

QWEST Communications International Inc. Technical Publication

Guidelines for Product Change Notices

NOTICE

This publication has been prepared to provide Suppliers of telecommunications equipment with Product Change Notice (PCN) guidelines required to effectively interface with QWEST concerning Product Changes. To emphasize the importance of the PCN Process, some internal QWEST functions and responsibilities are also defined. There are no proprietary restrictions governing application of these guidelines; therefore, a Supplier may elect to follow the procedures described herein with customers other than QWEST.

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Ordering information for QWEST Technical Publications can be obtained from the Reference Section of this document.

QWEST Communications International Inc.
Manager – New Services Planning
700 W. Mineral Ave. MN-F15.15
Littleton, CO 80120
(303) 707-7107
(303) 707-9497 Fax #
E-mail: jhsmit2@qwest.com

COMMENTS on PUB 77PUB

PLEASE TEAR OUT AND SEND YOUR COMMENTS/SUGGESTIONS TO:

QWEST Corporation
Manager – New Services Planning
700 W. Mineral Ave. MN-F15.15
Littleton, CO 80120
(303) 707-7107
(303) 707-9497 Fax #
E-mail: jhsmit2@qwest.com

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Were the contents logically sequenced?	YES _____ NO _____
Were the tables and figures understandable and helpful	YES _____ NO _____
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1. Introduction

1.1 General

This publication has been prepared to provide Suppliers of telecommunications equipment with Product Change Notice (PCN) guidelines required to effectively interface with QWEST concerning Product Changes. To emphasize the importance of the PCN Process, some internal QWEST functions and responsibilities are also defined. There are no proprietary restrictions governing application of these guidelines; therefore, a Supplier may elect to follow the procedures described herein with customers other than QWEST.

1.2 Reason For Reissue

This Technical Publication is being revised to include Changes that occurred in GR-209-CORE.

1.3 Document Organization

This document is organized as described in Table 1-1.

Table 1-1 Document Organization

Chapter	Title	Contents
1	Introduction	General information
2	Product Changes	Definition of a Product Change Notice
3	Product Change Classification	Class A/AC , B, & D Classifications
4	Billing For Changes	Responsible Party Billing
5	Suppliers' Responsibilities	Product Change Notice Supplier Responsibility
6	QWEST 's Responsibilities	Product Change Notice QWEST Responsibility
7	Additional Supplier Effort Required for Deferrable Plug-Ins	Details for Implementation for Deferred Plug-Ins
8	Method of Procedures (MOP)	Step-By-Step Procedure for a Particular PCN
9	Verification and Audit	Quality Assurance Audits
10	Notification	Notification of PCNs Monthly Status & Quarterly Summary Reports
11	Mechanized Product Change Notification Systems	Electronic Means of Delivery
12	Definitions	A list of acronyms and a glossary of terms used in this publication.
13	References	References used in this publication

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2. Product Changes

Product changes range from those that are considered very minor and not field affecting to those that are significant. Non-field affecting would be those that have no affect on customer use and are completely invisible to the field maintenance force. No component values have changed and the product looks and acts exactly like it did prior to the change. A Product Change, however, does not include the introduction of new products.

Product Changes are considered significant when they affect the performance or life span of the product. Such changes include any that can affect the form, fit, function, product technical specification, safety or reliability of the product. Even a cosmetic change may be considered significant. For example, a cosmetic change that involves painting a product with a new, textured paint which affects the thermal threshold of the product would be considered significant. Since the paint has altered the product's ability to withstand certain temperatures and, therefore, its performance, it must be referred to as a Product Change.

Suppliers are obligated to announce all changes to their products throughout the life of the product.

Other sections of this document discuss situations when it may be appropriate for QWEST to implement and install a product change. However, because of limited facilities, lack of proper test equipment and personnel available for this type of work, no product change will be accomplished by providing loose parts to QWEST without prior QWEST approval. This is particularly relevant where plug-in circuits are involved.

Most of the sections of this publication apply directly to hardware; however, the term Product Change can include changes to hardware, firmware and software. There are some procedures that only apply to firmware and software changes.

Firmware (referenced in the paragraph in Chapter 14 starting with the word "FIRMWARE.") in the loose chip form is very ESD sensitive, the central office field locations usually are not equipped for operations involving the handling and changing of this type of material. Therefore, product changes that involve firmware should be accomplished by changing the complete plug-in unit that the firmware is mounted on. The firmware issue marking should comply to the marking standards as outlined in TR-ST5-00485, "COMMON LANGUAGE® CLEI™ Code Assignment and Equipment Marking Requirements".

Program Retrofit or Update. This is usually the change of a complete program and is supplied on disk or tape.

2.1 Release Structure - Software

2.1.1 Software Functionality

Changes to software product are implemented through modification to the instruction code, resulting in a change in the functionality. This use of functionality is not to be confused with its usage as the equivalent of feature content.

2.1.2 Structured Names and Descriptions

Each new release, while a separate product, bears a relationship to other Software Product(s) in the way it will be used. Since a given Software Product is not always applied in the same configurations by its various users, the effect of upgrading to it, or from it to another version, is not nearly as predictive as is the case with hardware products. The impact analysis and the importance of implementing the new software product is the responsibility of the customer.

All switches, NE's and additional support systems should be capable of reporting the precise software currently running. The reporting may be accomplished through maintenance terminals, network management systems, or other intelligent systems interface devices.

2.1.3 Nomenclature

R11-1 [64] Software products representing different functional "streams" shall be identified with a proper name unique within the supplier's company - not a description that could vary in context and interpretation.

2.1.4 Patch Identification

R11-2 [65] It is critical that the presence or application of one or more patches on any NE or managed system be recognized. The means of requesting information on installed patches, and the manner in which it is displayed shall be consistent with those functions for other software elements or products.

Rules for software changes can be found in the LSSGR, FR-NWT-000064, "LATA Switching Systems Generic Requirements (LSSGR)", Section 8.6, and TR-TSY-000541, "LSSGR: Administration (Traffic Measurements)". This section was primarily issued for switching systems, but applies to any software-based system. Documentation for software standards can be found in the LSSGR, Sections 19.2 and 19.3, TR-TSY-000519, "LSSGR: Documentation, Common" and TR-EOP-000208, "Stored Program Control Proposed Software Documentation Requirements

2.2 Reportable Product Change Classifications - Software

The Release Levels in this section are used by suppliers to determine whether a Class B PCN, or a New Product Announcement should be issued. Class A/AC PCNs will always be issued to correct product deficiencies. If the decision is made to write a PCN, the Change Classifications in this section should be used to categorize changes made to software products. While the Release Levels will be used by suppliers to determine if a Class B Pcn will be issued, it is not necessary for the levels to appear in the PCN document.

2.2.1 Release Level Definitions

2.2.1.1 Release Level 1

A Level 1 release includes introduction of significant new functionality or features. It may also involve a change of underlying architecture or technology in the software. It may include changes described in Level 2 but should be distinguished as a Level 1 release by the new significant functionality. A Level 1 release is typically identified with an integer change to the release or version nomenclature and is usually available to the general marketplace. A supplier will notify the customer of the new product's existence by means of a New Product Announcement.

