

ANSI/TIA/EIA/606A

Краткий справочник

Стандарт администрирования для
Телекоммуникаций

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This guide is intended to be used as a reference to the application of the ANSI/TIA/EIA 606-A Standard. It in no way reflects all the necessary information contained within the ANSI/TIA/EIA 606-A published documents.

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Обзор

Стандарт ANSI/TIA/EIA 606-A предназначен для администрирования основной кабельной системы телекоммуникаций, который позволит поддерживать среду со множеством продуктов и производителей. Он обеспечивает единый подход администрирования, являющийся самостоятельным и может меняться по несколько раз в течение всего срока службы телекоммуникационной инфраструктуры. Этот утвержденное руководство для владельцев, конечных пользователей, производителей, консультантов, строителей, дизайнеров, прокладчиков кабелей и других, вовлеченный в процесс администрирования телекоммуникационной инфраструктуры.

Использование данного стандарта позволит увеличить доход от инвестиций, вложенных в систему, путем снижения затрат на рабочую силу, продление срока службы всей системы, а также предоставление эффективного сервиса для самого предприятия и его клиентов.

Классы администрирования

Существует 4 класса администрирования, применяемые в кабельной системе.

Класс 1 предназначен для систем в простых зданиях, которые имеют всего одну телекоммуникационный зал (ТЗ), из которой тянутся все провода. Все элементы в телекоммуникационном зале, горизонтальные соединения, а также основные кабели здания должны быть промаркированы и подлежать администрированию. Если руководство делает задокументировать разводку кабелей или размещение устройств защиты от пожара должен быть использован Класс 2

Класс 2 для систем в простых зданиях, обслуживаемой в нескольких телекоммуникационных залах. Класс 2 включает администрирование магистралей, многосекционных элементов заземления и соединения, элементов пожаробезопасности также как и в Классе 1.

Класс 3 для систем, объединенных несколькими зданиями, известных как комплексные строения. Класс 3 включает администрирование зданий и подземных магистралей, также как и по Классу 2. Администрирование элементов рабочих станций, протяженности и внешней проводки также рекомендуется

Класс 4 для систем, объединенных в несколько комплексных строений, известных как многоабонентская система. Класс 4 включает администрирование каждого строения по классу 3. Рекомендуется администрирование элементов рабочих станций, протяженности и внешней проводки.

Идентификаторы

Уникальные идентификаторы взаимодействуют с каждым элементом инфраструктуры идентификации и служат как указатели при поиске информации в выбранной системе администрирования.

Идентификаторы	Описание идентификаторов	Класс администрирования			
		1	2	3	4
fs	пространство связи (ПС)	R	R	R	R
fs-an	горизонтальное соединение	R	R	R	R
fs-TMGB	главная шина заземления в телекоммуникации	R1	R1	R1	R1
fs-TGB	шина заземления в телекоммуникации	R1	R1	R1	R1
fs1/fs2-n	внутренняя основная магистраль		R	R	R
fs1/fs2-n.d	внутренний основной парный или оптоволоконный кабель		R	R	R
f-FSLn(h)	устройство противопожарных преград		R	R	R
[b1-fs1]/[b2-fs2]-n	кабель внешнего заземления			R	R
[b1-fs1]/[b2-fs2]-n.d	внешний основной парный или оптоволоконный кабель			R	R
b	строение			R	R
c	комплексное здание или узел сети				R
fs-UUU.n.d(q)	элемент внутренней магистрالی		O	O	O
fs1/fs2-UUU.n.d(q)	внутренняя магистраль между двумя ПС или зонами		O	O	O
[b1-fs1]/[b2-fs2]-UUU.n.d(q)	элемент внешней магистрالی			O	O

R – обязательный

O – необязательный

Требования к идентификации и маркировке

The following is a list of the required records for each of the four classes of administration. An administration system shall provide a method to find the record associated with any specific identifier.

