



Central Office Equipment IP Units Process

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1. General

1.1 Purpose

This practice defines the process used to measure the capital cost to GTE of engineering and installing Central Office (CO) equipment.

1.2 Filing Instructions and Supersedures

Discard all previous issues and associated addenda of this practice and file this issue numerically in your practices set.

This practice supersedes and cancels:

- All policies, procedures, general instructions, letters, and memoranda which address this subject.
- Any document which provides information contrary to the information contained in this practice.

1.3 Reason for Reissuing

This practice has been reissued to incorporate multiple changes in the content and title. Read this entire practice to ensure your familiarity with the new information.

1.4 Responsibility

This practice was published by the GTE Enterprise Services Department. For more information about this practice, contact the GTE Network Services - Network Design Department.

1.5 Disclaimer

This practice was prepared solely for the use of GTE Network Services. It must be used only by its employees, customers, and end users when installing, operating, maintaining, and repairing GTE Network Service's equipment, facilities, and services. Any other use of this practice is forbidden. The information contained in this practice might not be applicable in all circumstances and is subject to change without notice. By using this practice the user agrees that GTE Network Services has no liability (to the extent permitted by applicable law) for any consequential, incidental, special or punitive damages that might result.

2. Overview

2.1 Introduction

Unit measurements were developed because GTE lacked a comprehensive set of measurements that indicates how well GTE is providing infrastructure capabilities. Unit measures were designed to provide key measurements of performance to track unit cost through the DESIGN/BUILD phases of infrastructure provisioning.

Measurements allow for bench marking capabilities within the region for:

- Internal.
- Contractor.
- Competitor.

2. Overview, Continued

2.2 Definitions

The following table provides definitions for the acronyms and terms used in this practice.

Acronym or Term	Definitions
ADSL	Asymmetric Digital Subscriber Line
ATM	Asynchronous Transfer Mode
BA	Business Analysis
BAU	Business As Usual
BDFB	Battery Distribution Fuse Board
BOM	Bill Of Material
BTL	Below The Line
CAS	Contractor Administration System
CDF	Carrier Distribution Frame
CO	Central Office
COE	Central Office Equipment
COEE	Central Office Equipment Engineering
COEC	Central Office Equipment Construction; if not prefixed by GTE, is used as a generic term and applies to any work force contracted by GTE for COE work (vendor, contractor, or GTE).
COEMOD	Central Office Equipment Modeling
CONSCO	Construction Complete
CONSST	Construction Start
CPMS	Capital Program Management System
DCS	Digital Access Cross Connect System
DLC	Digital Loop Carrier
DS1, DS2, DS3	Digital Signal (DS1 - 1.544Mb/s, DS2 - 6.312Mb/s, DS3 - 44.736Mb/s)
EA	Engineered Actual
GSTS	GTE Specialized Telephony Shell
GTEI	GTE Installed
IP	Infrastructure Provisioning
ISDN	Integrated Services Digital Network
ISLU	Integrated Services Line Unit
JPEG	Joint photographic Experts Group
LAN	Local Area Network
MDF	Main Distribution Frame
MPEG	Motion Picture Expert Group (e.g., MPEG2)
MSU	Message Switch Unit

(Continued)

2. Overview, Continued

Acronym or Term	Definitions
OPCEN	Operations Center
ORM	Office Remote Module
PCM	Project Control Memorandum
PA	Planned/Actual
PE	Planned/Engineered
POTS	Plain Old Telephone Service
PDFU	Power Distribution Fuse Unit
STP	Signaling Transfer Point
SVR	System Version Release
SXS	Step By Step
UMCS	Unit Measurement Cost System
Unit Composition	The unit will be for wired capacity, not equipped capacity. Plug-in orders have 0 (zero) units assigned.
Unit Measure	Uniform System Of Accounts (USOA)
USOA	Uniform System of Accounts
VF	Voice Frequency
VFR	Voice Frequency Repeater
WIP	Work Infrastructure Provisioning Units
WO	Work Order
WOJS	Work Order Journal System
WONAP	Work Order Number Assignment Program

2.3 References

The following table provides sources of supplementary information relating to this practice. The documents could be required for performing certain tasks.

See...	For more information about...
http://143.63.169.141/~netops/	The Network Design Home Page.
http://143.63.169.141/~netops/netdsgn/gtep/007/007780007a.html	IP Units spread sheets.

2. Overview, Continued

2.4 Forms

The following form is referenced in this practice:

- COE Construction Work Completion Summary, Form COECV01A.

Order this form via any of the following methods:

- Contact the OPCEN.
- Send a Bmail to COEI.QUALITY requesting a diskette containing the forms in ASCII or WordPerfect/Word format.
- Access the Network Design Intranet Home Page at:

<http://143.63.169.141/~netops/>

Select:

- COE Construction.
- Form Index.
- COECV01A (Download to your PC hard drive).