2.2.1.2 Release Level 2

A Level 2 release is typically identified with a change to the release or version nomenclature and is identified with a decimal or sub-level change to the release or version nomenclature. Level 2 releases are usually available to the general marketplace and are considered to be revisions to existing software products. A change to previous software releases involve the following:

- refinements or improvements to existing functionality
- performance or ease-of-use improvements
- new features
- changes made to enhance compatibility with hardware
- regain compliance with applicable external standards
- corrections to software

Upon issuance of a Level 2 change, the supplier will notify the customer by means of a Class A, A/C or B Product Change Notice.

2.2.1.3 Release Level 3

A Level 3 release is a restricted distribution release, which may be a software patch or a patched monolithic load. It is used to correct service affecting problems that are configuration or application specific and affect a limited number of customers and/or sites. This definition allows a supplier to deliver such a fix to the small affected population in the shortest amount of time by reducing the regression testing required to determine if the release is appropriate for all configurations, applications, and locations in the installed base. Level 3 releases have some distinctive marking, or pattern of nomenclature, that distinguishes them from all other releases, and from general availability releases. Level 3 changes will be documented, tracked and communicated to affected customers by the supplier.

2.3 Classifications

The classification of changes serves to uniformly categorize changes made to software products. Reportable changes to a Supplier's software product shall be classified by that Supplier to one of the following classification codes: Class A, AC, or B. If the customer disagrees with any classification issued by the Supplier, the Supplier will present evidence that such a classification is justified.

Class A, AC, and B changes are defined in the following paragraphs, along with a general description and the application of each.

2.3.1 Class A Changes

- R12-1 [66] The Class A designation shall apply to changes required to correct a software product deficiency, for example:
- Operational or design defects that cause higher than the supplier's specified product failure rates or cause adverse operational performance of the network in which it operates (including excessive initializations or restarts).
 - Product does not provide features or functions that are documented in the Supplier's product technical specifications, as warranted by the Supplier, or as specified in the customer contract.
- R12-2 [67] Suppliers shall inform the customers immediately, by means of a PCN, of all Class A changes, because they could affect installation dates or require changes to products that have been delivered to the customers for installation.
- R12-3 [68] The Supplier shall take immediate action on Class A changes to correct the condition in all of the software products involved (except as indicated in R12-7 [72]). This would include all of the software products to be shipped to the customer and all of the software product owned by the customer.
- R12-4 [69] Software products within the manufacturing process shall have all available Class A changes applied before shipment.

- R12-5 [70] Software products delivered to the customer but still being installed by the supplier shall have all Class A changes applied before it is turned over to the customer. Where Class A change application could affect job completion dates, the customer maintenance representative will be notified. The changes will then be reviewed and their application negotiated.
- R12-6 [71] A list of all software Class A changes applied during the installation period shall be turned over to the customer maintenance representative.

2.3.2 Class AC Changes

- R12-7 [72] In some cases it may be necessary to make changes only at selected locations for a particular software product. This might occur when it is necessary to correct a condition that affects a specific product over time, specific subset of products, specific product combinations or with the use of certain products. These conditions shall be described in the Product Change Notice. The determination of which location(s) require shall be subject to negotiation between the supplier and the customer.
- R12-8 [73] All known conditions shall be listed early and prominently in the change notice text.
- R12-9 [74] Except for completion time frames, the items listed for Class A changes shall apply to a Class A change. However, previous versions of software products should remain orderable, after AC changes, for those customers explicitly requiring those previous versions. Completion time frames may be extended when the known conditions may not have immediate impact but could become apparent over time. Any time frame extensions shall be negotiated with the customer.

2.3.3 Class B Change

The Class B designation normally applies to changes made to incorporate improvements in design resulting in better operation, improved testing and maintenance, longer life, service improvements, cost reductions to the customer, and/or addition of new features. Suppliers may elect to combine software fixes with Class B changes.

- R12-10 [75] Class B changes shall be applied to software products in the manufacturing process or in the field.
- R12-11 [76] Customers shall negotiate to receive software fixes when technically possible, as stand alone items, at no charge. The decision to purchase and apply Class B changes is the responsibility of the customer.

2.3.4 Class D Change

- R12-12 [77] Class D changes shall not be issued for software products.

2.4 Customer Services Computer Access Network Standards (CSCANS)

Suppliers using or evolving to CSCANS (or equivalent) method of electronic distribution may use unclassified change administration.

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3. Product Change Classification

The classification of changes serves to uniformly categorize all changes made to products. All changes to a supplier's product will be classified by that supplier to one of three classification codes. These codes are A/AC, B and D. The changes range from higher to lower degrees of urgency as they are listed from A to D. A has the highest urgency, while D has the lowest. Each classification code designates the urgency of the change and the party responsible for financing the change (i.e., Supplier or QWEST). If QWEST disagrees with any PCN classification proposed by the Supplier, the Supplier shall present evidence that such classification is justified. Supplier justification of classification shall be presented in writing within 30 days of said request from QWEST. If QWEST disagrees with Supplier's classification justification, the Supplier will negotiate with QWEST until a final resolution is mutually agreed upon by both parties.

Class A/AC, B and D changes are defined in the following paragraphs, along with a general description and the application of each. Certain procedures for application, however, may be subject to negotiation between the Supplier and U S WEST.

3.1 Class A/AC Change:

The Class A designation applies to changes required correcting a product deficiency, for example:

- Safety or fire hazard.
- Electrically or mechanically inoperative.
- Operational or design defects that cause higher than the Supplier's advertised product failure rates, or causes adverse subscriber reaction.
- Product does not operate as documented in the Supplier's descriptive literature and/or product technical specifications, as warranted by the Supplier or specified in QWEST contract.

The Class A/C changes are those that would otherwise be classified as Class A changes, but have a "Limited Application" or Conditional Application." That is, the change affects only a limited number of a particular product, and/or is a change necessary to correct a condition that affects:

- A specific product over time
- A specific subset of products
- Specific product combinations
- The use of certain options/configurations

All requirements listed for a Class A change shall also apply to a Class AC change, except for time frames.

Completion time frames may be extended when the known conditions may not have immediate impact, but could become apparent over time. The supplier shall negotiate an agreement with customers on any time frame extensions.

Limited Application and Conditional changes shall be designated as “Class AC” changes, and shall be described on a PCN. The determination of which applications require change may be subject to the negotiation of an agreement between the supplier and the customer.

All known limited applications and conditional changes shall be listed in “Reason for Change” field of the PCN.

QWEST must be informed within 30 days of a change implementation in production of all Class A changes since they could affect installation dates or require changes to products that have been delivered to QWEST.

Class A/AC changes require action within 30 days of a change implementation in production by the Supplier to correct the condition in all products involved. This would include all of the product still owned by the Supplier and all of the product owned by QWEST, including spare equipment or products. Class A/AC changes will be performed by the Supplier on a non-billable basis.

Product in manufacture should have all available product changes completed before shipment.

Product delivered to QWEST, but still being installed, should have all Class A changes applied to the equipment before it is turned over to QWEST. Where Class A change application could affect job completion dates, QWEST (Maintenance Engineer) should be notified. The changes could then be reviewed and their application negotiated.

