (C/3497)
Special issue – IEC 60811 – June 2012 (C/3517)
33 September 2012 (C/3528)
34 Spring 2013 (C/3540)
35 June 2013 (C/3552)
36 November 2013 (C/3574)
37 Spring 2014 (C/3587)
38 Summer 2014 (C/3600)
39 February 2015 (C/3619)
40 Summer 2015 (C/3635)
41 Autumn 2015 (C/3649)