3. Responsibilities

3.1 Planner/Designer

Develop/Populate COE Planned IP Units Estimates

The following process is for PCMs that have not yet been established and/or not yet placed into PCM approval (WO pending). Moving forward, all PCMs that provide wired units as defined, contain planned wired units.

Determine the quantity of planned units based on the product or service being called for within the PCM and the wired units by account table. Take capital dollars and labor estimates from broad gauge/catalog units, vendor's estimates or by whatever means are presently utilized in your region (BAU).

In the CPMS Input/Update Project/WO IP Units (CPMA5427) populate, by account, the estimated Planned Units in the WO/WIP screen.

1. *IP UNIT* field is defined by account and is available within the PF6 key LIST table.
2. *PLANNED QTY* field is populated with the total Planned Units quantity, by account, based on wired units being estimated.

Refer to the wired units definition as well as the Wired Units By Account Table and power units adders. A Lotus/Excel spreadsheet at <http://143.63.169.141/~netops/netdsgn/gtep/007/007780007a.html> is also available to assist in developing unit estimates.

Submit the PCM for approval after all other PCM requirements are completed and planned units are loaded.

Once the PCM has been sent to *CURRENT VIEW* (WO pending) the *PLANNED QTY* field is locked (non-modifiable). Any revisions after this point are captured within the *ENGR'D QTY* field or *ACTUAL QTY* field.

3. Responsibilities, Continued

Develop and populate COE Engineered IP Units

FOR GSTS ORIGINATED WOs

Any standard WO containing wired units, as defined in this practice, utilizes the following methods to populate engineered units. Bulk/blanket WOs generally do not have a PCM or contain engineered units. Bulk/blanket WOs generally only contain actual (COEC) units, and then only in the case where equipment generating wired units are provided in the work order. If the bulk/blanket work order provides plug-ins only or other non-wired type equipment, Planned, Engineered, or Actual units will not be populated. Initial creation of bulk/blanket work orders is normally performed by the Network Engineer/Designer (Refer to GSTS Add/Edit Labor Units input screen).

Prior to establishing labor units the following must be completed within the work order:

1. Establish scheduled CONSST and scheduled CONSCO within milestones dates.
 2. Establish COEC labor work functions for all accounts that have wired units within the WO. **Ensure that the COEI work function account code is the same as the BOM material account code. If not, COEI is unable to populate Actual (wired) Units.** This is because the labor unit account code is selected from the material in the BOM.
 3. At least one item for each account having wired units must reside within the BOM. If no equipment is in the BOM, no accounts are listed to add labor units. The BOM must contain items that are specific to the account in which you are applying units. If the WO is a bulk or blanket, and does not contain any BOM items, but requires wired units, complete the following steps below in order to input engineered/actual units within the WO; otherwise, go directly to step 1 below.
 - Load any item pertaining to the account(s) which the bulk/blanket WO will be affecting into the BOM. In order to add units, items must be in the BOM with the proper accounts in which the units are being applied. This places the accounts in the account list table for adding labor units.
 - Complete step 1 below.
 - Delete items placed in the BOM that are not required for the bulk/blanket WO.
1. Within GSTS select *EDIT SPEC, LABOR, LABOR UNITS*
 - Select *ADD/EDIT LABOR UNITS*
 - Select Account from the LIST - Highlight and accept the account code. WORK
 - *FUNCTION* and *ORG CODE* should exist from *EDIT SPEC, LABOR, ADD* information previously populated.

Input the quantity of ENGINEERED (wired) UNITS. Refer to the wired units definition as well as the Wired Units By Account Table and Power Units Adders provided in this practice. Refer to the Lotus/Excel spread sheet which provides a tool to develop unit estimates by account at:

<http://143.63.169.141/~netops/netdsgn/gtep/007/007780007a.html>

Select *PRIMARY ENGINEERING* from the list. Select the engineering group which is be responsible for **DETAIL ENGINEERING** (COEE = GTE Engineered). Other Contract Engineering firms are provided within the list.

Repeat step 1 until all accounts requiring labor units are entered from the list button or all accounts requiring ENGINEERED (wired) UNITS are added.

Once the Engineer/Designer has completed the WO, send the WO through the initial approval phase.

Note: Once the WO Scheduled CONSST milestone has been reached, the ENGINEERED UNITS field will be locked (non-modifiable). If a new account code is added after scheduled CONSST the ENGINEERED UNITS defaults to zero. Any revisions made to the WO after scheduled CONSST are captured within the ACTUAL UNITS field, which COEC must input prior to Actual CONSCO). Once actual CONSCO is populated COEC ACTUAL UNITS are locked.

3. Responsibilities, Continued

FOR CPMS ORIGINATED WOs

Any standard WO containing wired units, as defined in this practice, utilize the following methods to populate engineered units. However, bulk/blanket WOs generally do not have a PCM nor contain engineered units. Bulk/blanket WOs generally only contain actual (COEI) Actual units, and then only if equipment generating wired units is provided in the WO; otherwise, if the bulk/blanket WO provides plug-ins only or other non-wired type equipment, planned, engineered or actual units are not populated. Initial creation of bulk/blanket WOs is normally performed by the engineer/designer.

