

Engineering Standard

SAES-T-631

31 March, 2004

Communications Cable Terminals

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Saudi Aramco DeskTop Standards

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Revised paragraphs are indicated in the right margin

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I Scope

This Standard covers mandatory requirements governing the design and installation of Communication Cable Terminals.

II Conflicts and Deviations

Any deviations, providing less than the mandatory requirements of this standard require written waiver approval as per Saudi Aramco Engineering Procedure [SAEP-302](#).

III References

The selection of material and equipment, and the design, construction, maintenance, and repair of equipment and facilities covered by this standard shall comply with the latest edition of the references listed below, unless otherwise noted.

A. Saudi Aramco References

Saudi Aramco Engineering Procedure

[SAEP-302](#)

*Instructions for Obtaining a Waiver of a
Mandatory Saudi Aramco Engineering
Requirement*

Saudi Aramco Engineering Standards

[SAES-T-435](#)

Communications Station Protection

[SAES-T-605](#)

Cable Protection and Bonding

[SAES-T-634](#)

Cable Testing and Identification

[SAES-T-916](#)

Building Cable

[SAES-T-938](#)

*Telecommunications: Outside Plant, Systems
Design*

B. Industry Codes and Standards

General Telephone & Electronics

GTE 631

Cable Terminations

IV Important Design Requirements

- a) Refer to Paragraph 5.15 below for information on installing terminal sections (CH-102, CH-202, etc.).
 - b) For information on installing protected building terminals see Paragraph 5.16 below.
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- c) See Paragraph 5.19 below for information on the installation of the Type 492 Protected Block.
- d) Information on installation of 66 Type Connecting Blocks - See Paragraph 5.21 below.
- e) Buried plant terminal housing (pedestal) information is provided in Paragraph 5.27 below.
- f) Where flush (with grade) type terminal housings are necessary see Paragraph 5.31 below.
- g) Installation of compound or pea gravel in the base of pedestals - see Paragraph 5.3 below.

V Modifications to GTE 631 Series

5 DESIGN

The following paragraph numbers refer to GTE (General Telephone and Electronics) Series 631 on "Cable Terminals", which is part of this standard. The text in each paragraph below is an addition, exception, modification, or deletion to GTE 631 as noted. Paragraph numbers not appearing in GTE 631 are new paragraphs to be inserted in numerical order.

- 5.1 GTE Section 631-010-300 - Housing Terminal - Cleaning and Sealing; Issue 1/April, 1974

No exceptions.

- 5.2 GTE Section 631-020-300 - Post Binding (Terminal) Type 29A, 29B - Repair and Maintenance; Issue 2/March, 1962

No exceptions.

- 5.3 GTE Section 631-030-200 - Pedestal Guard - Compound Description Installation; Issue 3/Feb., 1982

This is not to restrict use of pedestal sealant compounds to the type described in this section. See also GTE 631-600-213, Paragraphs 6.07 - 6.08.

- 5.4 GTE Section 631-200-100 - Cross Connect Cabinets and Accessories - Description and Installation; Issue 1/May, 1984

Cross connect cabinets are listed in the SAMS General Supply Catalog under stock number series 18-013-xxx. Refer to [SAES-T-938](#) for design information. See also paragraphs 5.32, 5.33 and 5.36 below.

