

$$+f_1s_1.x_1y_1+r_1:P_1 / +f_2s_2.x_2y_2+r_2:P_2$$

5.1.6.3 Implementation and labeling

Individual optical fibers and balanced pairs are typically color-coded rather than individually labeled except in the case of break-out cables with one connector on one end and multiple connectors on the other (for example, MPO to LC). In this case, every end of the cable shall be labeled as specified in 5.1.5.3.

5.1.7 Cabling Subsystem 1 link identifier

A Cabling Subsystem 1 link identifier, unique within the administration system, shall be assigned to each Cabling Subsystem 1 link and to its elements.

5.1.7.1 TIA-606-A compatible format

For TIA-606-A compatible administration systems, the Cabling Subsystem 1 link identifier shall have a format of either:

$$f_1s_1.x_1y_1-r_1:P_1 / f_2s_2.x_2y_2-r_2:P_2 \quad (\text{Cabling Subsystem 1 link terminated on patch panels on both ends})$$

or

$$fs-ak \quad (\text{Cabling Subsystem 1 terminated on an equipment outlet})$$

The $f_1s_1.x_1y_1-r_1:P_1 / f_2s_2.x_2y_2-r_2:P_2$ format shall be used for Cabling Subsystem 1 links that are terminated on both ends on patch panels or termination blocks, for example Cabling Subsystem 1 links in computer rooms and equipment rooms. The format is specified in 5.1.6. where $f_2s_2.x_2y_2-r_2:P_2$ is the port ID of the EO or TO.

The $fs-ak$ format for Cabling Subsystem 1 links shall be used for Cabling Subsystem 1 links terminated on an equipment outlet.

$fs-ak$ is defined as follows:

- fs = the TS identifier for the location of the patch panel or termination block on which the cable terminates. This portion of the identifier is optional for a class 1 administration system limited to a single equipment room or an administration system limited to a single computer room.
- a = one or two alpha characters uniquely identifying a single patch panel, a group of patch panels with sequentially numbered ports, a termination block, or a group of termination blocks, serving as part of the horizontal cross-connect.
- k = two to four numeric characters designating the port on a patch panel, or the section of a termination block on which a Cabling Subsystem 1 link is terminated in the TS. Enough numeric characters must be used for this portion of the identifier to accommodate all Cabling Subsystem 1 links in a distributor.

5.1.7.2 ISO/IEC compatible format

The ISO/IEC TR 14763-2-1 compatible identifier format for Cabling Subsystem 1 links on cables is either:

$$+f_1s_1.x_1y_1+r_1:P_1=W \quad (\text{Cabling Subsystem 1 link terminated on an equipment outlet})$$

or

$$+f_1s_1.x_1y_1+r_1:P_1 / +f_2s_2.x_2y_2+r_2:P_2 \quad (\text{Cabling Subsystem 1 link terminated on patch panels on both ends})$$

The $+f_1s_1.x_1y_1+r_1:P_1=W$ format is for Cabling Subsystem 1 links that are not terminated on patch panels or termination blocks in the same space. With this format, a Cabling Subsystem 1 link is identified by the port on which the link terminates followed by an equal sign "=" and capital letter "W" ("W" is the letter code specified in IEC 81346-2 for cables).

5.1.7.3 Implementation and labeling

For a balanced twisted-pair Cabling Subsystem 1 link, the elements include:

- a) the connecting hardware, e.g., patch panel port or the position of a termination block terminating a four-pair Cabling Subsystem 1 cable
- b) a four-pair Cabling Subsystem 1 cable
- c) an equipment outlet terminating a four-pair Cabling Subsystem 1 cable in the equipment outlet space
- d) if a consolidation point (CP) is present:
 - i. the segment of four-pair Cabling Subsystem 1 cable extending from the TS to the CP connecting hardware
 - ii. the CP connecting hardware or section of an IDC connector terminating a four-pair Cabling Subsystem 1 cable
 - iii. the segment of four-pair Cabling Subsystem 1 cable extending from the CP connecting hardware to the outlet/connector, if present
- e) if a MUTOA is present, a telecommunications outlet/connector in the MUTOA