Prior to establishing labor units the following must be completed within the WO:

1. Scheduled CONSST and Scheduled CONSCO must be established within milestones.
2. COEI labor work functions must be established for all accounts requiring wired units within the WO. **Ensure that the COEI work function account code is the same as the IP UNIT account code in WO/WIP. If not, COEI is unable to populate ACTUAL QTY to the proper account.**
3. In CPMS Input/Update Project/WO IP Units (CPMA5427) populate, by account, the estimated Engineering Units in the WO/WIP screen.
 - *IP UNIT* field, if not provided by a PCM, must be established within the WO. This field is defined by account and accounts are available within the PF6 LIST table.
 - *ENGR'D QTY* field is to be populated with the total Engineered Units quantity, by account, based on wired units being estimated.
 - *PRI ENGR* (Primary Engineer) field must be populated with the GTE or an external contractor/vendor responsible for providing **DETAIL ENGINEERING (COEE = GTE Engineered)**. There is no table available in CPMS for this field. Refer to table 'A' for a list of engineering contractors firms.
 - Complete all other WO requirements and submit for approval. Changes can be made to the above field in current view of the WO. Resubmit for approval is not required unless other changes require it.

Note: Once the WO Scheduled CONSST milestone has been reached, the ENGR'D QTY field is locked (non-modifiable). If a new account code is added after scheduled CONSST the ENGR'D QTY field defaults to zero.

3.2 COE Construction

Report COE IP Actual Units

1. Populating the number of **Actual Units** installed on the COE Construction, Work Completion Summary Form, COECV01A. Refer to the wired units definition as well as the Wired Units By Account Table and Power Units Adders provided in this practice. Refer to the Lotus spread sheet IPU910.wk4, which provides a tool to develop unit estimates by account.
2. Populating Contractor/GTE Code of the company responsible for installing **DEMARC A** and **DEMARC C** on COE Construction Work Completion Summary Form, COECV01A. DEMARC A and DEMARC C must be populated even when the same installation firm installs both DEMARC's. If the contractor code is unknown, populate the name of the installation firm or contact the OPCEN for the appropriate contractor code.
3. Submit COE Construction Work Completion Summary Form, COECV01A to the OPCEN. Provide the **Actual Units** and **DEMARC** information to the OPCEN before the OPCEN can enter the CONSCO into GSTS or CPMS. Once the CONSCO date is entered into GSTS or CPMS, the UNITS and DEMARC fields are locked and can no longer be populated.

3. Responsibilities, Continued

NOTE: DEMARC A is defined as the Primary firm responsible for installing the WO.

DEMARC C is defined as the installation firm responsible **cut-over** activity.

DEMARC A2 and B are not captured as the existing finical systems do not allow for labor to be broken down to this level easily. Since CPMS does not break the labor down by DEMARC, a single firm installing DEMRAC A, A2, and B, would show all charges as DEMARC A. The same would be true for the same installation firm installing DEMRC C, A2 and B; all charges would be shown as DEMARC C.

3.3 OPCEN

Populate COE Actual IP Units

1. Population of the actual quantity of installed wired units within the **Actual Units** field prior to populating the Actual CONSCO. This is to be based on the physical installation, by COE Construction reported on Work Completion Summary Form COECV01A, of actual installed wired units. Refer to the wired units definition as well as the Wired Units By Account Table and Power Units Adders provided in this practice. Refer to the Lotus/Excel spread sheet which provides a tool to develop unit estimates by account at:

<http://143.63.169.141/~netops/netdsgn/gtep/007/007780007a.html>

2. Population of **DEMARC A** and **DEMARC C** based on who installed the WO prior to populating Actual CONSCO.
3. Comparing the **Actual Units** to the **Engineered Units** to determine if these agree. Actual Units and Engineered Units do not always agree, but investigate differences to ensure that the units are being counted correctly.

4. GSTS

4.1 GSTS ADD/EDIT LABOR UNITS

EDIT LABOR UNITS			
WORK FUNCTION		<input type="text"/>	
ACCOUNT CODE	*	<input type="text"/>	<input type="button" value="List"/>
ORG CODE		<input type="text"/>	
ENGINEERED UNITS	*	<input type="text"/>	
PRIMARY ENGINEERING	*	<input type="text"/>	<input type="button" value="List"/>
ACTUAL UNITS	*	<input type="text"/>	
COEI DEMARC A	*	<input type="text"/>	<input type="button" value="List"/>
COEI DEMARC C	*	<input type="text"/>	<input type="button" value="List"/>

[Accept] [Reset] [Cancel] [Clear] **[Help]**

4. GSTS, Continued

Engineer/Designer

Utilizing new inputs available in GSTS by selecting the following options:

- A. EDIT SPEC.
- B. LABOR.
- C. LABOR UNITS.
- D. ADD/EDIT LABOR UNITS.