The administration system may be managed using a paper-based system, general-purpose spreadsheet software, or special-purpose cable management software.

Class 1 systems require the identifiers and records for the following:

- TS identifier
- Horizontal Links
- Telecommunications Main Grounding Busbar (TMGB)
- Telecommunications Grounding Busbar (TGB)

Class 2 systems require the identifiers and records for the following:

- All class 1 elements
- Intrabuilding Backbone Cable
- Intrabuilding Backbone pair or strand
- Firestopping

Class 3 systems require the identifiers and records for the following:

- All class 2 elements
- Interbuilding Backbone Cable
- Interbuilding Backbone pair or strand
- Building

Class 4 systems require the identifiers and records for the following:

- All class 3 elements
- Site or Campus

Spatial Information

Telecommunications Space

A telecommunications space is an area used for housing the installation and termination of telecommunications equipment and cable, e.g., common equipment rooms, equipment rooms, common telecommunications rooms, telecommunications rooms, work areas, and maintenance holes/handholes.

The TS identifier, unique within the building, shall be assigned to the Telecommunications Space, and it shall have the format fs, where:

f = numeric character(s) identifying the floor of the building occupied by the TS

s = alpha character(s) uniquely identifying the TS on floor f, or the building area in which the space is located

The TS records shall contain the following information:

- TS identifier (primary indexing identifier, e.g., 2A)
- type of TS (e.g., TR, CTR, ER, CER, or EF)
- building room number
- key or access card identification
- contact person
- hours of access

Building

A building is an entity that can house both Telecommunications space (s) and work areas. A unique building identifier shall be assigned to each building and it shall have the format b, where: **b** = one or more alpha-numeric characters identifying a single building

There are no labeling requirements for the building identifier.

The building records shall contain the following information:

- building name (the primary indexing identifier, e.g., ADM or ADM1)
- building location (e.g., street address)
- a list of all TS's and their locations in the building, within the infrastructure limits of the tenant
- contact information for access
- access hours

Campus

A campus is a collection of buildings and grounds having legal contiguous interconnection. A unique campus or site identifier shall be assigned to each campus or site, and it shall have the format c, where:

c = one or more alpha-numeric characters identifying a campus or site

There are no labeling requirements for the campus or site identifier.

The campus or site records shall contain

the following information:

- campus or site name
- campus or site location (e.g., street address)
- contact information for local administrator of infrastructure
- list of all buildings at the site or campus
- location of main cross-connect, if applicable
- access hours

Cabling Information

Horizontal Link

A horizontal link is defined as the cabling between and including the telecommunications outlet/connector and the horizontal cross-connect termination hardware. It was often referred to as the workstation cabling, horizontal cabling or user drop.

The Horizontal Link Identifier shall be formatted as fs-an, where:

fs = TS Identifier

a = one or two alpha characters uniquely identifying a single patch panel, a group of patch panels with sequentially numbered ports, an IDC termination block, or a group of IDC termination blocks, serving as part of the horizontal cross-connect

n = two to four numeric characters designating the port on a patch panel, or the section of an IDC termination block on which a four-pair horizontal cable is terminated in the TS

Identifiers shall be placed in the TR, on the patch panel or wiring block. Each end of the cable shall be labeled within 12 inches from the ends, and in the work area each individual connector shall be labeled as well.

The Horizontal Link (HL) record shall contain the following information:

- horizontal link identifier (primary indexing identifier, e.g.: A47)
- cable type (e.g.: 4 pr, UTP, category 5e, plenum)

- location of telecommunications outlet/connector (room, office, or grid location)
- outlet connector type (e.g.: 8 position modular, T568A, category 5e)
- cable length (e.g.: 51m/154ft)
- location of TS and or CP (if class 2 through class 4)
- cross-connect hardware type (e.g.: 48 port modular patch panel, T568A, category 5e)
- service record of link (e.g.: passed category 5e at installation 1/12/99, re-terminated and re-tested at cross-connect 4/22/99 due to broken wire)