For a fiber Cabling Subsystem 1 link, the elements include:

- a) a pair of fiber terminations on a patch panel in the TS
- b) a pair of fibers in a cable
- c) a pair of fiber terminations in the equipment outlet space
- d) an equipment outlet/connector terminating a pair of fibers in the equipment outlet space
- e) splices
- f) if a consolidation point (CP) is present:
 - i. the segment of fiber cable extending from the TS to the CP connecting hardware
 - ii. the CP connecting hardware or section terminating a pair of fibers
 - iii. the segment of fiber cable extending from the CP connecting hardware to the outlet/connector, if present
- g) if a MUTOA is present, a telecommunications outlet/connector in the MUTOA

The pair of fiber terminations may be two simplex connectors or one duplex connector, and includes adapters, if present.

When consolidation points are used, some elements of the Cabling Subsystem 1 link may not be installed initially.

All elements of a Cabling Subsystem 1 link shall be labeled at the time they are installed with the Cabling Subsystem 1 link identifier.

- The consolidation point identifier should be used on consolidation point labels if optional consolidation point identifiers are used.
- The splice identifier should be used on splice labels if optional splice identifiers are used.
- Patch panels and termination blocks shall be labeled as specified in 5.1.3.1.3. Additionally, if the *fs-ak* format is used for Cabling Subsystem 1 link identifiers, in the TS, each patch panel port or position of a termination block shall be labeled with the *ak* portion of the identifier. This requirement may be met by labeling a patch panel with the *a* portion of the identifier, and each port with the *k* portion. The port numbers marked on a patch panel by its manufacturer may be used as the *k* portion. Similarly, an IDC connector or group of termination blocks may be labeled with the *a* portion of the identifier, and the section of an IDC connector terminating a four-pair Cabling Subsystem 1 cable labeled with the *k* portion.
- Each end of a Cabling Subsystem 1 cable shall be labeled within 300 mm (12 in) of the end of the cable jacket with the Cabling Subsystem 1 link identifier, which shall be visible on the exposed part of the cable jacket. This shall include each cable end in the TS, at the equipment outlet space, and at a CP, if present.
- In commercial buildings, industrial premises, data centers, and multi-tenant buildings each individual telecommunications outlet or equipment outlet shall be labeled with the Cabling Subsystem 1 link identifier. The labeling shall appear on the connector, faceplate, or MUTOA, in a way that clearly identifies the individual connector associated with the particular identifier. In single-dwelling residences, labeling of telecommunications outlets is recommended, but not required.
- Certain applications may provide electrical power in addition to data transmission over balanced twisted-pair cables. Visual segregation and identification of ports and outlets with power may be accomplished through the use of the symbol in figure 16.

5.1.8 Equipment outlet and telecommunications outlet identifiers

Identifiers for equipment outlets (EOs) or telecommunications outlets (TOs) are optional, however labels may be required for EOs and TOs as specified in 5.1.7.3. Typically, these labels only have the Cabling Subsystem 1 link identifier rather than the EO or TO identifier.

If identifiers are assigned to EOs and TOs, they shall be unique within the telecommunications administration system.

5.1.8.1 TIA-606-A compatible format

The TIA-606-A compatible format for EOs and TOs is:

fs-ak=XO (Cabling Subsystem 1 link terminated in an equipment outlet)

or

fs.x₂y₂-r₂:P₂ (Cabling Subsystem 1 link terminated on patch panels on both ends)

The *fs-ak=XO* format for Cabling Subsystem 1 links has been retained for compatibility with administration systems that use previous revisions of this Standard. The *fs-ak* format is defined in 5.1.7. (“X” is the letter code specified in IEC 81346-2 for connections, “O” specifies that the connection is an outlet).