The following table provides the fields titles and definitions.

Field	Definition
ENGINEERED UNITS	Engineering field for input of the quantity of wired units based on account, the equipment being provided within the WO and the quantity of low speed interfaces wired.
PRIMARY ENGINEERING	Engineering field establishes who is detail engineering - GTE or an external contractor/vendor. This field is populated from a list button. A selection has been provided for GTE Engineered = COEE. All other contractors have also been provided within the list.
ACTUAL UNITS	COEC field for the OPCEN to input the actual quantity of wired units installed.
DEMARC_A	COEC field for the OPCEN to input contractor/GTE code of installation firm responsible for DEMARC A installation. This information is available from a list within GSTS. The list has a selection for GTEI. The contractor codes within this list are the same as the contractor codes used by the CAS.
DEMARC_C	COEC field for the OPCEN to input contractor/GTE code of installation firm responsible for DEMARC C installation. This information is available from a list within GSTS. The list has a selection for GTEI. The contractor codes within this list are the same as the contractor codes used by CAS.

Note: Populate DEMARC A & C even if all work is awarded to one firm.

5. Unit Description

Standard Unit Definition: (Capital Accounts 22xx.xx or BTL Accounts N2xx.xx)

Wired Unit - Is defined as the quantity of wired (shelves) low speed interfaces, based upon a common testable access (i.e., Analog Line/Trunk, DS0, DS1).

- A wired DS0 or analog line = 1 unit.
- A wired switch digital trunk = 24 units.
- A wired DS1/VT1.5, 10MB, MPEG or JPEG = 1 units.
- A wired DS3/EC-1 = 28 units.

Equipment installed for cross-connects (DSX-1, DSX-3, Fiber Distribution, etc.), channel units and/or plug-ins are not to be counted as wired units. **Only wired shelves, office power, MDF verticals and battery replacements are to contain unit counts.**

5. Unit Description, Continued

Exception:

When a WO is established for the purpose of leasing equipment, Capital SVR, collocation or any equipment resulting in no capital cost. Within WONAP the third digit of the WO must be established as 'C' = Collocation, 'S' = Capital SVR, or 'L' = Leasing. Units can still be applied to maintain consistency in the WO process. However, the WOs will not be a part of the UMCS or IP units reports. When a WO is established for the purpose of leasing equipment no wired units are to be applied, (See Section 4.5).

5.1 Accounts and Descriptions

WIRED UNITS BY ACCOUNT		
2211.10 / N211.10 ANALOG SWITCHING		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
Analog switch (1ESS [®] , 2EAX [®])	# of VF Lines	Quantity to include analog lines, trunks, and test access.

WIRED UNITS BY ACCOUNT		
2212.10 / N212.10 DIGITAL SWITCHING		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
Digital switch, Access Tandem or Assoc. Remote (GTD-5 [®] , 5ESS [®] , DMS-100/200/250 [®] , 4ESS [®])	# of VF/DS0s	Quantity of DS0s to include analog lines, analog trunks, digital trunks, and test access. (Analog line or trunk = 1 unit, Digital Trunk = 24 units, HR Links and ISDN PRI = 24 units).
ISDN BRI Lines (ISLU, etc.)	# of VF/DS0s	Quantity of DS0s wired * 2. (Qty *2) = wired units. The ISLU frame is specifically designed for ISDN services. If the frame is wired for 512 lines then wired units is (512*2)=1024.
ATM Switch Ports	# of DS1s	The interface to an ATM switch is DS3/ EC1. (1) DS3/EC1 =28 units or 1 DS1 - 1 unit Types: Fujitsu [®] .
ATM Edge Sw Ports	# of DS1/10MB/ JPEG/MPEG	The low speed interface to an ATM Edge switch is 10MB, JPEG, MPEG or DS1. = 1 unit per. Types: Cascade [®] , BNS-2000 [®] , Newbridge [®] .
SS7/STP Links	# of DS0s	SS7/STP links are usually at the DS0 rate. (1DS0 = 1 Unit).
ORM Links	# of DS1s	ORM links are usually at the DS3 rate. 1 DS3 = 28 units.

WIRED UNITS BY ACCOUNT		
2215.11 / N215.11 STEP-BY-STEP SWITCHING		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
Step-by-Step switch	# of VF Lines	Quantity to include analog lines, trunks, and test access.

5. Unit Description, Continued

WIRED UNITS BY ACCOUNT		
2215.21 / N215.21 CROSS BAR SWITCHING		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
Cross Bar switch (#5, WE #3 & NE)	# of VF Lines	Quantity to include analog lines, trunks, and test access.

WIRED UNITS BY ACCOUNT		
2215.31 / N215.31 OTHER ELECTRO MECHANICAL SWITCHING		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
ITEC [®] , LEICH [®] & CXP-5 [®] Switches	# of VF Lines	Quantity to include analog lines, trunks, and test access.