CMS must be able to document multiple media and mixed media horizontal cabling. This includes copper, fiber optic and coaxial cables. Additional items of information desired by the system owner or operator may be added at the end of the HL record, such as:

- location of test results
- location of outlet within room or office
- color of the connector or icon on the connector (e.g.: orange icon; or blue jack)
- other telecommunications outlet/connectors at same location (generally, the other outlet connectors in the same faceplate, e.g.: A02, A03, A04; or B01, C01, D01)
- faceplate configuration (e.g.: single gang, four port, telco ivory)
- position of outlet connector on faceplate or MUTOA (e.g.: top left)
- pathway to outlet (e.g.: fishable wall or surface raceway)
- presence or absence of MUTOA (is there a MUTOA in this link, yes or no)
- length of work area cord if MUTOA is present
- presence or absence of CP (is there a CP in this link, yes or no)
- equipment circuit currently using link (e.g.: 100BaseT switch port #16)

• current user name (e.g.: Bill Smith)

Intrabuilding Backbone Cable
Cables that run within one TS or extend between two or more TS's within a building are called intrabuilding backbone cables.

A unique backbone cable identifier shall be assigned to each backbone cable between two TS's in one building and it shall have a format of fs1/fs2-n, where:

fs1 = TS identifier for the space containing the termination of one end of the backbone cable

fs2 = TS identifier for the space containing the termination of the other end of the backbone cable

n = one or two alpha-numeric characters identifying a single cable with one end terminated in the TS designated fs1 and the other end terminated in the TS designated fs2

In this format, the TS with the lesser alpha-numeric identifier shall be listed first. All intrabuilding backbone cable identifiers in a single infrastructure should have the same format where possible. The backbone cable identifier shall be marked on each end of the backbone cable within 300 mm (12 in) of the end of the cable jacket.

The backbone cable records shall contain the following information:

- backbone cable identifier (primary indexing identifier, e.g., 2A/3A-1)

- type of cable (e.g., 600-pair 24 AWG shielded riser cable)
- type of connecting hardware, first TS (e.g., 36 568SC duplex adapter panel)
- type of connecting hardware, second TS (e.g., 36 568SC duplex adapter panel)
- cross-connect table relating each backbone cable pair or optical fiber to other backbone cable pairs or optical fibers or to a horizontal link.

Additional items of information desired by the system owner or operator may be added to each record, such as:

- cable length
- un-terminated pairs or optical fiber strands
- damaged pairs or optical fiber strands
- pathway record
- splice record
- grounding record

Intrabuilding Backbone Pair or Optical Fiber

A unique intrabuilding backbone pair or optical fiber identifier shall be used to identify each single copper pair or each single optical fiber in a backbone cable between two TS's in one building, and

shall have a format fs1/fs2-n,d, where: **fs1/fs2-n** = an intrabuilding backbone cable identifier **d** = two to four numeric characters identifying a single copper pair or a single optical fiber

All backbone pair or optical fiber identifiers in a single infrastructure should have the same format where possible. The backbone pair or optical fiber shall be maintained through the Intrabuilding Backbone Cable record.

Interbuilding Backbone Cable

Cables that run from a TS in one building and extend to two or more TS's in another building are called interbuilding backbone cables.

A unique interbuilding backbone cable identifier shall be assigned to each backbone cable connecting TS's in different buildings, and it shall have the format [b1-fs1]/[b2-fs2]-n, where: b1-fs1 = building identifier and TS identifier for the TS in which one end of the backbone cable is terminated

b2-fs2 = building identifier and TS identifier for the TS in which the other end of the backbone cable is terminated

n = one or two alpha-numeric characters identifying a single cable with one end terminated in the TS designated b1fs1 and the other end terminated in the TS designated b2fs2

In this format, the building with the lesser alpha-numeric identifier shall be listed first. All interbuilding backbone cable identifiers in a single infrastructure should have the same format where possible. The interbuilding backbone cable identifier shall be marked on each end of the backbone cable within 300 mm (12 in) of the end of the cable jacket.