The $fs.x_2y_2-r_2:P_2$ format shall be used for Cabling Subsystem 1 links that are terminated on both ends on patch panels or termination blocks, for example Cabling Subsystem 1 links in computer rooms and equipment rooms. The format is specified in 5.1.6 where $fs.x_2y_2-r_2:P_2$ is the port ID of the EO or TO.

5.1.8.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for EOs and TOs is:

$+f_1s_1.x_1y_1+r_1:P_1=XO$ (Cabling Subsystem 1 link terminated in an equipment outlet)

or

$+fs.x_2y_2+r_2:P_2$ (Cabling Subsystem 1 link terminated on patch panels on both ends)

5.1.8.3 Implementation and labeling

See 5.1.7.3 regarding labeling of EOs and TOs.

5.1.9 Identifiers for consolidation points on Cabling Subsystem 1 links

Identifiers for consolidation points on Cabling Subsystem 1 links are optional; however, labels are required for CPs as specified in 5.1.7.3. The labels may consist of the Cabling Subsystem 1 link identifier or the consolidation point identifier.

If identifiers are assigned to consolidation points on Cabling Subsystem 1 links, they shall be unique within the telecommunications administration system.

5.1.9.1 TIA-606-A compatible format

The TIA-606-A compatible format for CPs on Cabling Subsystem 1 links is:

$fs-ak=XC[:P_5]$

$fs-ak$ is the port identifier or the termination position identifier in the telecommunications room for the Cabling Subsystem 1 link and is defined in 5.1.7.

“=XC” specifies that the component is a consolidation point.

The port on the consolidation point may optionally be identified by a colon ‘:’ and the port number (field P_5 above) after “=XC”.

5.1.9.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for CPs on Cabling Subsystem 1 links is:

$+f_1s_1.x_1y_1+r_1:P_1=XC[:P_5]$

5.1.9.3 Implementation and labeling

See 5.1.7.3 regarding labeling of CPs on Cabling Subsystem 1 links.

5.1.10 Identifiers for zone distribution area ports

Identifiers for zone distribution area (ZDA) ports on Cabling Subsystem 1 links are optional; however, labels are required for ports in ZDAs. The labels may consist of the Cabling Subsystem 1 link identifier or the ZDA port identifier.

If identifiers are assigned to ZDA ports, they shall be unique within the telecommunications administration system.

5.1.10.1 TIA-606-A compatible format

The TIA-606-A compatible format for ZDA ports is:

$$f_1s_1.x_1y_1-r_1:P_1 / f_2s_2.x_2y_2-r_2:P_2=XL[:P_5]$$

The format consists of the Cabling Subsystem 1 link identifier as defined in 5.1.7 followed by “=XL[:P₅]”,

where:

=XL designates the object as being a ZDA port (“X” is the letter code specified in IEC 81346-2 for connections. “L” specifies that the connection is a ZDA port, L comes from LDP, the ISO/IEC equivalent of the ZDA).

The port on the consolidation point may optionally be identified by a colon ‘:’ and the port number (field P₅ above) after “=XL”.

5.1.10.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for ZDA ports is:

$$+f_1s_1.x_1y_1+r_1:P_1 / +f_2s_2.x_2y_2+r_2:P_2=XL[:P_5]$$

5.1.10.3 Implementation and labeling

See 5.1.7.3 regarding labeling of ZDA ports on Cabling Subsystem 1 links.

5.1.11 Identifiers for splices on Cabling Subsystem 1 links

Identifiers for splices on Cabling Subsystem 1 links are optional. If identifiers are assigned to splices on Cabling Subsystem 1 links, they shall be unique within the telecommunications administration system.

5.1.11.1 TIA-606-A compatible format

The TIA-606-A compatible format for splices on Cabling Subsystem 1 links is:

$$f_1s_1.x_1y_1-r_1:P_1 / f_2s_2.x_2y_2-r_2:P_2=XSz$$

(Cabling Subsystem 1 link terminated on patch panels on both ends)

or

$$fs-ak=XSz$$

(Cabling Subsystem 1 link terminated in an equipment outlet).