A list of all Class A changes applied during the equipment installation period should be turned over to the PCN Coordinator.

3.2 Class B Change

The Class B designation applies to changes made to incorporate improvements in design resulting in better operation, improved testing and maintenance, longer life, service improvements, cost reductions to QWEST, and addition of new features. Class B changes are applied to manufactured products and may be recommended for application to existing equipment in the field. The decision to purchase and apply Class B changes is the responsibility of QWEST.

3.3 Class D Change

The Class D designation applies to changes that incorporate minor new features and design improvements that do not affect the existing functionality, component changes, or other minor service improvement, test capabilities, and are not customer or field affecting and not sufficiently significant to require a Class B change. This change class is also used when a change is required to facilitate manufacture or to affect a supplier cost reduction. Routine changes in a product documentation or technical specification; i.e., status/availability, titles, clarification of notes, and correction of drawing errors should also be Class D.

Class D changes should not affect compatibility, QWEST cost, or customer use of the product. These changes are applied only to Supplier-owned products and are not recommended for application to existing equipment in the field. However, they may, on a non-billable basis, be applied to product during the repair process when necessary for factory test purposes.

Listed below are examples of changes, which may be minor, but cannot be considered Class D (they would be Class A).

- Component changes made to meet the product reliability standards (i.e., failure/replacement rates, FIT, RIT, in accordance with the Suppliers reliability statements in the product technical specification or in accordance with QWEST reliability standards).
- Component changes made to bring a product into agreement with the Supplier's environmental standards (heat loss, temperature/humidity ranges) as stated in the product technical specification.
- Component or design changes made to bring operational standards into agreement with the Supplier's advertised features or descriptions in their product technical specification.
- Component or design changes to eliminate a potential fire or safety hazard.

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4. Billing for Changes

In the following paragraphs, the party normally responsible for financing each type of change is identified. Contracts between QWEST and its Suppliers may alter this section. Product liability or government regulations may also affect billing responsibility.

Class A changes are paid for by the Supplier and provided on a non-billable basis to QWEST.

Class B changes normally are provided only upon receipt of a Telephone Company Equipment Order (TEO). Payment is made by QWEST when the change has been completed according to contractual agreements.

Class D changes normally have no billing associated. If there should be some unusual circumstance that causes QWEST to request that a Class D change be applied, the billing will be negotiated.

4.1 Partially Billable Class A Change

While the Supplier normally incurs all of the expense associated with the application of Class A changes, billing to QWEST might occur under the following conditions:

- **ENHANCED VALUE.** If the change, in addition to resolving a serious condition, adds value to the equipment, the additional value may be billable. The billable difference should not exceed the difference between the previous and the enhanced price.
- **EQUIPMENT NOT INITIALLY ENGINEERED AND/OR INSTALLED BY THE SUPPLIER:** Material will be furnished at no charge, but any engineering and/or installation effort by the Supplier may warrant billing.

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5. Suppliers' Responsibilities

The Suppliers will submit a Product Change Notice to QWEST within 30 days of a change implementation in production. A Product Change Notice form is provided at the end of this publication (see Exhibit 12-1). The form may be used as is, or modified for use, but all items of information listed on the form must be separately defined in the Product Change Notice.

Notes:

1. A Product Change Notice is required for all classes (A/AC, B or D) of product changes. However, when the change is minor and not affecting QWEST, then QWEST may agree to waive this notification. Such an instance could be when the change information is made available to on-site QWEST authorized factory quality representatives.
2. Product Change Notices required to resolve an engineering complaint must be provided to the Regional Engineering Complaint Coordinator in accordance with Generic Requirements For Engineering Complaints, GR-230-CORE.
3. Any exceptions must be agreed to by QWEST. Exceptions will not apply to documentation corrections, changes in status and availability, nor changes that require product-marking changes.

The Supplier will be responsible for developing an MOP for accomplishing the change. It will be prepared by the installation supervisor or installer and agreed to by QWEST (see Chapter 9).

The supplier will be responsible for changes made to all products in regards to Product Change Notices supplied to QWEST, whether manufactured by the supplier or purchased from other suppliers.

Where the original equipment was installed by the Supplier, the Supplier will be responsible for installing the hardwired change or changed product in all of the QWEST locations affected by the Product Change Notice. The change should be completed in a timely manner, usually within 180 days of the release of the Product Change Notice (see the following two paragraphs for inclusions).

With agreement from QWEST, the time period can be extended to one year where extensive plug-in substitution is being done using pack rotation (see the first paragraph in Chapter 7).

In certain circumstances, QWEST may elect or agree to install the hardwired change or changed product at one or more locations themselves. The agreement and change procedure will be negotiated between the Supplier and QWEST. All material required, detailed installation instructions, and any drawings or other documentation required will be supplied to QWEST without charge.

5.1 Items of Information

At the time of QWEST notification, the Supplier is required to provide the following 24 separate items of information. No omissions or deviations from the applicable items of information will be allowed unless changed or excluded in the contract negotiated between QWEST and the Supplier.

- Supplier Information: Supplier's name, address, technical contact name and telephone number.
- Product Change Notice Number: Number conforming to a single sequential numbering scheme used by Supplier, and the Product Change Notice issue number if applicable.
- Issue Date of Change: Date Product Change Notice is transmitted.
- Major System and Subsystem Description: Description of the product affected; e.g., BMS 700, 2W Line Card.
- New Product Code: Unique identity of the changed product; e.g., Circuit Pack CP 11101, Series 1, List 4.
- Old Product Code: Unique identity of the product being changed; e.g., Circuit Pack CP 11101, Series 1, List 3.
- New CLEI™ Code(s): The alphanumeric CLEI™ code(s) assigned to the changed product.
- Old CLEI™ Code(s): CLEI™ code(s) of all equipment associated with this change (see Item 9).
- Associated Products or Coordinated Changes Affected: Coordinated product changes that must be applied in conjunction with, or prior to, this change.
- Drawing Number: The circuit (schematic) drawing number and issue that incorporates the change; this is the number of the principal drawing supplied to QWEST through normal distribution that shows the circuit and/or the equipment being changed.
- Product Change Classification: Classification of the change (A/AC, B or D).
- Classification Substantiation: Details of why this classification is appropriate: Class A/AC changes shall reference applicable Engineering Complaints for U S WEST. Class B or D changes shall provide details of why this classification is appropriate.
- Reason for Change: Detailed explanation of why the change is necessary, for example:
 - Is change a manufacturing change or does it fix a trouble condition or safety hazard?
 - What are the symptoms of the condition being corrected?
- Description of Change: Installation details of the engineered change, for example:
 - What is to be changed?

If acronyms are used for equipment descriptions supplier must define.