The interbuilding backbone cable records shall contain the following information:

- interbuilding backbone cable identifier (the primary indexing identifier, e.g., [ADM-3A]/[ENG-2A]-4)
- type of cable (e.g., 36 optical fiber, 50/125mm, gel filled, copper armor)
- type of connecting hardware, first TS (e.g., 36 568SC duplex adapter panel)

- type of connecting hardware, second TS (e.g., 36 568SC duplex adapter panel)
- table relating backbone terminations to other backbone terminations or horizontal links, to which they are cross-connected.

Additional items of information desired by the system owner or operator may be added to each record, such as:

The interbuilding backbone cable records shall contain the following information:

- cable length
- un-terminated pairs or optical fiber strands
- available pairs or optical fiber strands
- damaged pairs or optical fiber strands
- pathway record
- splice record
- grounding record

Interbuilding Backbone Pair or Optical Fiber

A unique interbuilding backbone pair or optical fiber identifier shall be assigned to each pair or optical fiber in a backbone cable connecting TS's in different buildings, and it shall have the format [b1-fs1]/[b2-fs2]-n.d, where:

[b1-fs1]/[b2-fs2]-n = interbuilding backbone cable identifier
d = two to four numeric characters identifying a single copper pair or a single optical fiber

All interbuilding backbone pair or optical fiber identifiers in a single infrastructure should have the same format where possible. The backbone pair or optical fiber shall be maintained through the Interbuilding Backbone Cable record.

Grounding & Firestopping

Telecommunications Main Grounding Busbar

A Telecommunications main grounding busbar is the busbar that is tied directly to the grounding source and is used to ground all telecommunications equipment and cabling that require a grounding connection. The Telecommunications main grounding busbar in the TS shall be labeled TMGB.

The TMGB record shall contain the following information:

- telecommunications main grounding busbar identifier (primary indexing identifier, e.g.: TMGB)
- location of the TMGB (TS identifier)
- size of the TMGB
- location of attachment of TMGB to electrical system ground or building structural steel
- location of test results for any tests performed on the TGB, such as resistance to ground

Additional items of information desired by the system owner or operator may be added to each record, such as:

- conductor ID (connected bonding conductor)
- conductor Type (gauge, solid/stranded, insulated/bare)
- conductor Destination (space, device type and ID)

Telecommunications Grounding Busbar

A Telecommunications busbar is a busbar that typically resides in a TS that does not have a grounding source and is connected to the TMGB by a grounding conductor. It is also used to ground all telecommunications equipment and cabling that requires a grounding connection.

The Telecommunications grounding busbar (TGB) identifier is used to identify TGB's in the grounding and bonding system and shall be formatted as fs-TGB, where:

fs = TS identifier for the space containing the TGB.
TGB = an identifier referring to a telecommunications grounding busbar.

The TGB record shall contain the following information:

- telecommunications grounding busbar identifier (primary indexing identifier, e.g.: 3A-TGB)
- location of the TGB (TS identifier)
- size of the TGB

- location of test results for any tests performed on the TGB, such as resistance to ground

Additional items of information desired by the system owner or operator may be added to each record, such as:

- conductor ID (connected bonding conductor)
- conductor Type (gauge, solid/stranded, insulated/bare)
- conductor Destination (space, device type and ID)

Firestopping

A firestopping location identifier shall identify each installation of firestopping material. The format for the firestopping location identifier shall be f-FSLn(h), where:

f = numeric character(s) identifying the floor of the building occupied by the TS

FSL = an identifier referring to a firestopping location

n = two to four numeric characters identifying one firestopping location

h = one numeric character specifying the hour rating of the

firestopping system

All firestopping location identifiers in a single infrastructure should have the same format where possible.