WIRED UNITS BY ACCOUNT		
2220.10 / N220.10 MANUAL OPERATOR SYSTEMS		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
Operator Board (Type 31 or 32 Cord Board)	# of VF Lines	Quantity of VFs to include wired number of operator manual access positions, (Positions & Analog Trunks) wired to assists POTS customers. (1 unit per)

WIRED UNITS BY ACCOUNT		
2220.20 / N220.20 ANALOG ELECTRONIC OPERATOR SYSTEMS		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
Operator Board Analog (TSPS)	# of VF Lines	Quantity of VFs to include number of operator positions (Positions & Analog Trunks) allowing analog access to assists POTS customers. (1 unit per).

WIRED UNITS BY ACCOUNT		
2220.30 / N220.30 DIGITAL ELECTRONIC OPERATOR SYSTEMS		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
Operator Board Digital (TOPS-MP)	# of DS0s	Quantity of DS0s to include number of operator positions (Positions, Analog Trunks & Digital Trunks) allowing digital access to assists POTS customers. (Digital Trunk = 24 units, Position or analog trunk = 1 unit).

5. Unit Description, Continued

WIRED UNITS BY ACCOUNT		
2232.11 / N232.11 ANALOG CIRCUIT EQUIPMENT		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
Subscriber Carrier	# of VF Lines	Quantity of VF subscriber circuits wired.
Analog voice repeater/loop extenders.	# of VF Lines	Quantity of VF circuits wired. Loop Extenders, VFR, Universal Wescom®, Tellabs®, etc.

WIRED UNITS BY ACCOUNT		
2232.12 / N232.12 ANALOG CIRCUIT TESTING SYSTEM		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
HLI (Hekimian®)	# of ports	Quantity of test access ports wired.
ESARTS	# of ports	Quantity of test ports which are wired in series with a circuit, and ports for remote test access.
4TEL	# of ports	Quantity of test access ports

WIRED UNITS BY ACCOUNT		
2232.21 / N232.21 DIGITAL CIRCUIT EQUIPMENT		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
ADSL	2 DS0s	1 POTS, 1 Data.
Office Term Rptr / HDSL	DS1	(1 DS1 = 1 unit)
Channel Bank	24 or 48 DS0s	Quantity based on shelf type 24 or 48 (Quantity equals 48 if D4 CHB) (24 or 48wired) (1DS0 = 1 Unit).
M13 Multiplexers	28 DS1s	Type: NEC® RC28D, Telco® 828AF, Alcatel® 3003 or 3x50
DDOV (Digital Data Over Voice)	2 DS0s	CO shelf contains a greater number of DS0s. (1 VF + 1 DS0 = 2 wired units)
CyberPOP, DUAS	# of DS1's	Quantity of DS1s wired. Includes T1 Ingress and Egress circuits Type: Ascend® MAX4000/4004 and 3COM® ..
MMDS (DS3 Interface)	*24 Units	Number of slots per shelf = 8, maximum of 3 ckts per card. (24 DS1 = 24 units)
DLC (i.e., MLC-24, SLC-5/96®, DMS-1U®, or 914®)	# of DS0s	The shelf must also be included in the cabinet to count as wired. A cabinet pre-wired for 576, but shelves equipped for only 384. Under this scenario 384 DS0s = 384 units would be utilized. (Metallic HR links = 1unit per HR link)
Two Channel Digital Carrier	# of VF Lines	Number of VF lines per card. One card = 2 VF lines or two units.

(Continued)

5. Unit Description, Continued

WIRED UNITS BY ACCOUNT		
2232.21 / N232.21 DIGITAL CIRCUIT EQUIPMENT		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
NGDLC (SLC-2000 [®] , Access Node [®] , DISCS [®])	# of DS0s	The shelf must also be included in the cabinet to count as wired. A cabinet pre-wired for 576, but shelves equipped for only 384. Under this scenario 384 DS0s = 384 units would be utilized. (Metallic HR links = 1 unit per HR link).
DCS Digital Cross-Connect Systems	# DS0/DS1	A mix of DS1s and DS3/EC1s are available with future OC3/3c and OC12/12c optical interfaces. (1 DS3/EC1 = 28 units, 1 DS1 = 1 unit). Type: Lucent [®] - DACS II, III & IV, TELLABS [®] - TITAN, and DSC [®] - CS, ECS,IMTN.
Building Integrated Timing System	# of DS1/DS0s	The composite clock, SWITCH SCIU or DS1 outputs to support timing to Switches, SONET nodes, DLC's, and CHB's (1 DS1/SCIU = 1 unit, 1 composite clock = 1 unit).
INAS	# of Alarm Points	Quantity of Discrete or TBOS alarm points wired for the alarm equipment to the MDF Types: Dantel [®] , Harris [®] .
Ethernet/LAN Switch	# of 10/100MB ports	Ethernet switches provide ports cabling on the card not the back plane of the shelf. Types: FORE [®] - E3810 - 24 Units based on greatest number of ports.