- How is it to be changed?
- How can the change be tested/verified?
- Effect of Change: Description of the effect of the change on:
 - Service
 - Transmission
 - Traffic
 - Maintenance
 - Reliability
 - Commercial Specifications (defined in the paragraph in Chapter 12 starting with “COMMERCIAL SPECIFICATIONS”).
 - Control Specifications (defined in the paragraph in Chapter 12 starting with “CONTROL SPECIFICATIONS”).
 - Safety
- Material Affected: Apparatus, wiring, plug-in circuits, etc., that are affected by the change.
- Documentation Affected: List of associated drawings, programs, practices, manuals, nomenclature, etc., affected by the change.
- Supplier Implementation Date: Date after which all newly manufactured products will incorporate the change
- Modification Expiration Date: (for Class A changes only): Date after which Supplier terminates responsibility for applying the change, providing modification material, etc., on a non-billable basis.
- Modification Location: Supplier recommendation for Field and/or Factory installation of the change and Supplier's Factory Address, Technical Contact Person and Telephone Number of where to ship QWEST 's equipment to be modified.
- Modification Cost (Class B and D only): Total Modification Cost per circuit or unit to include Material, Engineering and Labor where applicable.
- Location and Quantity of Equipment: Quantity shipped to QWEST. If the Supplier has access to these records, the location and quantity of working or spare equipment owned by QWEST that requires the change.
- Attachments: Any supplementary reference information relative to the change.
- Comments: Additional comments or recommendations of the Supplier.

If the equipment being changed requires a CLEI™ code change, the Supplier will contact Bellcore, Language Standards Division, per TR-ST5-000485 for the new code. A CLEI™ code change is required if:

- Any component on the plug-in product has been changed for another of different value or tolerance, regardless of the interchangeability and functional characteristics of the resulting product.
- A changed plug-in product is not bi-directionally interchangeable physically, electrically or functionally, with its predecessor.
- A changed hardwired product is functionally different (features added, deleted or changed) from its predecessor.
- A manufacturer's part, model, drawing, issue/vintage or identification number is changed for that product
- A manufacturer's company name is changed.

NOTES

1. For hardwire and plug-ins, all Class A and many Class B changes require CLEI™ code changes. A Class D change would require a CLEI™ code change only if the drawing issue number or the identification number of the product has changed. When a Class A change or a Class B change affecting interchangeability is issued for a plug-in, a new CLEI™ code, changed within the first 7 characters, must be assigned to the new version of the plug-in. For any other type change, the code will change in the 9th and 10th characters. For hardwire products, a feature affecting change will require a change at the 7-character level. For more information on CLEI™ codes, see the paragraph in Chapter 12 starting with COMMON LANGUAGE®.
2. There may be instances where a product will require remarking when it has not been changed.

One instance of this could be when a change only affects a limited number of the product and a screening or physical examination is required to identify the affected units. To avoid constant rechecking or future identification problems, a marking change would be required to identify it as having been examined and found not to require the change.

Only the standard markings as described in the documents listed in the paragraph in Chapter 12 starting with COMMON LANGUAGE® will be acceptable.

5.2 Monthly Status Report

The Supplier will furnish monthly status reports to QWEST for all Class A/AC changes on plug-ins and hardwired equipment that are to be installed or tracked to completion by the Supplier (see Chapter 10). This report will contain the following 11 items:

- Product Change Notice Number
- Identity of the product
- Model or part number and issue
- CLEI™ code, if applicable
- Date Product Change Notice sent to QWEST
- Material ship date
- Installation or application responsibility
- Locations at which change is to be made (if the Supplier maintains these records.)
- Date completed, by location
- Changes on hold at any location. Are they held by Supplier or QWEST?
- If the change is on hold, why? (For example: waiting for material, manpower, related work, etc.)

5.3 Quarterly Summary Report

The Supplier will furnish QWEST a quarterly summary report listing all Product Change Notices released to QWEST during the previous 12 months (see Chapter 10). This report will contain the following 5 items:

- Product Change Notice Number
- Issue Date of Change
- Drawing Number
- Supplier Change Classification
- Modification Expiration Date

If the Supplier cancels a change, QWEST must be notified through the same channels that announced the change. The Supplier must state the reason for cancellation and what action is to be taken in locations where the change may have been already implemented.

If a Supplier changes the Status/Availability (defined in the paragraph in Chapter 12 starting with SUPPLIER.) of a product, the change must be announced in a Class D Product Change Notice. This information must be available to QWEST for ongoing and future Product Change Notice implementation plans.

Defects found by QWEST verification/audits (see Chapter 9) of an installed product change, will be corrected by the Supplier within 30 days of notification of the defect. Defects that are serious and/or service affecting will be corrected immediately.

The following QWEST Technical Publications must be adhered to when performing Product Changes:

- PUB 77350 - Central Office Telecommunications Equipment Installation and Removal Guidelines.
- PUB 77351 - Module 1
QWEST Engineering Standards General Equipment Requirements. Issue F, June 2001.
- PUB 77351 - Module 2
QWEST Communications, Inc. Central Office Records Engineering Standards Requirements. Issue C, January 1993.
- PUB 77351 - Module 3
QWEST Communications, Inc. Engineering Standards General Output Requirements for Engineering Services Suppliers. Issue C, January 1993.

All changes to the office records not corrected nor changed during the engineering of the job will be marked and manually changed by the installer and returned to QWEST.

If the Supplier has access to or maintains the office equipment record that defines the equipment affected by the Product Change, they are responsible for updating the records. If the Supplier does not have access to the office equipment records, they must provide the Product Change information and related equipment information to QWEST PCN Coordinator.

The Supplier shall furnish QWEST a copy of all drawings and associated documents that are affected by the Product Change. The documents will be supplied to each location that will have the Product Change applied.

Class A PCNs for products originally purchased from and installed by the Supplier on an Engineer Furnish and Install (EFI) or Furnish and Install (FI) basis will also be installed by that Supplier at no charge. The sole exception to this agreement is noted in the last paragraph in this chapter.

Class A PCNs for products originally ordered and purchased from a Supplier, on a Furnish (F) only basis, will be installed at Suppliers expense and at the location(s) designated by QWEST PCN Coordinator or representative. The sole exception to this agreement is noted in the last paragraph in this chapter.

Class A PCN's for hardwired products will be installed by the Supplier in every applicable product equipment location within 180 days after Supplier issues the PCN. The sole exception to this agreement is noted in the last paragraph in this chapter.

Class A PCN's for plug-in products will be installed by the Supplier in every applicable product equipment location or other designated location (i.e., spare stock) within 180 days after Supplier issues the PCN. The designated location sites and 180 day time period are negotiable between the Supplier and the QWEST PCN Coordinator. Before negotiations take place, the Supplier must show good cause for wanting an exception to this requirement and must propose a suitable alternative to QWEST PCN Coordinator. The sole exception to this agreement is noted in the following paragraph:

In certain circumstances, QWEST may elect to install a Class A PCN in one or more locations themselves. In these cases, PCN materials, records and detailed installation instructions will be provided to QWEST by the Supplier at no charge.

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6. QWEST's Responsibilities

The QWEST SME/PCN Coordinator, or other organization representative designated by QWEST, will check the Product Change Notice for completeness and evaluate the change. Some considerations used in the evaluations are:

- Need to make the change?
- Compatibility?
- Function of Product Change?
- Who will pay for the change?
- How will the change be implemented?
- Will it be done at QWEST or Supplier location?
- What are possible service impacts?
- Is the purpose of the Product Change written clearly enough for QWEST personnel to understand?
- Is the Product Change classification valid?
- If the change is to be made by QWEST forces, is it described in sufficient detail as to be easily understood?
- Is the test and verification information adequate?