The format consists of the Cabling Subsystem 1 link identifier as defined in 5.1.7 followed by “=XSz”,

where:

=XS designates the object as being a splice

z is the approximate distance in meters from the termination point in the telecommunications room or HDA. No two splices on the same cable shall use the same value z.

5.1.11.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for splices on Cabling Subsystem 1 links is:

$$+f_1s_1.x_1y_1+r_1:P_1=XSz$$

(Cabling Subsystem 1 link terminated in an equipment outlet)

or

$$+f_1s_1.x_1y_1+r_1:P_1 / +f_2s_2.x_2y_2+r_2:P_2=XSz$$

(Cabling Subsystem 1 link terminated on patch panels on both ends).

5.1.11.3 Implementation and labeling

Splices on Cabling Subsystem 1 links shall be labeled. The label shall be either the identifier of the splice or the (if the splice has an identifier), or of the Cabling Subsystem 1 pairs/ports contained within the splice.

5.1.12 PBB identifier

The primary bonding busbar (PBB) identifier is used to identify the single PBB present in a building.

5.1.12.1 TIA-606-A compatible format

The TIA-606-A compatible format for the PBB identifier is:

fs-PBB

where *fs* is the identifier for the space containing the PBB, see 5.1.1.

-PBB designates the element as being a primary bonding busbar. If the legacy term 'telecommunications main grounding busbar' is used, then '-PBB' may be replaced with '-TMGB'.

5.1.12.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for the PBB identifier is:

$+fs=PBB$

If the legacy term 'telecommunications main grounding busbar' is used, then '=PBB' may be replaced with '=TMGB'.

5.1.12.3 Implementation and labeling

The PBB shall be labeled on the front with the PBB identifier. If it is not practical to label the surface of the PBB then apply the label on wall near the PBB. Care should be exercised when applying labels to the surface of the PBB to ensure that hazardous current is not present in the device.

See Annex B for an overview and examples of telecommunications grounding system identifiers.

5.1.13 SBB identifier

The secondary bonding busbar (SBB) identifier is used to identify SBBs in the bonding and grounding system. A unique SBB identifier shall be assigned to each SBB.

5.1.13.1 TIA-606-A compatible format

The TIA-606-A compatible format for SBB identifiers is:

fs-SBB[*i*]

where *fs* is the identifier for the space containing the SBB, see 5.1.1.

-SBB designates the element as being a secondary bonding busbar. If the legacy term 'telecommunications grounding busbar' is used, then '-SBB' may be replaced with '-TGB'.

i optional sequence number starting at 1 to be used if there is more than one SBB in the space.

5.1.13.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for SBB identifiers is:

+*fs*=SBB[*i*]

If the legacy term 'telecommunications grounding busbar' is used, then '=SBB' may be replaced with '=TGB'.

5.1.13.3 Implementation and labeling

Each SBB shall be labeled on the front with the SBB identifier. If it is not practical to label the surface of the SBB then apply the label on wall near the SBB. Care should be exercised when applying labels to the surface of the SBB to ensure that hazardous current is not present in the device.

See Annex B for an overview and examples of telecommunications grounding system identifiers.

5.1.14 RBB identifier

The rack bonding busbar (RBB) identifier is used to identify RBBs in racks, cabinets, and frames. This identifier is optional and should be unique.

5.1.14.1 TIA-606-A compatible format

The TIA-606-A compatible format for RBB identifiers is:

fs.xy=RBB[*j*]

where *fs.xy* is the identifier of the cabinet, rack, frame, or wall segment identifier as defined in 5.1.2.

=RBB designates the element as being a rack bonding busbar. If the legacy term 'rack grounding busbar' is used, then '=RBB' may be replaced with '=RGB'.

j optional sequence number starting at 1 to be used if there is more than one RBB in the cabinet, rack, frame, or wall segment.

5.1.14.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for RBB identifiers is:

+*fs.xy*=RBB[*j*]

If the legacy term 'rack grounding busbar' is used, then '=RBB' may be replaced with '=RGB'.