Notes:

Only the quantity of low speed wired from the shelf to a DSX, MDF, ETC. are to be counted.

If in the future a new WO is established wiring the system to its maximum, the remaining number of units should be counted at that time, and not within the initial installation.

WIRED UNITS BY ACCOUNT		
2231.2x Terrestrial Microwave Radio		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
Analog Radio - 2232.23	# of wired links	All equipment required to facilitate a transmitter site; 2 transmitters (1 hot standby), 1 receiver, wave-guide, feed-horn, and tower.
Digital Radio - 2232.24	# of wired Links	All equipment required to facilitate a transmitter site; 2 transmitters (1 hot standby), 1 receiver, wave-guide, feed-horn, and tower.

5. Unit Description, Continued

WIRED UNITS BY ACCOUNT		
2232.23 / N232.23 LIGHTWAVE CIRCUIT EQUIPMENT		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
6.3MB Asych. Fiber Term	*4 units	CO Shelf can hold multiple systems. Types: Lucent [®] - DDM+, ADC [®] - SONEPLEX, TELCO [®] - FOX2.
45MB Asych. Fiber Term.	*28 Units	Types: NEC [®] - 45MB, TELCO [®] - 828AF, Nortel [®] - FMT-150A (1 DS3 = 28 units, 1 DS1 = 1 unit)
90MB Asych. Fiber Term.	*56 Units	(1 DS3 = 28 units, 1 DS1 = 1 unit) Types: Lucent [®] - DDM-1000.
100MB MMDS	*24 units	Number of slots per shelf = 8, maximum of 3 ckts per card. (24 DS1 = 24 units).
135MB Asych. Fiber Term.	*84 Units	A mix of DS1s and DS3s are available and are counted as they are wired. (1 DS3 = 28 units, 1 DS1 = 1 unit) Types: NEC [®] - 1840, TELCO [®] - FMT-150, Alcatel [®] - 3x50.
180MB Asych. Fiber Term.	*112 Units	A mix of DS1s and DS3s are available and are counted as they are wired. (1 DS3 = 28 units, 1 DS1 = 1 units) Types: (2) Lucent [®] - DDM-1000's with 180MB optics.
560MB Asych. Fiber Term.	*336 Units	12 DS3s max., DS3s counted as 28DS1s per (1DS3 = 28units). Types: Alcatel [®] - 1565, NEC [®] - FD31201A.
1.2GB Asych. Fiber Term.	*672 Units	24 DS3s max., DS3s counted as 28DS1s per (1DS3 = 28units). Types: Alcatel [®] - 1.3GB, NEC [®] - FD21130A.
OC-1 Node	*28 Units	Types: Alcatel [®] - TM50, Lucent [®] - Fiber Reach (1DS1 = 1 units).
OC-3 Node	*84 Units	A mix of DS1s and DS3/EC1s are available. (1 DS3 = 28 units, 1 DS1 = 1 unit) Types: Lucent [®] - DDM-2000, Nortel [®] - SDMS, Fujitsu [®] - FLM-150.
OC-12 Node	*336 Units	A mix of DS3/EC1s are available. (1 DS3/EC1 = 28 units) Types: Lucent [®] - DDM-2000, Nortel [®] - SDMS, Fujitsu [®] - FLM-150 Note: The Nortel [®] SDMS OC-12 can also provide DS1s
OC-48 Node	*1344 Units	A mix of DS3/EC1s are available. (1 DS3/EC1 = 28 unit) Types: Lucent [®] - FT-2000, Nortel [®] - SDMS, Fujitsu [®] - FLM2400.
OC-192 Node	*5376 Units	A mix of DS3/EC1s are available. (1 DS3/EC1 = 28 units) Types: Future not yet standard.

*Indicates maximum quantity of units based on product physical constraints and what low speed interface is wired.

WIRED UNITS BY ACCOUNT		
2232.22 / N232.22 DIGITAL CIRCUIT TESTING SYSTEM		
PRODUCT/SERVICE	WIRED UNIT QTY	NOTES
HLI (Hekimian [®])	# of ports	Quantity of (1 DS1 = 1 unit) & remote test access ports.

5. Unit Description, Continued

5.2 Adders

1. Modular power systems including common relay rack power control (distribution units), batteries and rectifiers, (all equipment relay rack mounted).

Provisioning of additional BDFB or PDFU can also utilize these units.

Amp per System	Units
<150 Amp	60
150-500 Amp	100
>500 Amp	150

2. Standard power systems (i.e., Lorain[®]) includes separate power control/distribution units, power plants, rectifiers, relay rack/frames, batteries, and power cable.