Note: If the QWEST SME/ PCN Coordinator finds fault with any of the above items, the Supplier must be notified in writing. The reasons for finding fault must also be stated.

The QWEST representative will ensure that a proper MOP (see Chapter 9) has been written to implement the change and that it is followed until the job completes.

Class A changes will be promptly implemented unless the change is canceled by the Supplier. The right to waive or defer the implementation of any Class A change for any reason is retained by the QWEST PCN Coordinator or other designated personnel. If the implementation is waived or deferred, written notification to the Supplier is required.

For safety or service protection, it may be necessary for the maintenance forces to halt or defer the installation of a change. The PCN Coordinator should be notified. If the Supplier is installing the change, and the need to halt or defer the change results in failure to meet a previously arranged installation date, every effort should be made to establish a new date at the time of delay.

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7. Additional Supplier Effort Required for Deferrable Plug-Ins

When a PCN is received for deferrable plug-ins, it is necessary that QWEST, using the CLEI™ code, search the PICS computer inventory to learn the locations and approximate quantities of the circuits to be changed. The installation method used for implementation is called the "seed stock rotation method". The Supplier will furnish QWEST with a seed stock of plug-in circuits. The minimum seed stock is 5 percent of the total to be replaced. QWEST will replace as many circuits (working and spare) as possible with the seed stock and return the replaced circuits to the Supplier. The Supplier will update these circuits and return them to QWEST. This rotation will continue until all circuits have been replaced and a number of old circuits equal to the seed stock has been returned to the Supplier.

Two additional methods of making changes to deferrable plug-ins are:

- A) QWEST notifies the Supplier of the locations and quantities of the circuits, and the Supplier makes on-site modifications.
- B) The Supplier sends QWEST a number of modification kits equal to the number of circuits to be modified and QWEST installers implement the change.

The Supplier should recommend, in the Product Change Notice, the method for implementing the change. The method may be dictated by the need to make factory adjustments or tests, or the need to test in the field. QWEST will select a method of implementation that is in the best interest of QWEST, considering cost and service.

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8. Method of Procedure (MOP)

A MOP is a written, step-by-step procedure for a particular Product Change, which has been agreed upon and signed by the QWEST representative and installation representatives prior to the beginning of installation. It will be prepared by the installer or the installation supervisor. The QWEST representative may be the Subject Matter Expert. The MOP may be prepared on the following QWEST forms:

- RG 47-0005 Method of Procedure - Authorization RG 47-0006 Method
- RG 47-0006 Method of Procedure - Checklist
- RG 47-0007 Method of Procedure - Step-By-Step Procedure
- RG 47-0008 Method of Procedure - (Continued Form)

Forms may be obtained from the QWEST SME or other QWEST authorized representative.

Completed MOP forms must be presented to the QWEST SME/PCN Coordinator or other designated representative no later than fourteen (14) working days prior to Supplier installation start date. This will allow sufficient time to review the MOP for completeness, scheduling and effect on employee safety and customer service.

When installation work is being performed on or near working central office equipment, every effort must be made to prevent the occurrence of a service interruption or jeopardize employee safety. A written MOP is used to detail how, when, and where installation work is to be performed on service affecting equipment, to minimize the possibility of a service interruption.

All changes to central office records (drawings) that were not corrected or changed during the installation of the Product Change will be marked by the installer and returned to QWEST. These marked drawings should be returned to the QWEST PCN Coordinator or Central Office Equipment Facilities Management (COEFM).

The following 16 areas of concern should be thoroughly understood and included in the written Method of Procedure:

- The service-affecting hazards involved and degree of risk imposed.
- Safety precautions to be used and any special equipment required for safety will be listed.
- The installation methods, tools, and test sets to be used.
- The experience of the personnel on the job.
- Protection required for the equipment and tools.
- The time during which the various work steps will be performed.
- Which work steps will require notification to the QWEST representative before starting?

- Procedures to be followed and tests to be made before additional or modified equipment is connected to any working equipment. This is particularly true of equipment to be connected to common power supply leads or any other common leads that would affect the integrity of other equipment.
- Steps to be taken by the installer before any alarm associated with the work is disconnected.
- Procedures to be followed to ensure that the stamping and/or fuse record will be checked with the proper drawing before any fuse is removed at the request of the installer.
- Time of day or night the equipment removed from service must be restored. PCN activity will be performed during maintenance window (between 10:00 P.M. & 6:00 A.M. Monday through Saturday and all day Sunday) unless otherwise negotiated between QWEST and supplier and customer.
- Reports of progress required during the scheduled interval and, in case of unforeseen delays, what additional measures can be taken to ensure that the equipment will be restored to service on time.
- Identification of safe stop points if the work will extend beyond a work shift and/or if trouble is encountered with working equipment.
- Which work steps will require the assistance of QWEST employees?
- Installer Handbook (or other) tests that are applicable for all wiring operations. If Supplier documents are referenced in the MOP, they must be furnished to QWEST. If Supplier documents cannot be furnished because of proprietary information, the pertinent narrative in the document must be included in the MOP.
- Name, Title, Location and Telephone Number of responsible installation and QWEST supervisors.

All work will be completed during maintenance window, as specified above.

The MOP shall include adequate testing time after a transition or modification. If the actual transition or modification extends beyond the estimated allotment of time, testing shall not be compromised to comply with the estimated schedule on the MOP.

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9. Verification and Audit

The QWEST SME, or other organization designated by QWEST, will perform Quality Assurance Audits on the applied Product Change Notice. The audit will ascertain whether:

- A) The change has been applied according to the Product Change Notice and any associated drawings and documentation.
- B) Installation workmanship conforms to prescribed guidelines.
- C) The modified equipment is performing as documented.
- D) The proper bar code label with the correct CLEI™ code is affixed to the modified equipment.

Note: Defects found by the audit will be corrected by the Supplier within thirty (30) days. Serious defects will be corrected immediately.

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10. Notification

Product Change Notices, Monthly Status Reports and Quarterly Summary Reports will be sent to QWEST electronically unless otherwise specified. Hard copies of PCNs will be accepted until Supplier has set up electronic means of delivery. They should be mailed to PCN Coordinator, 700 W. Mineral, Room MTOSC, Littleton, CO 80120.

Status and summary reports will be delivered by mechanized systems unless otherwise negotiated. All mechanized systems and outputs must be agreed upon and approved by QWEST.

A completion notification, by work location, will be sent to a location designated by QWEST. The completion notification shall be signed by both the Supplier's representatives responsible for making the change and the QWEST person designated as responsible for accepting and approving the change. This notification should be received within 7 working days of the change completion.

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11. Mechanized Product Change Notification Systems

PCNs and related Status Reports may be delivered via electronic systems, as agreed between a supplier and a customer. It is the desire of the customers that the delivery of PCNs and reports be totally electronic. If PCNs are (to be) provided by electronic means, then the following requirements apply:

CR19-1 [98] Electronic systems to provide PCNs to a customer shall first be approved by the customer for whom the PCNs are intended.