- 5.5 GTE Section 631-200-200 - Terminal Splice Case - Type VC20, Variable Count - Pole Mounting Installation; Issue 1/June, 1965
Delete this entire section.
- 5.6 GTE Section 631-201-110 - Terminal Variable Count Model PMT-4088/6; Issue 1/May, 1977
Delete this entire section.
- 5.7 GTE Section 631-202-110 - Terminal Cable 25-Pair Protected Pole Mounted; Issue 3/Dec., 1983
Similar type terminals are listed in the SAMS General Supply Catalog under the 18-084-xxx stock number series.
- 5.8 GTE Section 631-202-120 - Terminal Cable 25 - Pair Strand Mounted; Issue 1/Jan., 1964
Delete this entire section.
- 5.9 GTE Section 631-210-101 - Terminal Splice Case-Type T20; Issue 1/Jan., 1964
Delete this entire section.
- 5.10 GTE Section 631-210-201 - Terminal Splice Case-Type T20, T21 - Installation; Issue 4/Jan., 1964
Delete this entire section.
- 5.11 GTE Section 631-210-202 - Terminal AT-400 Aerial; Issue 1/Sept., 1984
Delete this entire section.
- 5.12 GTE Section 631-220-200 - Terminals, Cable-Cross Connect Types BH and BJ - Description and Installation; Issue 3/Nov., 1982
Delete this entire section. Refer to Paragraphs 5.4 above.
- 5.13 GTE Section 631-221-200 - Terminal Balcony B- Description and Installation; Issue 1/May, 1964
Delete this Entire Section.
- 5.14 GTE Section 631-400-200 - Bracket Hanger - Type 51B - Description and Installation; Issue 1/Oct., 1965
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Delete reference to specific terminals. This bracket is acceptable for mounting splice closures on walls and, etc.

- 5.15 GTE Section 631-450-100 - Cable Terminal Section and Terminal Box - Cook Electric Types H and HF-1 - Description and Installation; Issue 4/Nov., 1977

Refer to [SAES-T-916](#) for standard requirements for installing terminal sections inside buildings. A description of the 3A Type Cable Terminal Section is given in [SAES-T-916](#), Paragraph 5.11.

- 5.15.1 Exception: Paragraph 2.06 - The type W492 protector shall be used in accordance with [SAES-T-435](#), Paragraph 5.3.6.

- 5.16 GTE Section 631-451-003 - Terminal - Protected - Building3M, 4088, 4188, 4288 & 4688; Issue 2/Oct., 1983

Refer also to Paragraphs 5.20 & 5.22 below. Refer to [SAES-T-916](#), Paragraph 5.9 for information on the 189B type protected building terminal.

- 5.17 GTE Section 631-451-100 - Block terminal type 5300 - Protected for Plastic Insulated Conductors - Description; Issue 1/Dec., 1963

Delete this entire section.

- 5.18 GTE Section 631-451-101 - Block Terminal Type 66A1-25 - Unprotected Description; Issue 1/Dec., 1963

No Exceptions.

- 5.19 GTE Section 631-451-102 - Block Terminal Type 492 Protected - Description; Issue 1/May, 1968

The Type 492 Protected Terminal shall be installed in accordance with [SAES-T-435](#), Paragraph 5.3.6 limitations.

- 5.20 GTE Section 631-451-110 - Building Cable Terminals - Cook Electric, C-550 Series Description and Installation; Issue 1/May, 1980

Refer also to Paragraph 5.16 above. See [SAES-T-916](#), Paragraph 5.9 for information on the 189B type protected building terminal.

- 5.21 GTE Section 631-451-200 - Block Terminal Type 66A, 66B, 492 - Wiring; Issue 3/April, 1973

The terminal blocks described in this section shall be installed to comply with [SAES-T-435](#) and [SAES-T-916](#).

- 5.22 GTE Section 631-452-110 - Protected Cable Terminal Blocks;
Issue 2/Dec., 1983
- Refer to [SAES-T-916](#), para 5.9 for information on the 189B type protected building terminal. See, also, Paragraph 5.16 above.
- 5.23 GTE Section 631-550-100 - Terminal Underground Variable Count, with Gas-Tight Cover - Description; Issue 1/July, 1965
- Delete this entire section.
- 5.24 GTE Section 631-550-200 - Terminal Underground Variable Count with Gas-Tight Cover - Installation; Issue 1/July, 1965
- Delete this entire section.
- 5.25 GTE Section 631-557-200 - Power Supply 110 V - Service Head to Disconnect Head - Installation; Issue 2/Sept., 1975
- Delete this entire section. Refer to the SAES-P-Series of standards should this type information be required.
- 5.26 GTE Section 631-558-200 - Housing Protector Outdoor - Cook Electric, Type 503B - Description and Installation; Issue 3/Nov., 1977
- Refer to [SAES-T-435](#) and [SAES-T-916](#) for information on building cable terminations.
- 5.27 GTE Section 631-600-100 - Housing Terminal Buried Plant - Cable Capacity; Issue 3/July, 1983
- No exceptions. Refer to the SAMS #18-021-xxx stock number series in the General Supply Catalog for the SAMS listings of this type material. See Paragraphs 5.29, 5.31, 5.35 and 5.37-5.40 below.
- 5.28 GTE Section 631-600-200 - Housing Terminal Buried Plant - Cable Placing; Issue 3/Jan., 1971
- Delete any references to ready access terminations and to joint buried random separation with power facilities. These construction methods shall not be used in Saudi Aramco.
- 5.29 GTE Section 631-600-206 - Housing Terminal Buried Plant - Type GHC-4, GHC-6 (Utility Products) - Description and Installation; Issue 2/Feb., 1975
- Exceptions: None. Refer to paragraphs 5.27, 5.31, 5.35 & 5.37-5.40. The GHC-8 (SAMS #18-021-375) closure for use on cables up to 600 pairs is
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also available. The GHC-8 is larger, but similar to the GHC-6 closure which is described in this GTE section. A GHC-8 closure will house up to a 3" diameter cable and accommodate up to a 600 pair cable splice.

