NOTE: This document (Reference Ch08/20/v4 -Aug/20) replaces and supersedes JSP 604 Pt 2, leaflet 4800, Chapter 08 (V5.5 Feb 18)

Chapter 08 - Cabling systems

Introduction

1. Within premises, the importance of information technology cabling infrastructure is similar to that of other fundamental building utilities such as heating, lighting and mains power supplies. As with other utilities, interruptions to service can have serious impact. Poor quality of service due to lack of planning, use of inappropriate components, incorrect installation, poor administration or inadequate support can threaten an organisation's effectiveness. The main requirements and direction are outlined below.
2. This JSP/ document is not intended to undermine statutory instruments or legislation. If there is a confliction then statutory instruments or legislation will take precedence. Where there is a confliction between this document and an extant British standard or publication, then the most onerous or stringent requirement is normally to be applied. In cases of doubt please contact CIDA.

Direction

3. All Information and Communications Technology (ICT) cabling shall be implemented in accordance with the specifications contained within **BS EN 50173, BS EN 50174, BS EN 50600, BS EN 50346**, **JSP 440 and SDIP 29.**

   Additionally, all cabling shall comply with the requirements of **Chapter 05.**

4. Security measures and TEMPEST countermeasures shall be applied to all cabling systems in accordance with the security classification of the ICT for which it is provided. All segments, internal, external and the transition between (building entrance facilities) are to be included. Applicable requirements are detailed in **JSP 440, SDIP 29/2** and **NCSC GPG No14.**

Requirements

5. Systems with differing security classifications shall not use common cabinets, patch panels or distribution facilities unless equipment design precludes inadvertent or deliberate cross-patching.
6. Data and telephony of the same security classification may use common patch and distribution facilities provided adherence to a documented scheme of using different colour patch cords for different services are demonstrated.
7. Cabling shall be implemented in accordance with **BS EN 50173-1-2018**, **BS EN 50173-2:2018** and **BS EN 50173-3:2018.**
8. The MOD requirement is that the length of cords (Work area, equipment and patch/jumper) as defined in **BS EN 50173**) be minimised.

   In balanced cabling[1] the length of cords installed must not result in the total channel length (which includes both horizontal cabling and cords) exceeding 100 m[2], for example if the

[1] A balanced cable contains one or more symmetrical metallic cable elements such as twisted pairs.
[2] For fibre optic cabling the maximum length is more complex and depends on the application being supported by the installation. Guidance is available in BS EN 50173-1:2018 Annex F and sections 6.3 of BS EN 50173-2:2018, BS EN 50173-3:2018, BS EN 50173-5:2018

horizonal cable length is 90m that would leave 10m for all work area cords, equipment cords and patch cords and jumpers.

Further to the above, it is recommended patch cords and work area cords should be selected so to be the appropriate length for the installation. Long leads create excessive coils which can affect cabinet cooling or security and so should be avoided where they cannot be justified. Short leads can be tight and increase the chances of damage to cables or accidental/ unavoidable disconnection of other services in the future.

Patch cord and work area cord length should be agreed with the SCIDA who should take into consideration all of the points above.

9. All cables are to be tested in accordance with **BS EN 50346**. **IEC 60793-2-10** should be referred to as appropriate to the installation. Notwithstanding the above testing requirements, Project Managers may impose a stricter test regime.

Standards and Publications

10. **BS EN 50173** 'Information technology ~ Generic cabling systems'. This series of British Standards provides the specification for the design of generic cabling, in balanced copper or fibre optic, for use within premises which may comprise single or multiple buildings on a campus.
11. **BS EN 50174** 'Information technology ~ cabling installation'. This 3-part British Standard specifies the basic requirements for planning, implementation and operation of information technology cabling using balanced copper and fibre optic cabling. The standard is applicable to cabling designed to support particular analogue and digital telecommunication services and generic cabling systems that are designed in accordance with BS EN 50173 and intended to support a wide range of telecommunication services.
12. Taken together, **BS EN 50173** and **BS EN 50174** specify:
    a. The structure and minimum configuration for generic cabling;
    b. Implementation requirements;
    c. Performance requirements for individual cabling links;
    d. Conformance requirements and verification procedures.
    e. Requirements in relation to safe, efficient and correct working practices during installation and operation of fibre optic cabling.
13. **BS EN 50346** Information technology ~ Cabling installation ~ Testing of installed cabling'. This British Standard specifies procedures for testing the transmission performance of installed IT cabling in premises. These procedures apply to both balanced copper and optical fibre cabling. Testing requirements for Fibre Optic cables are to be detailed in the Project Quality Plan.