CR19-2 [99] PCNs provided by electronic means shall follow the same format as paper PCNs, and include all of the applicable PCN information specified in R6-7 [37], and the status information specified in R6-10 [40].

CR19-3 [100] Electronic transmission of PCNs shall be on a non-billable basis. The number of copies required shall be negotiated with customers.

CR19-4 [101] The data fields referenced in Table 19-1 shall be used for the electronic output of a PCN.

Note: Field descriptions are provided in R6-7 [37].

Table 11-1: List of Data Fields.

GR-209 Item #	Field Name	Field Description
1.1	SUPNAME	Supplier's Company Name (30 char)
1.2	SUPADDR1	Supplier's Address (30 char)
1.3	SUPADDR2	Supplier's City (30 char)
1.4	SUPADDR3	Supplier's State (2 char)
1.5	SUPADDR4	Supplier's Zip (10 char)
1.6	SUPTECHNM	Supplier's Technical Contact Name (20 char)
1.7	SUPPHONE	Supplier's Technical Contact Phone No. (12 char)
1.8	VENABB	Bellcore Vendor Abbreviation (4 char)
2.1	PCN	Product Change Notice Number (25 char)
2.2	PCNI	Product Change Notice Issue Number (3 char)
2.3	VCI	Vendor's Change Identification Number (20 char)
2.4	SCP	Supplier's Change Procedures (20 char)
3.0	Issued	PCN Issue Date-MM/DD/YYYY (10 char)
4.1	MAJSYS	Major System Affected (6 char)
4.2	SUBSYS	Sub System Affected (72 char)
4.3	WARETYPE	Hardware y/n (1 char)
4.4	WARETYPE1	Firmware y/n (1 char)
4.5	WARETYPE2	Software y/n (1 char)
4.6	WARETYPE3	Plug-in y/n (1 char)
5.1x	NEWPROD	New Product Code (30 char)
5.2x	NEWFIRM	New Firmware Code (30 char)
6.1x	OLDPROD	Old Product Code (30 char)

6.2x	OLDFIRM	Old Firmware Code (30 char)
7.0x	NEWCLEI	New CLEI Code (10 char)
8.0x	OLDCLEI	Old CLEI Code (10 char)
9.0x	ASSOCPROD	Associated Products (72 char)
10.1x	DRAWNBR*	Drawing Number (72 char)
10.2x	RFDDRW*	Reference Drawing (72 char)
11.0x	CLASS	Classification of change (2 char)
12.1x	CLASSREAS	Reason for Classification (72 char)
12.2x	VACANT	Vacant (8 char)
13.0x	CHGREASON	Reason for Change (72 char)
14.1x	CHGDESC*	Description of Change (72 char)
14.2x	CHGVER*	Change Verification Procedures (72 char)
15.1	SAFETY	Safety Notice y/n (1 char)
15.2	FIRE	Fire Notice y/n (1 char)
15.3	SERVICE	Service Affecting y/n (1 char)
15.4	TRANS	Transmission Affecting y/n (1 char)
15.5	MTCE	Maintenance Affecting y/n (1 char)
15.6	REL	Reliability Affecting y/n (1 char)
15.7	POWER	Power Affecting y/n (1 char)
15.8	TRAFFIC	Traffic Affecting y/n (1 char)
15.9x	EFFDES	Describe the Effect of Change (72 char)
16.0x	MATERIAL*	Material Affected: Apparatus, wiring, plug-in circuits, etc., affected by the change (72 char)
17.0x	DOCUM	Documentation Affected (72 char)
18.0	IMPL	Implementation Date-MM/DD/YYYY (10 char)
19.0	COMPL*	Modification Completion Date-MM/DD/YYYY (10 char)
20.1x	MODLOC*	Modification Location and disposition of customer controlled equip units (72 char)
20.2	TRIALED	Field (F), Lab trialed (L) or None (N) (1 char)
21.1	INSTHRS*	Installation Hours (A,AC,&B) (Estimated Installation Time per Product Code) (15 char)
21.2	MODCOST*	Modification Cost (Material, Engineering and/or Labor - Class B only) (15 char)
22.0	LOCATION	Title of Supplier's Location/Quantity Report (15 char)
23.0x	ATTCH	Attachment (72 char)
24.0x	COMMENTS	Comments (72 char)

(x) consists of multiple 72-character lines

(*) not used for software changes

R19-5 [102] It is a requirement that the information in Table 19-2 be downloaded monthly for the Status Report, by customer location.

Table 11-2: Sample Status Report

Item Number	Field Name	Field Description
1.1	PCN	Product Change Number (25 Char)
1.2	PCN1	Product Change Notice Issue No. (3 Char)
1.3	VCI	Vendor Change Identification (20 Char)
1.4	ISSUED	PCN Issue Date - MM/DD/YYYY (10 Char)
2.0	OTC	Operating Telephone Company (20 Char)
3.1	STATE	State (2 Char)
3.2	CITY	City (20 Char)
3.3	BASE_NO	Office Base Number (6 Char)
3.4	SUP_OFFICE	Supplier's Office Name (15 Char)
3.5	CLLI	Bellcore CLLI Code (11 Char)
4.0	SUP_ORD	Supplier's Order Number (7 Char)
5.1	STATUS	Current Status (1 Char) N-Not Working-Awaiting Material H-Telco Hold (signed waiver) S-Supplier Hold W-Workable-Material Has Shipped C-Completed X-Cancelled
5.2x	STAT-EXP	Status Explanation (72 Char)
6.0	STAT_DATE	Status Date-MM/DD/YYYY (8 Char)
7.0	INST_RESP	Installation Responsibility (3 Char) IC-Installers Change TC-Telco Responsible For Change DD-Document Distribution
8.0x	REMARKS	Remarks (72 Char)

(x) Consists of multiple 72-character lines

R19-6 [103] Although the format is different, it is a requirement that all of the information required for Status Reports, as specified in R6-10 [40], shall be contained in the above and previous downloads from the supplier.

Although the format is different, all of the information required for status reports as outlined in the paragraph in Chapter 5 starting with, The Supplier will furnish monthly... should be contained in this and previous downloads from the vendor.

1. Supplier Information		2. Product Change Notice No.	
3. Issue Date Of Change	4. Product Identity		
5. New Product Code	6. Old Product Code		
7. New CLEI Code(s)	8. Old CLEI Codes		
9. Associated Products Or Changes Affected			
10. Drawing No.	11. Change Classification		
12. Classification Substantiation			
13. Reason For Change			
14. Description Of Change			
15. Effect Of Change			
16. Material Affected			
17. Documentation Affected			
18. Supplier Implementation Date	19. Modification Expiration Date		
20. Modification Location			
21. Modification Cost			
22. Location And Quantity Of Equipment			
23. Attachments			
24. Comments			

COMMON LANGUAGES A Registered Trademark And CLEI, CLC, CLC, CLC And CLC Are Trademarks Of Bell Communications Research, Inc.