Each firestopping location shall be labeled at each location where firestopping is installed, on each side of the penetrated fire barrier, within 300 mm (12 in) of the firestopping material.

The firestopping records shall contain the following information:

- firestopping location identifier (primary indexing identifier, e.g., 3-FSL02(3))
- location of the firestopping installation (e.g.: room number and location within room)
- type and manufacturer of firestopping installed
- date of firestopping installation
- name of installer of firestopping material
- service record of firestopping location (e.g., 4/22/99 firestopping removed and replaced with same type by ABC Cabling to add cabling runs)

Pathway Information

(optional)

Intrabuilding Pathway Element

An intrabuilding pathway element is a cabling support vessel that typically connects one space to another or runs the span of a common routing cable route, but resides in one space. The format for the intrabuilding pathway element shall be

fs-UUU.n.d(q) or fs1/fs2-UUU.n.d(q), where:

fs = Identifier for a space which is derived by combining the level and the building area in which the space is located. The space can be represented by the space ID (if present) or a user defined identifier (descriptor).

fs1 = Identifier for the space containing the termination of one end of the horizontal pathway, typically the most central or lowest alphanumeric identifier

fs2 = Identifier for the space containing the termination of the other end of the horizontal pathway, typically the least central or highest alphanumeric identifier

UUU = a user defined identifier referring to the type of element (descriptor)

n = two to four numeric characters identifying the pathway element (major ID)

d = detail information such as port, sub-duct, optical fiber and pair (minor ID)

q = qualifying information

The pathway records shall contain the following information:

- intrabuilding pathway identifier (primary indexing identifier, e.g., 3A/3B-CT01)
- pathway type (e.g.: Cable Tray)
- pathway fill (e.g.: 20%)
- pathway loading
- cable records
- space record1 (e.g.: 3A)
- space record2 (e.g.: 3B)
- grounding record

Additional items of information desired by the system owner or operator may be added to each record, such as:

- pathway length (e.g.: 40m (132ft))
- pathway max fill (e.g.: 40%)
- pathway max load
- pathway condition
- number of bends
- firestopping records

Interbuilding Pathway Element

An interbuilding pathway element is a cabling support vessel that typically connects one buildings space to another buildings space. The format for the interbuilding pathway element shall be [b1-fs1]/[b2-fs2]-UUU.n.d(q), where:

b1fs1 = building identifier and TS identifier for the TS in which one end of the backbone cable is terminated

b2fs2 = building identifier and TS identifier for the TS in which the other end of the backbone cable is terminated

UUU = a user defined identifier referring to the type of element (descriptor)

n = two to four numeric characters identifying the pathway element (major ID)

d = detail information such as port, sub-duct, optical fiber and pair

q = qualifying information

The pathway records shall contain the following information:

- interbuilding pathway identifier (primary indexing identifier, e.g., ADM-3A/ENG-3B-CT01)
- pathway type (e.g.: Cable Tray)
- pathway fill (e.g.: 20%)
- pathway loading
- cable records
- space record1 (e.g.: ADM-3A)
- space record2 (e.g.: ENG-3B)
- grounding record

Additional items of information desired by the system owner or operator may be added to each record, such as:

- pathway length (e.g.: 40m (132ft))
- pathway max fill (e.g.: 40%)
- pathway max load
- pathway condition
- number of bends
- firestopping records

Color Coding

Color coding of termination fields can simplify infrastructure administration and maintenance by making the structure of the cabling more intuitive.

Cross-connections generally connect termination fields of different colors.

