

ISO/IEC 30129:2015-10 (E)

Information technology - Telecommunications bonding networks for buildings and other structures

Contents	Page
FOREWORD.....	5
INTRODUCTION.....	6
1 Scope.....	8
2 Normative references	8
3 Terms, definitions and abbreviations	9
3.1 Terms and definitions.....	9
3.2 Abbreviations.....	11
4 Conformance.....	12
5 Overview of bonding networks.....	12
6 Selection of the telecommunications bonding network approach.....	13
6.1 Assessment of the impact of the telecommunications bonding network on the interconnection of telecommunications equipment	13
6.2 Telecommunications bonding networks.....	14
6.3 Telecommunications bonding network performance	15
6.3.1 General	15
6.3.2 Requirements	16
6.3.3 DC resistance measurements	17
7 Common features	17
7.1 General.....	17
7.2 Protective bonding networks	18
7.2.1 Protective bonding network conductors (PBNCs).....	18
7.2.2 Main earthing terminal (MET).....	18
7.3 Telecommunications entrance facility (TEF).....	18
7.4 Telecommunications bonding network components.....	18
7.4.1 Telecommunications bonding network conductors	18
7.4.2 Telecommunications bonding network connections.....	19
7.5 Cabinets, frames and racks.....	19
7.5.1 External connections to a bonding network	19
7.5.2 Rack bonding conductors.....	20
7.5.3 Internal connections	21
7.6 Miscellaneous bonding connections	22
7.6.1 General	22
7.6.2 Bonding conductors for d.c. resistance control.....	22
7.6.3 Bonding conductors for impedance control	22
7.7 Documentation.....	23
8 Dedicated telecommunications bonding network.....	23
8.1 General.....	23
8.2 Components	24
8.2.1 Primary bonding busbar (PBB).....	24
8.2.2 Secondary bonding busbar (SBB).....	25
8.2.3 Bonding conductors for d.c. resistance control.....	25
8.2.4 Bonding conductors for impedance control	26

8.3	Implementation	27
8.3.1	Primary bonding busbar (PBB).....	27
8.3.2	Secondary bonding busbar (SBB)	28
8.3.3	Telecommunications bonding conductor (TBC)	28
8.3.4	Telecommunications bonding backbone (TBB).....	29
8.3.5	Backbone bonding conductor (BBC)	29
8.3.6	Bonds to continuous conductive pathway systems	29
8.3.7	Bonds to structural metal	29
9	Local telecommunications bonding networks in conjunction with protective bonding networks	30
9.1	Bonding for local distribution.....	30
9.1.1	Star protective bonding networks	30
9.1.2	Ring protective bonding networks	31
9.2	Telecommunications bonding conductors	32
9.2.1	Bonding conductors for d.c. resistance control.....	32
9.2.2	Bonding conductors for impedance control	32
9.3	Bonding for areas of telecommunications equipment concentration	33
10	Local telecommunications bonding networks in conjunction with dedicated telecommunications bonding networks.....	33
10.1	Bonding for areas of telecommunications equipment concentration	33
10.1.1	Requirements	33
10.1.2	Recommendations	33
10.1.3	Cabinets, frames and racks	33
10.2	Telecommunications equipment bonding conductors (TEBC)	33
10.2.1	TEBC for d.c. resistance control	33
10.2.2	TEBC for impedance control	34
10.2.3	Implementation	34
11	Mesh bonded networks	34
11.1	General.....	34
11.2	Mesh bonding alternatives	35
11.2.1	Local mesh bonding (MESH-IBN) networks.....	35
11.2.2	MESH-BN	37
11.3	Bonding conductors of a mesh bonding network.....	38
11.3.1	Requirements	38
11.3.2	Recommendations	38
11.4	Bonding conductors to the mesh bonding network.....	38
11.5	Supplementary bonding grid (SBG).....	39
11.6	System reference potential plane (SRPP)	39
11.6.1	General	39
11.6.2	Access floors.....	40
11.6.3	Transient suppression plate (TSP).....	41
Annex A (normative)	Maintenance of telecommunications bonding network performance	42
A.1	General.....	42
A.2	Periodic activity	42
A.2.1	Schedule	42
A.2.2	Implementation	42
A.3	Causes of performance deterioration	43
A.3.1	Galvanic corrosion.....	43
A.3.2	Requirements	43
Annex B (normative)	Bonding conductor cross-sectional area	44
Annex C (informative)	Alternative terminology.....	45

Bibliography.....	46
Figure 1 – Schematic relationship between ISO/IEC 30129 and other relevant standards.....	7
Figure 2 – Schematic of telecommunications equipment distribution and associated bonding connections	13
Figure 3 – Example of three methods of equipment and rack bonding	20
Figure 4 – Example of a bond connection from a cabinet to the cabinet door	22
Figure 5 – Example of bonding straps	23
Figure 6 – Illustrative example of a large building	24
Figure 7 – Illustrative example of a smaller building	24
Figure 8 – Schematic of PBB	25
Figure 9 – Schematic of SBB	25
Figure 10 – Star protective bonding and supplementary telecommunications bonding	30
Figure 11 – Example of high common impedance and large loop	30
Figure 12 – Example of low common impedance and small loop	31
Figure 13 – Ring protective bonding and supplementary telecommunications bonding	31
Figure 14 – MESH-BN example	32
Figure 15 – Example TEBC to rack bonding conductor connection	34
Figure 16 – Local mesh bonding network	36
Figure 17 – A MESH-IBN having a single point of connection (SPC)	36
Figure 18 – A MESH-BN with equipment cabinets, frames, racks and CBN bonded together	37
Figure 19 – Example of access floor	40
Figure 20 – Example of installation details for an under floor transient suppression plate	41
Table 1 – Sensitivity of cabling media to bonding network performance	14
Table 2 – Telecommunications bonding network requirements	14
Table 3 – DC resistance requirements for protective bonding networks.....	16
Table 4 – DC resistance requirements for dedicated telecommunications bonding networks	17
Table 5 – TBB conductor sizing	26
Table B.1 – Bonding conductor cross-sectional areas	44
Table C.1 – Alternative terminology	45