Exhibit 11-1: Product Change Notice (PCN)

CHANGE NOTIFICATION LEGEND

1. Supplier Information	Supplier's Name, Address, Technical Contact Name and Tel. No.
2. Product Change Notice No.	Number Conforming To A Single Sequential Numbering Scheme Used by Supplier.
3. Issue Date of Change	Date Product Change Notice is Transmitted.
4. Product Description	Description Of The Product Affected; e.g., BMS 700, 2W Line Card; Or 24 Foot Aluminum Ladder.
5. New Product Code	Unique Identity Of The Changed Product; e.g., Circuit Pack CP 11101, Series 1, List 4.
6. Old Product Code	Unique Identity Of The Product Being Changed; e.g., Circuit Pack CP 11101 Series 1, List 3.
7. New CLEI™ Code	The Alpha-Numeric CLEI™ Code Assigned To The Changed Product.
8. Old CLEI™ Code	CLEI™ Code Of All Equipment Associated With This Change (See Item 9).
9. Associated Products Or Changes Affected	Coordinated Product Changes That Must Be Applied in Conjunction With, Or Prior To, This Change.
10. Drawing Number Issue 11.	The Circuit (Schematic) Drawing Number And Issue That Incorporates The Change; e.g., SD-11101-01 Issue 11.
11. Change Classification	Classification Of The Change (A/AC, B, or D).
12. Classification Substantiation	Details Of Why The Proposed Classification is Appropriate.
13. Reason for Change	Detailed Explanation Of Why The Change is Necessary, For Example: a. Is Change a Manufacturing Change Or Does it Fix a Service Trouble Condition? b. What Are The Symptoms Of The Condition Being Corrected?
14. Description of Change	Installation Details Of Change, For Example: a. What is To Be Changed? b. How is it To Be Changed? c. How Can Change Be Tested/Verified?
15. Effect Of Change	Description Of The Effect Of The Change On: a. Service b. Transmission c. Traffic d. Maintenance e. Reliability f. Commercial Specifications g. Control Specifications h. Safety
16. Material Affected	Apparatus, Wiring, Plug-In Circuits, Etc., That Are Affected By The Change.
17. Documentation Affected Change.	List Of Associated Drawings, Programs, Practices, Manuals, Nomenclature, Etc., Affected By The Change.
18. Supplier Implementation Date	Date After Which All Newly Manufactured Products Will Incorporate The Change.
19. Modification Expiration Date	For Class A/AC Changes Only - Date After Which Supplier Terminates Responsibility For Applying The Change, Providing Modification Material, Etc., On A Non-Billable Basis.
20. Modification Location	Supplier's Recommendation For Field Or Factory Installation Of The Change.
21. Modification Cost	Class B And D Only - Cost Per Circuit, Unit Or Other Pricing Information.
22. Location And Quantity Of Equipment	(If Supplier Has These Records) The Location And Quantity Of Equipment, In The Hands Of QWEST That Requires The Change.
23. Attachments	Any Supplementary Reference Information Relative To The Change.
24. Comments	Additional Comments Or Recommendations Of The Supplier.

CLEI™ is a Trademark of Bell Communications Research, Inc.

Exhibit 11-2 Product Change Notice Legend

11.1 Major List System

Major System Category (Field 4.1)

11.1.1 Common Systems Elements

CSALRM - Alarm Systems

CSANNC - Announcement Systems

CSBLDG - Building Structures Real Estate

CSE911 - Emergency Reporting System

CSFRMS - Frame Blocks and Protector

CSBGRD - Bonding and Grounding

CDOTHR - Other

11.1.2 Intelligent Products Elements

IPVADG - Voice Activated Dialing

IPVOMS - Voice Messaging System

IPISPE - Intelligent Services Peripherals

IPOTHR - Other

11.1.3 Power Systems

PSACSW - AC Switch Gear, Distribution and Protection

PSBATR - Batteries

PSRECT - Rectifier

PSCONT - Controller

PSDIST - Distribution

PSEMPS - Emergency AC Power Systems

PSRING - Ringing Plants

PSRMSW - Remote

PSUPSS - Uninterruptible Power Supply Systems

PSOTHER - Other

11.1.4 Switching Network Elements

SNSNSW - Analog Switch

SNBBSW - Broadband Switch, ATM, Frame Relay

SNDGSW - Digital Switch
SNLANS - Local Area Networks
SNOPTR - Operator or TOPS
SNPPSN - Packet Switching Network, Data Switches
SNRMSW - Remote Switch
SNSCPS - Service Control Points
SNSS7N - Out of Band Network Control
SNSTPS - Signaling Transfer Points
SNTTSW - Toll or Tandem Switch
SNOTHER - Other

11.1.5 Transport Network Elements

TNADMX - Add - Drop Multiplexer
TNDIGS - Digital Transport Systems, D4, D5
TNDCCS - Digital Cross Connect Systems
TNDLCS - Digital Loop Carrier, Pair Gain System
TNLWGS - Lightwave System, Fiber Electronics
TNNCTE - Network Channel Terminating Equipment
TNRADS - Radio Systems
TNRPTR - Repeaters
TNSONT - SONET
TNSYNC - Synchronization, BITS
TNTMTS - Transmission Measuring Test System
TNXDSL - Digital Subscriber Loop Systems
TNOTHR - Other

11.1.6 Test Equipment

TSTLMS - Telemetry System
TSPTST - Portable Test Sets, Equipment and Methods
TSOTHR - Other

11.1.7 Outside Plant Elements

OPPLHW - Poll Line Hardware, Clamps

OPSTR - Structures - Cabinets, CEVs

OPCABL - Cable - Copper, Fiber

OPTOOL - Tools, OSP Test Sets, Cable Locator, VOM, etc.

OPOTHR - Other

11.1.8 Operational Support Systems

OSAMAT - Automatic Message Accounting System

OSMLT - Mechanized Loop Testing

OSTNM - Total Network Management

OSNMAS - Network Monitoring and Analysis System

OSEADS - Engineering Data Acquisition System

OSOTHR - Other

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12. Definitions

12.1 Acronyms

A&M	Additions and Maintenance
AC	Alternating Current
CLEI™	COMMON LANGUAGE® Equipment Identification
COEFM	Central Office Equipment Facilities Management
DA	Discount Availability
DC	Direct Current
EFI	Engineer Furnish and Install
F	Furnish
FI	Furnish and Install
LSSGR	LATA Switching Systems Generic Requirements
MD	Manufacturer Discount
MOP	Method of Procedure
PCN	Product Change Notice
ROM	Read Only Memory
SME	Subject Matter Expert

12.2 Glossary

CUSTOMER, as defined in this document, means the customer of QWEST or end equipment user.

COMMERCIAL SPECIFICATIONS are specification or documentation requirements, which are placed on a product by the Supplier.

COMMON LANGUAGE® Equipment Identification (CLEI™) Code is a standard method of identifying circuit equipment or products by means of a specific ten character identification code. The CLEI™ is a trademark and COMMON LANGUAGE® is a registered trademark of Bell Communications Research, Inc. A bar code label identifying the CLEI™ code must be located on the front facing side of all plug-in apparatus. These codes provide a uniform, function-oriented language, and are intended to be used in QWEST for circuit design, circuit layout, circuit updating, assignment, and inventory control, as well as ordering and estimating functions. The CLEI™ codes are also used when interfacing various mechanized inventory and assignment information systems. The initial assignment of a CLEI™ code to Supplier equipment can be accomplished in the following way:

SUBJECT MATTER EXPERT is the technical expert for a particular technology.