- 5.30 GTE Section 631-600-207-Housing Terminal Buried Plant - Decal Warning & Identification - Description & Installation; Issue 2/Nov., 1975
 - 5.30.1 Exception: Paragraph 2.01 and Figure 1 - If the Warning Decal Described here is used, it must be adapted for Aramco use and printed in both Arabic and English.
 - 5.30.2 Exception: Paragraph 2.04 - Delete References to Toll and Toll Cable.
 - 5.30.3 Exception: Paragraph 3.01 - 4.01 - References to Specific Manufacturers are for the purpose of identification only.
 - 5.31 GTE Section 631-600-208 - Housing Terminal Buried Plant - Yellow Jacket Cable Placing; Issue 1/June, 1972
 - 5.31.1 Exception: Paragraphs 4.01 & 5.01 - Change Ground Rod length requirement from 1.52 m to 2.44 m per SAES-T-605, paragraph 5.1.8. See also paragraphs 5.27, 5.29, 5.35 and 5.37-5.40 below.
 - 5.32 GTE Section 631-600-210 - Housing Terminal Cross-connect - Model XC-7 - Description & Installation; Issue 1/May, 1974
 - 5.32.1 Exception: Paragraph 3.01 (6) and Figures 4,5 & 6 Change ground rod length requirements from 1.52 m to 2.44 m per SAES-T-605, paragraph 5.1.8. See paragraph 5.4 above.
 - 5.33 GTE Section 631-600-211 - Housing Terminal Cross-connect 3M/MS(2). Types 4080, 4082, 4084 HD & 4086 HD - Description & Installation
 - Exception: Change all references from 1.52 m ground rods to 2.44 m ground rods. Closures shall not be attached to poles. See paragraph 5.4 above.
 - 5.34 GTE Section 631-600-212 - Housing Outdoor Protector III Industries. Model T11-421; Issue 1/June, 1979
 - Delete this Entire Section.
 - 5.35 GTE Section 631-600-213 - Terminal Housing. Buried Plant - Cable Type CAD/CS-4 GTE. CAD/CS-8 & CAD/CS-12 GTE - Description & Installation; Issue 1/Dec., 1983
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- Reference SAES-T-605 for bonding and grounding requirements. Refer to paragraphs 5.27, 5.29, 5.31, 5.35 and 5.37 - 5.40
- 5.36 GTE Section 631-600-214 - Preterminated Cross-connect Frames MS(2) for Pedestal & Pole Mount Cabinets - Description & Installation; Issue 1/April, 1984
- Reference SAES-T-605 for bonding and grounding requirements. Refer to paragraph 5.4 above.
- 5.37 GTE Section 631-600-215 - Terminal Housing CAD/CS Series Splicing & Terminating; Issue 1/April, 1984
- Reference SAES-T-605 for bonding and grounding requirements. See paragraphs 5.27, 5.29, 5.31, 5.35 and 5.37 - 5.40.
- 5.38 GTE Section 631-600-300 - Housing Terminal Buried Plant - Type 38, 62 - Maintenance; Issue 1/July, 1973
- Exceptions: None. See paragraphs 5.27, 5.29, 5.31, 5.35, 5.37 & 5.39 - 5.40.
- 5.39 GTE Section 631-601-200 - Housing Terminal - Types 218, 224-C, 238B, 262B - Description & Operation; Issue 2/July, 1982
- Exceptions: None. See paragraphs 5.27, 5.29, 5.31, 5.35, 5.37, 5.38 and 5.40.
- 5.40 GTE Section 631-602-200 - Housing Terminal - Type D-1G, D-2G, D-3G - Description & Installation; Issue 2/Nov., 1982
- Replace all references to 1.52 m ground rod with 2.44 m ground rod. All bonding and grounding shall be in accordance with SAES-T-605. See paragraphs 5.27, 5.29, 5.31, 5.35 & 5.37-5.40.
- 5.41 GTE Section 631-850-201 -Cabinet Apparatus -Pole Mounted - Description & Installation; Issue 1/Feb., 1964