Amp per System	Units
<200 Amp	200
201-400 Amp	250
401-800 Amp	300
801-1500 Amp	325
1501-2000 Amp	350
2001-3000 Amp	400
3001-4000 Amp	450
4001-5000 Amp	500
>5001 Amp	550

3. MDF/CDF additions: 1 unit per vertical
4. Remote Battery Installation and/or Replacement (DLC's, etc.): 24 Units per string
5. CO Battery Installation/Replacement (RSU, RLU, BU, etc): 120 Units per string
6. Firebar[®] (Fire reporting system): 1 Unit per link wired

Examples

If...	Then...
The low speed wired interface from the shelf is VF or DS0,	Units = 1.
The low speed wired interfaced from the shelf is DS1,	DS1 = 1 unit.
The low speed wired interfaced from the shelf is DS3/EC1,	DS3/EC1*28 = 28 units.

5. Unit Description, Continued

Lucent® DDM OC3 SONET Shelf (2232.23)

Example #1: 84.0 Units (If totally wired for 84 DS1s.)

Example #2: 84.0 Units (If wired for 56 DS1s & 1 DS3.)

Example #3: 28.0 Units (If wired for 28 DS1s or 1 DS3 only.)

Note: The wired units count is based on the **quantity of low speeds wired** not solely on the maximum shelf capability. If a WO wired only 28 DS1s on an OC-3, wired units would equal 28 units. If more are wired, by a later WO, the wired units reflecting the additional low speeds wired, 56 DS1s or 2 DS3s = 56 units, would be input as 56 units on the later WO.

Lucent® SLC-5 DLC (2232.21)

SLC-5 remote cabinets are fully wired, but sometimes equipped with shelves to support less than the wired capacity. The SLC-5 is wired at VF/DS0 rate. (1 DS0/VF = 1 Unit)

Example #1: 192 Units (Totally wired and shelves included for 192 DS0s)

Example #2: 384 Units (Wired for 576 lines, shelves included for 384 lines)

ADC® Magnum 100 Shelf (2232.21)

The Magnum 100 is one exception to the wired rule. This shelf can provide LAN services of 10MB, 16MB, 3270 and T1. Customer cables terminate directly onto the channel circuit pack. A maximum of eight card slots are available and maximum number of circuits per pack is 3. The average of 24DS1s = 24 units is derived. Even if the system is engineered with the 100MB proprietary optical interface a single shelf can only support an average of 24 DS1 circuits. If additional services are required the addition of a second magnum shelf would be required. This would allow another 24 units to be allocated. The second shelf would be multiplied to the primary shelf utilizing the primary shelf high-speed transport.

Example #1: 24 DS1s = 24 units (per shelf)

ATM LUCENT® OR NEWBRIDGE® (2212.10)

These products are physically configured much like many of the BTL products. The low speed output is not defined, no connection is available, until the channel unit (plug-in) has been installed in the slot. Thus, cabling to DSX cross-connect cannot be completed until the slot low speed has been assigned. The unit count is determined by what is wired; however, for this equipment the card (plug-in) must also be provided in order to complete the wiring.

Example #1: 1 DS3 equipped and wired = 28 units.

Example #2: 1 DS1 equipped and wired = 1 unit.

Example #3: 1 channelized DS1 equipped and wired = 1 unit.

6. Capital SVR, Leased or Collocated WOs

Capital SVR WOs do not contain wired units. They should not be absorbed into wired unit reports affecting the average cost. The third digit of the WO is being modified to allow other than a zero. A WONAP standard has been established allowing changes to the third position character for special WOs.

Capital SVR WOs are defined as equipment (i.e., memory, processors, etc.) required supporting an expense SVR switch upgrade. This WO must be solely capital SVR equipment and cannot contain equipment, which will contain wired units. For these types of WOs the third digit of the WO must be assigned an '**S**' = **Capital SVR**.

Example: 9NW 2041 001 3TS0001

WOs establishing leased, collocation, or any equipment that will result in no dollars to the plant capital account must be assigned a special third digit in the WONAP WO number. This is due to the fact that units will or can be assigned to these WOs, but no capital dollars exist when final WO closure occurs; adversely affecting the average cost per unit reports. The following are selections for third digit WO assignments.

3RD DIGIT WONAP	
0 (Zero)	DEFAULT
C	COLOCATION
L	LEASED
S	CAPITAL SVR

8. Lotus/Excel Spread Sheet

8.1 Switch Wired Units

April 21, 1998

Switch Wired Units (Total By Account)

2211.10 Analog Switching	VF Lines	Units
Lines:	0	0
Trunks:	0	0
Test access:	0	0
2211.10 Total Units:	0	0

Formulas
VF=U
VF=U
VF=U

2215.21 X-Bar Switching	VF Lines	Units
Lines:	0	0
Trunks:	0	0
Test access:	0	0
2215.21 Total Units:	0	0

Formulas
VF=U
VF=U
VF=U

2212.10 Digital Switching	VF/DS0	Units
Digital Switch:		
Digital Lines:	0	0
ISDN BRI Lines:	0	0
Analog Trunks:	0	0
Digital Trunks (T1 Equiv):	0	0
Test access:	0	0
ATM Switch Ports DS3's:	0	0
ATM Edge Sw DS3 Equiv:	0	0
T1, 10MB, MPEG, JPEG:	0	0
DS0's:	0	0
SS7/STP Links DS0Equiv:	0	0
ORM Links (DS3 Equiv):	0	0
	0	0
2212.10 Total Units:	0	0