- The Supplier is required to negotiate a contract with Bell Communications Research for initial and ongoing CLEI™ code assignment. Information on this can be obtained by calling the District Manager, Marketing and Customer Support, Bell Communications Research, Inc. Language Standards Division, on (201) 699-3026.
- Additional information on CLEI™ codes can be found in the following QWEST and Bell Communications Research, Inc. Technical References:
- TR-ISD-000325, Equipment Information Required from Suppliers for Operations Systems
- GR-485-CORE, COMMON LANGUAGE® CLEI™ Code Assignment and Equipment Marking Requirements
- TR-STS-000383, Generic Requirements for COMMON LANGUAGE® Bar Code Labels

CONTROL SPECIFICATIONS are mandatory requirements imposed by QWEST upon a particular product due to its critical nature and risk factor. These specifications must be clearly stated by QWEST and agreed to by the Supplier.

FORM, FIT, OR FUNCTIONS is defined as follows:

- Form: The weight, density, chemical or material composition, size, shape, structure, appearance, protocol, pattern, composition, configuration, and marking/identification of a product.
- Fit: The suitability or readiness of a product for a particular application, including environmental extremes, marginal parameters, physical and signal compatibility with interfacing systems and surroundings, level of performance, safety margins, reliability, maintainability, and installability.
- Function: The set tasks or purposes for which a product is used by the customer, including all the tasks generally accepted for the product the specifically designated by the customer.

EQUIPMENT TYPES

- HARDWIRED EQUIPMENT: This is equipment that is permanently mounted in central office bays, such as a T-Carrier Channel Banks or switching equipment bay. To make a change or modification on this equipment one must go to the equipment location to perform a Product Change on it.

- **NON-DEFERRABLE PLUG-IN:** This is a plug-in circuit that is basic to the operation of the hardwired equipment into which it plugs and is usually provided as part of the hardwired equipment. Examples are a power supply circuit pack for a T-Carrier Channel Bank or a circuit pack for common equipment in a switching machine. Changes on non-deferrable plug-ins can be made by modifying the circuit packs on-site or by replacing the old circuit packs with new ones, or ones which were modified in the factory.
- **DEFERRABLE PLUG-IN:** This is a circuit pack, such as a T-Carrier Channel Unit or a switching machine trunk circuit, that is not mounted in the hardwired equipment initially, but is deferred until an equipment or circuit order is processed that requires the circuit pack. Deferrable plug-ins requires additional effort in administering Product Change Notices (see Chapter 8).
- **PORTABLE TEST EQUIPMENT:** Transportable (as opposed to permanently installed) equipment that is used to perform such functions as diagnostic or analytical testing fault locating and clearing, etc., on telecommunications equipment. For purposes of Product Change Notice requirements, this equipment is administrated in the same manner as deferrable plug-ins.

FIRMWARE is a term that defines a circuit pack product when it contains a Read Only Memory (ROM) device into which a micro-code program has been embedded.

SOFTWARE is the computer or switching system program containing the operating instructions, procedures, rules and associated parameters pertaining to all operations of the system. Software is usually supplied on a disk or tape.

HARDWARE is a term that defines a physical piece of telecommunication equipment.

PCN Coordinator, as used in this document, defines QWEST personnel responsible for interfacing with the Supplier on all PCN issues.

NEW PRODUCT ANNOUNCEMENTS are required for certain equipment changes. Some Product Changes are of such magnitude that it is impractical to update existing products either in the field or at the manufacturer's location. In such cases, the manufacturer may either discontinue manufacture of the old product and make only the new one or continue making both products. In either case, the Supplier must notify QWEST of such a new product existence by means of a New Product Announcement rather than a PCN. New Product Announcements are not reviewed in depth in this PUB and are mentioned only to clarify the distinction between the two types of notifications.

PRODUCT CHANGE NOTICES (PCN) is a term that defines the document or documentation that describes a Product Change. Chapter 6 of this PUB thoroughly defines the information requirements of a PCN.

SUPPLIER, as used in this document, is the manufacturer or supplier from whom the product was purchased. Usually, this will also be the company that warrants the product.

STATUS/AVAILABILITY The two general categories in which products are considered to be, which are:

- **STANDARD:** The product is currently orderable (CO).
- **ADDITIONS AND MAINTENANCE Only (A&M):** The product has a limited availability and is only for additions to and maintenance of previously installed products.

MANUFACTURE DISCONTINUED (MD) is a term for equipment or products for which a Supplier plans to terminate or has terminated production. Another term used to describe MD equipment is **DISCONTINUED AVAILABILITY (DA)**. In either case, the Supplier must change its Commercial and Material Specification for that equipment or product to reflect the MD or DA status.

- The status/availability of a product is typically provided in the appropriate specification, maintenance, and engineering documents for the product. There may be instances where the above terms are not applicable, particularly when the supplier does not manufacture an item. Terms such as, "not orderable", "discontinued availability," "currently orderable," etc., may be applicable. The meaning of each should be clearly understood and written into individual contracts.

PRODUCT TECHNICAL SPECIFICATION is a term defining the Supplier's published literature that describes the operating parameters, environmental considerations and features of the product. The literature should also include power, space, and memory requirements as well as any maintenance necessary for the operation of the product.

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13. References

13.1 Telcordia Publications

- FR-64 LATA Switching Systems Generic Requirements (LSSGR), Issue 98, February 1998.
- GR-230 Generic Requirements For Engineering Complaints, Issue 2, December 1997.
- TR-EOP-000208 Stored Program Control Proposed Software Documentation Requirements Issue 1, September 1987.
- TR-ISD-000325 Equipment Information Required from Suppliers for Operations Systems
- GR-383 Generic Requirements for COMMON LANGUAGE® Bar Code Labels, Issue 1, July 1997
- GR-485-CORE COMMON LANGUAGE® Equipment Coding Processes and Guidelines, Issue 2, October 1995.
- TR-TSY-000519 LSSGR: Documentation, Common Section 19, Issue 2, July 1987.
- GR-209-Core Generic Requirements for Product Change Notices, Electronic Product Change Notices and Reports-Hardware/Software. Issue 3, September 1998

13.2 QWEST Technical Publications

- 77350 Central Office Telecommunications Equipment Installation and Removal Guidelines, Issue K, June 2001.
- 77351 Module 1, QWEST Communications International Inc. Engineering Standards General Equipment Requirements, Issue F, June 2001
- Module 2, QWEST Communications International Inc. Central Office Records Engineering Standards Requirements, Issue C, January 1993
- Module 3, QWEST Communications International Inc. Engineering Standards General Output Requirements for Engineering Services Suppliers, Issue C, January 1993

13.3 Ordering Information

All documents are subject to change and their citation in this document reflects the most current information available at the time of printing. Readers are advised to check status and availability of all documents.

Those who are not QWEST employees may order;

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13.4 Trademarks

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