- Exceptions: None
- 5.42 GTE Section 631-850-202 -Cabinet Apparatus -Pole Mounted - Equipping & Wiring - Coaxial Cable; Issue 1/April, 1964
- Delete References to pressurized cable. Cable pressurization is not used by Saudi Aramco.
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- 5.43 GTE Section 631-851-100 - Power Supply Office Mounted -12A/30VAC Wide Spectrum - Description; Issue 1/March, 1969
- This section is retained as informational only, and not as a mandatory standard.
- 5.44 GTE Section 631-851-200 - Power Supply Pole Mounted - 12A/30VAC, Wide Spectrum - Installation; Issue 1/May, 1969
- This section is retained as informational only, and not as a mandatory standard.
- 5.45 GTE Section 631-855-200 - Terminal, Video, G45B - Installation; Issue 1/Jan., 1968
- Video terminals, when required, are not limited to the type listed in this section.
- 5.46 GTE Section 631-860-200 - Cabinet Apparatus - GTE Lenkurt 565A - Installation; Issue 1/April, 1966
- Apparatus cabinets, when required, are not limited to the type listed in this section.
- 5.47 GTE Section 631-861-200 - Carrier System Lynch B310 - PCM Cable - Terminal Housing-Installation; Issue 1/Nov., 1969
- Repeater housings, when required, are not limited to the type listed in this section. Other types, when approved for use, shall be installed in accordance with the manufacturers' instructions.
- 5.48 GTE Section 631-863-200 -Carrier System, GTE Lenkurt 91A - PCM Repeater Housings - Installations; Issue 4/Dec., 1979
- Repeater housings, when required, are not limited to the type listed in this section. Other types, when approved for use, shall be installed in accordance with the manufacturers' instructions.
- 5.49 GTE Section 631-864-110 - Housing Terminal - Emar 3082 & 4282A - for GTE Lenkurt 82A Carrier System; Issue 2/July, 1981
- Terminal housings and station carrier systems, if used, are not limited to the type covered in this section.
- 5.50 GTE Section 631-864-200 - Housing Channel, Model CH 616B - for 82A Carrier - Description & Installation; Issue 1/Feb., 1977
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See comment in paragraph 5.49 above.

- 5.51 GTE Section 631-865-200 - Cabinet Apparatus - Line - Concentrator for Leich 49-9-2A, 49-18-3 Systems - Installation; Issue 1/Sept., 1965

Delete this entire section.

- 5.52 GTE Section 631-866-200 - Mountings - Pedestal for PCM Repeater Housings - Description & Mounting; Issue 1/Dec., 1982

This section does not restrict the use of pedestal mountings to the type listed in this section. Bonding and grounding shall be in accordance with SAES-T-605.

VI Installation

Cable terminals shall be installed in accordance with the manufacturer's instruction unless directed otherwise in this standard.

VII Testing and Inspection

Terminals shall be tested along with the cables to which they are spliced in accordance with [SAES-T-634](#). All quality assurance (QA) inspections shall be done by a qualified communications inspector.

Revision Summary

31 March, 2004

Revised the "Next Planned Update". Reaffirmed the contents of the document, and reissued with minor revision.