5.1.14.3 Implementation and labeling

Each RBB should be labeled with its identifier at a location that is in clear view of someone making a termination on the RBB.

5.1.15 Mesh-BN identifier

The mesh bonding network (mesh-BN) identifier is used to identify common bonding networks in a computer room, equipment room, or other space. This identifier is optional and should be unique.

5.1.15.1 TIA-606-A compatible format

The TIA-606-A compatible format for mesh-BN identifiers is:

$$fs=MBN$$

where $+fs$ or fs is the identifier for the space containing the mesh-BN, see 5.1.1.

$=MBN$ designates the element as being a mesh-BN.

5.1.15.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for mesh-BN identifiers is:

$$+fs=MBN$$

5.1.15.3 Implementation and labeling

There is no need to label the mesh-BN, but connections made to the mesh-BN should be labeled.

5.1.16 TBC identifier

The telecommunications bonding conductor (TBC) identifier is used to identify the TBC in the telecommunications bonding and grounding system. This identifier shall be unique.

5.1.16.1 TIA-606-A compatible format

The TIA-606-A compatible format for TBC identifiers is:

$$f_{MSM}/f_{ESE}=TBC$$

where

f_{MSM} TS identifier for the space containing the PBB, see 5.1.1.

f_{ESE} TS identifier for the space, typically the electrical entrance facility, that contains the service equipment (power) ground to which the telecommunications bonding conductor is attached, see 5.1.1.

$=TBC$ designates the element as being the telecommunications bonding conductor. If the legacy term 'bonding conductor for telecommunications' is used, then '=TBC' may be replaced with '=BCT'

5.1.16.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for TBC identifiers is:

$$+f_{MSM}/+f_{ESE}=TBC$$

If the legacy term bonding conductor for telecommunications (BCT) is used in the administration system, then ‘=TBC’ may be replaced with ‘=BCT’.

5.1.16.3 Implementation and labeling

Each TBC shall be labeled with its identifier on both ends. The labels shall be durably affixed to both ends conspicuously displayed just prior to the conductor being routed into its termination.

5.1.17 TBB identifier

The telecommunications bonding backbone (TBB) identifier is used to identify a TBB in the bonding and grounding system. The TBB is identified by the names of the secondary bonding busbars on either end of the TBB. This identifier shall be unique.

5.1.17.1 TIA-606-A compatible format

The TIA-606-A compatible format for TBB identifiers is:

$$f_{MSM}\text{-PBB} / f_{2S2}\text{-SBB}[i_2]$$

or

$$f_{1S1}\text{-SBB}[i_1] / f_{2S2}\text{-SBB}[i_2]$$

where

$f_{MSM}\text{-PBB}$ is the identifier for PBB, see 5.1.12.

$f_{1S1}\text{-SBB}[i_1]$ and $f_{2S2}\text{-SBB}[i_2]$ are identifiers for SBBs, see 5.1.13.

5.1.17.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for TBB identifiers is:

$$f_{MSM}\text{=PBB} / f_{2S2}\text{=SBB}[i_2]$$

or

$$f_{1S1}\text{=SBB}[i_1] / f_{2S2}\text{=SBB}[i_2]$$

5.1.17.3 Implementation and labeling

Each TBB shall be labeled with its identifier on both ends. The labels shall be durably affixed to both ends conspicuously displayed just prior to the conductor being routed into its termination.

5.1.18 BBC identifier

The backbone bonding conductor (BBC) identifier is used to identify a BBC in the bonding and grounding system. This identifier should be unique and have the format based on the identifiers of the SBBs on either end of the BBC (see 5.1.13) separated by a forward slash ‘/’.

5.1.18.1 TIA-606-A compatible format

The TIA-606-A compatible format for BBC identifiers is:

$$f_{1S1}\text{-SBB}[i_1] / f_{2S2}\text{-SBB}[i_2]$$

5.1.18.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format for BBC identifiers is:

$$+f_1s_1=SBB[i_1] / +f_2s_2=SBB[j_2]$$

5.1.18.3 Implementation and labeling

Each BBC shall be labeled with its identifier on both ends. The labels shall be durably affixed to both ends conspicuously displayed just prior to the conductor being routed into its termination.

