

## Remote powering over structured cabling - changing building design?

### Planning tools for new installations and capacity assessment of legacy infrastructure

A 1-day intensive seminar with optional 12-month service pack

**BS PD CLC/TR 50174-99-1**

ISO/IEC TR 29125

ANSI/TIA TSB 184

IEC 60364-7-716

IEEE 802.3bt

IEC 62368-3

ISO/IEC 14763-2

BS EN 50174-x

IET CoP DC .... in Buildings

Remote powering using telecommunications cabling of Category 5 and above is rapidly becoming established. The challenge of developing design and planning rules is now being addressed and will affect both the infrastructure design for future buildings and, very importantly, have to address the assessment of existing building infrastructures.

A variety of standards and other documents have been, and continue to be, prepared to pave the way. This one-day seminar reviews all the activities that have been undertaken and those still underway. It describes each of their roles before explaining, in some detail, the methodology to be applied within the EN 50174 series standards in their revision planned for completion in 2017 - which may ultimately change the way we design our buildings.

Prepared and presented by

**Mike Gilmore, Managing Director, e-Ready Building**

Technical Committee Chairman, BSI TCT/7/1 and CENELEC TC215

Prepared for

**Specifiers, installers and users of telecommunications cabling infrastructures**

#### OVERVIEW

Since our first "PoE" seminar in 2011, the actual (or planned) use of structured cabling to deliver power has become ubiquitous and infrastructure designs for buildings being implemented today need to incorporate design features which will allow the widespread use of remote powering during their operational lifetimes.

Revisions of the standards for distributed building services cabling (e.g. BS EN 50173-6) demand the effective delivery of remote powering in conjunction with the highest transmission data rates and there is an exponential growth of devices and services relying on the availability of supporting infrastructures. Meanwhile, IEEE continues to develop higher power implementations (IEEE 802.3bt) - subject to limits imposed by equipment safety standards being developed in IEC.

Against that background, the cabling standard bodies (ISO/IEC, TIA and, in Europe, CENELEC) have been busy analysing the impact of remote powering with regard to any constraints it implies for building design and operational controls. The testing and modelling done in Europe and elsewhere produces thermal impact predictions combining cable resistance, diameter, bundle sizes and configuration in a variety of installation conditions (tray, conduit, insulation etc.). Apply these reductions to new builds may imply link length reductions while using them to assess existing infrastructures may invoke power management or diversity controls.

In the UK we will see the revision of BS EN 50174 standards to include requirements for the design and planning of new installations intended to support remote powering and, separately, the assessment of existing installations in terms of their remote powering capacity and capability.

**SCHEDULE Q3, 2016**

**LONDON**

7th July 2016

Kensington

**LEEDS**

8th July 2016

City Centre

In addition to the scheduled dates shown above it is possible to arrange on-site training to suit specific requirements

#### COSTS

Scheduled Courses	Service Packs	On-site Training (EEA)
<b>Basic rates</b>	e-Ready Building offers a 12-month service pack agreement covering updates to the information provided during the seminar. The service pack reflects amendments and additions as standards evolve. Sterling: £99.00 per pack or Euro: €140 per person	<b>UK</b>
Sterling: £395.00 per person Euro: €570 per person		Sterling: £1850 plus £50 per person Euro: €2700 plus €70 per person
		<b>Outside the EEA</b>
		Contact e-Ready Building for details
The above costs include refreshments during the seminars but exclude accommodation.		
The above costs are subject to VAT where applicable.		

**You can reserve places on the seminar in the following ways:**

- by telephone: +44 (0) 113 232 3721
- by e-mailing your requirements to [mike.gilmore@e-readybuilding.com](mailto:mike.gilmore@e-readybuilding.com)

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### AGENDA

0900 hrs	Registration and Refreshments	1230 hrs	Lunch
0925 hrs	Introduction		
	Background		Methodology for Design, Planning and Assessment
0930 hrs	RP - Objectives and Controls	1330 hrs	Critical Issues
	<ul style="list-style-type: none"> <li>IEEE               <ul style="list-style-type: none"> <li>802.3af</li> <li>802.3at (Types 1 and 2)</li> <li>802.3bt (Types 1, 2, 3 and 4)</li> </ul> </li> <li>Power limits               <ul style="list-style-type: none"> <li>IEC 60950, 62368-3 and 62949</li> </ul> </li> <li>Voltage and current limits</li> </ul>		<ul style="list-style-type: none"> <li>localised heating and component warranty</li> <li>global heating and link length reduction</li> <li>de-mating under load and sacrificial connections</li> </ul>
1015 hrs	Cabling Standards Activity	1400 hrs	The CLC Approach
	<ul style="list-style-type: none"> <li>Impact analysis               <ul style="list-style-type: none"> <li>CLC/TR 50174-99-1</li> <li>ISO/IEC TR 29125</li> <li>ANSI/TIA TSB-184-A</li> </ul> </li> <li>Related standards               <ul style="list-style-type: none"> <li>IEC 60364-7-716</li> <li>IET Code of Practice</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>installation conditions A - F</li> <li>simplified dependencies</li> <li>graphical and tabular representations</li> </ul>
1045 hrs	Break		Planning New Installations
	The Developing Response	1415 hrs	Super-ceiling - the "New Environment"
1100 hrs	Design Controls		<ul style="list-style-type: none"> <li>EN 50173-6:2017 and ISO/IEC 11801-6:2017               <ul style="list-style-type: none"> <li>Class E<sub>A</sub> installations</li> </ul> </li> <li>EN 50174-2:2017 bundle sizes</li> <li>adopting the CLC approach               <ul style="list-style-type: none"> <li>simplified analysis</li> <li>the end of the 90 m rule?</li> </ul> </li> <li>maximum load and diversity analysis</li> </ul>
	<ul style="list-style-type: none"> <li>Ohms Law</li> <li>DCLR limits for cables, link and channels</li> <li>connector performance</li> </ul>	1445 hrs	Break
1115 hrs	Test Beds and Mathematical Modelling		Assessing Legacy Capability
	<ul style="list-style-type: none"> <li>CLC TR 50174-99-1</li> <li>ISO/IEC TR 29125</li> <li>ANSI TSB-184-A</li> </ul>	1500 hrs	Capacity
1130 hrs	Heating Predictions		<ul style="list-style-type: none"> <li>adopting the CLC approach</li> <li>application of universal analysis tools</li> <li>capacity/capability assessment</li> <li>diversity analysis to distribute loads</li> </ul>
	<ul style="list-style-type: none"> <li>CLC and TIA models - a comparison</li> <li>dependencies</li> </ul>	1530 hrs	Diversity Management
1215 hrs	Red Herrings		<ul style="list-style-type: none"> <li>administration</li> <li>service management</li> </ul>
	<ul style="list-style-type: none"> <li>UL and NFPA 70</li> </ul>		Next steps
		1545 hrs	Requirements/recommendations
			<ul style="list-style-type: none"> <li>EN 50174-1:2017</li> <li>EN 50174-2:2017</li> <li>ISO/IEC 14763-2: 2017</li> </ul>