Termination Type	Color	Typical Application
Demarcation Point	orange	central office connection
Network Connection	green	user side of central office connection
Common Equipment	purple	connections to PBX, mainframe computer, LAN, multiplexer
Key System	red	connections to key telephone systems
First Level Backbone	white	terminations of intrabuilding backbone cable connecting MC to ICs
Second Level Backbone	gray	termination of intrabuilding backbone cable connecting ICs to HCs
Interbuilding Backbone	brown	termination of backbone cable between buildings
Horizontal	blue	terminations of horizontal cable in TS's
Other yellow		alarms, security, or energy management

Labeling Visibility and durability

The size, color, and contrast of all labels should be selected to ensure that the identifiers are easily read. Labels should be visible during the installation of and normal maintenance of the infrastructure. Labels should be resistant to the environmental conditions at the point of installation (such as moisture, heat, or ultraviolet light), and should have design life equal to or greater than that of the labeled component.

Mechanical generation

To maximize legibility, all labels shall be printed or generated by a mechanical device, and shall not be written by hand.

Linkages & Reports

Required Linkages

Linkages support the retrieval of information about the telecommunications infrastructure from administration records. Each required record type defines a primary indexing identifier to facilitate linkage between infrastructure identifiers and records. Optional or user-defined record types should also define a primary indexing identifier. When administration is performed with special-purpose cable management software, linkages shall be provided between each appearance of an infrastructure identifier in a record and any record for which that identifier is the primary indexing identifier. Linkages to additional

records in which the identifier appears are also desirable. When administration is performed using spreadsheets or paper-based systems, records should be designed and organized to facilitate information retrieval based on primary indexing identifiers. This provides functionality similar to software linkages. Indexes relating record locations to primary identifiers may also prove beneficial.

Required Reports

Reports are the means by which information about a telecommunications infrastructure is communicated. A report may consist of an individual record, a group of records, or selected portions of one or more records.

Administration systems using special purpose cable management software shall make available to the telecommunications infrastructure operator reports listing all records containing a selected identifier and all information in those records, any desired subset of those records and the recorded information, or any desired union of such information. Paper-based or spreadsheet-based administration systems may require additional record-keeping beyond that described to provide adequate reporting capabilities. For example, a drawing or graphical representation of the infrastructure would allow the operator to easily locate all telecommunications outlets in a given work area, even if they are connected to links originating from multiple telecommunications spaces.

Optional

Descriptors

In many cases a descriptor will need to be defined for an element of a pathway, a space or device. The following tables give examples of these descriptors that can be used in creating identifiers.

Outdoor Space

MH Maintenance	Hole
HH Handhole	
BR Bridge	
TN Tunnel	
TP Telephone	Pole
DB	Direct Buried locale
SM Submerged	locale
EN Entrance	
VL Vault	
PE Pedestal	
RT Roof	Top

Pathway

BR Branch	Splice
BS Bridge	Splice
CB Cabinet	
CN Conduit	
CT Cable	Tray
FR Frame	
GB Ground	Bar
NT Node	
PB Pull	Box
PN Penetration	
RK Rack	
RR Ring	Rung
SL Sleeve	
SS Straight	Splice
ST Slot	
TR Tray	

Space

AP Access	Point
APS	Access Provider Space
CER	Common Equipment
CTR	Common Telecommunications
CO Central	Room Office
DM Demarcation	(NI)
ER Equipment	Room
NOC	Network Operations Center
RO Repeater	Office
SPS	Service Provider Space
SR Switch	Room
STAR	Logical Center of the data network
SZ Serving	Zone
TER	Telecommunications Entrance Room
TR Telecommunications	Room
TS Tenant	Space
WTRS	Wireless Transmission & Reception Space
WS Workstation	Location

Device

AMP Amplifier	PAY Payphone
ANL Analog	PC1 PC
CMR Camera	RDR Reader
CS Chassis	RS Remote Shelf
CI Carrier	ID SF Shelf
DIG Digital	SNS Sensor
DLR Dialer	SPK Speaker
FAX Fax	STK Strike
GBR Glass	Break STB Strobe
HNS Handset	TEL Telephone
MDM Modem	TTY Tele Type
MIC Microphone	TV1 Television
MNT Monitor	WLP Wall Phone

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