Formulas
DS0=U
DS0*2=U
VF=U
T1*24=U
DS0=U
DS3*28=U
DS3*28=U
T1=U
DS0=U
DS0=U
DS3*28=U

2215.31 Other Switching	VF Lines	Units
Lines:	0	0
Trunks:	0	0
Test access:	0	0
2215.31 Total Units:	0	0

Formulas
VF=U
VF=U
VF=U

2220.10 Manual Operato	VF	Units
Positions:	0	0
Analog Trunks:	0	0
2220.10 Total Units:	0	0

Formulas
VF=U
VF=U

2220.20 Analog Operato	VF	Units
Positions:	0	0
Analog Trunks:	0	0
2220.20 Total Units:	0	0

Formulas
POS=U
VF=U

2215.11 SXS Switching	VF Lines	Units
Lines:	0	0
Trunks:	0	0
Test access:	0	0
2215.11 Total Units:	0	0

Formulas
VF=U
VF=U
VF=U

2220.30 Digital Operator	DS0's	Units
Positions:	0	0
Analog Trunks:	0	0
Digital Trunks:	0	0
2220.30 Total Units:	0	0

Formulas
POS=U
VF=U
T1*24=U

8. Lotus/Excel Spread Sheet, Continued

8.2 Transmission Wired Units

Transmission Wired Units (Total By Account)

2232.11 Analog Circuit Equipment		
Equipment Type	VF Lines	Units
Subscriber CXR:	0	0
Analog Voice Repeater:	0	0
Other:	0	0
2232.11 Total Units:	0	0

Formulas

VF=U
VF=U
VF=U

2232.12 Analog Circuit Test Systems		
Equipment Type	Ports	Units
HLI Hekimian Test Ports:	0	0
ESARTS Test Ports:	0	0
4TEL Test Ports:	0	0
Other:	0	0
2232.12 Total Units:	0	0

Formulas

Ports=U
Ports=U
Ports=U
Ports=U

2232.23 Lightwave Circuit Equipment		
	Low Speed	Units
Fiber Optic Terminal:		
DS1's:	0	0
DS3/EC1's:	0	0
Low Speed Optical:		
OC1's:	0	0
OC3/OC3c's:	0	0
OC12/OC12c's:	0	0
MMDS 100MB:	0	0
Other Equipment DS1's:	0	0
2232.23 Total Units:	0	0

Formulas

LS = U
LS*28=U
LS*28=U
LS*84=U
LS*336=U
1 Shelf =24
LS=U

2232.21 Digital Circuit Equipment		
Equipment Type	Low Speed	Units
ADSL DS0's:	0	0
TCDPG DS0's:	0	0
Universal Shelf VF/DS0's:	0	0
OTR / HDSL DS1's:	0	0
Channel Bank DS0's:	0	0
DDOV DS0's:	0	0
CyberPOP/DUAS DS1's:	0	0
DS1 Extensions DS1's:	0	0
M13 Multiplexer DS1's:	0	0
MMDS DS3 Inf. DS1's:	0	0
DLC/NGLDC DS0's	0	0
(BITS) Timing Systems:		
DS0's:	0	0
DS1's:	0	0
Digital X-Connect Sys:		
DS0's:	0	0
DS1's:	0	0
DS3/EC1's:	0	0
INAS (ALM Discrete/TBOS)	0	0
2232.21 Total Units:	0	0

Formulas

LS*2=U
LS*2=U
LS=U
LS=U
LS=U
LS=U
LS=U
LS=U
1 Shelf =24
LS=U
LS=U
LS=U
LS=U
LS=U
LS*28=U
ALM=U

2232.22 Digital Circuit Test Systems		
Equipment Type	Low Speed	Units
HLI Hekimian Ports DS1:	0	0
Other Equipment DS1's:	0	0
2232.22 Total Units:	0	0

Formulas

LS=U
LS=U

8. Lotus/Excel Spread Sheet, Continued

8.3 Adder Units

UNIT ADDERS

Modular Power Systems			Formulas
	Systems	Units	
System, BDFB or PDUF:	0	0	SYS*60=U
< 150 Amps:	0	0	SYS*100=U
150-500 Amps:	0	0	SYS*150=U
>500 Amps:	0	0	
Total Units:		0	

Miscellaneous			Formulas
	Verticals	Units	
MDF / CDF:	0	0	VERT=U
Battery			
Installation/Replacement:	Strings	Units	
Remote:	0	0	STR*24=U
Central Office:	0	0	STR*120=U
Total Units:		0	