5.1.19 Identifier for bonding conductor attached to PBB

All bonding conductors attached to a PBB shall have a unique identifier.

5.1.19.1 TIA-606-A compatible format

The TIA-606-A compatible format is:

fs-PBB / object

where:

<i>fs-PBB</i>	is the identifier of the PBB, see 5.1.12.
<i>object</i>	is the identifier of an object to which the bonding conductor is attached. It can be the identifier of a cabinet/rack (see 5.1.2), a mesh-BN (see 5.1.15), an RBB (see 5.1.14), an electrical panel, a pathway (see 9.4), building steel (e.g., 'bldgsteel'), a cable tray system (e.g., 'cabletrays'), or the identifier of equipment such as a LAN switch.

5.1.19.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format is:

+fs=PBB / object

5.1.19.3 Implementation and labeling

All bonding conductors attached to a PBB shall be labeled with their identifiers on both ends. The labels shall be durably affixed to both ends conspicuously displayed just prior to the conductor being routed into its termination.

Note that TBCs, TBBs, and BBCs attached to PBBs are special bonding conductors that have their own format – see 5.1.16, 5.1.17, and 5.1.18 respectively.

5.1.20 Identifier for bonding conductor attached to SBB

All bonding conductors attached to a SBB shall have a unique identifier.

5.1.20.1 TIA-606-A compatible format

The TIA-606-A compatible format is:

fs-SBB / object

where:

<i>fs-SBB</i>	is the identifier of the SBB, see 5.1.13.
<i>object</i>	is the identifier of an object to which the bonding conductor is attached. It can be the identifier of a cabinet/rack (see 5.1.2), a TBB (see 5.1.17), a mesh-BN (see 5.1.15), an RBB (see 5.1.14), an electrical panel, a

pathway (see 9.4), building steel (e.g., 'bldgsteel'), a cable tray system (e.g., 'cabletrays'), or the identifier of equipment such as a LAN switch.

5.1.20.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format is:

$+fs=SBB / object$

5.1.20.3 Implementation and labeling

All bonding conductors attached to a SBB shall be labeled with their identifiers on both ends. The labels shall be durably affixed to both ends conspicuously displayed just prior to the conductor being routed into its termination.

TBBs, and BBCs attached to SBBs are bonding conductors that have their own format – see 5.1.17 and 5.1.18 respectively. Note, however, that taps off a TBB are separate conductors and should have their own identifiers – see Annex B for examples.

5.1.21 Identifier for bonding conductor attached to mesh-BN

All bonding conductors attached to a mesh-BN should have a unique identifier.

5.1.21.1 TIA-606-A compatible format

The TIA-606-A compatible format is:

$fs=MBN / object$

where:

$fs=MBN$ is the identifier of the mesh-BN, see 5.1.15.

$object$ is the identifier of an object to which the bonding conductor is attached. It can be the identifier of a cabinet/rack (see 5.1.2), an RBB (see 5.1.14), an electrical panel, a pathway (see 9.4), building steel (e.g., 'bldgsteel'), a cable tray system (e.g., 'cabletrays'), or the identifier of equipment such as a LAN switch or PDU.

5.1.21.2 ISO/IEC compatible format

The ISO/IEC 14763-2-1 compatible format is:

$+fs=MBN / object$

5.1.21.3 Implementation and labeling

Bonding conductors attached to a mesh-BN should be labeled on both ends with their identifiers. The labels shall be durably affixed to both ends conspicuously displayed just prior to the conductor being routed into its termination.

5.1.22 Identifier for bonding conductor attached to RBB

Bonding conductors attached to a rack bonding bar (RBB) may have identifiers. The identifier should be unique.

5.1.22.1 TIA-606-A compatible format

The TIA-606-A compatible format is: