行政院及所屬各機關因公出國人員出國報告書

（出國類別：實習）

赴美實習建設衛星 VSAT 工作平台

DAMA 技術出國報告書

服務機關：中華電信長途及行動通信分公司

出 國 人：副工程師　　楊永祥

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出國地點：美國

出國期間：民國 89 年 11 月 12 日至 89 年 12 月 2 日

報告日期：民國 90 年 07 月 11 日

摘　　要

不論現代通信多發達，當行動通信、陸地或海纜光纖通信、微波通信皆不通時，或即時新聞採訪時，或建立某一特定系統時，衛星通信是一種不錯選擇。然而它也有先天限制，地面站台和人造衛星之間傳輸路徑必須不受阻擋，且有轉頻器(Transponder)可資使用時方可建立衛星通信。

目前我國已擁有自主衛星，小容量衛星電路通信系統(VSAT)使用愈來愈普遍，並經由一個主控站(NCS)及多個遠端站(Remote Site)組成網路系統，該網路可依需求設計成網狀(Mesh)或星狀(Star)結構，使得各個遠端站間透過主控站安排得以彼此互相聯繫，主控站亦可同時對全區作廣播式傳達訊息。

本次依需求僅建設網狀結構，各個遠端站可以設計爲數位電話或數據通信，或兩者皆有，本系統經由主控站軟體(Software)設定，可提供 DAMA(Demand-assigned multiple access)及 PAMA(Pre-assigned multiple access)兩種方式電路系統，並可利用一遠端站設計成閘道(Gateway)以便和公眾電話網路(PSDN)連接。本案設備(TES Quantum)除衛星 VSAT 硬體設備外，尚有專爲本 TES Quantum 系統用軟體設備稱之 IllumiNET 操作軟體，透過此軟體以便輸入各遠端站(Remote site)及主控站(NCS)之數據，另增設網管系統(DEC)作監控，使得本建

設新 VSAT 衛星系統更臻完美。

若有廣播式傳輸需要，只要於 IllumiNET 操作軟體輸入應用星狀式之數據資料，硬體設備如頻道(Channel units)數量充足，亦可建設爲星狀結構。

目　　錄

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一、目　的：

因應台灣衛星通信市場開放，配合市場需求，本分公司加緊腳步進行國內衛星小型地球站台 VSAT 通信系統建設案，為使未來相關設計、規劃與維運工作能進行無礙，案中併含相關實習訓練。並於 89 年 4 月完成採購事宜，得標廠商為故鄉情電訊有限公司，使用美國休斯(Hughes)公司 TES Quantum 系統。

二、過　程：

該公司於簽約後，積極籌劃建設工作，並依合約規定，與美國休斯公司洽商安排相關訓練實習課程，經總公司八十九年十月二十三日以信人三字第 89A3002336 號函示，核派本分公司張應豐、楊永祥兩員赴美實習，時間自八十九年十一月十二日至十二月二日，含行程共計二十一天。

本案實習地點為美國華盛頓特區，行程及實習課程如下：

（一）行程：八十九年十一月十二日搭長榮班機前往洛杉磯，隨後轉機至華盛頓。

（二）實習地點：華盛頓

（三）實習時間：十一月十三日至十二月一日

（四）實習內容：休斯 VSAT DAMA/PAMA 系統網路設計、規劃、建構、管理與操作。

（五）返程：十二月一日至十二月二日由華盛頓經洛杉磯轉機回台北

三、系統架構說明：

3.1 簡介

本案休斯公司之 VSAT 系統是一個以衛星通信為基礎，使用網狀架構連結各衛星地面站的數位電話及數據通信網路系統。該系統提供 DAMA(demand-assigned multiple access)及 PAMA (pre-assigned multiple access)電路，以單路單載波(SCPC)方式進行各衛星地面站間的通信。

該系統可支援公眾與私人網路，並可以在各種電話介面下使用，包括個別話機以至於長途交換設備等。

3.2 系統設備

網路系統中包含一個主控站及多個遠端站，另可依使用需求增加設備作為閘道(Gateways)以連結至公眾電話網路(Public Switched Telephone Network，PSTN)；主控站可裝設在網路中之任何位置，以網路控制系統(Network Control System，NCS)來執行網路維運管理工作。遠端站之間通信方式除電話外，亦支援同步與非同步數據傳輸、傳真及 E1 或 T1 中繼電路，通信時並不需透過 NCS 轉接，而是直接通信，大大地減低了通信時的延遲時間。

典型的系統架構圖如圖 3-1、圖 3-2 所示，其中語音與數據電路可混用，經由閘道設備連接至公眾電話網路的頻道多寡亦無限制。

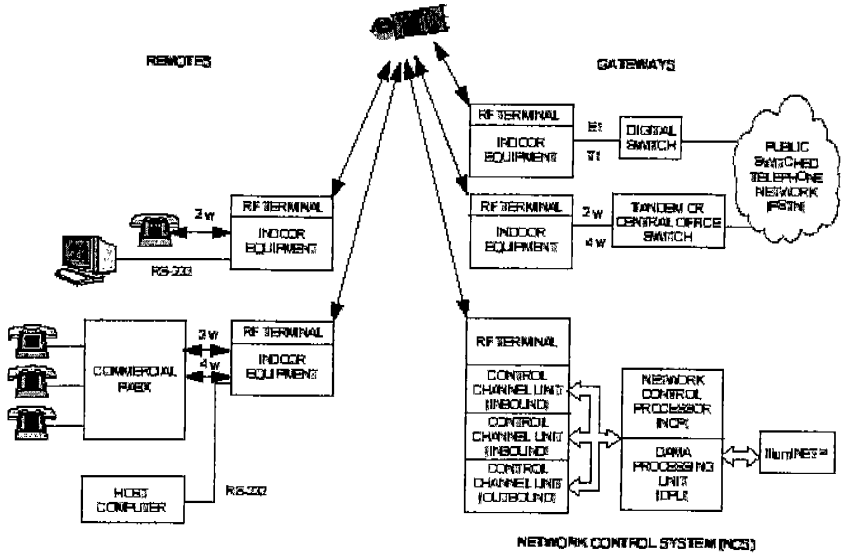


圖 3-1 TES Quantum 系統架構

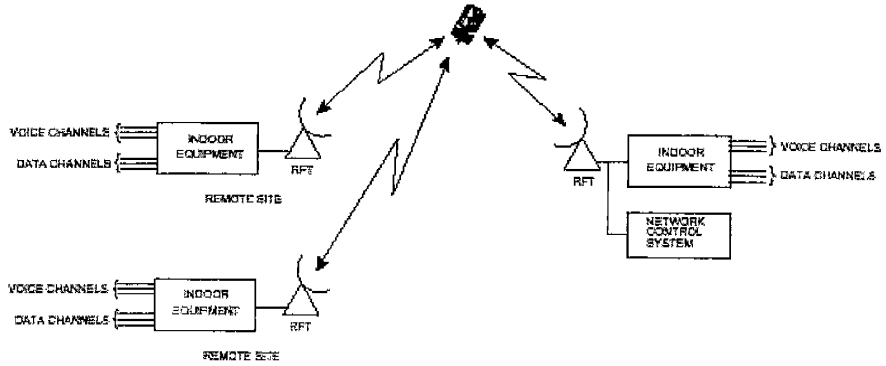


圖 3-2 TES Quantum 架構元件

四、遠端站架構

4.1 概說

遠端站設備可依使用者需求做不同配置，一般包括室外射頻設備(RF Terminal，RFT)及室內設備(Indoor Equipment)，室外設備包含有天線、射頻單體及設備間連結纜線(interfacility link，IFL)，室內設備主要是由CU單體(Channel Unit)及其支撐設備(包括機架、機框及IF分配器)所組成。

典型的遠端站如圖4-1所示，在該架構中室內設備只含有一個4槽機框(4-slot Chassis)，可使用CU數為1至4片，圖4-2所示為使用4片CU的例子，機框內之CU透過機框本身所提供的一個共用IF介面連接到RFT，因此不需外加IF分配器，此為遠端站中最簡單型。

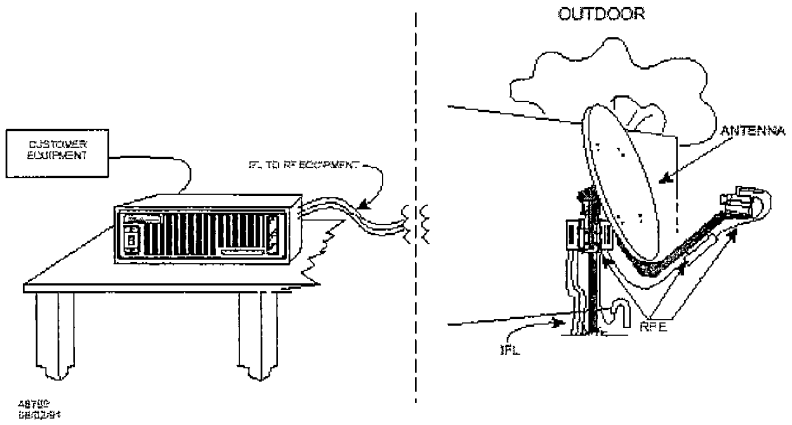


圖4-1 典型遠端站

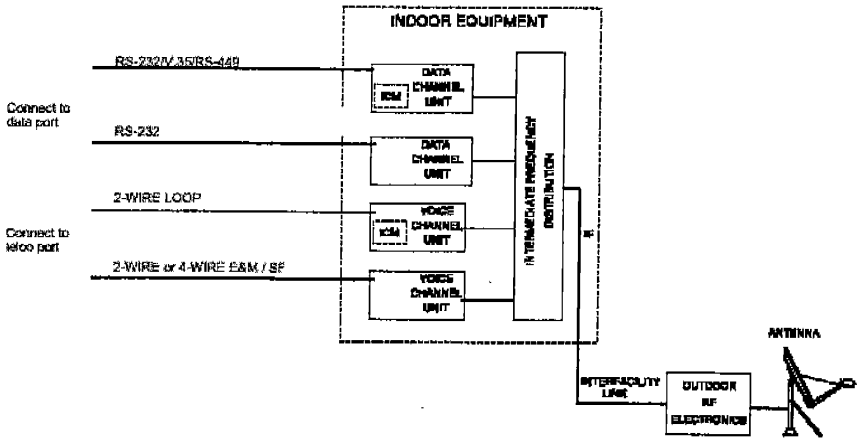


圖 4-2 遠端站使用 4 片 CU

至於較大型的遠端站則如圖 4-3 所示，在該架構中室內設備包含多個機框，裝設於機架(Rack)上，一個機架可裝設 6 個機框，因此一個機架最多可使用 CU 數為 24 片，此架構必須外加 IF 分配器做為共用介面以連結到 RFT。同一站也可以裝設多個機架，來提供更多的通信需求。

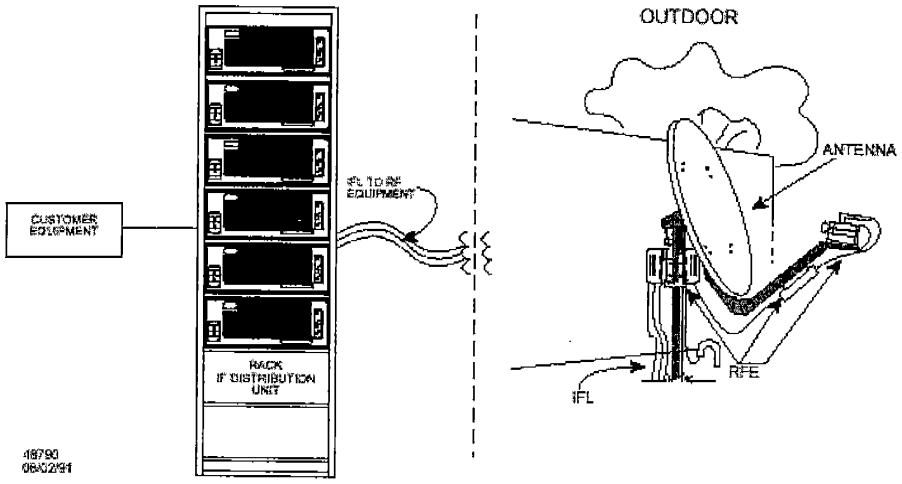


圖 4-3 較大型遠端站

4.2 室內設備

4.2.1 機架

當使用超過一個機框時，通常會使用機架來固定機框，圖 4-4 為裝設六個 4-槽機框用的開放型機架及其外觀尺寸，高度可依機房實際需要製作，毋需限制。

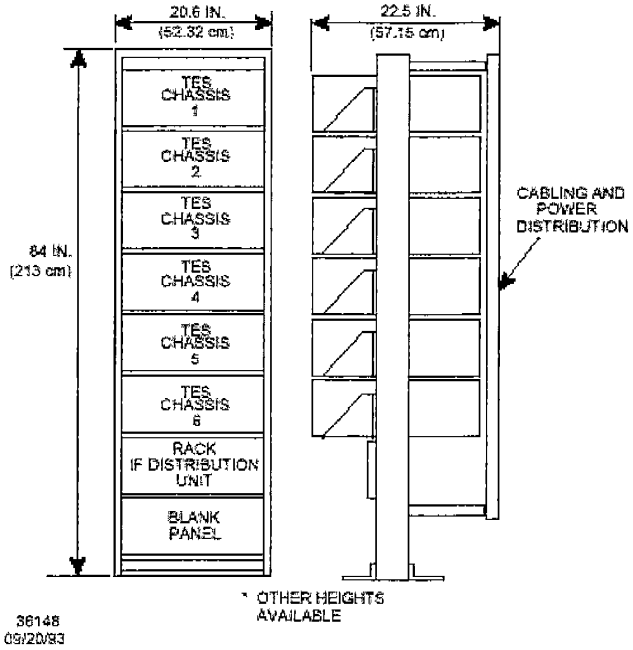


圖 4-4 機架圖

4.2.2 IF 分配器

當遠端站使超過一個機框時，就需要使用 IF 分配器，圖 4-5 是 IF 分配器的方塊圖示，該 IF 分配器為 6：1，故計算鏈路時必需加上 8.5 dB 的插入損失。

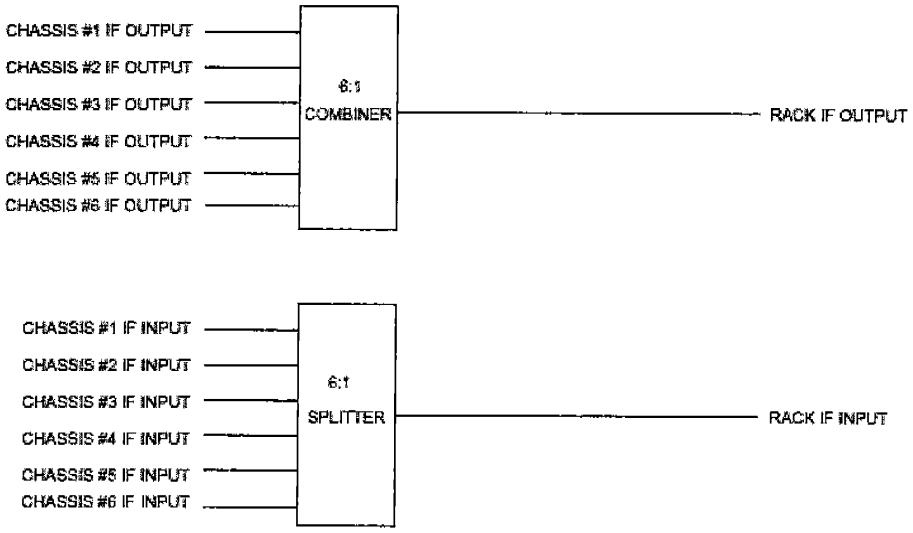


圖 4-5 IF 分配器

4.2.3 機框

4.2.3.1 機框外觀

機框分為 4 槽機框及高容量機框兩種，本案只購置 4 槽機框，因此僅就該機框予以說明。

TES Quantum 之 4 槽機框如圖 4-6 所示，它是由金屬外殼、面板、電源供應器、風扇、CU 插槽及背板所組成。面板右側有一個狀態視窗，經由該視窗可以觀察到所安裝的 CU 單體狀態；風扇位於機框後方，用抽氣方式將機框內的熱空氣排出，達到冷卻單體的目的。電源由背板右下角處輸入，而電源開關位於面板左下方；所有外接纜線皆由機框後方進出。

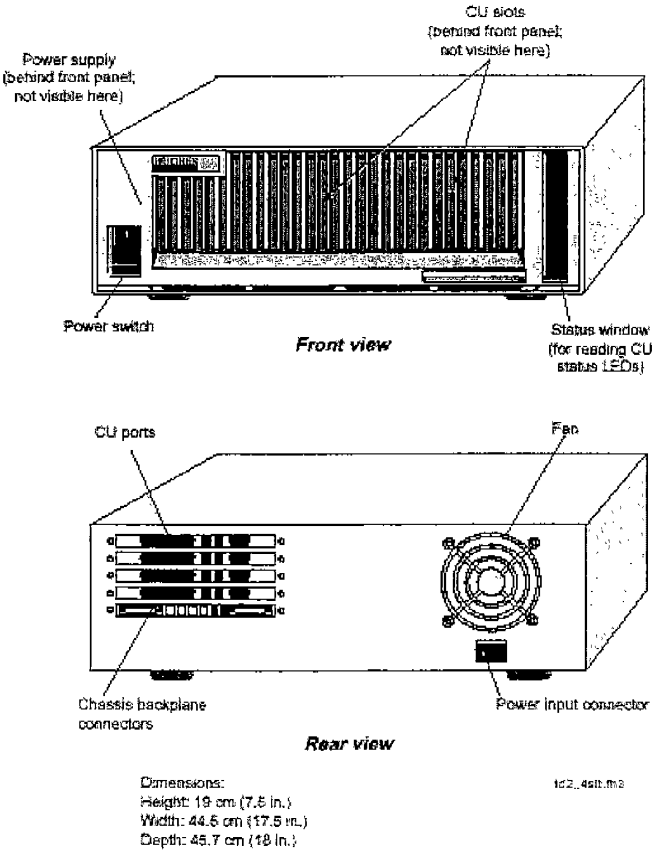


圖 4-6 機框外觀

4.2.3.2 設定機框識別碼(Chassis ID)

為了網路管理之需，每一個機框都必須有一個唯一的機框 ID，其設定步驟為：

1. 先由規劃表中找出規劃給該機框的 ID，其內容為 4 位數，使用 16 進制。
2. 使用小螺絲起子來調整機框 ID 的設定開關，使其值符合規劃值。圖 4-7 為將機框 ID 設定為 0A4F 的

例子。

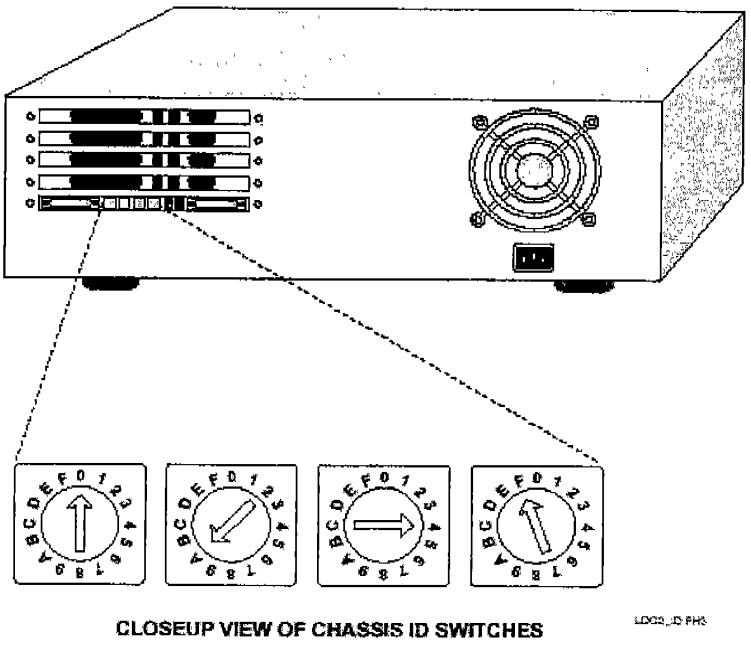


圖 4-7 設定機框 ID (0A4F)

4.2.3.3 連接頭

連接頭皆位於機框背面，分為 CU 介面、背板(BACKPLANE)及 IF 等連接頭。CU 介面主要用於連接至使用者設備及其除錯，連接頭包含有數據埠(Data port)、除錯埠(Debug port)、電話埠(Telco port)及輔助埠(Auxiliary port)如圖 4-8 所示。背板連接頭主要使用於監控之用，如圖 4-9 所示，IF 連接頭則為 IF 信號送收之用，如圖 4-10 所示。

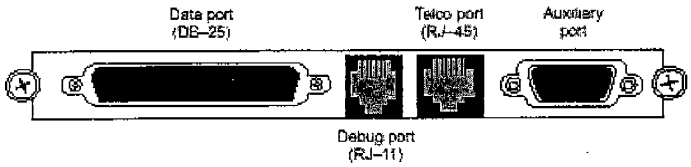


圖 4-8 CU 介面連接頭

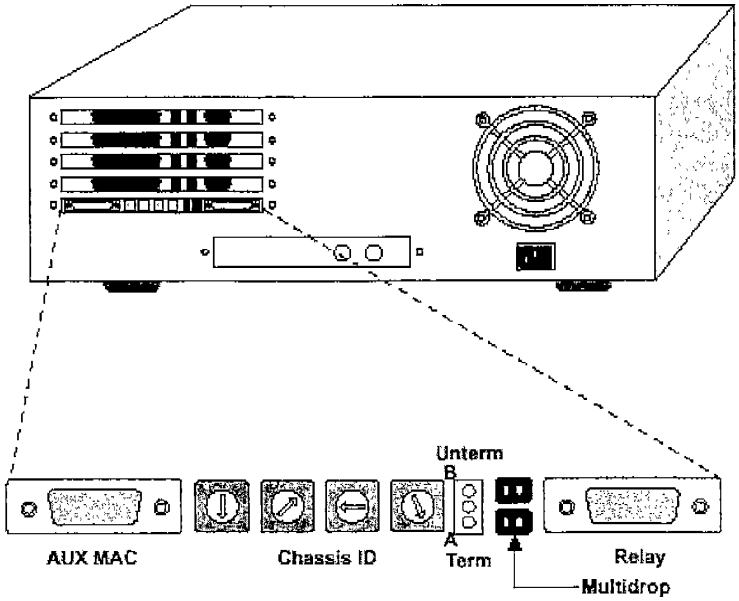


圖 4-9 背板連接頭

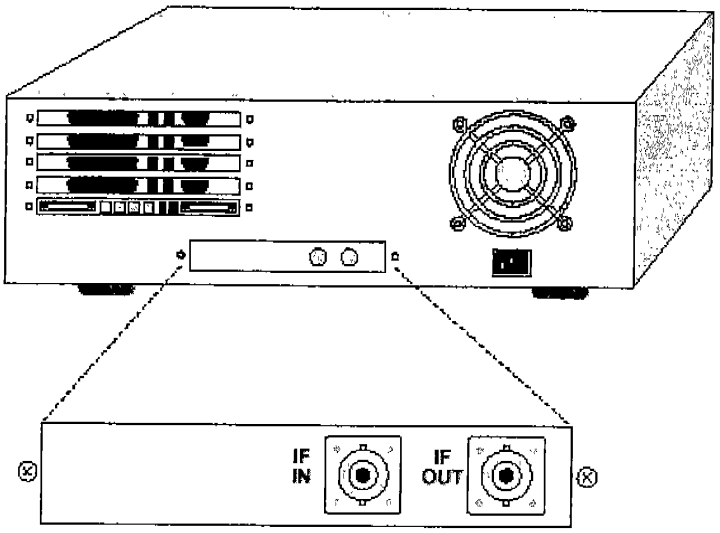


圖 4-10 IF 連接頭

4.2.4 Channel Unit(CU)

TES Quantum 系統經由其 CU 單體連接到使用者設備，以進行所需的通信作業，因通信需求的不同，可經由控制處理器透過軟體指令來設定 CU 的用途。

一般 CU 依其用途的不同，可分為如下之種類：

1. VCU(Voice CU)：使用於電話的應用上，可支援中繼電路及用戶端介面，類比語音線連接至 CU 的 telco port，該埠為 RJ-45 介面，其腳位定義如表 4-1 所示，介面特性則如表 4-2 所示。當使用在雙線迴路(Two-wire loopback)時，必須在 CU 卡板上加裝一片 ICM (Interface Converter Module)子

卡。當使用 FAX 及 VBD(voiceband data)時則另須加裝一片 FIM (Facsimile Interface Module)子卡，FIM 所支援的 FAX 模式及 VBD 模式，分別如表 4-3 及表 4-4 所示。

2. DCU(Data CU)：只用於數據通信應用上，使用者的數據線路連接至 CU 的數據埠(data port)，該埠是採用 EIA RS-232-D(DB-25)DCE 介面，腳位定義如表 4-5 所示，其中 RS-449 與 V.35 需另加裝 CIM 子卡，方能使用。
3. CCU(Control CU)：CCU 並不裝設於遠端站，而只裝設於主控站，NCS 透過 CCU 使用 OCC (Outbound Control Channel)及 ICC(Inbound Control Channel)來控管整個 TES Quantum 系統。

以上三種 CU 設定最常使用，至於以下所示則為其他特殊用途的 CU：

4. MCU(Monitor CU)：提供對遠端站的 CU 做連續監控用，與 VCU 及 DCU 不同的是，MCU 永遠維持在網路的控制管理頻道，持續地與 NCS 通信。
5. LCU(Loopback CU)：做折回測試時用，有三種模式：語音、同步數據及非同步數據。當測試完畢後，通常都重新設定為 VCU 或 DCU，以供正常使用。
6. ACU(Audio conference CU)：正常時仍為 VCU，當使用於語音會議時，將自動轉為 ACU，一旦語音會議結束時，又會自動轉回為 VCU 供正常語音使用。

7. BCU(Broadcast CU)：使用於單向的數據廣播及雙向的數據會議，成員中指定其中一個 BCU 為主(master)，其餘 BCUs 為僕(slaves)，單向廣播時，可以使用同步或非同步數據傳輸，所有僕 BCUs 只能接收信息；而於數據會議中，只能使用非同步數據傳輸，所有僕 BCUs 共用一個回應通道。
8. ADDCU(Asynchronous DAMA Data CU)：使用於撥接式非同步數據傳輸，其位址及路由選擇類似 VCU。
9. SMCU(Standard Monitor and control CU)：使用於 SMC(standard monitor and control)群，另外也提供與 MCU 相同的功能。

Telco VCU RJ-45 interface pin assignments

User lead	2-wire		4-wire		Telco port pin	
	Loop	E&M	SS5 China 1	E&M		
Signal battery					1	SB
M-lead		→		→	2	M
R1 (Ring1)				←	3	R1
R (Ring)	↔			→	4	R
T (Tip)	↔			→	5	T
T1 (Tip1)				←	6	T1
E lead		←		←	7	E
Signal ground					8	SG

Not used　← From CU

Types 2, 3, 4 only　→ To CU

表 4-1 Telco port 腳位表

Telco interface characteristics

Element	Characteristic
Audio bandwidth	300–3400 Hz
Impedance	600 ohms
M lead	Accepts line and address signaling by detecting dc signaling state changes on this lead.
E lead	Generates output line and address signaling by generating dc signaling state changes on this lead.
Signal battery (SB)	Held by the VCU at –48 Vdc for Types II and III. Held at signal ground potential for Type IV. Not used with Types I or V.
Signal ground (SG)	Held by the VCU at ground potential for Type III. For Types II and 4 the SG lead is floating and is to be connected to ground through the user equipment. Not used with Types I or V.
TLP (transmission level point)	Software selectable at the NCS: –18.0 dB to +4.0 dB transmit (input) +8.0 dB to –14.0 dB receive (output).

表 4-2 Telco 介面特性

FIM supported fax modes			
Standard	**Modulation**	**Data rates (kbps)**	**Baud rate (symbols/sec)**
V.21 Ch 2	FSK	300 bps	300
V.27 ter	DPSK	4.8, 2.4	1600
V.29	QAM	9.6, 7.2	2400
V.17	TCM	14.4, 12.0, 9.6, 7.2	2400

表 4-3 FIM 支援的 FAX 模式

FIM supported voiceband modes			
Standard	**Modulation**	**Data rates (kbps)**	**Baud rate (symbols/sec)**
Bell 212	QAM	1.2	600
V.22	QAM	1.2	600
V.22 bis	QAM	2.4, 1.2	600
V.32	QAM	9.6, 4.8	2400
V.32 bis	TCM, QAM	14.4, 12.0, 9.6, 7.2, 4.8	2400
MNP/V.42 bis	*Supported; handled modem-modem transparent to FIM operation*		

表 4-4 FIM 支援的 VBD 模式

Interchange signals supported by DB-25 data interface				
Signal	**Circuit**			**Direction**
	RS-232 pin	**RS-449 pin**	**V.35 pin**	
Shield	1	-	1	
Transmitted data (A) Transmitted data (B)	2	2 14	2 14	Input Input
Received data (A) Received data (B)	3	3 16	3 16	Output Output
Request to send (A) Request to send (B)	4	4 19	4	Input Input
Clear to send (A) Clear to send (B)	5	5 13	5	Output Output
DCE Ready (A) DCE Ready (B)	6	6 22	6	Output Output
Signal ground	7	7	7	Circuit shield not connected on pin 1; the interchange circuit AB (signal ground) is connected to the CU's digital circuit ground.
Received signal detector (A) Received signal detector (B)	8	8 10	8	Output Output
Transmit timing (A) (DCE source) Transmit timing (B) (DCE source)	15	15 12	15 12	Output Output
Receive timing (A) Receive timing (B)	17	17 9	17 9	Output Output
Local loopback		18		Input (Local loopback is only supported for RS-449 mode.)
DTR (A) DTR (B)	20	20 23	20	Input Input
Transmit timing (A) (DTE source) Transmit timing (B) (DTE source)	24	24 11	24 11	Input Input

表 4-5 數據埠腳位表

CU 單體內部組成主要包含有電話介面(telco interface)、基頻信號處理器(baseband signal processor)、控制處理器(control processor)、頻道編碼(channel coding)、調變器(modulator)、解調器(demodulator)及時序產生器(timing generator)，CU 方塊圖如圖 4-11 所示。另表 4-6 為 BER performance 規格，表 4-7 定義 CU 使用的相關值。

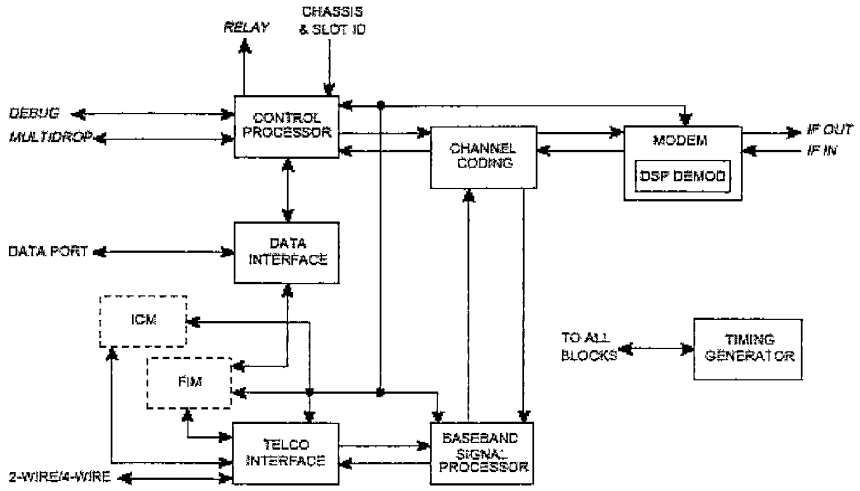


圖 4-11 CU 方塊圖

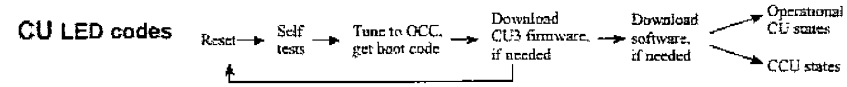
Modem performance: BER versus E_b/N_o for IF back-to-back			
BER	Rate 1/2 FEC E_b/N_o (dB)	Rate 3/4 E_b/N_o (dB)	Rate 1 E_b/N_o (dB)
1×10^{-2}	N/A	5.1	9.5
1×10^{-4}	N/A	5.8	10.8
1×10^{-6}	N/A	6.5	11.7
1×10^{-8}	6.5	7.3	12.6
1×10^{-9}	7.1	8.1	13.3

表 4-6 BER performance

Mode[1]	Bit rate[2] (kbps)	FEC type	Modulation format	Symbol rate (kaps)	Occupied bandwidth (kHz)	Typical CU output (dBm)	Typical chassis TX output[3] (dBm)	Typical chassis RX level[4,5] (dBm)	Nominal E_b/N_o[6] (dB)	Carrier spacing[7] (kHz)	Minimum BER req
Data	64.0	R1/2	QPSK	64.00	86.40	-4.8	-11.3	-56.3	7.5	90.0	1.00E-06
Data	64.0	R3/4	QPSK	42.67	57.60	-4.0	-10.5	-55.5	8.3	62.5	1.00E-06
Data	56.0	R1/2	QPSK	56.00	75.60	-5.4	-11.9	-56.9	7.5	80.0	1.00E-06
Data	56.0	R3/4	QPSK	37.33	50.40	-4.5	-11.1	-56.1	8.3	55.0	1.00E-06
Data	32.0	R1/2	QPSK	32.00	40.00	-7.8	-14.3	-59.3	7.5	45.0	1.00E-06
Data	32.0	R3/4	QPSK	21.33	26.67	-7.0	-13.5	-58.5	8.3	30.0	1.00E-06
Data/OCC/ICC	19.2	R1/2	QPSK	19.20	24.00	-10.0	-16.5	-61.5	7.5	27.5	1.00E-06
Data/OCC/ICC	16.0	R3/4	BPSK	21.33	26.67	-10.0	-16.5	-61.5	8.3	30.0	1.00E-06
Data/OCC/ICC	16.0	R1/2	QPSK	16.00	20.00	-10.8	-17.3	-62.3	7.5	25.0	1.00E-06
Data/OCC/ICC	9.6	R1/2	BPSK	19.20	24.00	-13.0	-19.5	-64.5	7.5	27.5	1.00E-06
Data/OCC/ICC	4.8	R1/2	BPSK	9.60	12.00	-16.0	-22.5	-67.5	7.5	15.0	1.00E-06
Voice/Fax/VBD	64.0	R3/4	QPSK	44.00	59.40	-3.8	-10.3	-55.3	8.3	62.5	1.00E-06
Voice/Fax/VBD	64.0	R1/2	QPSK	66.00	89.10	-4.6	-11.1	-56.1	7.5	92.5	1.00E-06
Voice/Fax/VBD	32.0	R3/4	QPSK	21.33	26.67	-7.0	-13.5	-58.5	8.3	30.0	1.00E-06
Voice/Fax/VBD	16.0	R3/4	QPSK	10.67	13.33	-9.4	-15.9	-60.9	8.9	17.5	1.00E-06
Voice/Fax/VBD	16.0	R3/4	BPSK	21.33	26.67	-10.0	-16.5	-61.5	8.3	30.0	1.00E-06
Voice/Fax/VBD	16.0	R1/2	QPSK	16.00	20.00	-10.8	-17.3	-62.3	7.5	25.0	1.00E-06
Voice/Fax/VBD	8.0	R3/4	QPSK	5.33	6.67	-12.4	-18.9	-63.9	8.9	10.0	1.00E-06
Voice/Fax/VBD	8.0	R3/4	BPSK	10.67	13.33	-13.0	-19.5	-64.5	8.3	17.5	1.00E-06
Voice/Fax/VBD	8.0	R1/2	QPSK	8.00	10.00	-13.3	-19.8	-64.8	8.0	15.0	1.00E-06
Voice (G.711)	64.0	R3/4	QPSK	44.00	59.40	-5.3	-11.8	-56.8	6.8	62.5	1.00E-04
Voice (G.726)	32.0	R3/4	QPSK	21.33	26.67	-8.5	-15.0	-60.0	6.8	30.0	1.00E-04
Voice (G.728, RELP)	16.0	R3/4	QPSK	10.67	13.33	-11.6	-18.1	-63.1	6.7	17.5	1.00E-03
Voice (G.728, RELP)	16.0	R3/4	BPSK	21.33	26.67	-12.2	-18.7	-63.7	6.1	30.0	1.00E-03
Voice (G.729)	8.0	R3/4	QPSK	5.33	6.67	-14.6	-21.1	-66.1	6.7	10.0	1.00E-03
Voice (G.729)	8.0	R3/4	BPSK	10.67	13.33	-15.2	-21.7	-66.7	6.1	17.5	1.00E-03

表 4-7 CU 使用相關值

CU 本身卡板上利用兩組 LED 指示燈來顯示其相關作業狀況，其中一組為數字碼 LED 燈號，位於 CU 卡板正面右方，可直接透過機框正面右方的視窗觀看，不必拆卸任何蓋板，如圖 4-12 所示。另外一組為單列小型 LED 燈號，在 CU 卡板正面左方，必須拆開機框的前面蓋板才能看得到，如圖 4-13 所示。



Self tests:		OCC and boot s/w	Software download	CCU states:
CU1/2	CU3			OCC tuning
.	*Each of the tests below displays a dot if it fails.*	Searching for OCC	Waiting for broadcast msgs	Searching for OCC
0	RAM	OCC detected, locking demod	Configuration requested	OCC detected, locking demod
1	CPU	Waiting for startup message	Loading data profile	Waiting for startup message
2	LED	Waiting for boot RAM message	Loading system parameters	Assigned OCC
3	ROM Flash memory	Waiting for common boot	Loading s/w summary	**Spare tuning**
4	NVRAM Flash config data	Receiving common boot	Waiting for s/w load	Searching for OCC
5	Internal timer	Receiving specific boot	Loading s/w	OCC detected, locking demod
6	DMA	**CU3 Firmware download**	Loading s/w patch	Waiting for startup message
7	DUART Internal serial intf	Waiting for CP startup	FIM DLL	Spare CCU
8	SCC	Loading CP startup	**Operational CU states**	**ICC tuning**
9	SCC DMA	Waiting for Demod	Idle, tuned to OCC	Searching for ICC
A	Internal programmable interrupt controller	Loading Demod	Call request	ICC detected
b	Power supply, demod, BSP Power supply	Waiting for BSP 1	Peer tuning	Searching for OCC
C	Tests complete Demod	Loading BSP 1	Traffic	OCC detected, locking demod
d	BSPs	Waiting for BSP 2	Call completed	Waiting for startup message
E	ASIC device	Loading BSP2	Reconciling s/w	Ready to handle ICC
F	Failed (Follows self tests after CU resets.)	**AFC**	Transmitting on test channel	Assigned ICC
		Adjusting Tx frequency	Resetting	MCU with network clock enabled
Unavailable states				
Debug mode		CU is unavailable for traffic. (The U alternates with an operational code.)	Downloading PAC boot Downloading PAC s/w	Reconciling CCU

Steady LED | Steady LED with dot (failed test) | Flashing LED | Steady LED, flashing dot

圖 4-12 CU 數字碼 LED

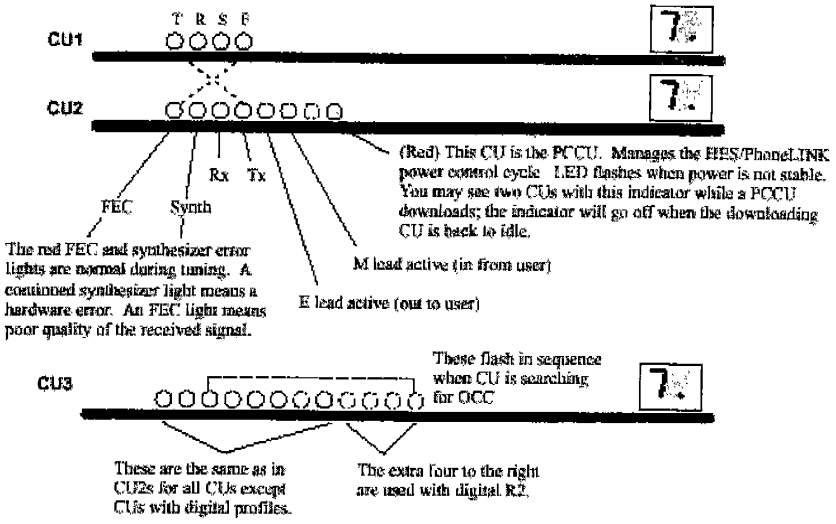


圖 4-13 CU 單列 LED 燈號

4.3 室外設備

室外設備主要分為天線設備及射頻設備兩部份，天線部份包含天線反射板本體及其支架，射頻設備部份可依不同需求組合成各種不同的架構，一般而言，包含有 LNA(Low Noise Amplifier)、纜線及 ODE(Outdoor electronics)，ODE 由 SSPA 及升/降頻器所組成，典型遠端站室外設備如圖 4-12 所示。

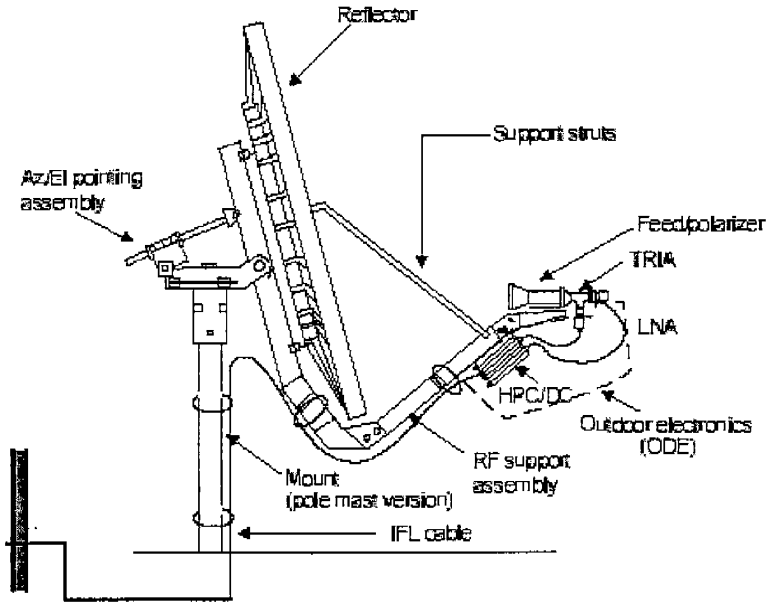


圖 4-12 室外設備

由於室外設備所處工作環境遠較室內設備嚴苛，對室外設備的要求理所當然較高，表 4-3、4-4 為室內/室外設備作業環境的比較，表 4-5、4-6 則為室內/室外設備儲存環境的比較。

Operational environmental requirements	
Condition	**Requirement**
Temperature	0 °C to 50 °C
Relative Humidity	5% to 95% noncondensing
Altitude	Up to 1,524 km (5,000 ft). Above 5,000 ft, reduce maximum temperature by 1 °C per 0.30 km (1,000 ft)

表 4-3 室內設備作業環境

RF equipment operational environmental requirements	
Condition	**Requirement**
Temperature	–30 °C to 55 °C
Relative humidity	5% to 95% at 40 °C 100% during rain up to 2 inches/hour
Wind	Up to 50 mph with no more than 1 dB of gain variation
Altitude	Up to 4.6 km (15,000 ft)

表 4-4 室外射頻設備作業環境

Shipping and storage environmental requirements	
Condition	**Requirement**
Temperature	–20 °C to 70 °C
Relative Humidity	5% to 95% noncondensing
Altitude	Up to 12 km (40,000 ft)

表 4-5 室內設備儲存環境

RF equipment shipping and storage environmental requirements	
Condition	**Requirement**
Temperature	-50 °C to 75 °C
Relative humidity	95% at 65 °C 100% during rain up to 2 inches/hour
Wind	Up to 125 mph
Altitude	Up to 15 km (50,000 ft)

表 4-6 室外射頻設備儲存環境

4.4 電力需求

遠端站若是地處偏遠地區，在電力的供應上可能有相當大的限制，因此在查勘時應特別注意，表 4-7，4-8 為遠端站設備使用電力需求，其中機框部份有直流或交流電源兩種型式，選購時應予注意。

Chassis primary power input	
Input	**Requirement**
Voltage	-42 Vdc to -53 Vdc (-48 Vdc nominal)
Voltage	90 Vac to 240 Vac (115 Vac to 230 Vac nominal)
Chassis power	0 CUs: 5 W 1 CU : 60 W 2 CUs: 115 W 3 CUs: 170 W 4 CUs: 225 W
Frequency	47 Hz – 63 Hz for ac 0 Hz for dc

表 4-7 機框(含 CU)電力需求

RFE primary power input	
Input	**Requirement**
Voltage	90 Vac to 240 Vac (115 Vac to 230 Vac nominal)
C-band RFE power	5-W SSPA: 185 W 10-W SSPA: 290 W 20-W SSPA: 465 W
Ku-band RFE power	2-W SSPA: 140 W 5-W SSPA: 180 W 8-W SSPA: 280 W 16-W SSPA: 400 W
Frequency	47 Hz – 63 Hz

表 4-8 射頻設備(RFE)電力需求

五. 主控站架構

5.1 概說

主控站與遠端站的最大差別在於主控站多了網路控制系統(Network Control System，NCS)，NCS 是由處理器、終端機、印表機和相關通信設備所組成。

NCS 提供有下列功能：

1. DAMA 處理功能

   任何兩個 CU 間通信時的衛星鏈路指配，均須透過 NCS 中的 DAMA 呼叫處理單元來完成。

2. 網路資料紀錄

   NCS 提供設備以記錄網路作業資料，包括事件、帳務和統計資料。

3. 網路操作者介面

   NCS 透過 IllumiNET 提供網路操作介面。

4. 網路建構

   NCS 允許使用者經由 IllumiNET 來建構所需 TES 網路。

5. 網路控制及除錯

   NCS 經由 IllumiNET 結合了監視、查測及控制網路元件的功能。

6. NCS 控制

   提供操作者介面，允許操作者對 NCS 功能做控制(例如，執行資料紀錄建檔，控制資料庫，控制及建構 NCS 處理器)。

5.2 軟體子系統(Software subsystem)

NCS 軟體是由三個子系統所組成，包括 NCP (Network Control Processor)、DPU(DAMA Processing Unit)及 IllumiNET 三部份，如圖 5-1 所示。

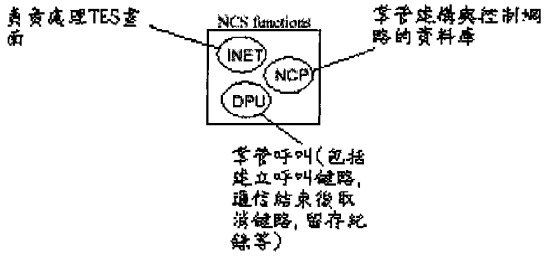


圖 5-1 NCS 軟體子系統

本系統說明如下：

1. NCP

NCP 是 NCS 中最重要的部份，每一個 NCS 只含一個 NCP。它掌管建構及控制網路資料庫，下載軟體給遠端站，儲存網路資料，監控系統中其他元件。

2. DPU

DPU 掌管呼叫處理，執行 DAMA 衛星鏈路指配及遠端站撥號之翻譯，並於呼叫結束後取消衛星鏈路，一個 NCS 也只含一個 DPU。

3. IllumiNET

IllumiNET 提供使用者以物件導向及表單為主的彩

色顯示器來做為操作介面，IllumiNET 軟體可以安裝於 NCS 的處理器上，也可以獨立安裝於非 NCS 機器上。

一般而言，NCS 依其使用需求可分為三種型式：型 I、型 I-redundant 及型 II-redundant，其架構略述如后：

1. 型 I NCS 架構

沒有任何備份，所有 NCS 軟體子系統都安裝在單一機器上，適合於對系統可靠度不特別要求的入門級小型或中型架構使用。實體架構如圖 5-2 所示，方塊圖如圖 5-3 所示。

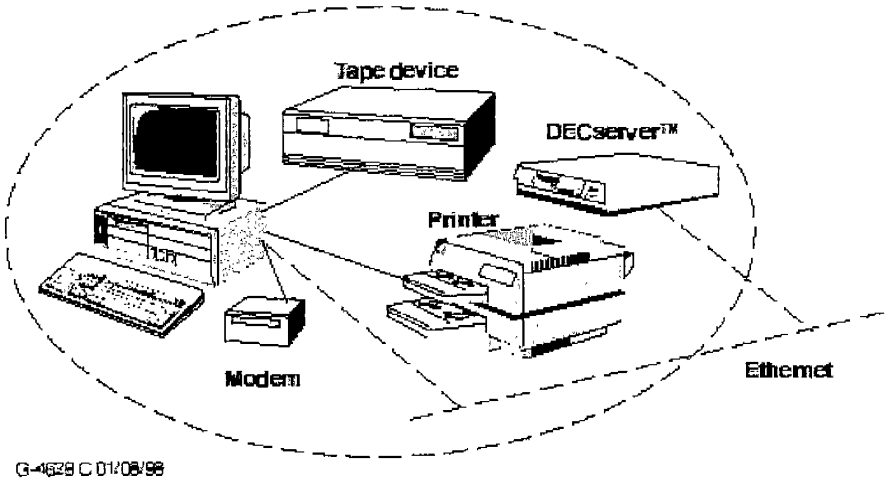


圖 5-2 型 I 實體架構圖

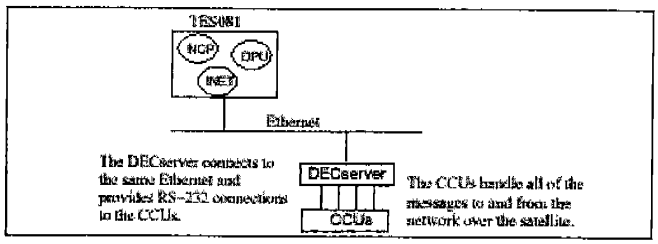


圖 5-3 型 I 方塊圖

2. 型 I-redundant NCS 架構

本架構中有兩個 NCS，每一個 NCS 都有完全的網路運轉能力，運作時其中一個定義為主(Active Primary)，另一個為副(Active Secondary)，兩個 NCS 間利用網路互連，副 NCS 的資料庫和 DAMA 資料都由主 NCS 鏡射而得，內容與主 NCS 完全相同。

假如主 NCS 發生故障，副 NCS 會在數秒內自動接管整個網路的運作，這種切換動作也可以由操作者下指令來執行。

本架構同時也提供兩部 DECserver 和兩套 CCU 設備，以提供完整的備份，適合於對系統可靠度要求度高的中型架構使用。其實體架構如圖 5-4 所示，方塊圖如圖 5-5 所示。

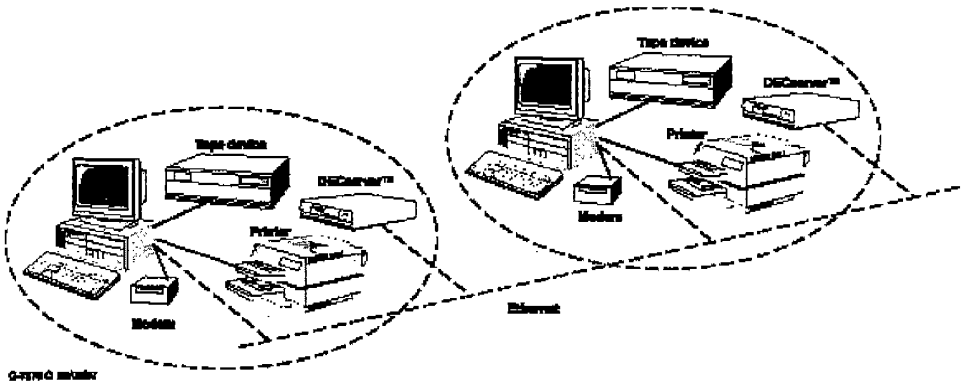


圖 5-4 型 I-redundant 實體架構圖

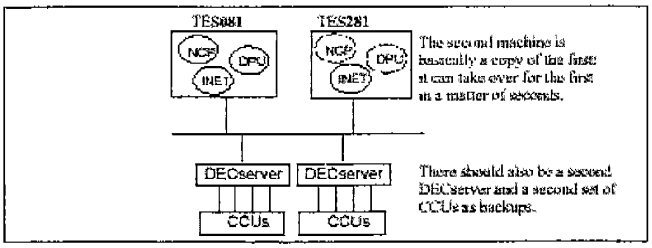


圖 5-5 型 I-redundant 方塊圖

3. 型 II-redundant NCS 架構

當網路愈來愈大，使用率愈來愈高時，DAMA 的處理作業也就愈來愈繁重，因此需要針對 DAMA 功能使用多個專用處理器。型 II-redundant 架構中即對於每一個 NCS 各增加一台機器，提供數個專用處理器來支援各別的 DAMA 處理作業，而 NCP 則用另一個獨立處理器來從事網路監控、建構及資料記載等。所有處理器都經由乙太區域網路互連，假如主 NCS 中的 NCP 或 DPU 機器發生故障，則將自動切換至副 NCS 使用。

如同型 I-redundant 一樣，本架構同時也提供備份的 CCU 設備，以提供良好的可靠度。適用於對系統可靠度要求度高的大型網路架構使用。其實體架構如圖 5-6 所示，方塊圖如圖 5-7 所示。

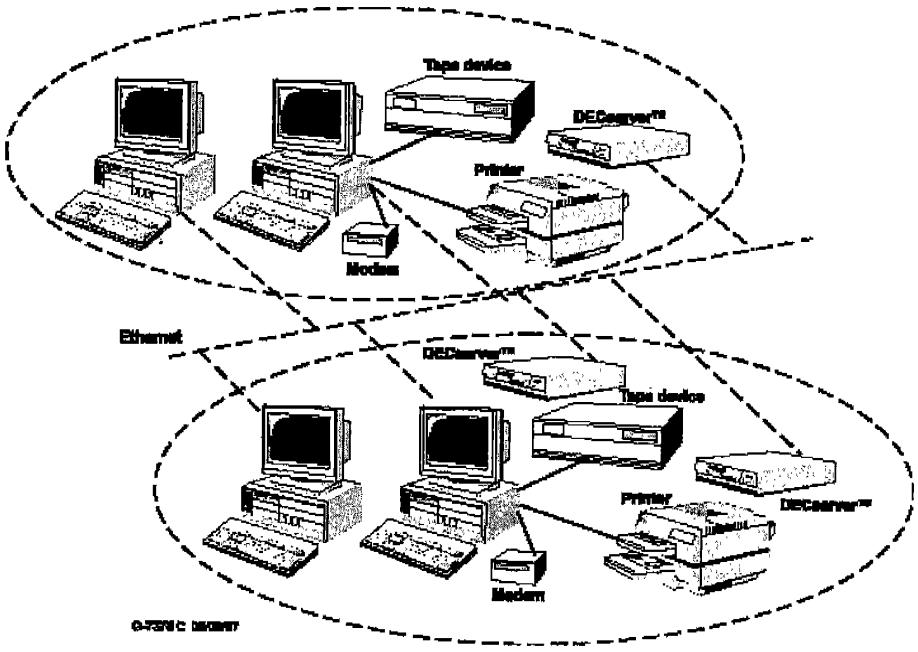


圖 5-6 型 II-redundant 實體架構

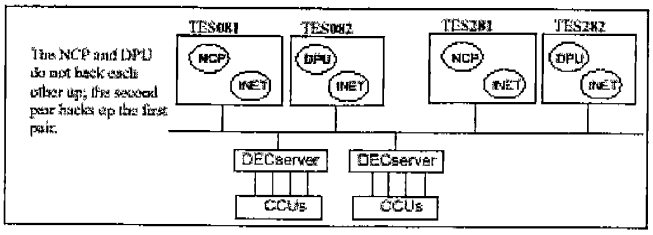


圖 5-7 型 II-redundant 方塊圖

5.3 控制頻道

TES Quantum 系統所用的衛星轉頻器頻寬，使用在兩方面：控制頻道(Control Channels)及話務頻道(Traffic Channels)，控制頻道包含有 OCC(Outbound Control Channels)及 ICC(Inbound Control Channels)，乃是 NCS 遠端站間用以傳送呼叫控制資訊及管理訊息之專用頻道，負責 ICC 和 OCC 的 CU 稱為 CCU，圖 5-8 為 CCU 的架構圖。

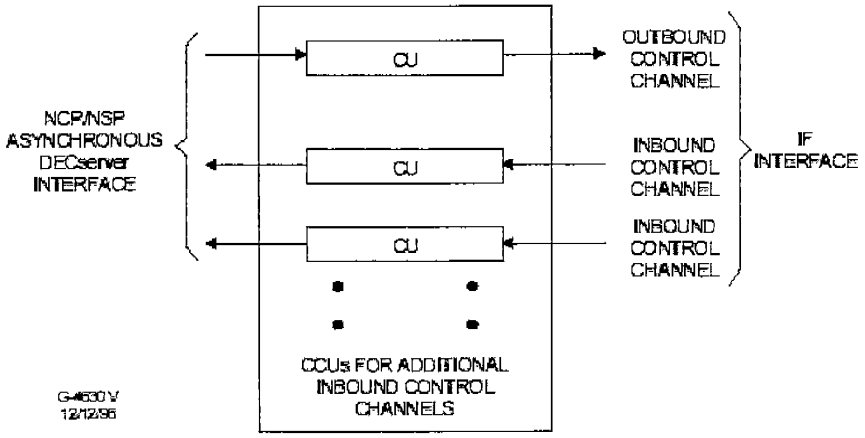


圖 5-8 CCU 架構圖

5.3.1 OCC

NCS 利用 OCC 傳送訊息給遠端站，遠端站的 CU 都預設有一個 OCC 頻率，只要 CU 不是處於通信中，CU 就會自動調整至該頻率並一直監視 OCC 的訊息，以等待來自 NCS 的命令。

OCC 相關資料儲存在每一片 CU 的 NVRAM 中，而非由

主控站的資料庫中直接下載給 CU，因此當 CU reset 後，CU 使用儲存在 NVRAM 中的 OCC 頻率來與 NCS 溝通。倘若 NCS 要將 OCC 頻率更動，則必須依靠人力到各遠端站更動每片 CU 的 NVRAM 內容。

OCC 的作業方式如下：

- 使用 SCPC 的傳送模式。
- 訊息格式為 HDLC(high-level data link control)。
- 當沒有訊息需要傳送時，傳送 HDLC 旗標。
- 每一個訊息中含有一個址區，用以指示該訊息是要廣播給所有的 CU 或只給一個特定的 CU。
- 定期廣播現用 ICC 頻率及其他的系統資訊。
- 所有 CU 透過 OCC 來接受任務，只要 CU 不在通信中，CU 就調至 OCC 頻率等候。
- 定期傳送迴路訊息給自己，以確認 CCU 是否正常？

5.3.2 ICC

遠端站利用 ICC 傳送訊息給 NCS，一個系統中使用兩個 ICC，當網路系統愈來愈大時，可依實際需要增加 ICC 數量，要傳送訊息時，每一個 CU 隨機選擇其中一個 ICC 來使用。

ICC 的使用是利用隨機的 ALOHA 方式，當碰撞發生時，訊息的內容將受到損壞，只要 NCS 所收到的訊息並非

完全無誤時，NCS 就不會予以確認，CU 經過一段隨機的延遲時間後，再重傳該訊息。

可用的 ICC 頻率由 NCS 透過 OCC 定期廣播以告知遠端站，因此要更改 ICC 的頻率和數量時，可以在正常使用情況下直接作業。

ICC 作業方式如下：

- 使用 SCPC 傳送模式。
- 當 CU 要傳送訊息時，先選用一個可用的 ICC 頻率。
- 訊息格式為 HDLC 格式。
- 由於 ICC 使用競爭模式，送訊息的 CU 使用計時器計時，以等待由 NCS 送來的確認訊息。假如在時限內未收到 NCS 的確認訊息，CU 就認定發生了碰撞並重送該訊息。
- ICC 訊息由 CCU 接收後，直接傳送給與之連接的 NCS。

六、網路管理及控制

6.1 網路使用者介面

IllumiNET 是 TES Quantum 系統的使用者介面，它提供使用者以物件為導向的彩色視窗畫面，讓使用者易於用來建構、監視及控制本系統，其畫面格式如圖 6-1 所示。

當使用在畫面上輸入異動之資料後，該資料儲存於資料庫中並自動傳送給網路元件，即使該元件無法立即收受資料(例如：CU 正與其他 CU 在通信中)，當其下一次與 NCS 建立通信時，該異動資料仍將傳送給該元件施行。

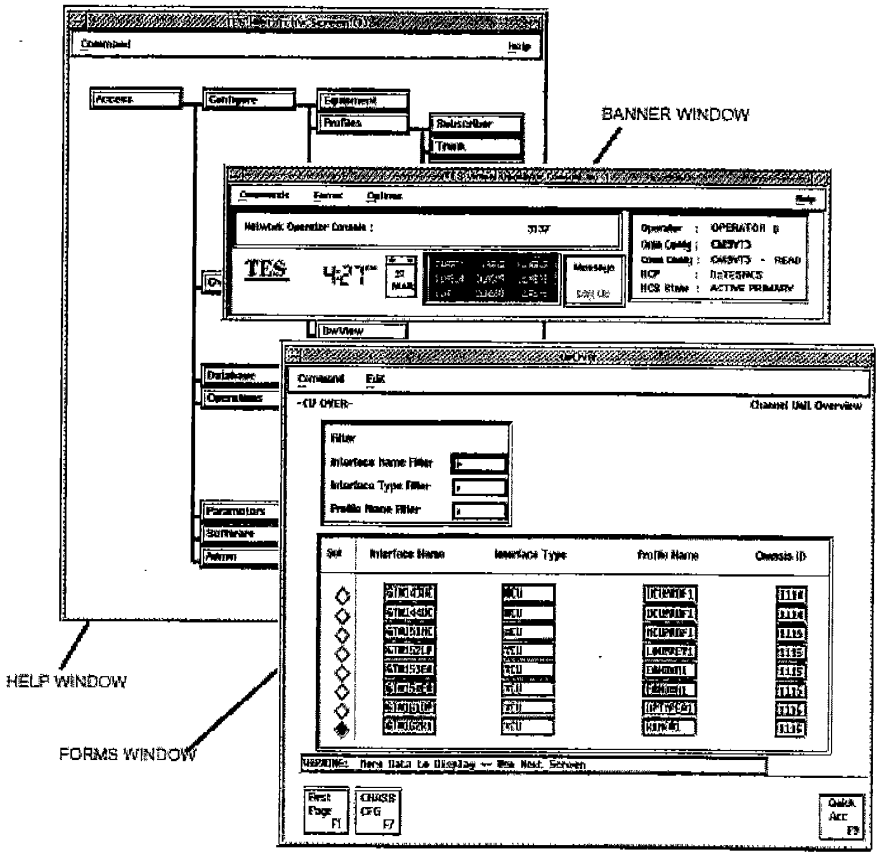


圖 6-1 IllumiNET 畫面格式

6.2 資料庫元件

6.2.1 增加元件

圖 6-2 顯示增加元件時之關係情形，括弧內所示為定義元件時所使用之畫面(Screen)，例如：Rack Cfg 代表定義機框的畫面。當加入一個新元件時，在定義該元件前，所有指向它的元件必須先行定義。

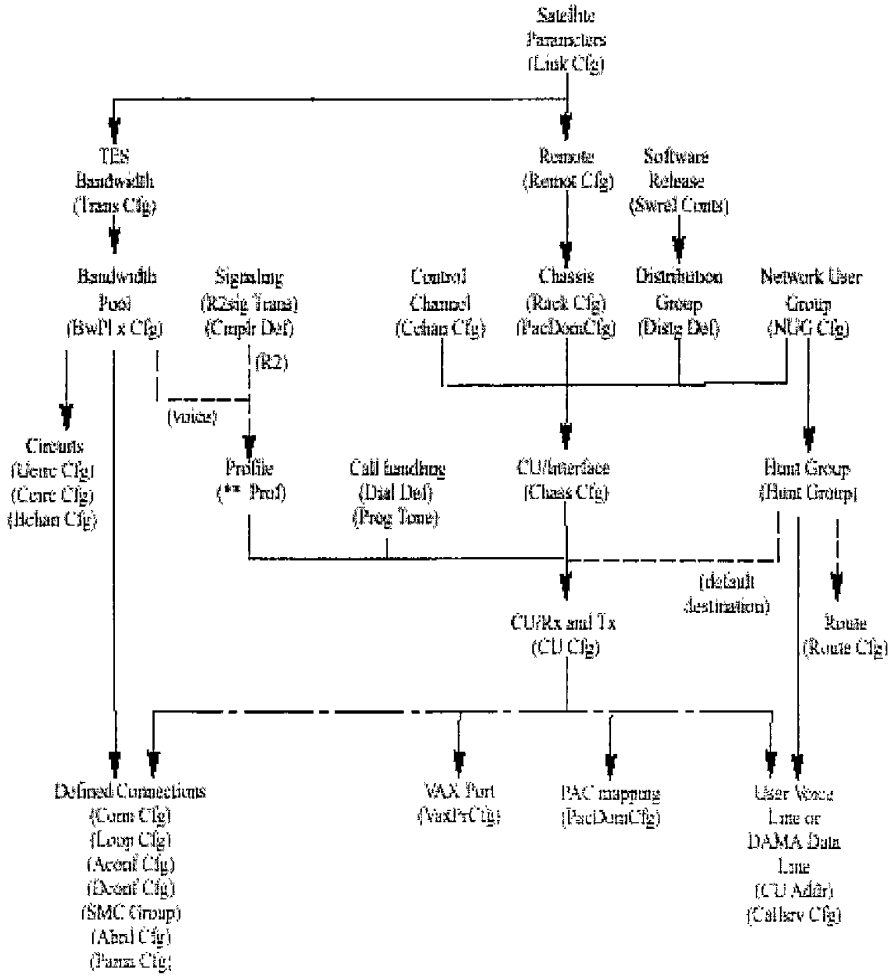


圖 6-2 增加元件圖

6.2.2 刪除元件

當 NCS 要刪除一個元件時，在刪除該元件前，所有指向它的元件必須先行刪除，如圖 6-3 所示。

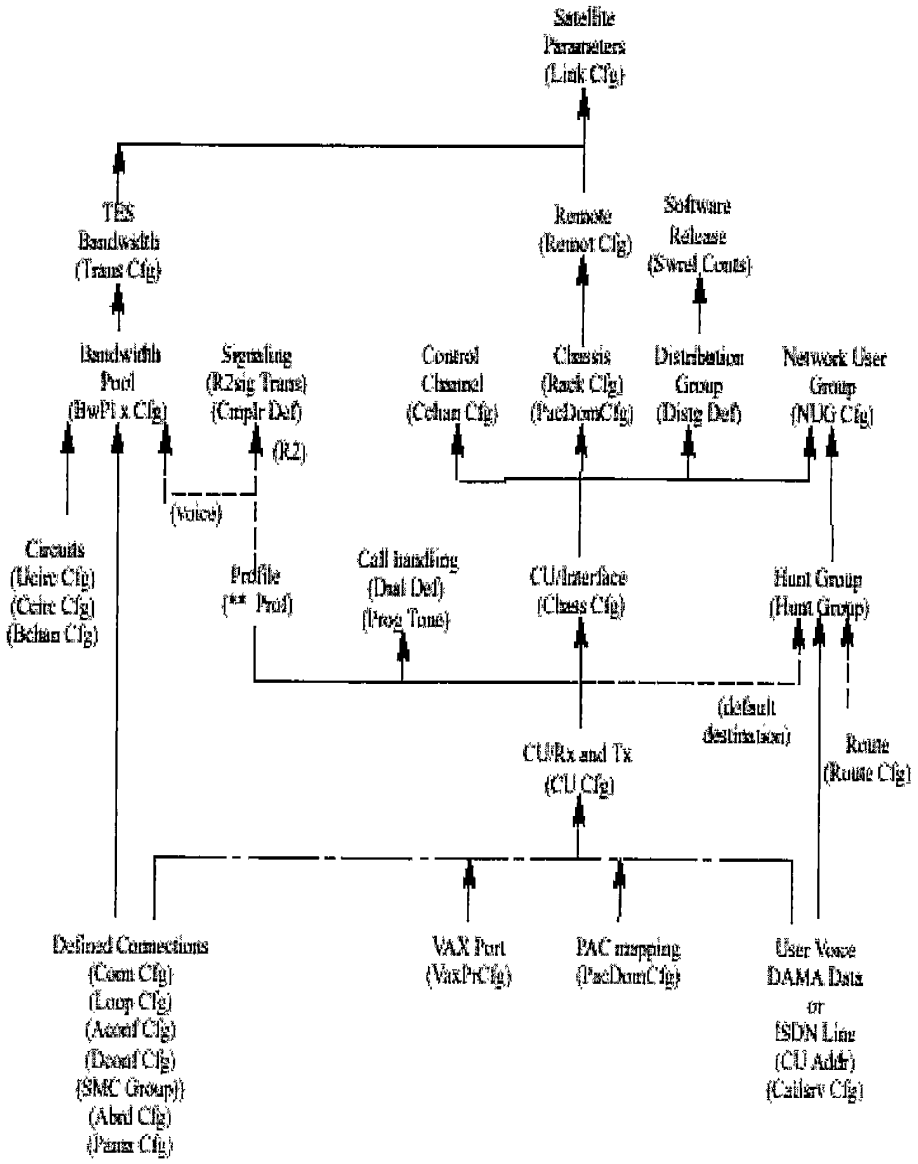


圖 6-3 刪除元件圖

6.3 操作畫面

□ Link Cfg

當一個系統初始使用一個轉頻器時，需先在 LINK CFG 畫面中輸入衛星鏈路計算資料(link budget data)，如圖 6-4 所示。它必須在任何一個遠端站資料建構以前就先建立，而且在建構任一個遠端站資料後，它就不可以再行刪除或修改。

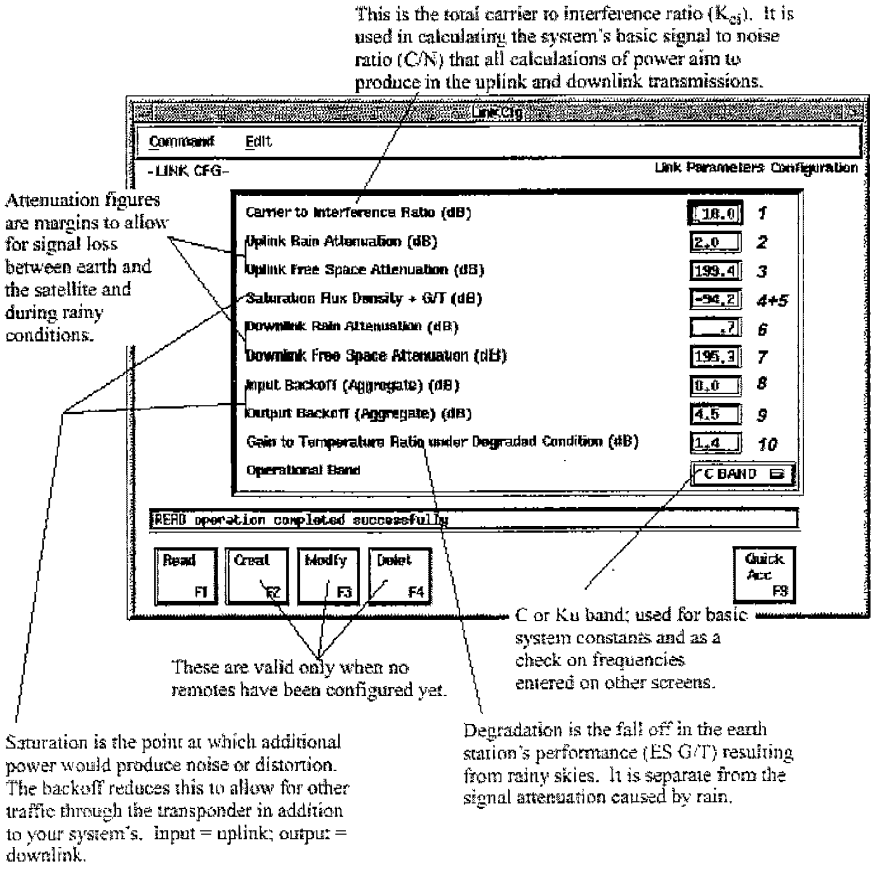
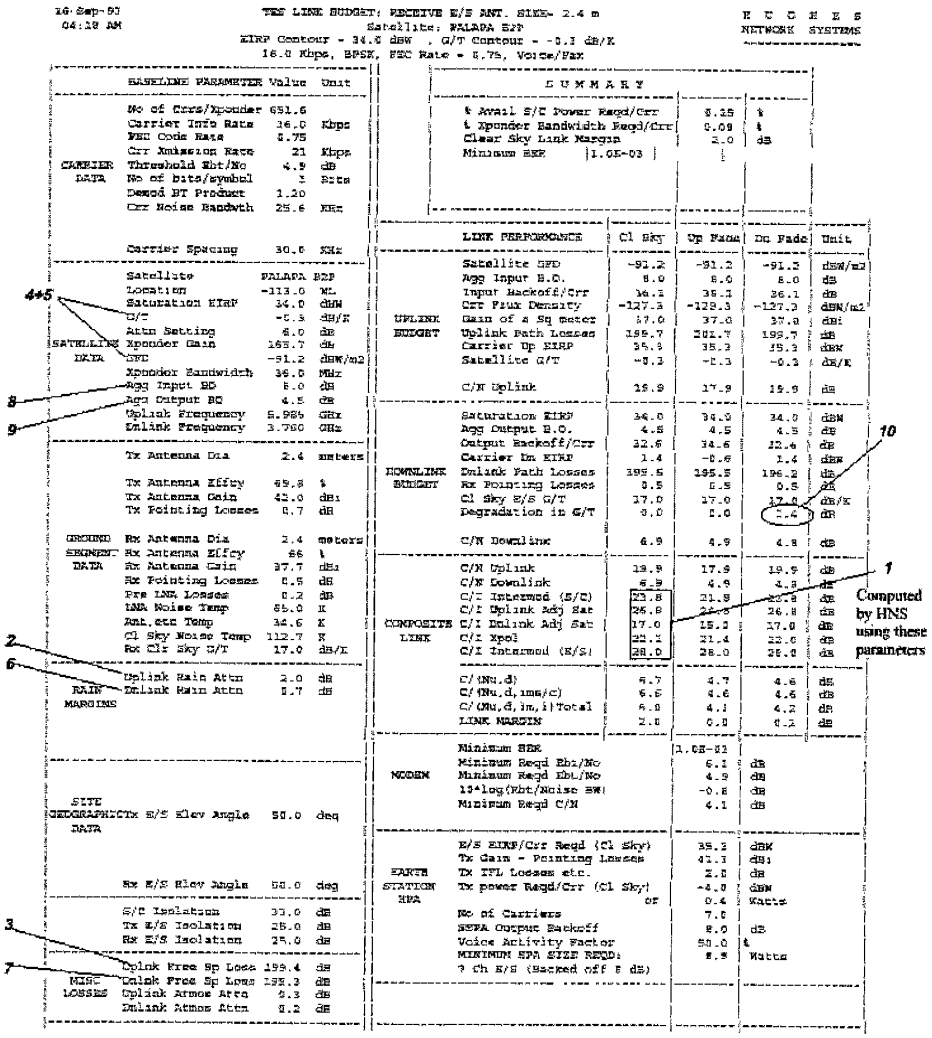


圖 6-4 LINK CFG 畫面

該圖 6-4 資料中，數字 1-10 是由下列 link budget 計算表中得來。



16-Sep-93
04:19 AM

TRS LINK BUDGET: RECEIVE E/S ANT. SIZE= 2.4 m
Satellite: PALAPA B2P
EIRP Contour = 34.6 dBW , G/T Contour = -0.1 dB/K
16.0 Kbps, BPSK, FEC Rate = 0.75, Voice/Fax

E C C H E S
NETWORK SYSTEMS

BASELINE PARAMETER	Value	Unit
No of Ctrs/Xponder	651.6	
Carrier Info Rate	16.0	Kbps
FEC Code Rate	0.75	
Ctr Xmission Rate	21	Kbps
CARRIER DATA Threshold Eb/No	4.9	dB
No of Bits/symbol	1	Bits
Demod BT Product	1.20	
Ctr Noise Bandwth	25.6	KHz
Carrier Spacing	30.0	KHz
Satellite	PALAPA B2P	
Location	-113.0	WL
Saturation EIRP	34.0	dBW
G/T	-0.3	dB/K
Attn Setting	6.0	dB
SATELLITE DATA Xponder Gain	168.7	dB
SFD	-91.2	dBW/m2
Xponder Bandwidth	36.0	MHz
Agg Input BO	8.0	dB
Agg Output BO	4.5	dB
Uplink Frequency	5.985	GHz
Dnlink Frequency	3.760	GHz
Tx Antenna Dia	2.4	meters
Tx Antenna Effcy	65.8	%
Tx Antenna Gain	42.6	dBi
Tx Pointing Losses	0.7	dB
GROUND SEGMENT DATA Rx Antenna Dia	2.4	meters
Rx Antenna Effcy	66	%
Rx Antenna Gain	37.7	dBi
Rx Pointing Losses	0.5	dB
Pre LNA Losses	0.2	dB
LNA Noise Temp	85.0	K
Ant.,ckt Temp	34.6	K
Cl Sky Noise Temp	112.7	K
Rx Clr Sky G/T	17.0	dB/K
RAIN MARGINS Uplink Rain Attn	2.0	dB
Dnlink Rain Attn	0.7	dB
SITE GEOGRAPHIC DATA Tx E/S Elev Angle	50.0	deg
Rx E/S Elev Angle	50.0	deg
E/S Isolation	30.0	dB
Tx E/S Isolation	25.0	dB
Rx E/S Isolation	25.0	dB
MISC LOSSES Uplink Free Sp Loss	199.4	dB
Dnlink Free Sp Loss	195.5	dB
Uplink Atmos Attn	0.3	dB
Dnlink Atmos Attn	0.2	dB

SUMMARY

% Avail S/C Power Reqd/Ctr	0.15	%	
% Xponder Bandwidth Reqd/Ctr	0.09	%	
Clear Sky Link Margin	2.0	dB	
Minimum BER	1.0E-03		

LINK PERFORMANCE		Cl Sky	Up Fade	Dn Fade	Unit
	Satellite SFD	-91.2	-91.2	-91.2	dBW/m2
	Agg Input B.O.	8.0	8.0	8.0	dB
	Input Backoff/Ctr	36.1	36.1	36.1	dB
UPLINK	Ctr Flux Density	-127.3	-128.3	-127.3	dBW/m2
BUDGET	Gain of a Sq meter	37.0	37.0	37.0	dBi
	Uplink Path Losses	199.7	201.7	199.7	dB
	Carrier Up EIRP	35.3	35.3	35.3	dBW
	Satellite G/T	-0.3	-0.3	-0.3	dB/K
	C/N Uplink	19.9	17.9	19.9	dB
	Saturation EIRP	34.0	34.0	34.0	dBW
	Agg Output B.O.	4.5	4.5	4.5	dB
	Output Backoff/Ctr	32.6	34.6	32.6	dB
	Carrier Dn EIRP	1.4	-0.6	1.4	dBW
DOWNLINK	Dnlink Path Losses	195.5	195.5	196.2	dB
BUDGET	Rx Pointing Losses	0.5	0.5	0.5	dB
	Cl Sky E/S G/T	17.0	17.0	17.0	dB/K
	Degradation in G/T	0.0	0.0	-0.7	dB
	C/N Downlink	4.9	4.9	4.8	dB
	C/N Uplink	19.9	17.9	19.9	dB
	C/N Downlink	4.9	4.9	4.8	dB
	C/I Intermod (S/C)	23.8	21.8	23.8	dB
	C/I Uplink Adj Sat	26.8	24.8	26.8	dB
COMPOSITE	C/I Dnlink Adj Sat	17.0	15.0	17.0	dB
LINK	C/I Xpol	22.1	21.4	22.0	dB
	C/I Intermod (E/S)	28.0	28.0	28.0	dB
	C/(N+I,d)	4.7	4.7	4.6	dB
	C/(N+I,d,ims/c)	4.6	4.6	4.6	dB
	C/(N+I,d,im,i)Total	4.0	4.1	4.2	dB
	LINK MARGIN	2.0	2.0	2.1	dB

	Minimum BER		1.0E-03	
	Minimum Reqd Eb/No		6.1	dB
MODEM	Minimum Reqd Eb/No		4.9	dB
	10*log(Rbt/Noise BW)		-0.8	dB
	Minimum Reqd C/N		4.1	dB
	E/S EIRP/Ctr Reqd (Cl Sky)		35.2	dBW
	Tx Gain - Pointing Losses		41.1	dBi
EARTH	Tx TPL Losses etc.		2.8	dB
STATION	Tx power Reqd/Ctr (Cl Sky)		-4.8	dBW
HPA	or		0.4	Watts
	No of Carriers		7.0	
	HPA Output Backoff		8.0	dB
	Voice Activity Factor		50.0	%
	MINIMUM HPA SIZE REQD:		2.8	Watts
	7 Ch E/S (Backed off 8 dB)			

Computed by HNS using these parameters

□ Trans Cfg

TRANS CFG 為所使用的每一個轉頻器定義基本

頻率，如圖 6-5 所示。正常情況下，該頻率不會更動，但當 TES Quantum 網路系統移至同一轉頻器上的另一頻段時，則需更新至新頻率。

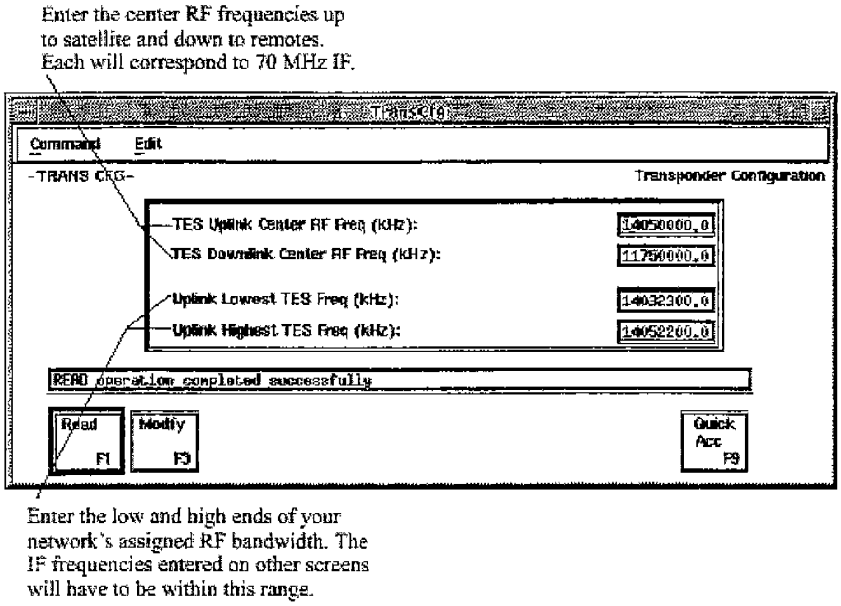


圖 6-5 TRANS CFG 畫面

□ Remot Cfg

REMOT CFG 用以定義遠端站，如圖 6-6 所示。其中傳送與接收之功率參數必須輸入，至於經緯度值可以不輸入，但仍建議輸入，輸入後對於遠端站仰角及方位角之計算甚為方便，萬一遠端站天線移動，仍易於經由計算決定其角度，另外，未來新版軟體會利用經緯度將遠端站位置顯示於地圖上。

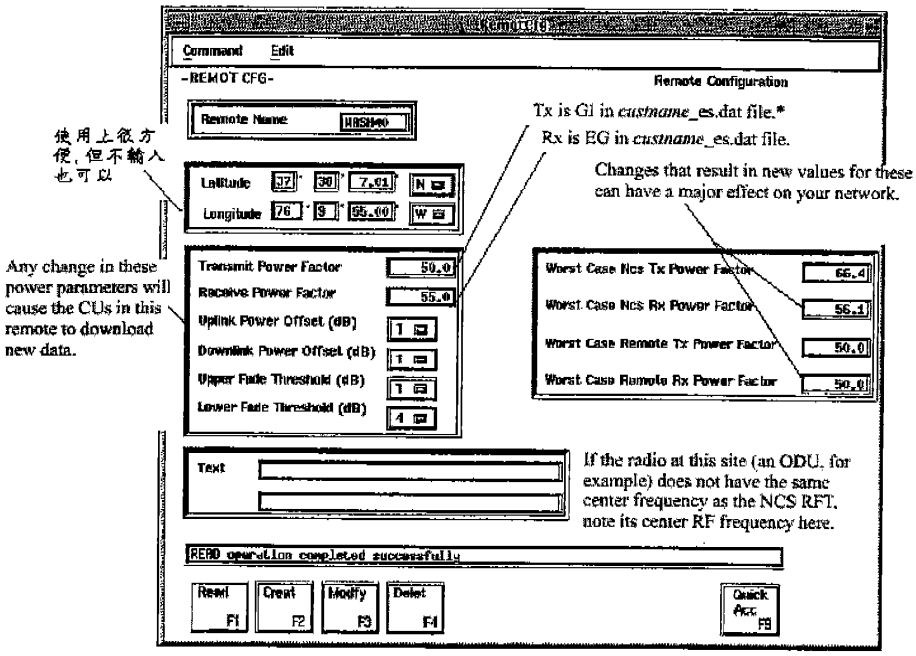


圖 6-6 REMOT CFG 畫面

□ Swrel Conts

SWREL CONTS 顯示 CU 使用的軟體形式及檔案名稱，如圖 6-7 所示。

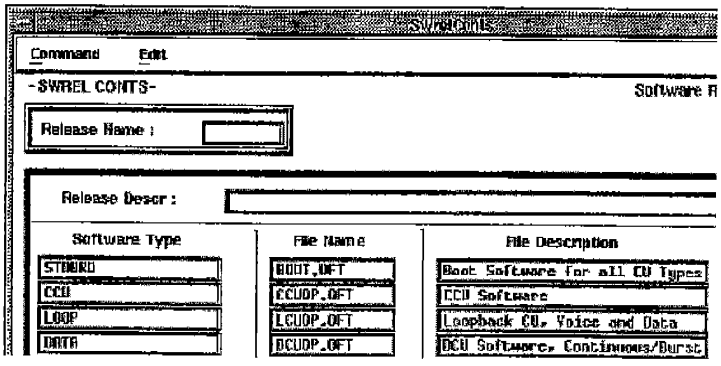


圖 6-7 SWREL CONTS 畫面

□ Bwplv Cfg

BWPLV CFG使用於語音(VCU及ACU)方面的頻寬池(bandwidth pool)定義上，如圖 6-8 所示。可以應用在語音廣播、語音電路及語音會議的使用上，用以決定速率、FEC (forward error correction)及調變方式，另外也決定了壓縮方法(ADPCM、RELP 或 CELP)及是否支援 FAX 及 VBD。

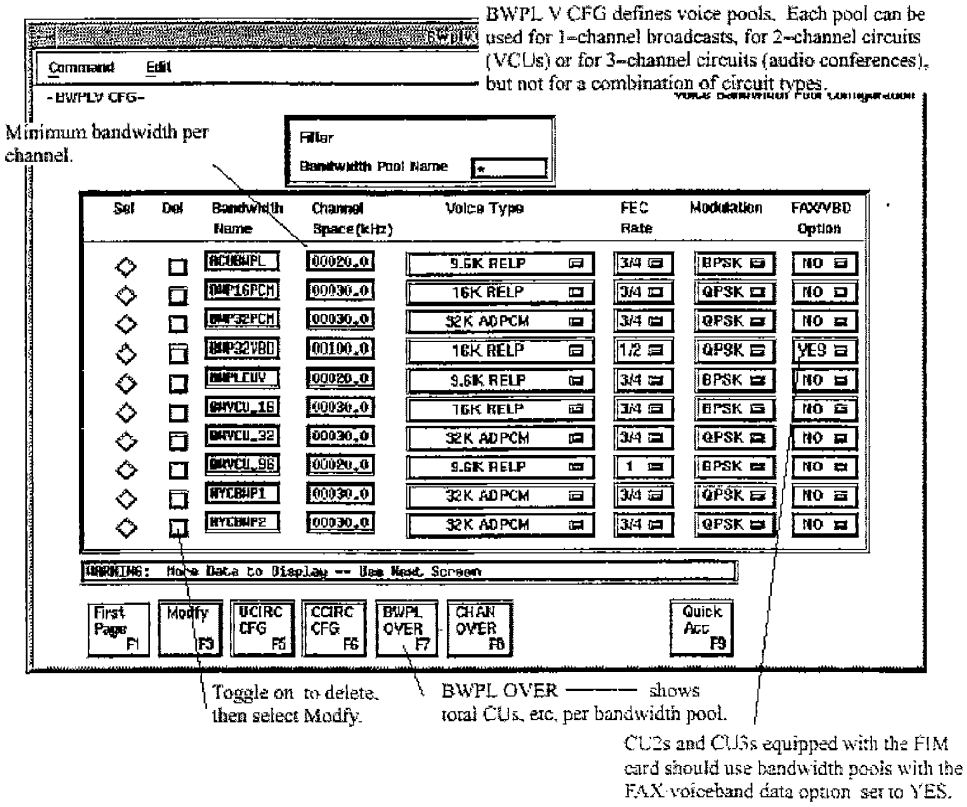


圖 6-8 BWPLV CFG 畫面

□ Bwpld Cfg

BWPLD CFG 使用於 DCU、ADDCU、VDCU、BCU 或 BTCU 的頻寬池定義上，如圖 6-9 所示。決定數據速率、FEC 及調變方式，可以應用在數據廣播、數據電路及數據會議的使用上。CCU、DTCU、MCU 及 SMCU 只使用控制頻道，並不使用頻寬池，不需在 BWPLV CFG 或 BWPLD CFG 上定義。

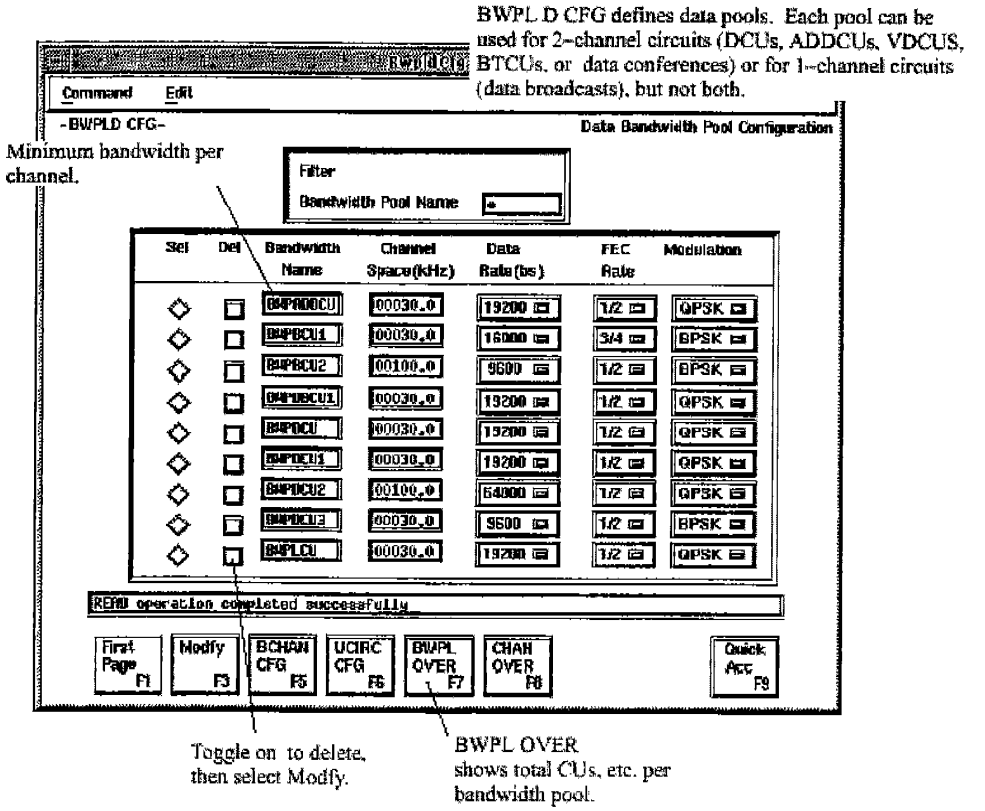


圖 6-9 BWPLD CFG 畫面

□ Cchan Cfg

CCHAN CFG 用於定義控制頻道的相關參數，如圖 6-10 所示。控制頻道的頻率並不需要互相毗鄰，一個頻道組(channel set)可設定最多達 15 個控制頻道，而一個系統中最多可有 15 個頻道組。

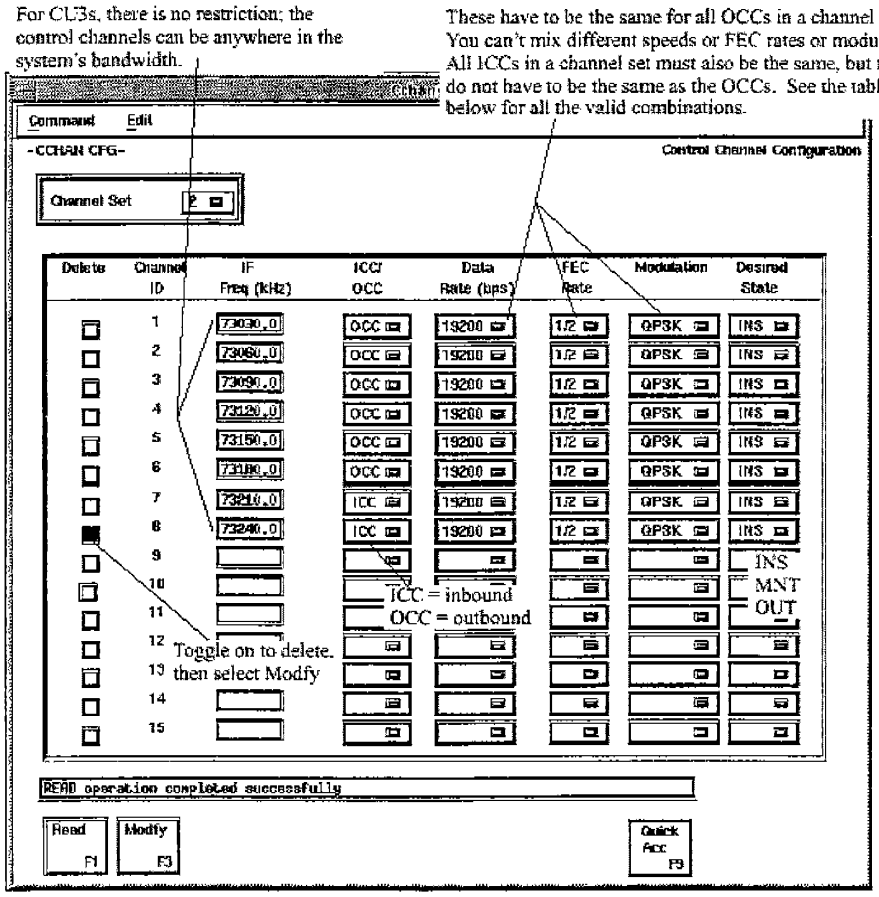


圖 6-10 CCHAN CFG 畫面

□ Rack Cfg

RACK CFG 用以定義同一個機架(Rack)中的各個機框(Chassis)，如圖 6 -11 所示。每一個機框的機框 ID 必須設定為唯一，號碼為十六進制，由 0000 至 EFFF，其中 EEEA 至 EEEE 保留給 LCU 使用。

假如該機架中有使用 MCU，則該 MCU 所掌控的所有機框，其機框 ID 的前兩碼必須設定為相同值。

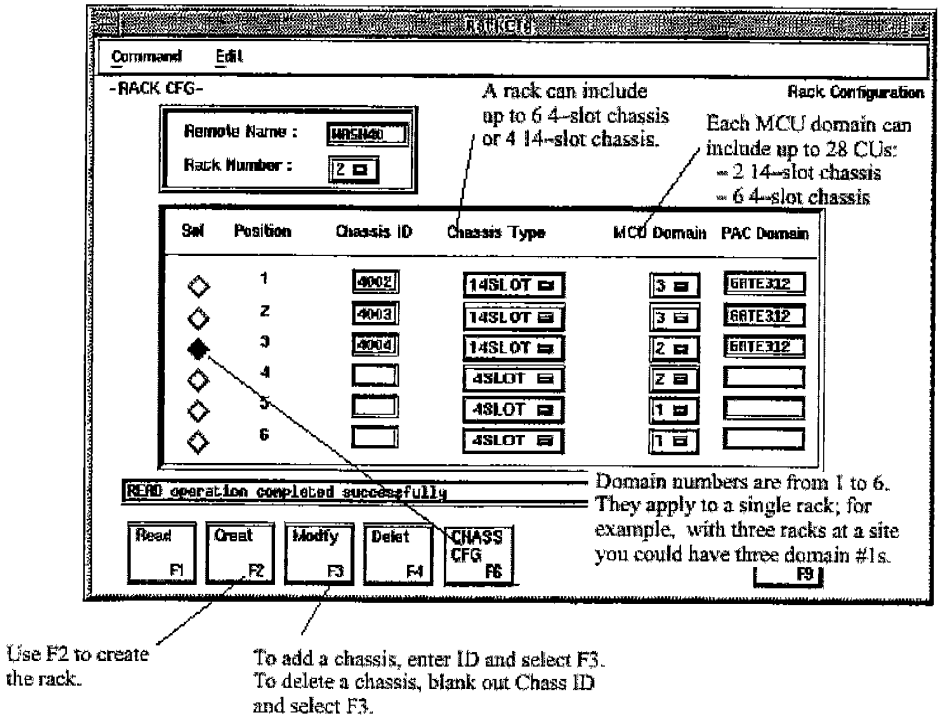


圖 6-11 RACK CFG 畫面

□ Distg Def

DISTG DEF 用於建立、刪除及更新分配群(distribution groups)，如圖 6-12 所示，其中分配群的名稱必須是固定的 8 個字元。

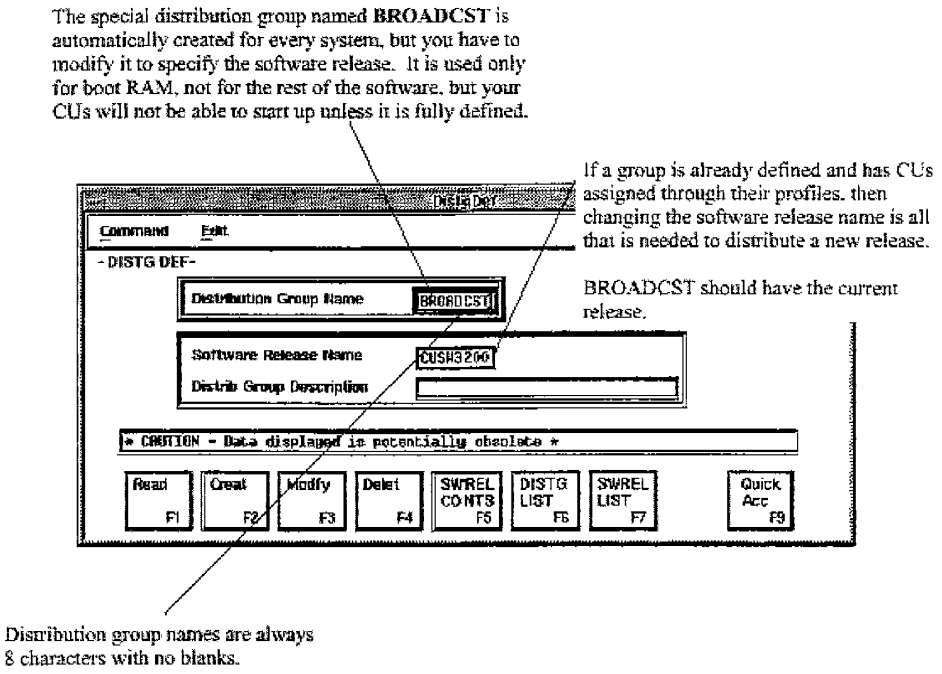


圖 6-12 DISTG DEF 畫面

□ NUG Cfg

NUG CFG 用來定義網路使用者群(Network User Group)，如圖 6-13 所示。在轉頻器 1 內的所有 CU 都屬於一個公用的預設群 SUPERNUG，此外，也可以將之設定為個別的使用者群

(private user group)，假如系統中使用多個轉頻器，則每一個轉頻器都需要定義一個個別的 NUG，而每個 NUG 內的 CU 只能呼叫同一群中的其他 CU，因此每一個 hunt group 中的成員必須在同一個 NUG 中。

CCU、MCU 及 SMCU 並不使用呼叫電路，因此在使用上並不受 NUG 範圍的限制，不過還是要將之定義在其所用轉頻器的 NUG 中。

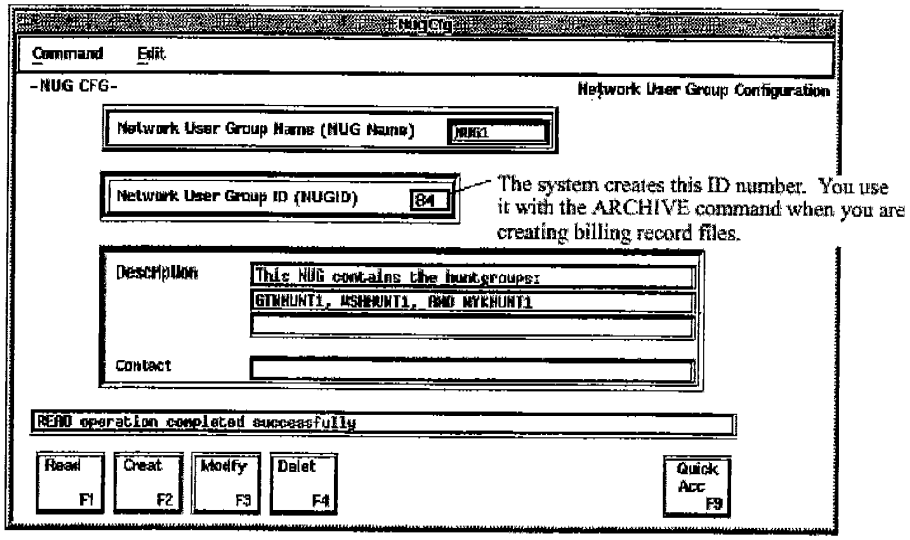


圖 6-13 NUG CFG 畫面

□ Ucirc Cfg

UCIRC CFG 用以定義語音與數據電路，並指定

其所使用之頻段，如圖 5-14 所示。

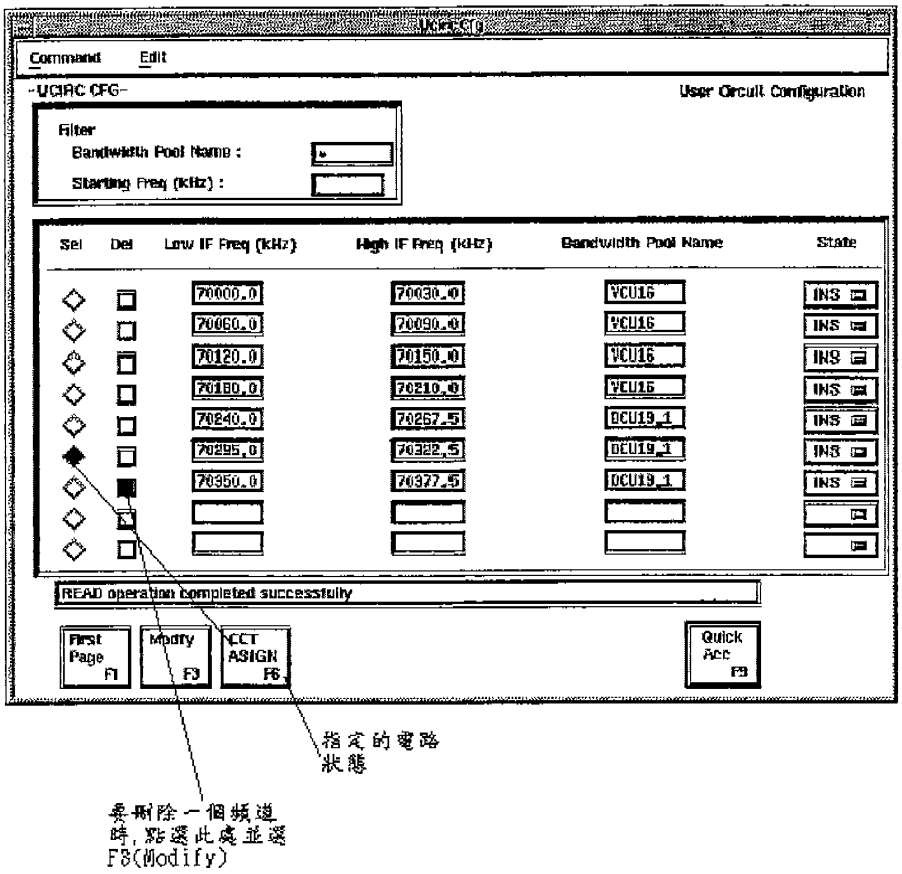


圖 6-14 UCIRC CFG 畫面

□ Ccirc Cfg

CCIRC CFG 定義三個頻道以做為語音會議電路，如圖 6-15 所示。這些電路只能做為語音會議之用，不能與其他語音電路共置於同一個頻段。

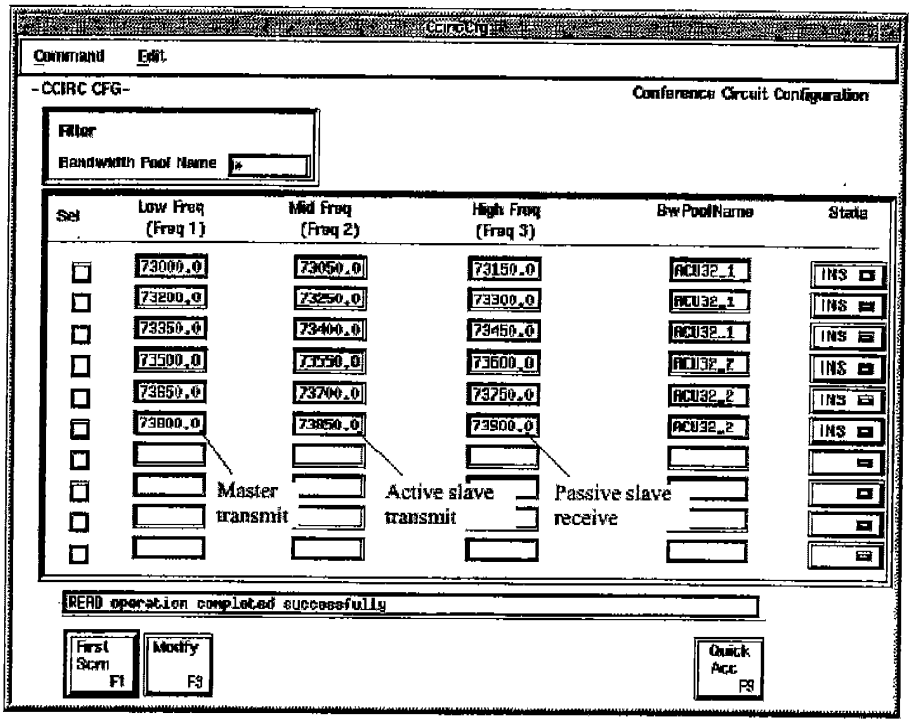


圖 6-15 CCIRC CFG 畫面

□ ACU Prof

ACU PROF 設定數個不同的計時值，如圖 5-16 所示。這些數值對於語音會議的開始與終結相當重要，大部份的值只要設定過一次，就可以使用在各個語音會議上。

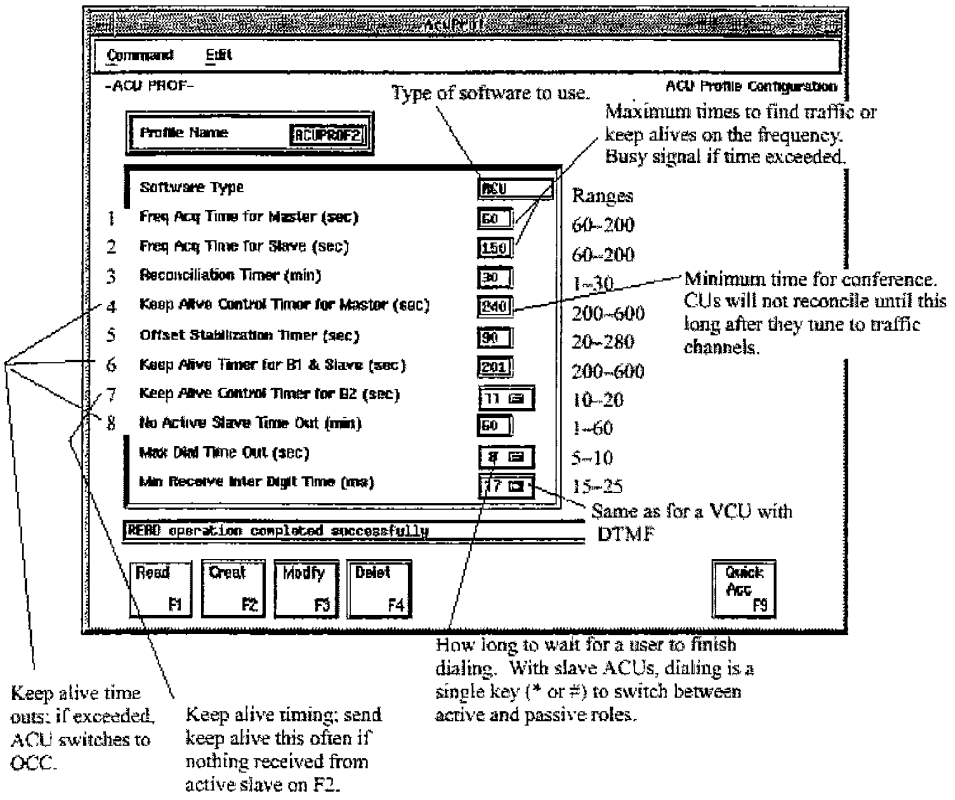


圖 6-16 ACU PROF 畫面

□ ADDCU Prof

ADDCU PROF 定義非同步 DAMA 數據的各相關設定，典型的參數有數據速率、同位元及停止位元等，如圖 6-17 所示。

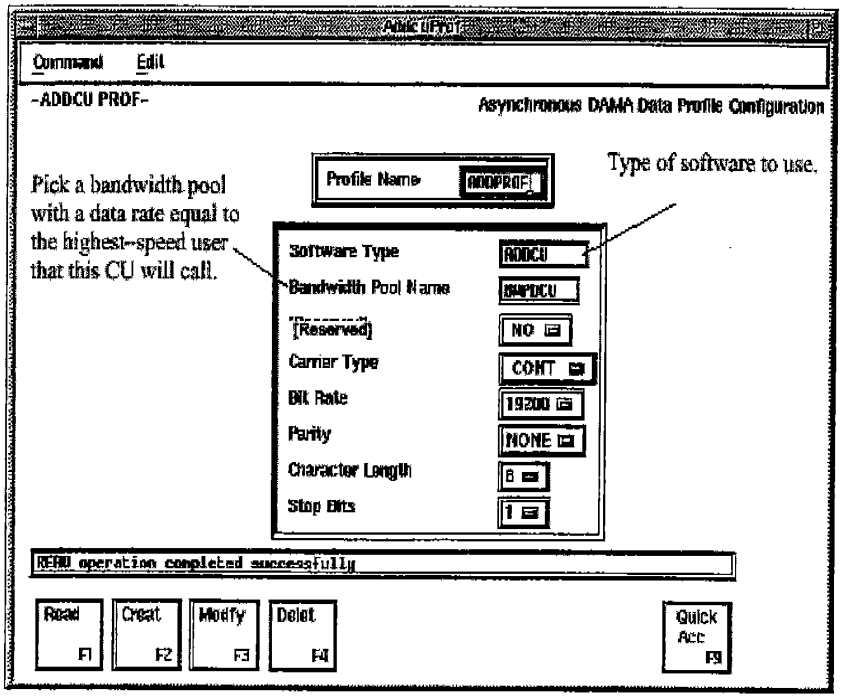


圖 6-17 ADDCU PROF 畫面

□ VDCU Prof(V25B PROF)

V25B PROF 使用於 VDCU，如圖 6-18 所示。這些 CU 使用撥號方式來建立連結，有如 ADDCU 一般。另外，它們可支援最高達 64 kbps 的同步速率，或最高 19.2 kbps 的非同步速率，如同 DCU 一般。

當兩個 VDCUs 經由衛星電路通信時，該兩個 VDCUs 可以不必同在一個頻段中，但它們所在的頻寬池，其速率必須相同。舉例來說，一個

位於 9.6 kbps 頻寬池中的 VDCU 無法與一個位於 19.2 kbps 或 4.8kbps 頻寬池中的 VDCU 進行通信。

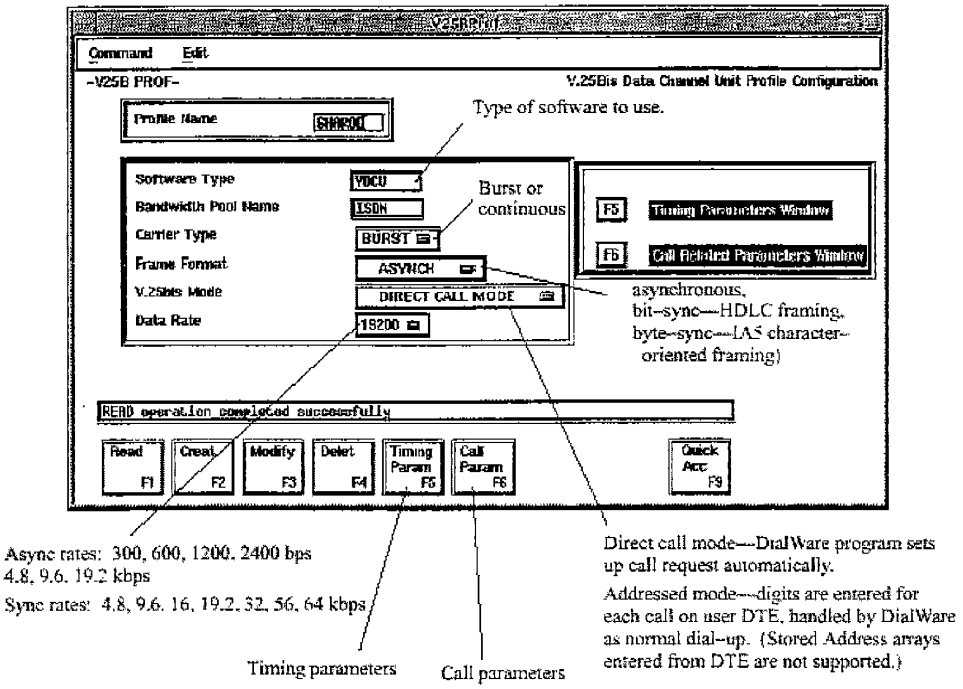


圖 6-18 VDCU PROF 畫面

□ BCU Prof(DCONF PROF)

DCONF PROF 提供給 BCU 使用，用來指定所使用的軟體形式，如圖 6-19 所示。

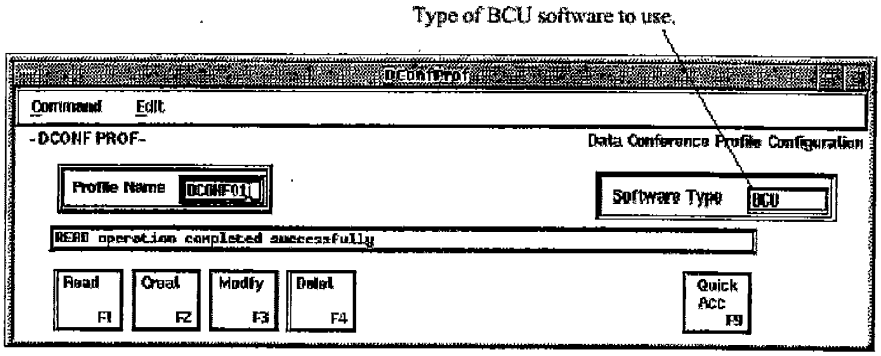


圖 6-19 BCU PROF 畫面

□ DCU Prof

DCU PROF 提供給 DCU 用，使用在固定速率的數據傳輸上，如圖 5-20 所示。

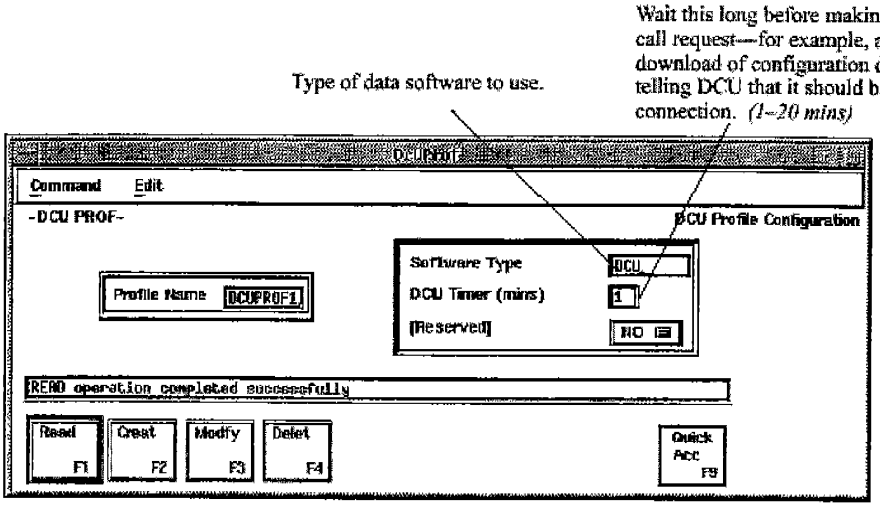


圖 6-20 DCU PROF 畫面

□ CCU Prof

CCU PROF 使用於 CCU，包含軟體形式及一個計時值(timer)，如圖 6-20 所示。每一個 CCU 監視它自己的頻率，並將接收信號的偏移值告知 NCS。

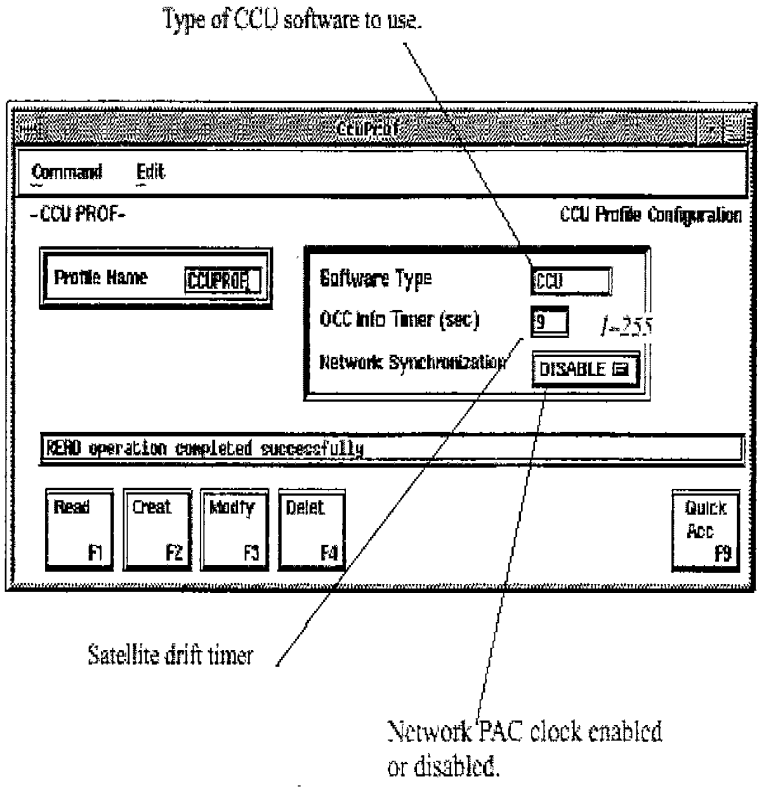


圖 6-20 CCU PROF 畫面

□ LCU Prof

LCU PROF 提供給 LCU 用，使用於 loopback 連接測試上，如圖 6-22 所示。做 loopback 連接時，有三種模式可以選擇：同步、非同步及語音模式。

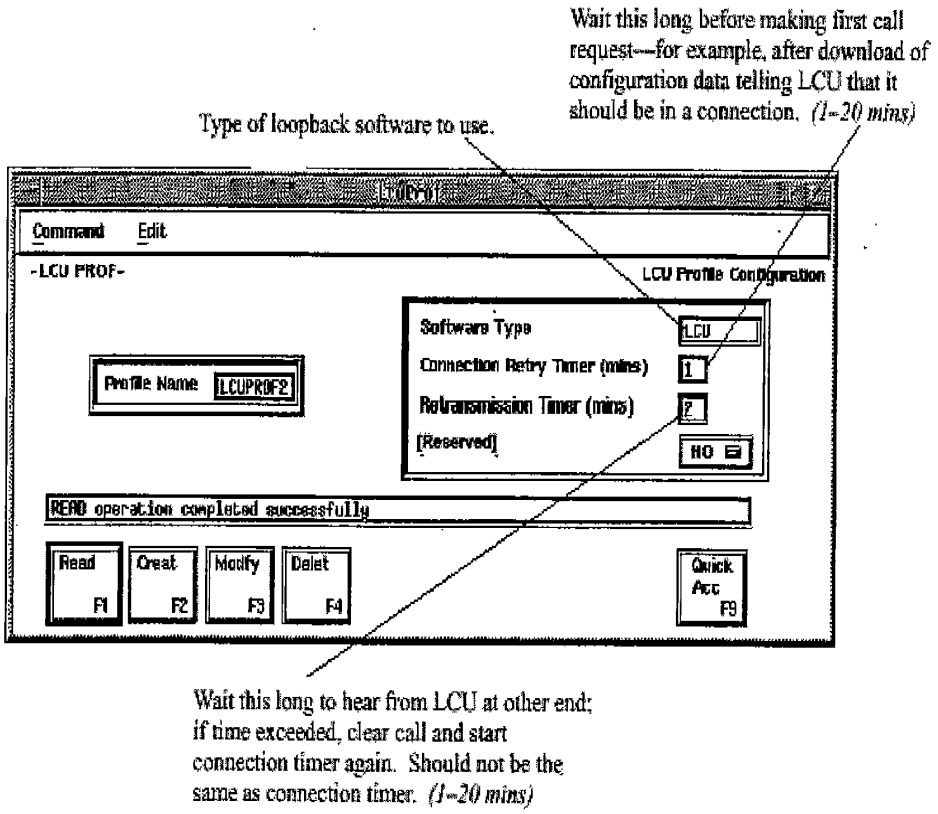


圖 6-22 LCU PROF 畫面

□ MCU Prof

MCU PROF 提供給 MCU 用，如圖 6-23 所示。在遠端站中 MCU 可以設定為整組 CUs 設備的監控單體，即使該組 CU 都在通信使用中，MCU 仍可連續地執行其監控功能而不中斷。MCU 使用標準的 CU 卡板，與 VCU 或 DCU 的卡板並無不同，差異處只是其所下載的軟體形式之不同。

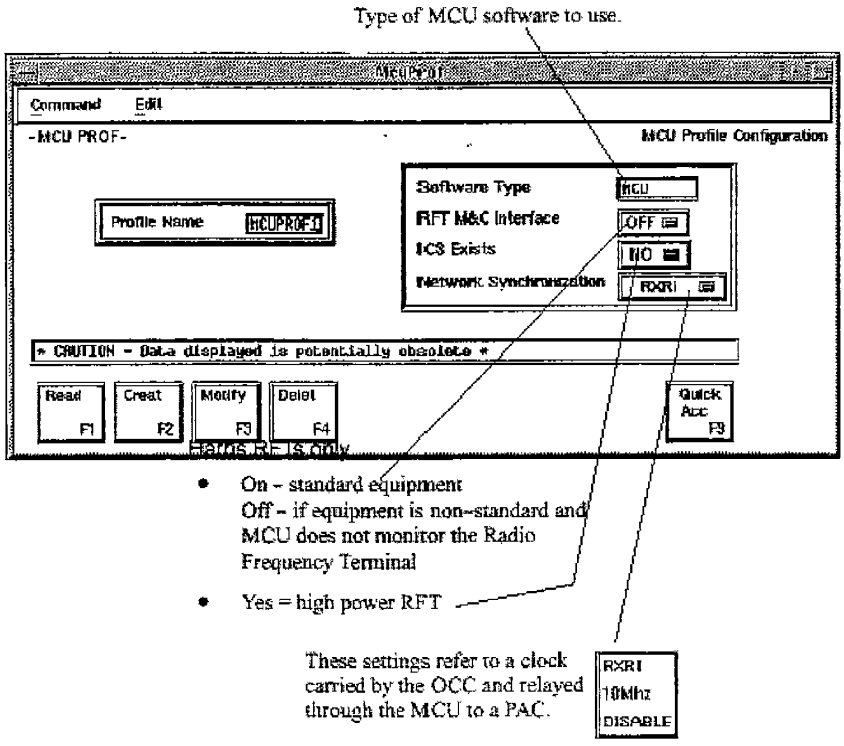


圖 6-23 MCU PROF 畫面

□ SMC Prof

SMC PROF 指定 CU 所使用的軟體形式，並定義連接到使用者設備的數據埠參數，如圖 6-24 所示。

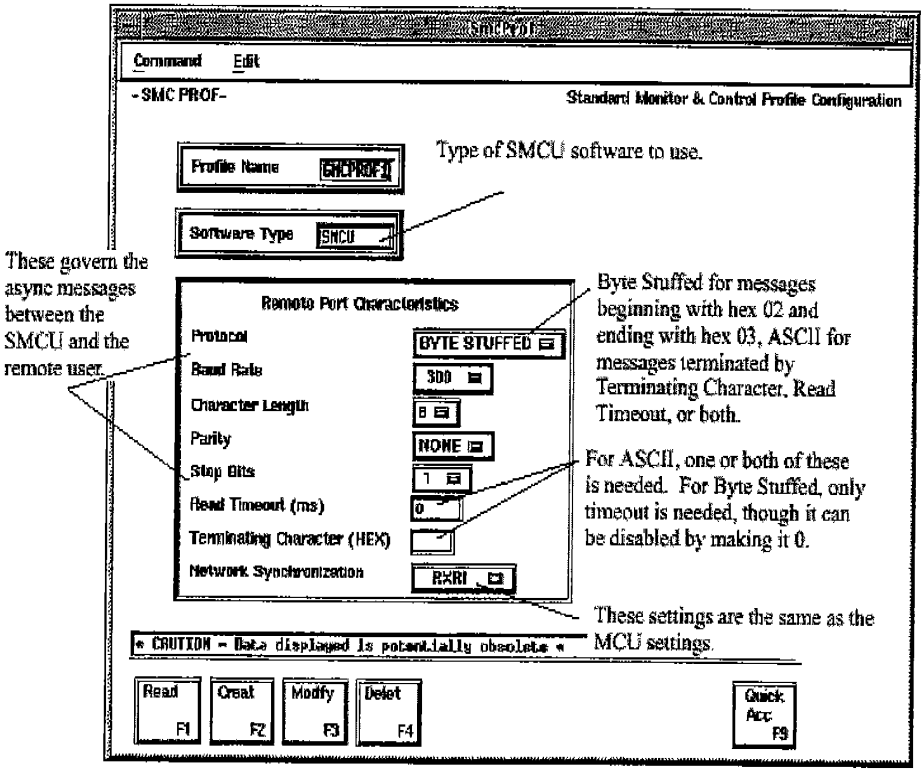


圖 6-24 SMC PROF 畫面

□ Dial Def

DIAL DEF 提供可程式數位撥號語言 DialWare 的程式碼輸入場所，用以掌管撥號事宜，如圖 5-25 所示。

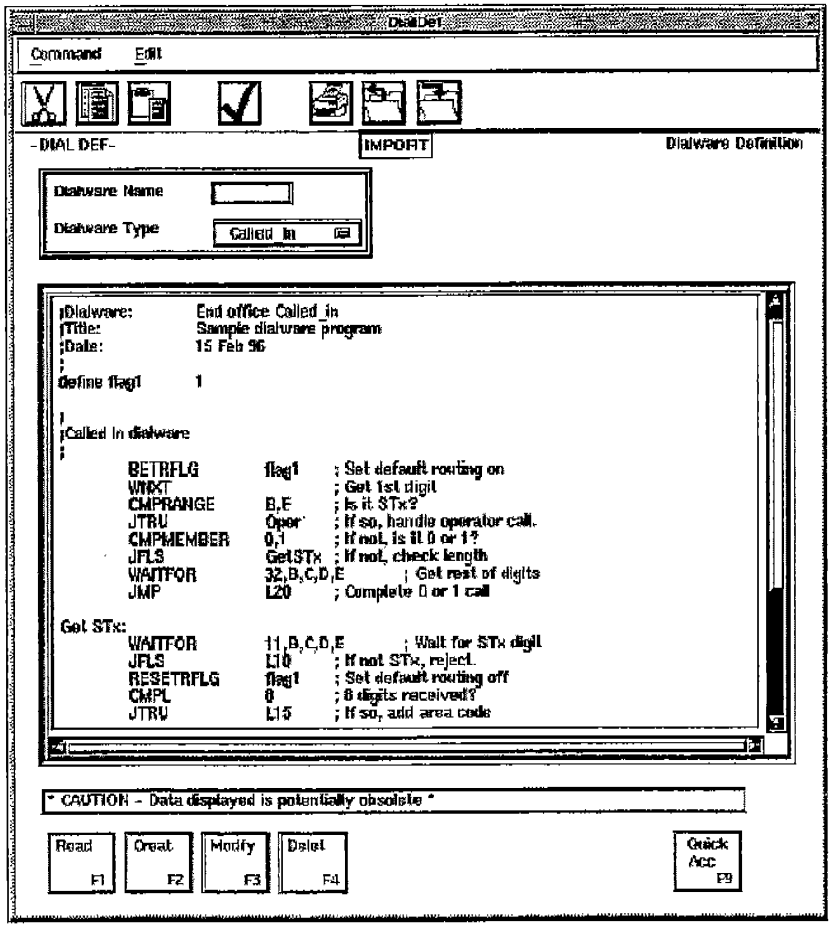


圖 6-25 DIAL DEF 畫面

□ Prog Tone

PROG TONE 畫面用來定義呼叫進行中所使用的 tones，如撥號音、忙音及振鈴音等，有四種標準可以使用，包括中國、菲律賓、智利及北美，如圖 6-26 所示。

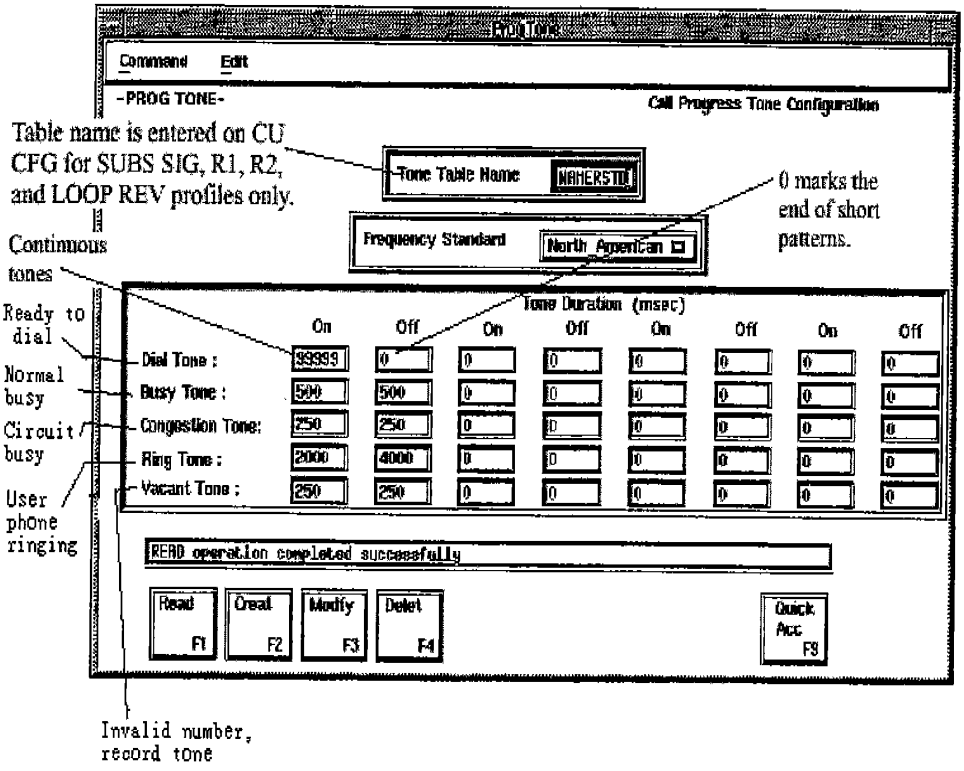


圖 6-26 PROG TONE 畫面

□ Chass Cfg

CHASS CFG 用以定義機框中的 CU，如圖 6-27 所示。

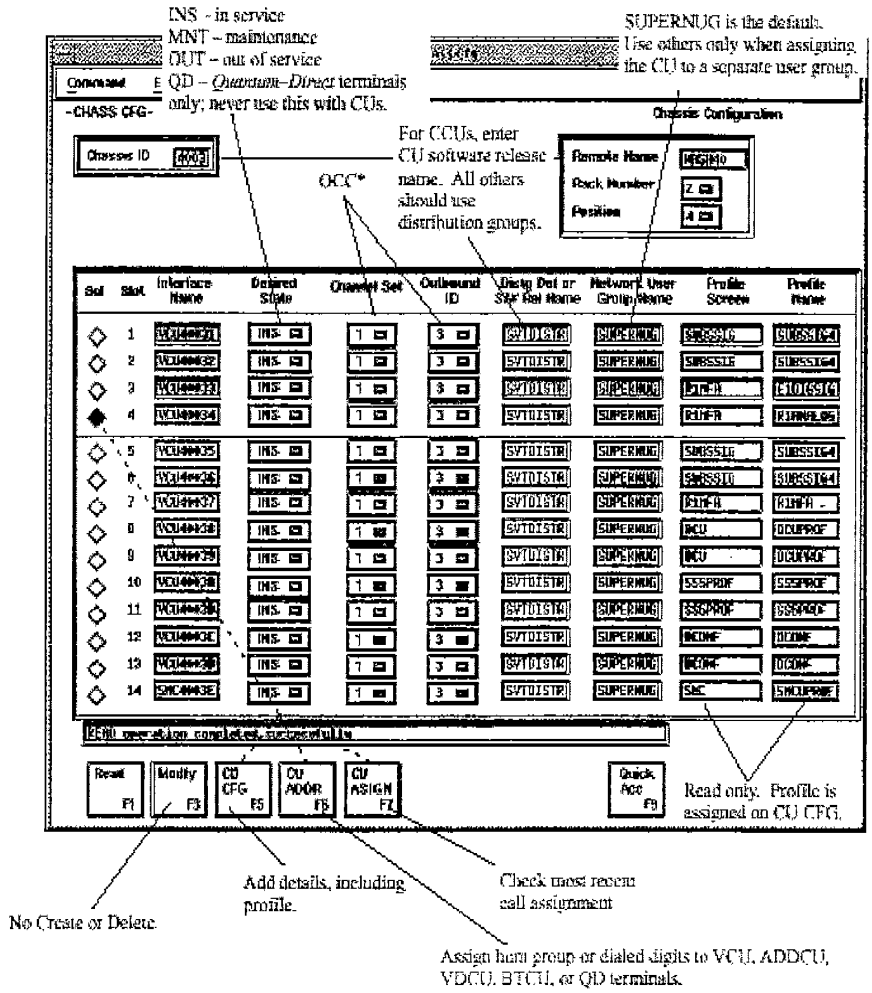


圖 6-27 CHASS CFG 畫面

□ Hunt Group

VCU 或 ADDCU 若使用 hunt group 功能，則必須

在 CU ADDR 中使用前，先行在 HUNT GROUP 畫面中予以定義，另外 Hunt group 中所有成員必須在同一個 NUG 中，如圖 6-28 所示。

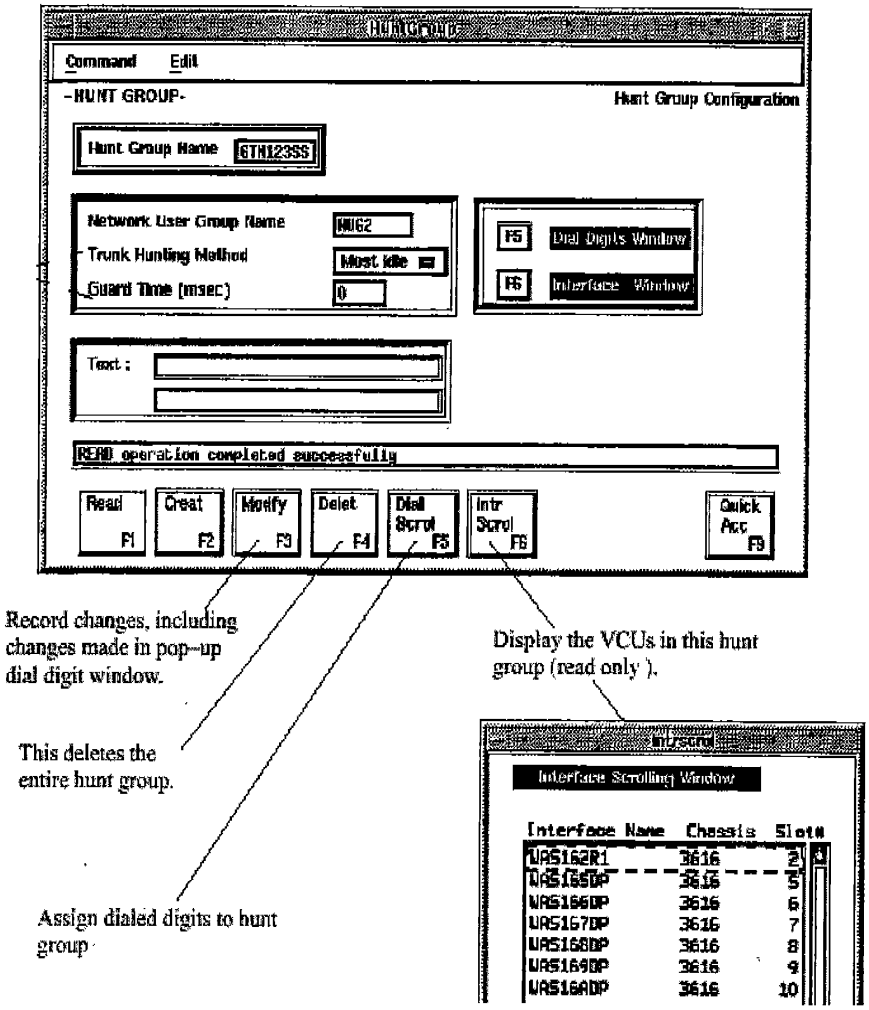


圖 6-28 HUNT GROUP 畫面

□ CU Cfg

CU CFG 用來定義 CU 的詳細內容，如圖 6-29 所示。

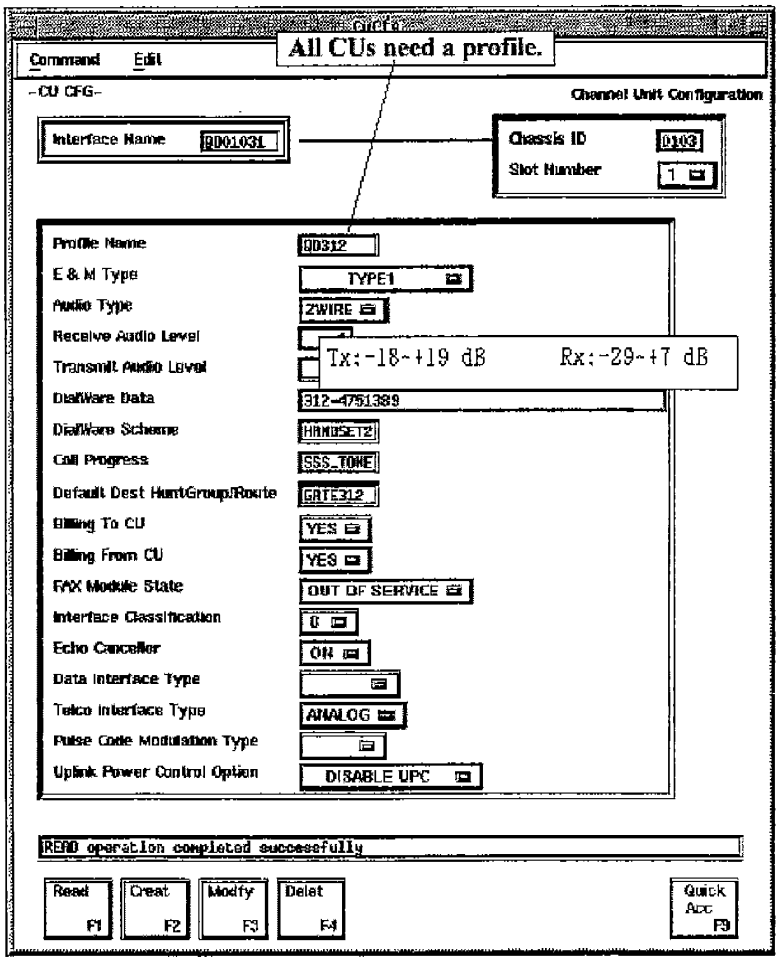


圖 6-29 CU CFG 畫面

□ Route Cfg

ROUTE CFG 最多可在一個 route 中定義 25 個

hunt group，而其優先等級最多亦可分為 25 級，如圖 6-30 所示。

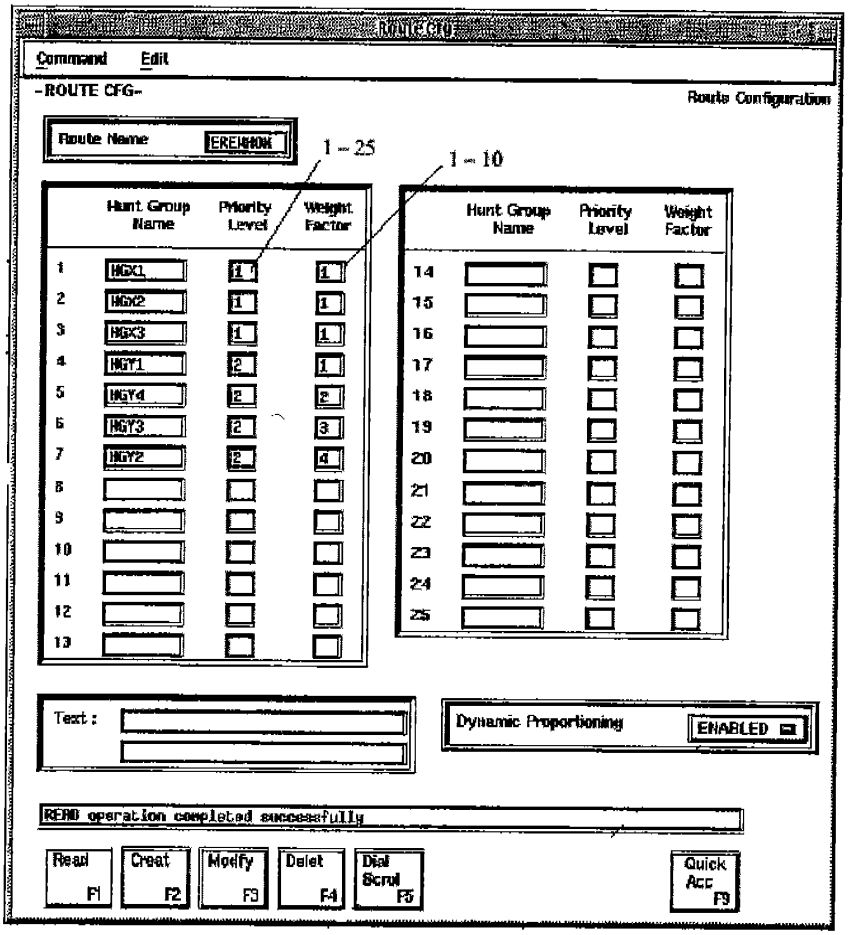


圖 6-30 ROUTE CFG

□ Conn Cfg

兩個 DCU 使用固定路由通信時，呼叫電路的建立並不經由撥號方式，而是直接在 CONN CFG

中予以定義，傳送方式可以是同步或非同步，如圖 6-31 所示。

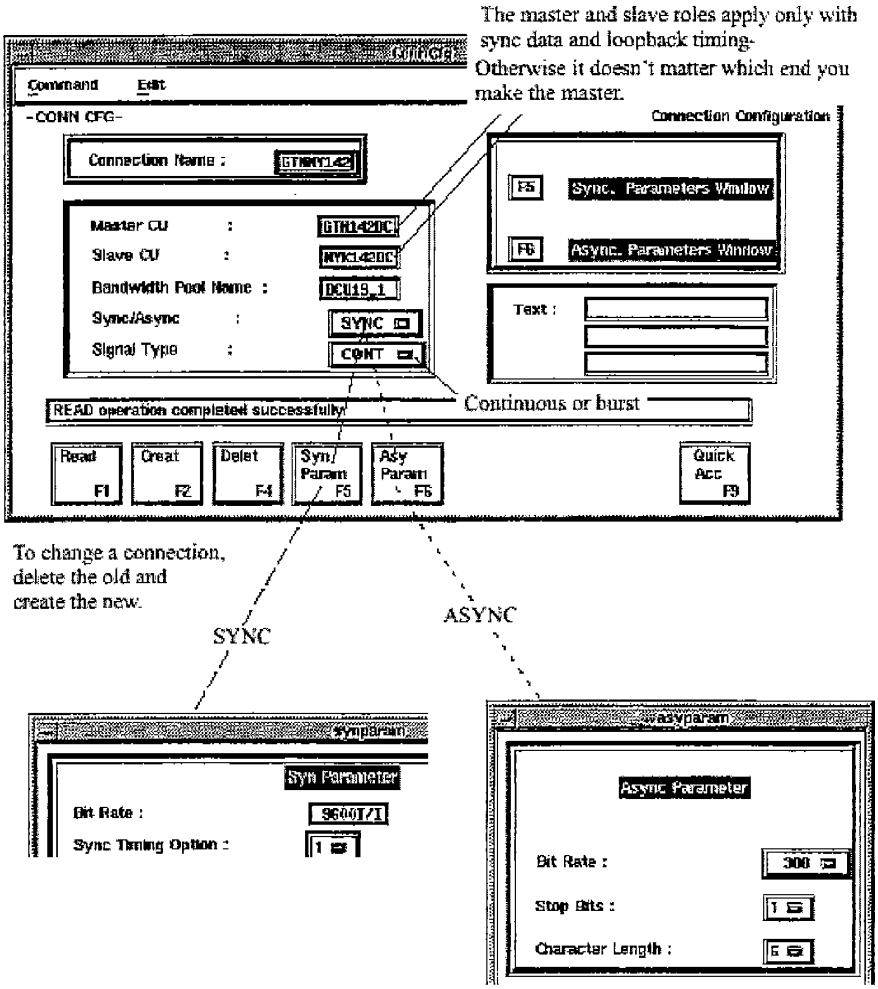


圖 6-31 CONN CFG

□ Loop Cfg

兩個指定 CU 間的 loopback 連接，在 LOOP CFG

中定義，可分為同步、非同步及語音三種模式，如圖 6-32 所示。在畫面中可以將此三種模式同時予以建立，不過同一時間只能執行其中一種模式。

當遠端站有技術人員在場時，同步模式是最好的測試方式；若無技術人員在場時，則非同步模式是唯一可行的測試方式；至於語音模式則主要是使用於特殊的語音信號測試時。

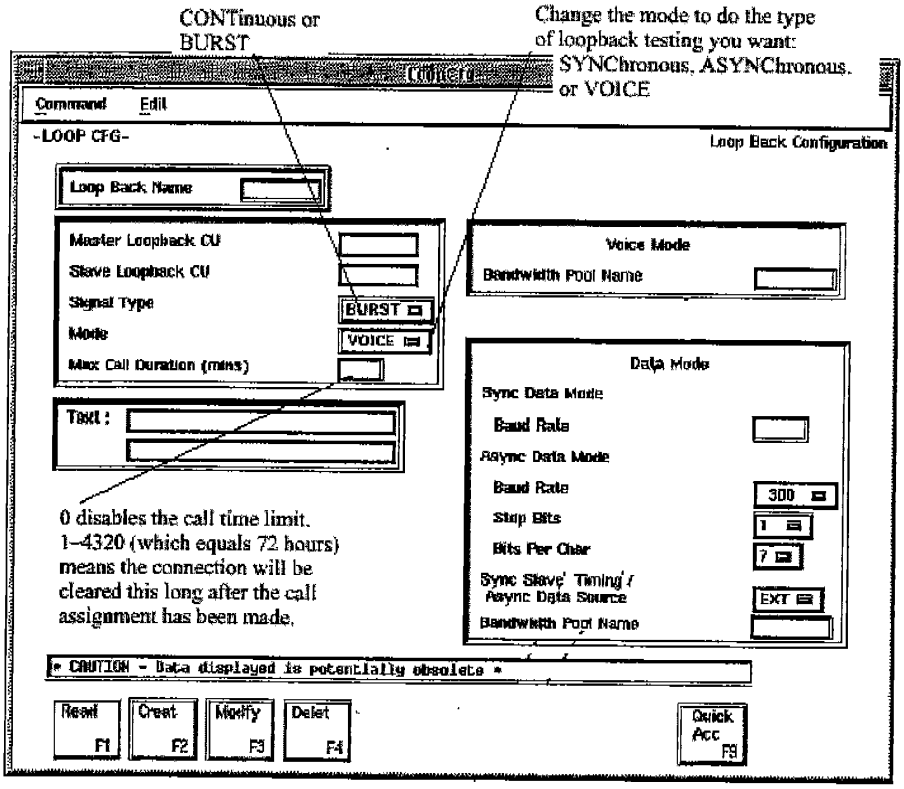


圖 6-32 LOOP CFG 畫面

□ Pama Cfg

PAMA CFG 用以定義兩個 VCU 間的固定連接電路，該連接方式可以設定為單工或雙工，如圖 6-33 所示。

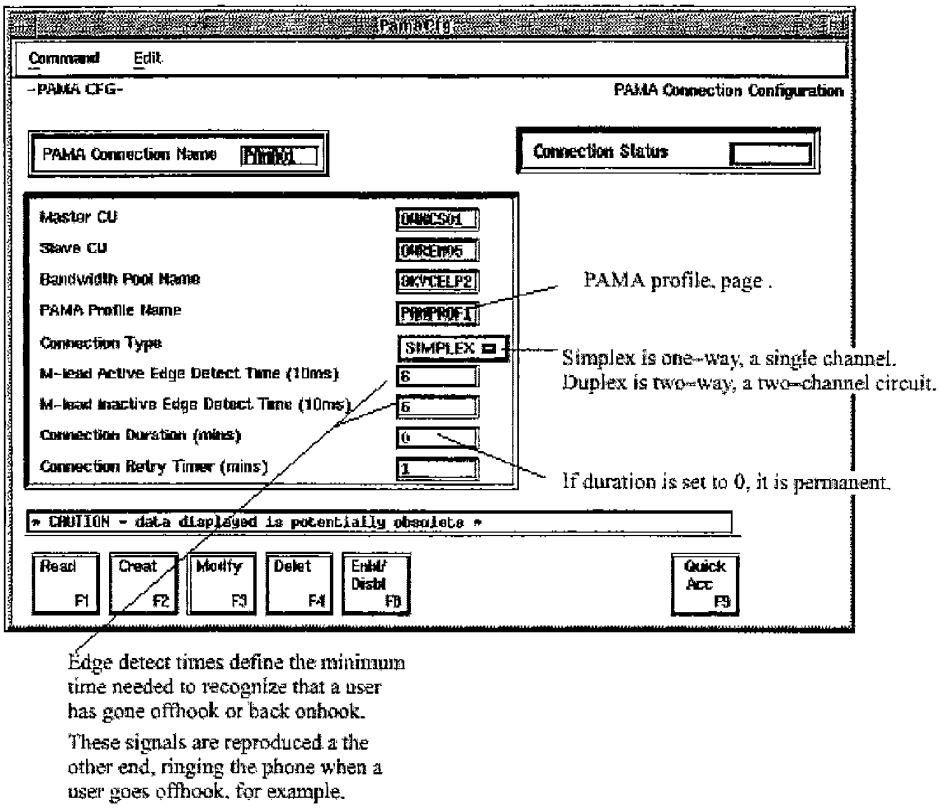


圖 6-33 PAMA CFG

□ Vaxpr Cfg

DECserver 的通信埠(如圖 6-34 所示)與 CCU 間經由纜線連接，而在 VAXPR CFG 中予以定義，如圖 6-35 所示。

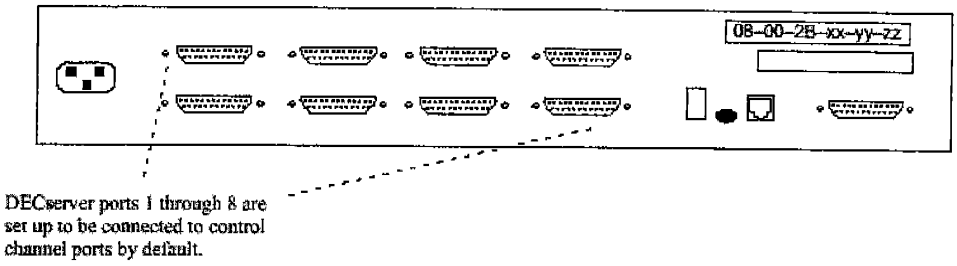


圖 6-34 DECserver 通信埠

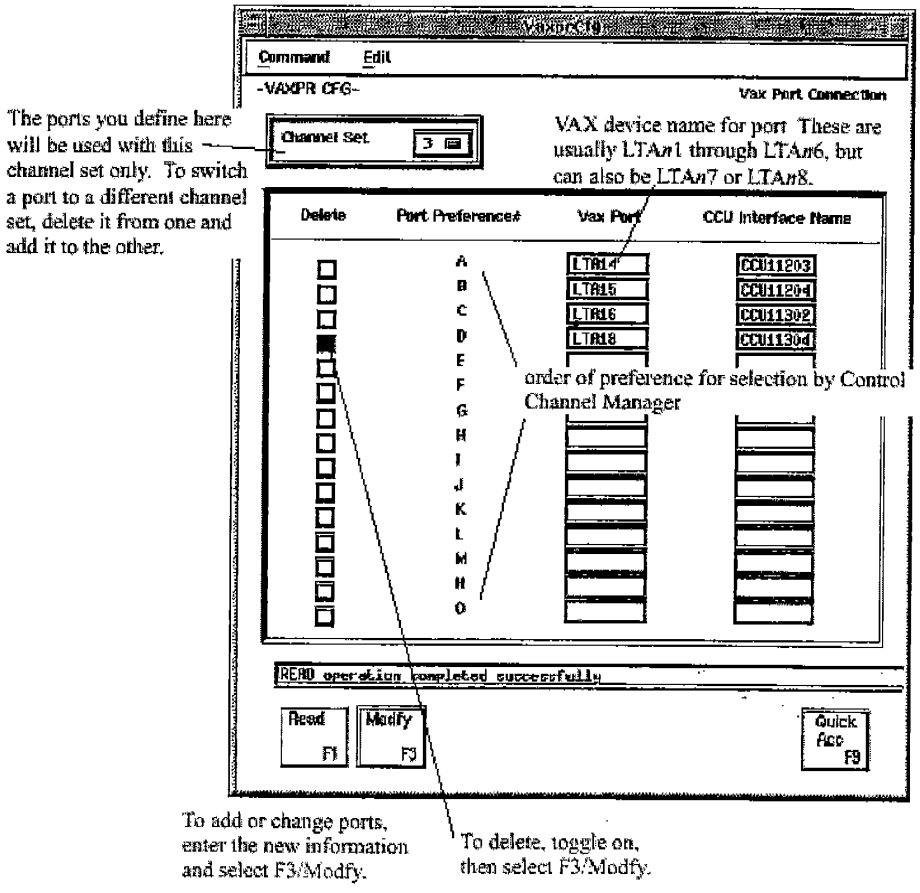


圖 6-35 VAXPR CFG 畫面

□ CU Addr

VCU 或 ADDCU 必須先在 CHASS CFG 及 CU CFG 中定義之後，才可以在 CU ADDR 中定義，畫面如圖 6-35 所示。

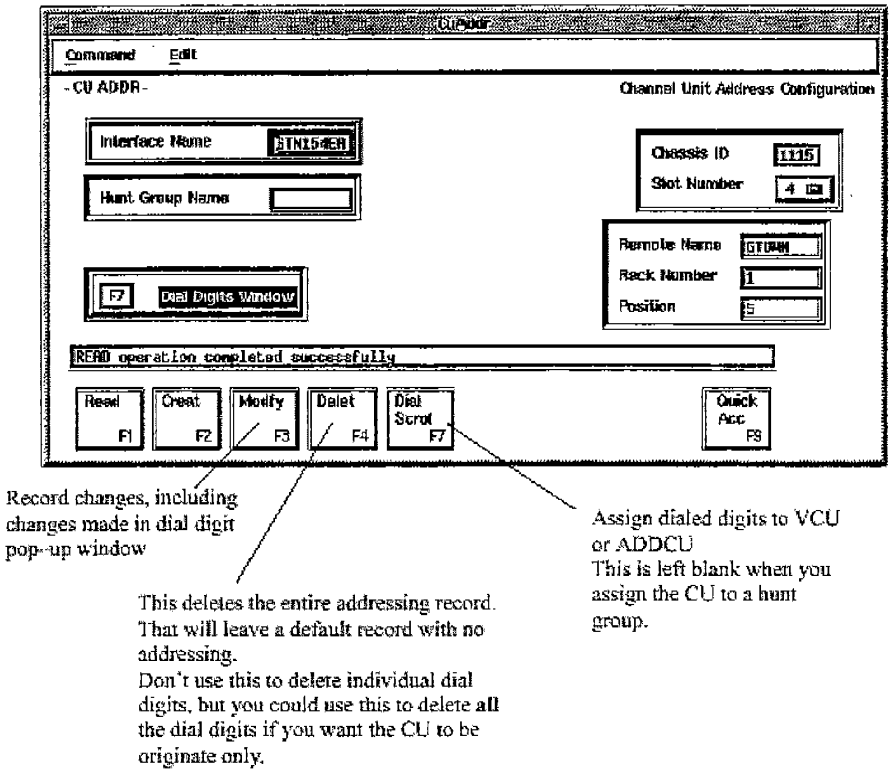


圖 6-35 CU ADDR 畫面

□ Callsrv Cfg

CALLSRV CFG 可用來限撥特定號碼，如圖 6-36 所示。

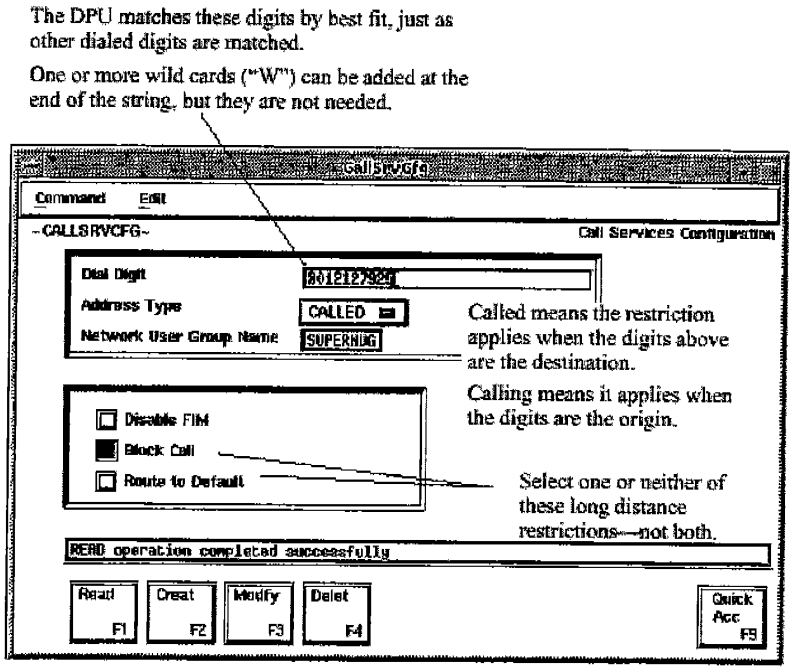


圖 6-36 CALLSRV CFG 畫面

七、管理功能

7.1 操作者管理

□ OPER DEF

當系統需要新增操作者、刪除操作者、更改操作者型態或更改密碼時，所使用的畫面為 OPER DEF，如圖 7-1 所示。更改密碼之操作方式，則如圖 7-2 所示。

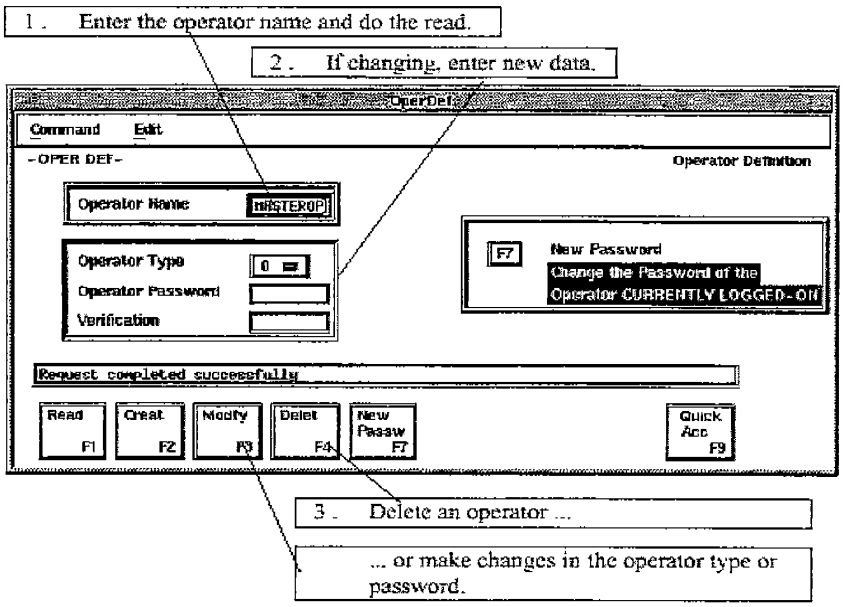


圖 7-1 OPER DEF 畫面

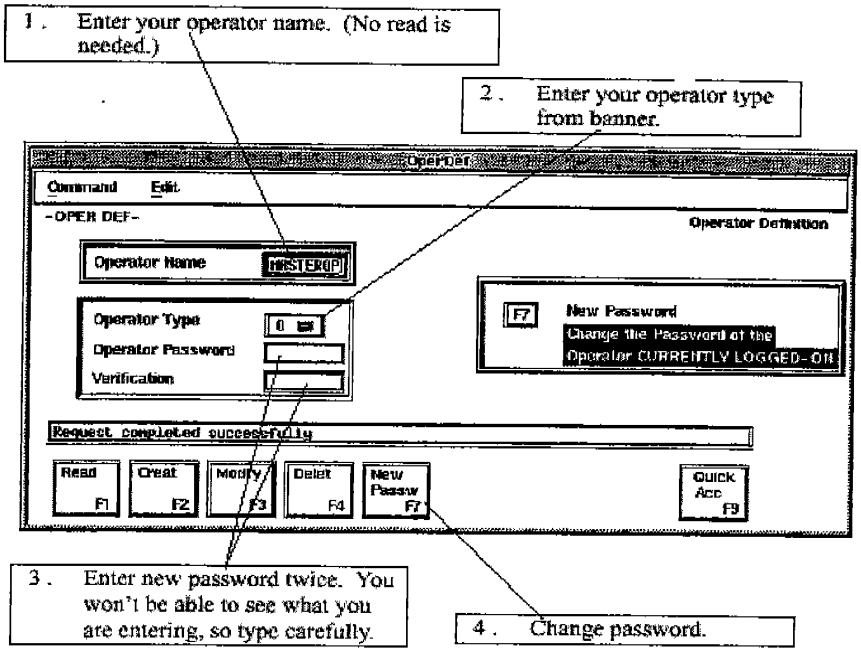


圖 7-2 密碼更改

□ OPER EVCLS

事件(event)分成九類，由 class1 到 class9，利用 OPER EVCLS 可以定義每一型態的操作者所著重的事件類型，如圖 7-3 所示。

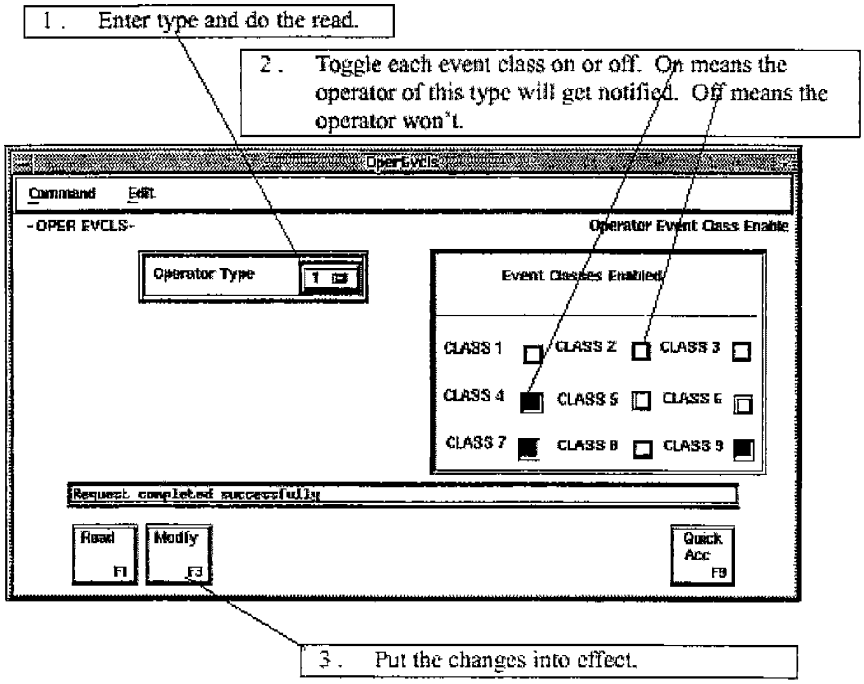


圖 7-3 OPER EVCLS 畫面

□ OPER ACCESS

OPER ACCESS 用以定義操作者對各畫面的使用權限，如圖 7-4 所示。

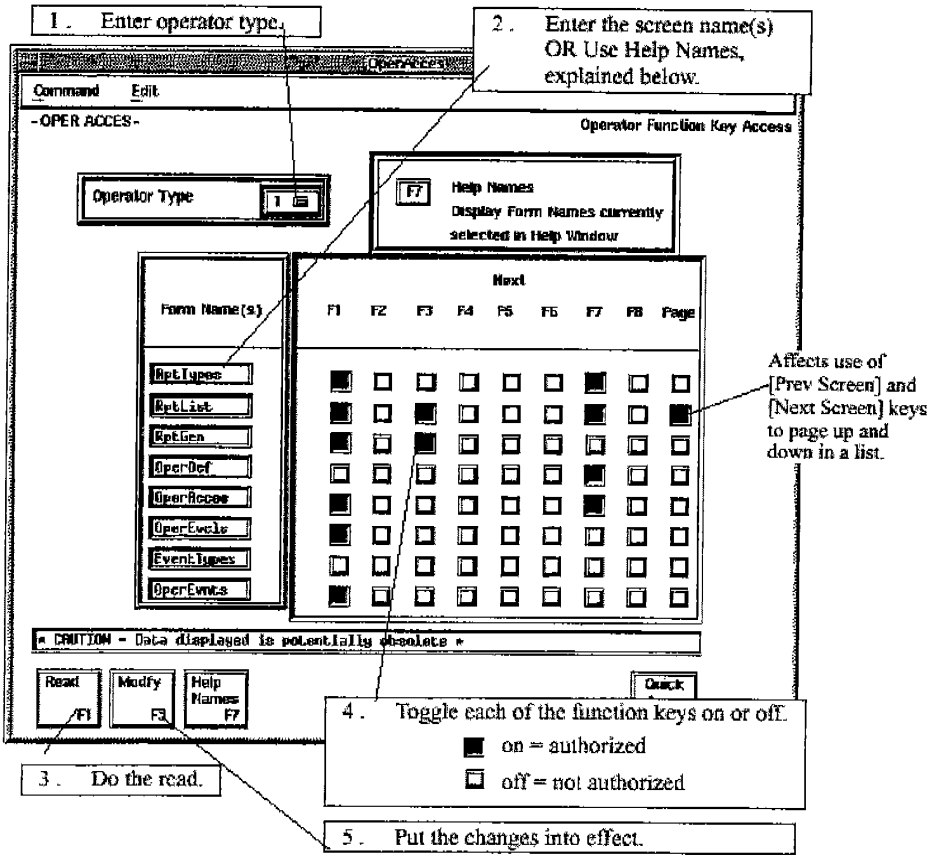


圖 7-4 OPER ACCESS 畫面

□ DATA ACCESS

DATA ACCESS 將設備定義成 6 個 group。其中 group 0 為預設值，設備只要不是編入到 group 1-5 中，就屬於 group 0。group 0 中的設備只有操作者型態 0-15 者才可監控，操作者型態為 16 者(顧客)則只能監控 group 1-5 中個別的次網路設備。

7.2 事件管理

每一個事件的類型及嚴重等級，可以在 EVENT TYPES 畫面中依使用者的需求來重新定義，如圖 7-5 所示

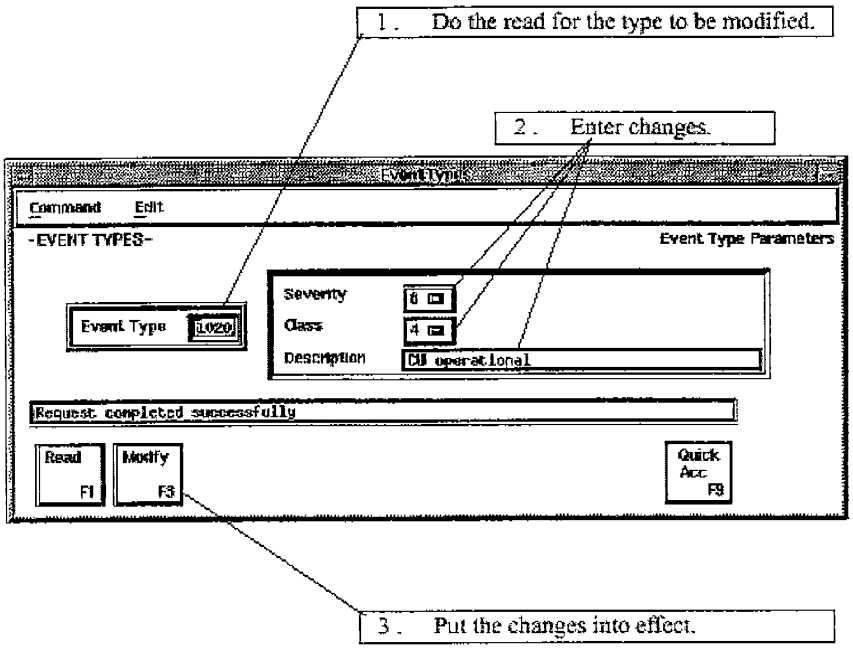


圖 7-5 EVENT TYPES 畫面

7.3 報表

□ RPT TYPES

RPT TYPES 顯示可以使用的報表形式，如圖 7-6 所示。

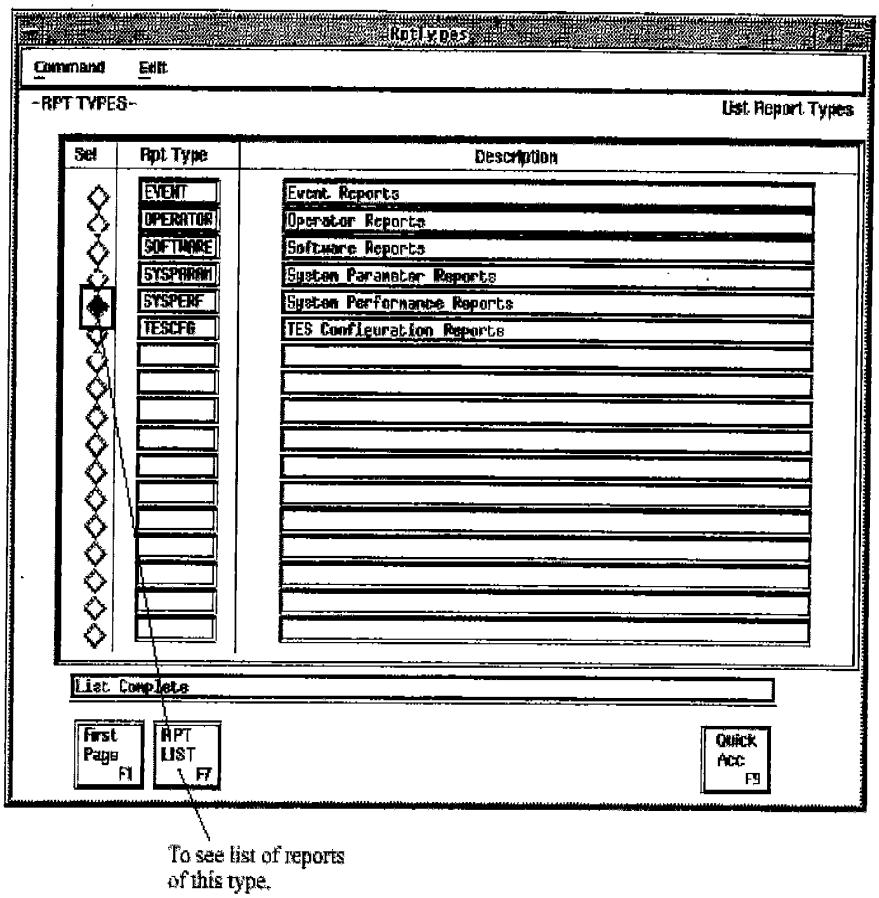


圖 7-6 RPT TYPES 畫面

□ RPT GEN

RPT GEN 依據所選定的報表形式用以產生所需的報表，如圖 7-7 所示。

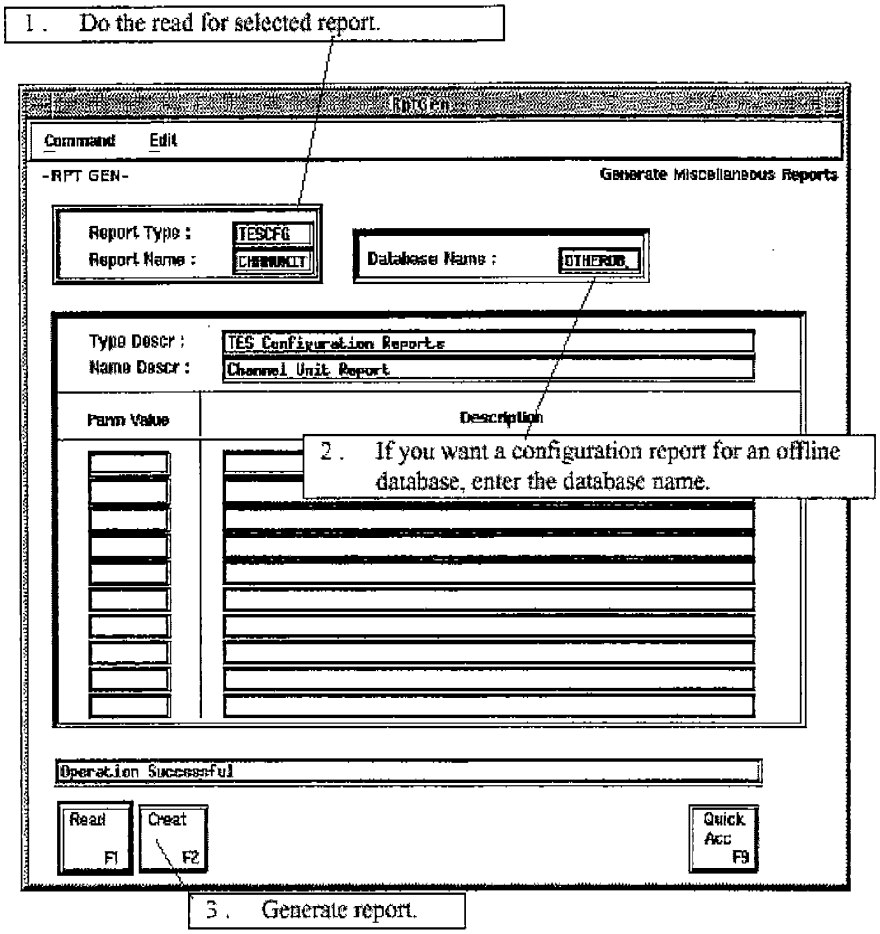


圖 7-7 RPT GEN 畫面

□ RPT LIST

RPT LIST 依據指定的報表形式，顯示出該形式所有的報表供選擇，如圖 7-8 所示。至於相關報表樣張則如附錄一所示。

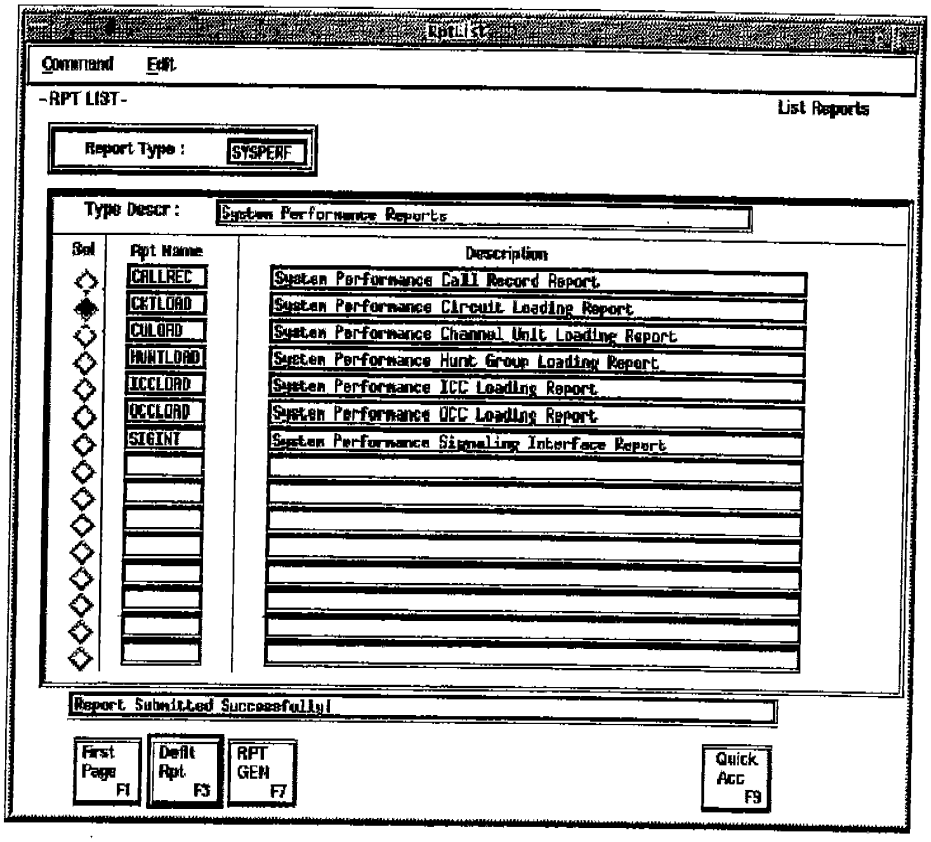


圖 7-8 RPT LIST 畫面

DIALWARE

同一通信衛星系統同一轉頻器情況下，只要頻率分配得宜，可以規劃如下圖群組使用，Remote site 可作爲 Gateway 功能，經由此設備衛星系統得以和地面網路諸如鄉村電話 PBX、公眾網路 PSDN 聯繫，透過撥接方式傳送 VOICE 或 DATA 通信，其中 Remote site 由 NCS 指配固定頻率、台址編碼設定，如 7-9，7-10 及 7-11 圖。

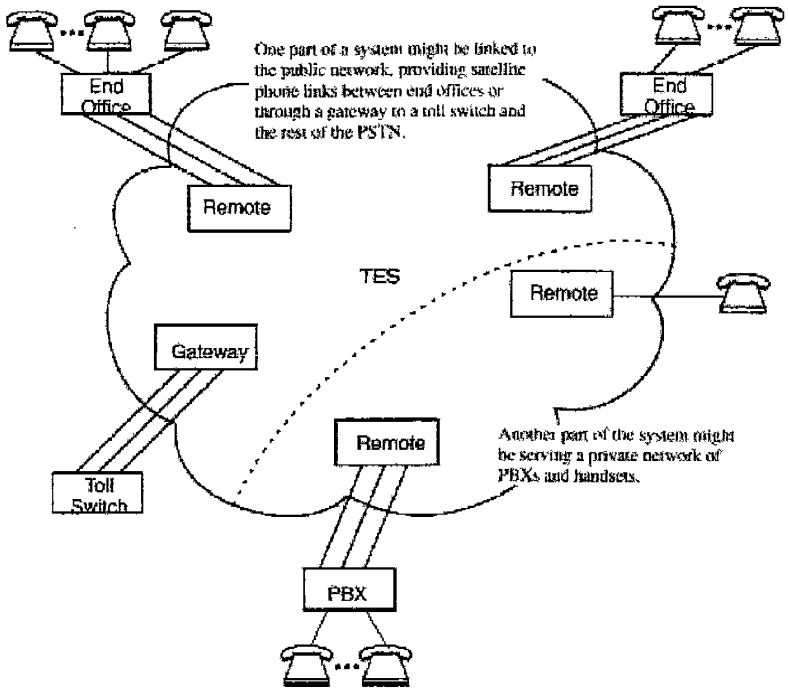


圖 7-9 衛星電路與地面電路銜接圖

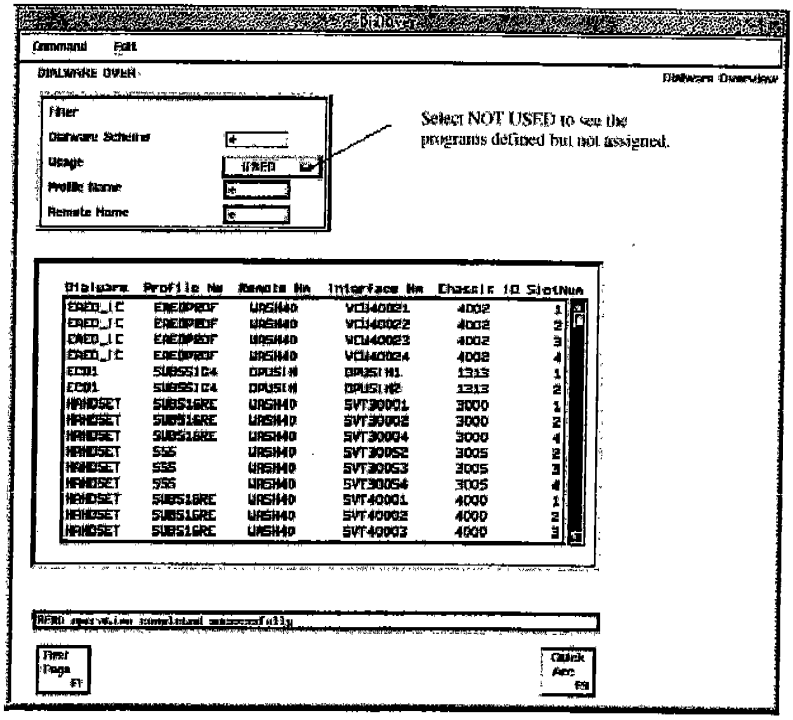

Command
Edit
DIALWARE OVER
Dialware Overview
Filter
Dialware Scheme
Usage
USED
Profile Name
Remote Name
Select NOT USED to see the programs defined but not assigned.
Dialware
Profile Na
Remote Na
Interface Na
Chassis ID
Slot Num
First Page
Quick Acc

圖 7-10 撥接記錄視窗

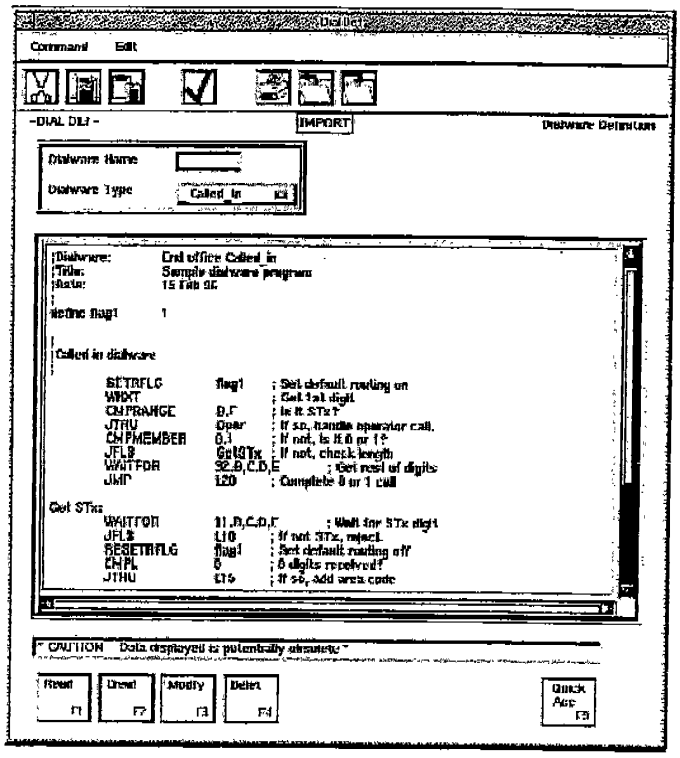

Command
Edit
-DIAL DLI -
IMPORT
Dialware Name
Dialware Type
Called_In
;Dialware:
;Title:
;Date:
Define flag1
Called in dialware
SETRFLG
WAIT
CHFRANGE
JTHU
CHFMEMBER
JFLS
WAITFOR
JMP
Get STx:
WAITFOR
JFLS
RESETRFLG
CHFL
JTHU
CAUTION
Read
Creat
Modify
Delet
Quick
Acc

圖 7-11 撥接設定視窗

附錄一、報表樣張

ABRDPROF profile report


```
2-nov-1998                          ABRDPROF
12:35:57

Profile       Software      Voice
Name          Name          Activation
----------    --------      ----------
ABRDPROF      ABPV          ON
```

Audio Conference report

15-[illegible]-1998 [illegible]

AUDIO CONFERENCE

Conference Name	Conference Profile Name	Bandwidth Pool Name	[illegible]	Master [illegible]	[illegible] Role	Slave Id	[illegible] Name	[illegible] Id	[illegible] No	Config Role	Config Profile Name
[illegible]	[illegible]	[illegible]	SLAVE	NO	[illegible]	---	[illegible]	1111	1	ACU	[illegible]
					BRIDGE2	---	[illegible]	1111	2	ACU	[illegible]
					MASTER	---	[illegible]	1111	3	ACU	[illegible]
					SLAVE	---	[illegible]	1111	4	ACU	[illegible]

ACU Profile report

12-SEP-1998 [illegible]

ACU [illegible]

Conference Profile Name	Bandwidth Pool Name	Software Type	Master Acq Timer	Slave Acq Timer	[illegible] Timer	Bridge 2 PA Timer	Master PA Timer	Offset Stab Timer	[illegible] PA Timer	[illegible] Timer	[illegible] Timer	[illegible] Timer
ACUPROF	[illegible]	ACU	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	50	[illegible]	10	[illegible]	15

ADDCU Profile report **ADDCUPRO**

```
15-aug-1998                                                ADDCU PROFILE
06:43:25

Profile     Bandwidth   Software  Carrier  Bit                 Char    Stop
Name        Pool Name   Type      Type     Rate     Parity     Length  Bits

ADD1        DATA32      ADDCU     BURST    4800     NONE       8       1
ADD4        DATA32      ADDCU     BURST    4800     ODD        8       2
ADD5        DATA32      ADDCU     BURST    9600     ODD        8       2
ADDCUPRO    DATA96      ADDCU     CONT     9600     NONE       8       1
```


BTCU Profile report **BTCUPROF**

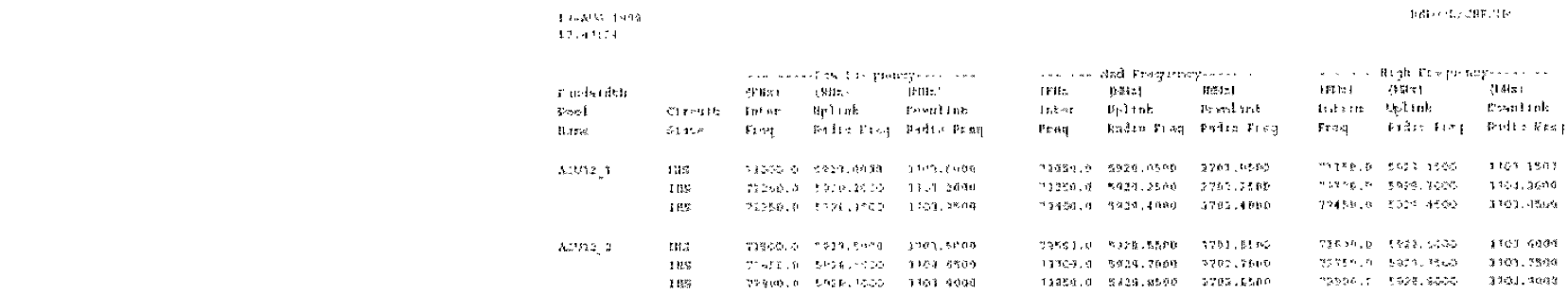
```
12-SEP-1998          BTCU PROFILE
09:56:25

Profile     Bandwidth   Software
Name        Pool Name   Type
-------     ---------   --------

BTCUREM     BWPDCU2     BTCU
```

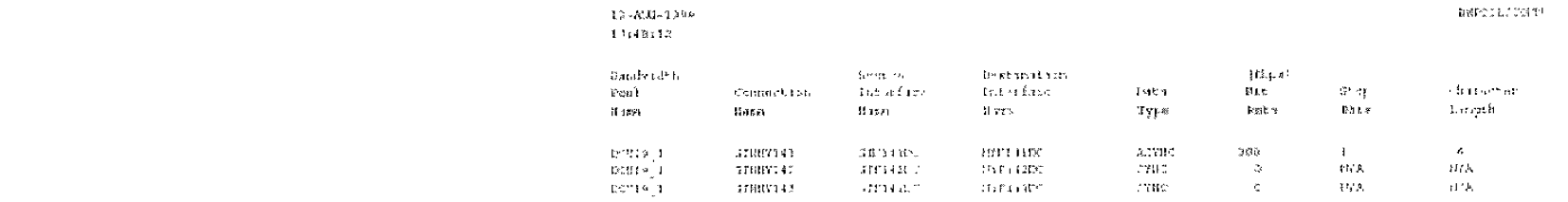
Bandwidth Pool/Conference Circuit report

BWPCNFCI



Bandwidth Pool/Connection report

BWPCONN



18-AUG-1998 BWPOOL/CU
17:48:41

Bandwidth Pool Name	Interface Name	Chassis ID	Slot Number
VCU16	GTN152LP	1115	2
	GTN162R1	1116	2
	GTN164RB	1116	4
	NYK152LP	2115	2
	NYK162R1	2116	2
	NYK164RB	2116	4
	WAS152LP	3515	2
	WAS162R1	3616	2
	WAS164RB	3616	4
VCU32_1	GTN153EA	1115	3
	GTN154EA	1115	4
	GTN161DP	1116	1
	GTN163EB	1116	3
	NYK153EA	2115	3
	NYK154EA	2115	4
	NYK161DP	2116	1
	NYK163EB	2116	3
	WAS135EA	3313	5
	WAS136EA	3313	6
	WAS137EA	3313	7
	WAS138EA	3313	8

Bandwidth Pool/ Data Broadcast Circuit report

BWPDBCIR

15-AUG-1998 BWPOOL/USRCIR
13:39:54

Bandwidth Pool Name	Circuit State	(KHz) Intermediate Frequency	(MHz) Uplink Radio Frequency	(MHz) Downlink Radio Frequency
		------------Low Frequency-----------		
BCU16_2	INS	74000.0	5929.0000	3704.0000
	INS	74025.0	5929.0250	3704.0250
	INS	74050.0	5929.0500	3704.0500
	INS	74075.0	5929.0750	3704.0750
BCU19_1	INS	74110.0	5929.1100	3704.1100
	INS	74140.0	5929.1400	3704.1400

Bandwidth Pool report

BWPOOL

[illegible]-SEP-1998 [illegible]
[illegible]

Bandwidth Pool Name	Bandwidth Pool Type	(Kbps) Data Rate	FEC Rate	Modulation	Compression Algorithm	(KHz) Channel Space	Usr Ctrs	Conf Ctrs	Total Conn	Total Profiles	Total Loopback Connections
[illegible]	VOICE	[illegible]	3/4	BPSK	[illegible]	20.0	3	0	0	1	0
[illegible]	VOICE	16000	3/4	QPSK	[illegible]	30.0	4	0	0	41	0
[illegible]	VOICE	[illegible]	1/2	QPSK	[illegible]	100.0	0	0	0	0	0
[illegible]	DATA	19200	1/2	QPSK		20.0	0	0	0	0	0

Bandwidth Pool/Profile report

BWPPROF

13-AUG-1998
17:49:49

BWPOOL/PROF

Bandwidth Pool Name	Profile Name	Profile Type
VCU16	LOOPREV1	LPREV
VCU16	LOOPREV2	LOOPREV
VCU16	R1MFA1	R1MFA
VCU16	R1MFA2	R1MFA
VCU16	R2MFCA1	R2MFCA
VCU16	R2MFCB1	R2MFCB
VCU32_1	DPTYPEA1	4WEMMDR1
VCU32_1	BANDMA1	4WEMMDR1
VCU32_1	BANDMB1	4WEMMDR1

Bandwidth Pool/User Circuit report

BWPUSRCI

13-AUG-1998
17:50:25

BWPOOL/USRCIR

Bandwidth Pool Name	Circuit State	Low Frequency: (MHz) Intermediate Frequency	Low Frequency: (MHz) Uplink Radio Frequency	Low Frequency: (MHz) Downlink Radio Frequency	High Frequency: (MHz) Intermediate Frequency	High Frequency: (MHz) Uplink Radio Frequency	High Frequency: (MHz) Downlink Radio Frequency
ACH15_1	IHS	73000.0	5928.0000	2701.0000	73050.0	5928.0500	2701.0500
	IHS	73050.0	5928.0500	2701.0500	73150.0	5928.1500	2701.1500
	IHS	[illegible]	5928.0[illegible]	2701.0500	73150.0	5928.1500	2701.1500
	IHS	73200.0	5928.2000	2701.2000	73250.0	5928.2500	2701.2500
	IHS	[illegible]	5928.[illegible]	2701.2000	73300.0	5928.3000	2701.3000
	IHS	73250.0	5928.2500	2701.2500	73300.0	5928.3000	2701.3000
	IHS	73350.0	5928.3500	2701.3500	73400.0	5928.4000	2701.4000
	IHS	73350.0	5928.3500	2701.3500	73450.0	5928.4500	2701.4500
	IHS	73400.0	5928.4000	2701.4000	73450.0	5928.4500	2701.4500
LCH15_1	IHS	70240.0	5925.2400	2700.2400	70262.5	5925.2625	2700.2625
	IHS	70295.0	5925.2950	2700.2950	70322.5	5925.3225	2700.3225
	IHS	70350.0	5925.3500	2700.3500	[illegible]	5925.3775	2700.3775
VCU16	IHS	70000.0	5925.0000	2700.0000	70030.0	5925.0300	2700.0300
	IHS	70060.0	5925.0600	2700.0600	70090.0	5925.0900	2700.0900
	IHS	70120.0	5925.1200	2700.1200	70150.0	5925.1500	2700.1500
	IHS	70160.0	5925.1600	2700.1600	70210.0	5925.2100	2700.2100

CCU Profile report

CCUPROF

```
15-JUL-1998                              CCU PROF
00:35:56

                                         CCU Info
Profile           Software               Message
Name              Name                   Timer

CCUPROF1          CCU                    20

CCUPROF2          1CCU                   20
```

Channel Unit report

CHANUNIT

[illegible] CHANNEL UNIT

[illegible]

Network Name	Chassis ID	Slot Number	Interface Name	Interface Type	MCU Number	Profile Name
[illegible]	[illegible]	1	[illegible]	[illegible]	1	[illegible]
		2	[illegible]	[illegible]	1	[illegible]
		3	[illegible]	[illegible]	1	[illegible]
		4	[illegible]	[illegible]	1	[illegible]
	[illegible]	1	[illegible]	[illegible]	1	[illegible]
		2	[illegible]	[illegible]	1	[illegible]
		3	[illegible]	[illegible]	1	[illegible]
		4	[illegible]	[illegible]	1	[illegible]
	[illegible]	1	[illegible]	[illegible]	1	[illegible]
		2	[illegible]	[illegible]	1	[illegible]
		3	[illegible]	[illegible]	1	[illegible]
		4	[illegible]	[illegible]	1	[illegible]
	[illegible]	1	[illegible]	[illegible]	1	[illegible]
		2	[illegible]	[illegible]	1	[illegible]
		3	[illegible]	[illegible]	1	[illegible]
		4	[illegible]	[illegible]	1	[illegible]
	[illegible]	1	[illegible]	[illegible]	1	[illegible]
		2	[illegible]	[illegible]	1	[illegible]
		3	[illegible]	[illegible]	1	[illegible]
		4	[illegible]	[illegible]	1	[illegible]
	[illegible]	1	[illegible]	[illegible]	2	[illegible]
		2	[illegible]	[illegible]	2	[illegible]
		3	[illegible]	[illegible]	2	[illegible]
		4	[illegible]	[illegible]	2	[illegible]
[illegible]	[illegible]	1	[illegible]	[illegible]	1	[illegible]
		2	[illegible]	[illegible]	1	[illegible]
		3	[illegible]	[illegible]	1	[illegible]
		4	[illegible]	[illegible]	1	[illegible]
	[illegible]	1	[illegible]	[illegible]	1	[illegible]
		2	[illegible]	[illegible]	1	[illegible]
		3	[illegible]	[illegible]	1	[illegible]
		4	[illegible]	[illegible]	1	[illegible]

Chassis report

15-MAY-1998
CHASSIS
17:51:31

Parent Name	Chassis ID	Total SCUs	Total DCUs	Total NTUs	Total CTUs	Total LCUs	Total ACUs	Total RCUs
GTCNH	1111	0	0	0	0	0	4	0
GTCNH	1112	0	0	0	0	0	0	4
GTCNH	1114	0	4	0	0	0	0	0
GTCNH	1115	4	0	1	0	0	0	0
GTCNH	1116	4	0	0	0	0	0	0
GTCNH	1213	0	0	0	0	4	0	0
HENTCRE	2111	0	0	0	0	0	0	0
HENTCRE	2113	0	0	0	0	0	0	4
HENTCRE	2114	0	4	0	0	0	0	0
HENTCRE	2115	3	0	1	0	0	0	0
HENTCRE	2116	4	0	0	0	0	0	0
HENTCRE	2213	0	0	0	0	4	0	0
NASH	3111	0	0	0	0	0	14	0
NASH	3212	0	0	0	0	0	0	14
NASH	3213	10	0	0	4	0	0	0
NASH	3414	0	14	0	0	0	0	0
NASH	3515	12	0	1	0	0	0	0
NASH	3616	14	0	0	0	0	0	0

CMPL DEF report

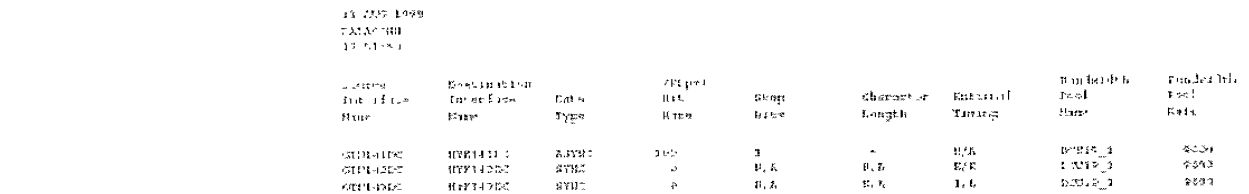
17-FEB-1999
14:37:58

CMPLDEF

Compiler Release	Profile Name	Interface Name	Parent Name	Chassis ID	Slot Number
GHLCRDT	P2S4C01	GTHICSFN	GTCNH	1114	4
	P3HPC03	FMCLG4RP	HENTCRE	2114	4
	P3HPC01	NSHLC4HB	NASH	3414	4

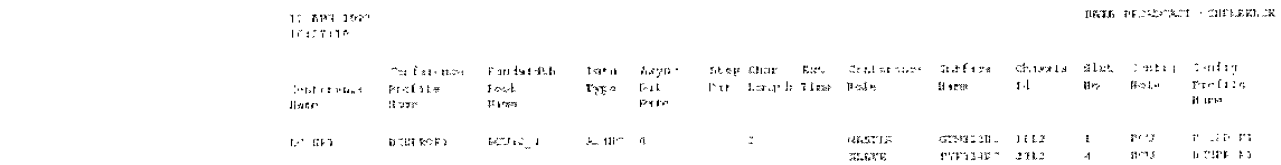
Data Connection report

DATACONN



Data Broadcast report

DBROAD



DCONF Profile report

DCONFPRO

13-AUG-1998 DCONF PROFILE
16:31:50

Conference Profile Name	Bandwidth Pool Name	Software Name	Lower Fade Timer	Upper Fade Timer
BCUPROF1	BCU16_1	BCUSW	10	15

13-AUG-1998 DIALDIGITS
17:52:08

Dial Digits	Hunt Group Name	Channel Unit
202000DDD	WASHUNT0	N/A
202727WWWW	WASHUNT1	N/A
2028885151@	N/A	WAS15AEA
2028885151!	N/A	WAS15BEA
2028885151"	N/A	WAS15CEA
2028885151#	N/A	WAS15DEA
2028885151$	N/A	WAS15EEA
202888515%	N/A	WAS153EA
202888515^	N/A	WAS154EA
202888515&	N/A	WAS155EA
202888515*	N/A	WAS156EA
202888515(	N/A	WAS157EA
202888515)	N/A	WAS158EA
202888515_	N/A	WAS159EA
202888WWWW	WASHUNT1	N/A
212000DDD	NYKHUNT0	N/A
2123301152	N/A	NYX152LP
2123301153	N/A	NYX153EA
2123301154	N/A	NYX154EA
212727WWWW	NYKHUNT1	N/A
212888WWWW	NYKHUNT1	N/A
301000DDD	GTNHUNT0	N/A
3013301152	N/A	GTN152LP
3013301153	N/A	GTN153EA
3013301154	N/A	GTN154EA
301424WWWW	GTNHUNT1	N/A
301428WWWW	GTNHUNT1	N/A

DialWare report

Software Scheme	Profile Name	Interface Name	Port Name	Channel ID	Slot Number
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	13
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DIGTRPROF profile report


```
[illegible]-1999                                              [illegible]
12:37:49
                    ********************************
                    *    Profile Name:  [illegible]  *
                    ********************************

     FIELD              VALUE                 FIELD DESCRIPTION

General Parameters
   Software Type :      [illegible]        /* Type of software in the profile        */
   Interface Type :     E1                 /* Type of Interface for this profile     */

Interface Parameters
   Frame Format :       [illegible]        /* [illegible]                            */
   CRC-4                ENABLE             /* Enable or Disable                      */
   Line Coding :        HDB3               /* AMI or HDB3                            */
   Remote Alarm :       ENABLE             /* Enable or Disable                      */
   Clock :              E1 RECOVERED       /* EXTERNAL [illegible] MHZ, [illegible], E1 RECOVERED, [illegible]
                                              [illegible]                            */
   Line Build Out [illegible] : 0          /* 0, [illegible], [illegible], or [illegible] dB */
```

DP Profile report

DPPROF

13-SEP-1999
10:49:33

DPPROF

ProfName	Vol Ack	BaPosLdn	ConfType	Tx Rck Msr		Tx Bin Spd	Int Dyl Cap	Min Int Cap	Max Txt Cap	Fir Dgt Dut	Min Pls Mak	Max Pls Mak	Min Pls Brk	Max Pls Brk	Off Hok	On Hok	Dia Dly Sup	Off Ht Dwc	On Ht Dec	Ret Cas Tim	Max Clr Tex	Rev Clr Rei
DPTYPICAL	CH	ENF22PCH	LEANDNEP	40	2s	10	200	300	8000	8000	30	45	20	80	50	250	500	300	300	10	11	10
BEDPT	CH	BWGCU_32	EXGNEP	40	2s	10	200	300	8000	8000	20	80	20	80	50	250	500	300	300	10	11	10
BEDPTPSB	CH	ENF12PCH	LEANDNEP	40	2s	10	200	300	8000	8000	20	80	20	80	50	250	500	300	300	10	11	10
FXBEDP	CH	EWF12PCH	FXGNEP	40	2s	10	200	300	8000	1300	20	80	20	80	50	250	500	300	300	10	11	10
LOCBDP	CH	BWGCU_32	LEANDNEP	40	2s	10	200	300	8000	8000	20	80	20	80	50	250	500	300	300	10	11	10
TELBDP	CH	EWGCU_32	ILOCELP	40	2	10	200	300	8000	8000	20	80	20	80	50	250	500	300	300	10	11	10
TELDNP1	CH	EWF12PCH	ILOCTEP	40	2s	10	200	300	8000	4000	20	80	20	80	50	250	500	300	300	10	11	10

DTCU Profile report

DTCUPROF

13-SEP-1999
10:41:49

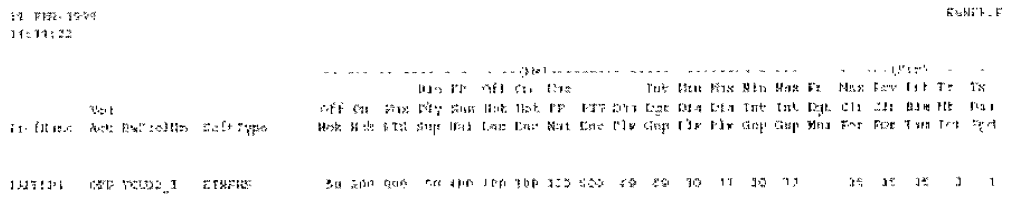
DTCUPROF

```
******************************************
*     Profile Name:    DTCUREP           *
******************************************
```

FIELD	VALUE	FIELD DESCRIPTION	
Software Type	DTCU	(* Type of software in the profile	*)
LADN Service	To User	(* To User or To Switch	*)
LADN Link	M (Multipoint)	(* P (Point to Point) or M (Multipoint)	*)
Terminal Identifier Value	0	(* Terminal Identifier Value	*)
International Answer Time (sec)	180	(* Wait time for answer before calling error handler	*)
National Answer Time (sec)	180	(* Wait time for answer before calling error handler	*)
Total Address Presentation Time (sec)	30	(* Total Address Presentation Time	*)
Total Address Length	8	(* Total Address Length	*)
Inter Digit Time (sec)	10	(* Inter Digit Time	*)

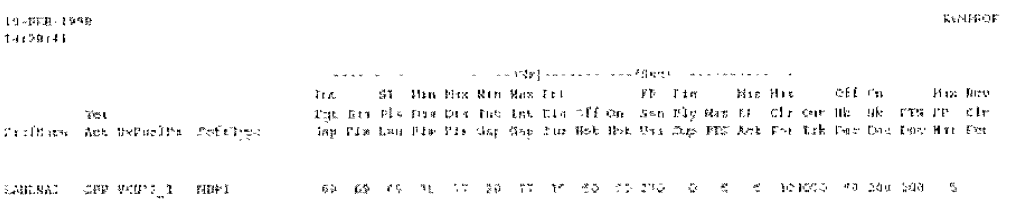
E&M Profile report

DTMFPROF



E&M Profile Type A report

EANDMPRO



[illegible]

* Profile Name: [illegible] *

FIELD	VALUE	FIELD DESCRIPTION
General Parameters		
Software Type:	[illegible]	/* Type of software in the profile */
Bandwidth Pool Name:	[illegible]	/* Bandwidth Pool Used by this profile */
Voice Activation:	ON	/* Carrier signal transmitted during pauses */
Encryption Enable	[illegible]	/* Valid values are YES or NO */
Originating CU Pkg Count	10	/* Valid values are 0 - 255 */
Terminating CU Pkg Count	10	/* Valid values are 0 - 255 */
Interface Type	ACCESS TANDEM	/* END OFFICE or ACCESS TANDEM or INTER-EXCHANGE CARRIER */
Emulation Type	END OFFICE	/* INTER-EXCHANGE CARRIER or ACCESS TANDEM or END OFFICE */
Supervisory Parameters		
Common		
Glare Backoff	OFF	/* CU Backoff On/Off in Case of Glare */
Glare Resolve Time (sec)	5	/* Glare Resolved in Time */
Clear Forward Timeout (sec)	10	/* Max time to wait for a clear forward after clear back */
Outgoing		
Min First Stage Wink Return Time (ms)	[illegible]	/* Outgoing minimum proceed-to-send first stage wink return time */
First Stage Wink Timeout (ms)	[illegible]	/* Outgoing maximum proceed-to-send first stage wink timeout */
Min First Stage Wink Duration (ms)	[illegible]	/* Minimum first stage duration */
Max First Stage Wink Duration (ms)	[illegible]	/* Maximum first stage wink duration */
Min Second Stage Wink Return Time (ms)	[illegible]	/* Outgoing minimum proceed-to-send second stage wink return time */
Second Stage Wink Timeout (ms)	[illegible]	/* Outgoing maximum proceed-to-send second stage wink timeout */
Min Second Stage Wink Duration (ms)	[illegible]	/* Minimum second stage duration */
Max Second Stage Wink Duration (ms)	[illegible]	/* Maximum second stage wink duration */
Min Acknowledge Wink Return Time (ms)	[illegible]	/* Outgoing minimum proceed-to-send ack wink return time */
Acknowledge Wink Timeout (ms)	[illegible]	/* Outgoing maximum proceed-to-send ack wink timeout */
Min Acknowledge Wink Duration (ms)	[illegible]	/* Minimum ack wink duration */
Max Acknowledge Wink Duration (ms)	[illegible]	/* Maximum ack wink duration */
Incoming		
On Hook Detection Time (ms)	[illegible]	/* How long an onhook condition must exist for detection */
Off Hook Detection Time (ms)	50	/* How long an offhook condition must exist for detection */
First Stage Wink Send Delay (ms)	[illegible]	/* Maximum first stage delay before sending proceed-to-send to a
First Stage Wink Send Duration (ms)	[illegible]	/* First stage duration of proceed-to-send acknowledgement of a *
Second Stage Wink Send Delay (ms)	[illegible]	/* Maximum second stage delay before sending proceed to send to a
Second Stage Wink Send Duration (ms)	[illegible]	/* Second stage duration of proceed-to-send acknowledgement of a
Acknowledge Wink Send Delay (ms)	[illegible]	/* Maximum acknowledge delay before sending proceed to send to a
Acknowledge Wink Send Duration (ms)	[illegible]	/* Acknowledge wink duration of proceed-to send acknowledgement o

Continued on next page

```
Addressing Parameters
  Outgoing
    Digit Width (ms):                        5[illegible]     /* Maximum digit width                                   */
    Inter Digit Gap (ms):                    50               /* Minimum wait time before receiving another digit      */
    KP Width (ms):                           50               /* KP Width                                              */
  Incoming
    Min Digit Width (ms)                     30               /* Minimum digit width that can be detected              */
    Max Digit Width (ms)                     72               /* Max digit duration                                    */
    Min Interdigit Gap (ms)                  10               /* Minimum wait time before receiving another digit      */
    Max Interdigit Gap (ms)                  77               /* Maximum wait time for the next digit                  */
    First Digit Wait Timeout (ms)            [illegible]      /* Maximum wait time for the first digit to appear       */
    KP Min Width (ms)                        30               /* Minimum KP ([illegible]) ms                            */
    KP Max Width (ms)                        [illegible]      /* Maximum KP ([illegible]) ms                            */
Feature Parameters
  Coin Control Mode                          Enable           /* Enable or disable coin control feature                */
  Ringback Clear Time (ms)                              30    /* Ringback clear time in increments of 0.5 sec          */
  Incoming Parameters
    Min Hook Flash On-hook Wink Duration (ms)           50    /* Incoming minimum hook-flash on-hook wink duration     */
    Max Hook Flash On-hook Wink Duration (ms)          140    /* Incoming maximum hook-flash on-hook wink duration     */
    Min Coin Control Signal On-hook Wink Duration (ms)  70    /* Incoming minimum coin control signal on-hook wink duration */
    Max Coin Control Signal On-hook Wink Duration (ms)  [illegible] /* Incoming maximum coin control signal on-hook wink duration */
    Max Wait for Coin Control Signals (ms)             [illegible] /* Incoming maximum wait after on hook for coin control signals */
  Outgoing Parameters
    Hook Flash On-hook Wink Width (ms)                 100    /* Outgoing hook-flash on-hook wink width                */
    Coin Control Signal On-hook Wink Width (ms)        105    /* Outgoing coin control signal on hook wink width       */
    Delay for Coin Control Signals (ms)                150    /* Outgoing delay after on-hook wink for coin control signals */
    Coin Collect Tone Duration (ms)                    100    /* Outgoing coin collect tone duration                   */
    Coin Return Tone Duration (ms)                     109    /* Outgoing coin return tone duration                    */
    Ringback Tone Duration (ms)                        200    /* Outgoing ringback tone duration                       */
Signaling Bits Parameters
  Signaling Mode                             ANALOG           /* DIGITAL or ANALOG Signaling Mode                      */
  Forward Active Value                       1                /* Value of Forward Active Bit                           */
  Backward Active Value                      1                /* Value of Backward Active Bit                          */
  Forward Bit a                              IN USE           /* Value of Forward Bit a                                */
  .
  Backward Bit a                             IN USE           /* Value of Backward Bit a                               */

  Digital Alarm Forward Bit A                1                /* Value of Digital Alarm Forward Bit A                  */
  . .
  Digital Alarm Backward Bit A               1                /* Value of Digital Alarm Backward Bit A                 */
```

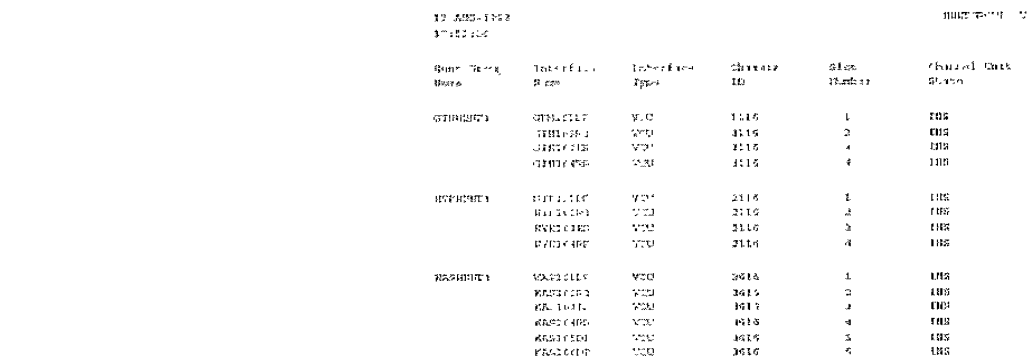
19-AUG-1998
FREQUENCY
14:58:19

** Note : Contiguous User/Traffic **
** freqs make up a circuit **

(KHz) Intermediate Frequency	(MHz) Uplink Radio Frequency	(MHz) Downlink Radio Frequency	Channel Type
70000.0	5925.0000	3700.0000	Traffic
70030.0	5925.0300	3700.0300	Traffic
70060.0	5925.0600	3700.0600	Traffic
70090.0	5925.0900	3700.0900	Traffic
70120.0	5925.1200	3700.1200	Traffic
70150.0	5925.1500	3700.1500	Traffic
70180.0	5925.1800	3700.1800	Traffic
70210.0	5925.2100	3700.2100	Traffic
70240.0	5925.2400	3700.2400	Traffic
70267.5	5925.2675	3700.2675	Traffic
70295.0	5925.2950	3700.2950	Traffic
70322.5	5925.3225	3700.3225	Traffic
70350.0	5925.3500	3700.3500	Traffic
70377.5	5925.3775	3700.3775	Traffic
71000.0	5926.0000	3701.0000	Test
73000.0	5928.0000	3703.0000	Conference
73050.0	5928.0500	3703.0500	Conference
73150.0	5928.1500	3703.1500	Conference
73200.0	5928.2000	3703.2000	Conference
...			
73800.0	5928.8000	3703.8000	Conference
73850.0	5928.8500	3703.8500	Conference
73900.0	5928.9000	3703.9000	Conference
74000.0	5929.0000	3704.0000	Broadcast
74025.0	5929.0250	3704.0250	Broadcast
74050.0	5929.0500	3704.0500	Broadcast
74075.0	5929.0750	3704.0750	Broadcast
74110.0	5929.1100	3704.1100	Broadcast
74140.0	5929.1400	3704.1400	Broadcast
78000.0	5933.0000	3708.0000	Control
78100.0	5933.1000	3708.1000	Control
78200.0	5933.2000	3708.2000	Control
78300.0	5933.3000	3708.3000	Control

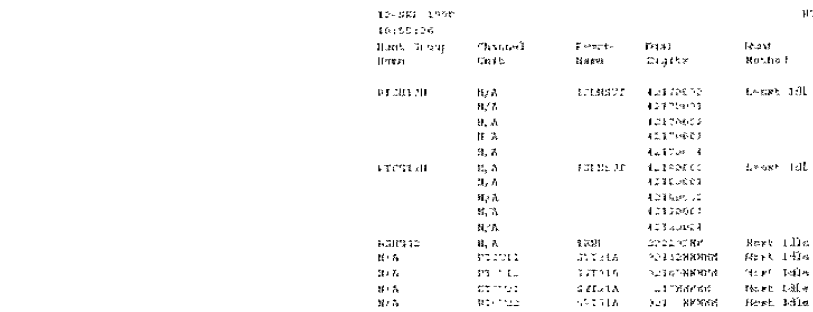
Hunt Group/CU report

HUNTCU



Hunt Group/Addressing report

HUNTGRP



[illegible]-1998
INTERFACE
[illegible]

Interface Name	Profile Name	Interface Type	Parent Name	Chassis ID	Slot Number
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3
[illegible]	[illegible]	VCU	[illegible]	[illegible]	2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3
[illegible]	[illegible]	VCU	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	VCU	[illegible]	[illegible]	3
[illegible]	[illegible]	VCU	[illegible]	[illegible]	4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2
[illegible]	[illegible]	GCU	[illegible]	[illegible]	3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4
[illegible]	[illegible]	LCU	[illegible]	[illegible]	2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4
[illegible]	[illegible]	VCU	[illegible]	[illegible]	3
[illegible]	[illegible]	ACU	[illegible]	[illegible]	2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4

LCU Profile report **LCUPROF**

13-AUG-1998
17:53:43

LCU PROF

Profile Name	Conn Retry Timer	Re Transmission Timer	Encryption Enable	Software Type	Software Name	Outbound Channel ID
LCUPROF1	10	10	N	LOOP	LCU	1

Link Parameters report

LINKPARA

[illegible]
[illegible]

[illegible]

Carrier to Interference Ratio	Uplink Rain Attenuation	Uplink Free Space Attenuation	Saturation Flux Density	Downlink Rain Attenuation	Downlink Free Space Attenuation	Input Backoff	Output Backoff	Gain to Temperature Ratio under Degraded Condition	Satellite Upband
[illegible]	7	2005	-88	7	1966	110	20	0	C BAND

Bandwidth Pool/Loopback Connection report

LOOPBW

13-AUG-1998
17:54:12

LOOPBW

Bandwidth Pool Name	Bandwidth Pool Type	Loop Connection Name	Master Interface Name	Slave Interface Name	Loopback Mode
VCU96	VOICE	GTNNY131	GTN131LC	NYK131LC	VOICE
VCU96	VOICE	GTNNY132	GTN132LC	NYK132LC	VOICE

Loopback Connection report

LOOPCONN

[illegible]
[illegible]

[illegible]

Master Interface Name	Slave Interface Name	Loopback Mode	Signal Type	Max Call Duration	[illegible]	Loop Enabled	Loop Type	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	VOICE	BURST	60	NO	YES	EXTERNAL	200	1	6
[illegible]	[illegible]	VOICE	BURST	60	NO	YES	EXTERNAL	200	1	6

13-OCT-1999
10:57:55

LOOPREV

```
*************************************
*    Profile Name:  LOOPREV         *
*************************************
```

FIELD	VALUE	FIELD DESCRIPTION
General Parameters		
Software Type:	LOOPREV	(* Type of software in the profile *)
Bandwidth Pool Name:	BRVCH_32	(* Bandwidth Pool Used by this profile. *)
Voice Activation:	ON	(* Caller signal transmitted during pauses *)
Encryption Enable	N	(* Valid values are YES or NO *)
Supervisory Parameters		
Wink Time [msec]	30	(* Wink Time in seconds *)
Off Hook Detection Time [ms]:	250	(* Minimum amount of time before an Off Hook condition is detected *)
On Hook Detection Time [ms]	250	(* Minimum amount of time before an On Hook condition is detected *)
Wink Option Enabled	NO	(* YES - Enabled, NO - Disabled *)
Answer Time Supervision, Toll [sec]	45	(*Answer Time Supervision (Toll) in sec *)
Answer Time Supervision, Int [sec]	60	(* Answer Time Supervision (International) in sec *)
Pause Time Supervision, Toll [sec]	6	(* Pause Time Supervision (Toll) in sec *)
Pause Time Supervision, Int [sec]	6	(* Answer Time Supervision (International) in sec *)
Busy Tone Time Supervision [sec]	30	(* Busy Tone Time *)
Disconnect Time Supervision [sec]	12	(* Disconnect Time Supervision *)
Addressing Parameters		
Min Interdigit Gap [ms]	350	(* Minimum wait time between successive digits *)
Max Interdigit Gap [ms]	6	(* Maximum wait time between successive digits *)
Max First Digit Wait [sec]	10	(* Maximum wait for the appearance of the first digit *)
Total Address Dialing Time [sec]	60	(* Total Address Dialing Time *)
Min Dial Pulse Make Width [ms]	30	(* Minimum Dial Pulse Make Width *)
Max Dial Pulse Make Width [ms]	50	(* Maximum Dial Pulse Make Width *)
Min Dial Pulse Break Width [ms]	50	(* Minimum Dial Pulse Break Width *)
Max Dial Pulse Break Width [ms]	70	(* Maximum Dial Pulse Break Width.

Module Name	Rack ID	MCU Instance Name	MCU Channel ID	MCU Slot Number	MCU Profile Name	Domain Instance Name	Domain Channel ID	Domain Slot Number	Domain Profile Name
[illegible]	1	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	2	[illegible]
						[illegible]	[illegible]	3	[illegible]
						[illegible]	[illegible]	4	[illegible]
						[illegible]	[illegible]	2	[illegible]
						[illegible]	[illegible]	3	[illegible]
						[illegible]	[illegible]	4	[illegible]
						[illegible]	[illegible]	2	[illegible]
						[illegible]	[illegible]	3	[illegible]
						[illegible]	[illegible]	1	[illegible]
						[illegible]	[illegible]	2	[illegible]
						[illegible]	[illegible]	3	[illegible]
						[illegible]	[illegible]	4	[illegible]
						[illegible]	[illegible]	2	[illegible]
						[illegible]	[illegible]	3	[illegible]
						[illegible]	[illegible]	4	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]
						[illegible]	[illegible]	3	[illegible]
						[illegible]	[illegible]	4	[illegible]
						[illegible]	[illegible]	3	[illegible]
						[illegible]	[illegible]	3	[illegible]
						[illegible]	[illegible]	1	[illegible]
						[illegible]	[illegible]	2	[illegible]
						[illegible]	[illegible]	3	[illegible]
						[illegible]	[illegible]	4	[illegible]

MCU Profile report

MCUPROF

13-AUG-1998
17:55:08

MCU PROF

Profile Name	RFT Interface	ICS Exist	Software Name	Outbound Channel ID
MCUPROF1	OFF	NO	MCUSW	1

NUG report

NUG

2-FEB-1998
16:35:30

NUG

NUG Name	Interface Name	Interface Type	Remote Name	chassis ID	Slot Number
CHASSNUG	GTN1536A	VCU	GTOWN	1115	3
NUG1	GTN1548A	VCU	GTOWN	1115	4
SUPERNUG	GTN111AC	ACU	GTOWN	1111	1
SUPERNUG	GTN112AC	ACU	GTOWN	1111	2
SUPERNUG	GTN113AC	ACU	GTOWN	1111	3
SUPERNUG	GTN114AC	ACU	GTOWN	1111	4
SUPERNUG	GTN121BC	BCU	GTOWN	1112	1
SUPERNUG	GTN122BC	BCU	GTOWN	1112	2
SUPERNUG	GTN123BC	BCU	GTOWN	1112	3
SUPERNUG	GTN124BC	BCU	GTOWN	1112	4
SUPERNUG	GTN131LC	LCU	GTOWN	1113	1

VAX Port/CCU report

PORTCCU

13-AUG-1998
17:55:21

VAXPORT/CCU

Control Channel ID	VAX Port	CCU Interface Name	Chassis ID	Slot Number
1	LTA31	NAS131CC	3313	1
2	LTA32	NAS132CC	3313	2
3	LTA33	NAS133CC	3313	3

Profile Summary report

PROFILE

18-FEB-1998
14:39:14

PROFILE

Profile Name	Profile Type	Number of Defined CUs	Software Type	Software Name	Outbound Channel ID
ACUPROF1	ACU	22	ACU	ACUSW	1
BCUPROF1	BCU	22	BCU	BCUSW	1
CCUPROF1	CCU	4	CCU	CCUSW	N/A
DCUPROF1	DCU	22	DATA	DCUSW	1
DPTYPEA2	VCU	13	LOOPDP	DPTYPEA	1
EARDMA1	VCU	26	MDM1	TESTSOF	1
EARDMB1	VCU	3	DIMPHS	TDSTW81	1
LCUPROF1	LCU	8	LOOP	LCU	1
LOOPREV1	VCU	1	LOOPREV	LOOPRSW	1
LOOPREV2	VCU	2	LOOPREV	LOOPSW	1
MCUPROF1	MCU	3	HARRIS	MCUSW	1
R1MFA1	VCU	3	R1MFA	R1MFASW	1
R2MFCB1	VCU	3	R2MFCB	R2MFCBS	1

R2 SIG TRANS report

R2SIGTRA

12-SEP-1998 [illegible]
11:[illegible]

R2Sig Trans	Tone	Grp	Tone String	Profile Name
CHINA	1	1	Digit_1	CHINAM
		2	FDCellSend	
		3	2ndNextDig	
		5	SubsCharge	
		1	Digit_1	CHINBP3
		2	FFCellSend	
		3	2ndNextDig	
		5	SubsCharge	
		1	Digit_1	CHINT
		2	FFCellSend	
		3	2ndNextDig	
		4	SubsCharge	
		1	Digit_1	CHINT1
		2	FFCellSend	
		3	2ndNextDig	
		5	SubsCharge	
	2	1	Digit_2	CHINCH
		2	FFCellMute	
		4	2ndPresDig	
		5	SubsEntry	

Remote report

REMOTE

13-AUG-1998 REMOTE
17:55:52

Remote Name	Transmit Power Factor	Receive Power Factor	Text
GTONH	92.5	79.5	NCS REMOTE
NEWYORK	92.5	79.5	NON NCS REMOTE
NASH	92.5	79.5	NON NCS REMOTE
worstacs	92.5	79.5	(no text defined)
worstran	92.5	79.5	(no text defined)

24-Mar-1998 ROUTE CONFIGURATION
16:41:51

Route ID	Route Name	Dynamic Proportioning	HuntGroup Name	Priority Level	Weight Factor
34442	HUNRY1	ENABLED	RT2	1	1
44762	ROUTEX	ENABLED	HG2	1	1
50883	ROUTEJV2	ENABLED	HUNTJV1	1	1
51606	ROUTE2	ENABLED	HG1	1	2
51606	ROUTE2	ENABLED	HUNT1	2	2
51606	ROUTE2	ENABLED	HG2	2	5
51606	ROUTE2	ENABLED	HUNT3	3	2
51606	ROUTE2	ENABLED	JUNK	4	7
...					
59577	ROUTEJV1	ENABLED	HUNTJV15	7	1
59577	ROUTEJV1	ENABLED	HUNTJV16	8	1
59577	ROUTEJV1	ENABLED	HUNTJV17	9	1
59577	ROUTEJV1	ENABLED	HUNTJV18	10	1

SMC Group report — SMCGROUP

12-SEP-1993 11:04:41

Report on table: smcgroup

Groupname: SMC01 Groupid: 1 Devid: 1 Portname: UTAIB Protocol: BYTE STUFFED
Baudrate: 19200 Charlength: 8 Parity: NONE Stopbits: 1 Paddingcount: 0
Termseqlen: 1 Termchars: 0D

SMC Profile report — SMCPROF

12-OCT-1994 11:01:07

Report on table: smcprof

Profilename	Protocol	Baudrate	Char Length	Parity	Stopbits	PaddingCount	Termseqlen	Termchars
SMC1	BYTE STUFFED	19200	8	NONE	1	0	0	
SMCX	BYTE STUFFED	300	8	NONE	1	4	1	0D
SMCA1	ASCII	19200	7	NONE	1	0	1	0D
SMCP1	BYTE STUFFED	9600	7	NONE	1	3	0	
SMCPROF1	BYTE STUFFED	38400	8	NONE	1	0	1	0
SMCU1	BYTE STUFFED	300	8	NONE	1	0	0	
SMCUPAL1	ASCII	19200	8	NONE	1	0	1	0D
SMCUPPLF	BYTE STUFFED	9600	8	NONE	1	0	0	

Subscriber Signaling Profile report

SUBSIG

[illegible] 1993 TONETABLE
14:39:59

Tone Table	Standard	Tone Type	Cadence	Tone Duration
CHINASTD	Chinese	DIAL	1	12750
		DIAL	2	0
		DIAL	3	0
		DIAL	4	0
		DIAL	5	0
		DIAL	6	0
		DIAL	7	0
		DIAL	8	0
		BUSY	1	350
		BUSY	2	350
		BUSY	3	0
		BUSY	4	0
		BUSY	5	0
		BUSY	6	0
		BUSY	7	0
		BUSY	8	0
		CONG	1	150
		CONG	2	150
		CONG	3	0
		CONG	4	0
		CONG	5	0
		CONG	6	0
		CONG	7	0
		CONG	8	0
		RING	1	1000
		RING	2	4000
		RING	3	0
		RING	4	0
		...		

```
[illegible] 1997                                                                              [illegible]
[illegible]
                              ************************************
                              *     Profile Name:   [illegible]        *
                              ************************************

        FIELD                           VALUE                 FIELD DESCRIPTION

General Parameters
     Software Type :                    [illegible]       /* Type of software in the profile                       */
     Bandwidth Pool Name :              [illegible]       /* Bandwidth Pool Used by this profile                  */
     Carrier Type :                     BURST         /* BURST or [illegible]                                 */
     Frame Format :                     ASYNCH
                                                      /* ASYNCH or HDLC or [illegible]                         */
     [illegible] Mode :                     DIRECT CALL MODE
                                                      /* DIRECT CALL MODE or ADDRESSED CALL MODE              */

Timing Parameters
     Disconnect Buffer Delay (sec) :              0   /* Time to wait till a Clear indication is sent
                                                         to HCS                                                */
     RTS-follow-CTS Delay (ms) :                  6   /* Delay in between RTS and CTS                          */
     Ringing-Time (sec) :                        50   /* Answer an I/C call after how much time               */
     Time-out Waiting for Answer (sec) :         30   /* Timeout value for rejecting the I/C call if
                                                         not answer by connected DTE                           */
     Flow Control Option :              [illegible]
                                                      /* Disable DTE Flow Control or
                                                         Enable DTE CTS Flow Control or
                                                         Enable Bilateral RTS/CTS flow control                 */

Addressed Call Mode Specific Parameters
     Data Rate :                        [illegible]       /* Operating data rate of V25B's interface
                                                         with the connected DTE                                */
     Timing Reference :                 N/A           /* Reference clock for synch data transmitted
                                                         from [illegible] to connected DTE                     */
     [illegible] Field Length :             N/A           /* [illegible]                                          */
     [illegible] Character :               [illegible]       /*                                                      */

Direct Call Mode Specific Parameters
     Data Rate :                        [illegible]       /* Operating data rate of V25B's interface
                                                         with the connected DTE                                */
```

8-JUL-1998
14:09:07.94

EVENT CLASS REPORT

Class	Severity	Type	Description
3	1	960	Call Request received
		961	Call Request dialed digits received
		962	Call Request calling number received
		963	Originating Call Assignment sent
		964	Terminating Call Assignment sent
		965	Call Completion received
		966	Call Record reported
		967	Call Rejection sent
4	8	1020	CU operational
	6	200	Undefined CU load request
		800	DLL of unsupported s/w release requested
		801	DLL s/w file unsupported by s/w release
		850	CU not reporting summary status
		858	CU routing status changed to ALARM
		859	CU routing status changed to FAILED
		980	Control Channel Mgr now Active Primary
		981	Control Channel Assignment successful
		982	Control Channel Active
		983	Control Channel Failed
		984	Control Channel Unit Active
		985	Control Channel Unit set to Startup Mode
		986	Control Channel MANUAL switchover
		987	Control Channel AUTO switchover
		988	Control Channel switchover FAILED
		989	Control Channel Manager STOPPING

```
 ------------------------------------------
| THIS REPORT SHOWS EACH EVENT TYPE,       |
| THAT THE SYSTEM CAN CURRENTLY GENERATE,  |
| BASED ON SEVERITY AND CLASS.  THIS       |
| INFORMATION IS SORTED IN DESCENDING      |
| ORDER OF SEVERITY, ASCENDING ORDER BY    |
| EVENT CLASS, AND ASCENDING ORDER BY TYPE. |
 ------------------------------------------
```

31-JUL-1992 EVENT SEVERITY REPORT
11:13:42.25

Severity	Class	Type	Description
9	7	809	Operator Event 9
8	7	808	Operator Event 8
	8	308	NCP is now in OUT OF SERVICE state
		T03	Inter-NCP DECNET Interface Failed
		750	Both NCPs Acting As Master
		751	Both NCPs Acting As Backup
		752	Both NCPs Assigned The Same Name
		754	Inter-NCP Network Interface Failed
		758	Online DB Not Available In Backup NCP
		759	Automatic DB Copy To Backup NCP Failed
		T51	Required DB Still Unavailable In Backup
		854	NCP not reporting summary status

```
+-----------------------------------------+
| THIS REPORT SHOWS EACH EVENT TYPE,      |
| THAT THE SYSTEM CAN CURRENTLY GENERATE. |
| THIS REPORT IS EFFECTIVELY AN EVENT     |
| 'DICTIONARY', SHOWING EACH EVENT TYPE,  |
| ITS CLASS, AND SEVERITY.                |
+-----------------------------------------+
```

16-JUN-1998 EVENT TYPE REPORT
10:37:49.88

Type	Class	Severity	Description
100	9	2	Starting log file archival
101	9	2	Ending log file archival
102	9	6	Log file almost full - please archive
103	9	8	Log file full - data being overwritten
104	9	8	Log file read error - archive aborted
105	9	8	Archive file write err - archive aborted
200	4	6	Undefined CU load request
601	7	1	Operator Event 1
602	7	2	Operator Event 2

...

Operator Name report

OPERATOR

```
-----------------------------------------------
| THIS REPORT SHOWS EACH OF THE OPERATORS     |
| WITH ACCESS TO THE NOP, THE OPERATOR        |
| TYPE, AND THE OPERATOR PASSWORD.  THIS      |
| REPORT IS USED TO INSURE THAT THE           |
| CURRENT OPERATORS ARE OF THE CORRECT TYPE.  |
-----------------------------------------------

31-JUL-1992                                  OPERATOR NAME REPORT
11:15:08

    Operator Type      Operator Name        Password

         8             HNS                  HNSPASS
                       OPERATOR             OPERPASS
```

Operator Function report

OPERFUNC

```
--------------------------------------------
| THIS REPORT SHOWS WHAT TYPE OF           |
| OPERATOR MAY PERFORM A PARTICULAR        |
| FUNCTION AT A NOC.  IN CONJUNCTION       |
| WITH THE OPERATOR NAME REPORT, IT CAN    |
| BE USED EITHER TO IDENTIFY THOSE         |
| OPERATORS CAPABLE OF AN ACTIVITY, OR     |
| TO DETERMINE WHAT TYPE TO ASSIGN TO A    |
| NEW OR EXISTING OPERATOR.                |
--------------------------------------------

11-AUG-1992                                          OPERATOR TYPE REPORT
12:16:30

          Event Class Enable                         Function Keys Enabled
Type      123456789                 Screen           12345678911

 1        NNNNNNNNN                 ACONFCFG         YNNNNNNNNNN
                                    BCHANCFG         YNNNNNNNNYN
                                    BNCHOVER         YNNNNNNNNYN
                                    BNCROVER         YNNNNNNNNYN
                                    BNCUOVER         YNNNNNNNNYN
                                    BNLPOVER         YNNNNNNNNYN
                                    BNPLOCFG         YNNNNNNNNYN
                                    BNPLOVER         YNNNNNNNNYN
```

```
SOFTWARE AVAILABILITY REPORT                                    Page No : 1

Date and Time Report Generated : 22-JUL-1991 11:52:34
Configuration Database : VSDB


Channel Unit :

    ChassisID : 1001 Slot : 1 Required software functionality supported by release "VAG10325B"
    ChassisID : 1001 Slot : 2 Required software functionality supported by release "VAG10325B"
    ChassisID : 1001 Slot : 3 Required software functionality supported by release "VAG10325B"
    ChassisID : 1001 Slot : 4 Required software functionality supported by release "VAG10325B"
    ChassisID : B002 Slot : 1 Required software functionality supported by release "VAG10325B"
    ChassisID : 2001 Slot : 1 Release "DUCSW    " not available
    ChassisID : 2001 Slot : 2 Release "DUCSW    " not available
    . . .
    ChassisID : A001 Slot : 4 Release "VCUSW    " not available
```

```
This is a full report on the
following Patch Files:-

        [illegible]
        [illegible]
        [illegible]
        [illegible]
        [illegible]
        [illegible]

Patch Files Report                                              Page No. : 3
PatchFile : [illegible]

*****************************************************************************
**  Data for PatchFile : [illegible]
**  Last Updated       : [illegible]
*****************************************************************************

 Patch Assigned to Software Release:

 Release Name           File Name
 ------------           ---------
 NONE                   NONE

*****************************************************************************

Patch Definition : 1
Description      : Patch for [illegible]

Last Updated     : [illegible]

CONTENTS:-

Address      Data (Hex)                                          Comment
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
```

SOFTWARE DISTRIBUTION REPORT

Date and Time Report Generated : 31-JUL-1992 11:16:11
Configuration Database : SVTSAT

Channel Unit :

Group	Release	ChassisID	Slot	Distribution Group Description
SVTDISTR	TST20710	0001	1	TEST BUILD JULY 10
		0001	2	
		0001	3	
		0002	1	
		0002	2	
		0002	3	
		0002	4	
		0003	1	
		0003	2	
		0003	3	

CU PARM

11:15:51.30

Name of the Parameter set	STOREM
Associated Text Description	Standard REMOTE system parameters
Last update timestamp for this parameter set	21-JUL-1992 17:54:42.42

Call Processing Parameters :

Call Confirmation Retransmission Limit	5
Clear Confirmation Retransmission Limit	5
Call Assignment Timeout (ms)	10000
Origin Call Confirmation Timeout (ms)	3000
Destination Call Confirmation Timeout (ms)	750
Source Call Connect Timeout (ms)	20000
Clear Confirmation Timer (ms)	750
Call Termination Timer (ms)	10000
Answer Indication Timer (ms)	3000
ReAnswer Indication Timer (ms)	750
Defeat Inband Check Flag	0

Back Off Parameters :

Retransmission Accumulator Lower Limit	5
Retransmission Accumulator Upper Limit	10
Transmission Queue Depth Lower Limit	5
Transmission Queue Depth Upper Limit	10
The Peer-to-Peer Fade Timer (sec)	30
BackOff Retry Count	3
Aloha Acknowledge Timeout (ms)	2000

General Parameters :

Time Interval between collection of statistics (hours)	2
Minimum Time between RCRFI transmissions (Minutes)	1
Maximum Time between RCRFI transmissions (Minutes)	255
Amount of time allowed for hardware to tune to new channel (ms)	300
Number of Demod steps for Stabilization	5
Outbound Control Channel Fade Timer (mins)	20
NCS DLL Response Timeout (ms)	10000
Stabilization Scheme Enable Flag	FALSE

NCP Parameters report **NCPPARM**

```
31-JUL-1992                                                                  NCP PARM
11:15:51.30

Time of last update to any NCP parameter                 :  7-JUL-1992 17:35:45.83
Major Event Severity Number                              :        5
The polling cycle time between requests for status (mins) :       3
The Max Back-Off Small Interval Time (ms)                :      100
The Max Back-Off Large Interval Time (ms)                :       60
The Number of DLL Retries due to after flow control      :       25

The System Parameters of Control Channel     1
---------------------------------------------

The elapsed time between system startup message        (100 ms)  :       50
The elapsed time between system broadcast message      (100 ms)  :       10
The elapsed time between keep alive message            (100 ms)  :       50
The elapsed time between loopback message              (100 ms)  :       50
The threshold for failing loopbacks                    (100 ms)  :        5
The threshold for failed loopbacks                     (100 ms)  :       10
The Control Channel should downline load software                :     TRUE
The time interval between boot RAM broadcast           (100 ms)  :       50
The time interval between individual boot RAM broadcast(100 ms)  :        3
Keep Alive Timer (sec)                                           :       12

The System Parameters of Control Channel     2
---------------------------------------------
```

System Parameters report **SYSPARAM**

[COMBINES CU AND NCP REPORTS]

ICC Loading report

```
From: 12-SEP-1998 at 10:00:00
To:   12-SEP-1998 at 11:00:00
--------------------------- Data ----------------------------|------------------------- Analysis ------------------------------
                                                             |                      Optimal
Channel   CU        Collection  Messages Retransmit Invalid  |                      Loading   Prob.    Msgs per       Mean
Set/Num Chans:Slot   Period     Received   Count    Messages | Traffic Throughput  Factor   Success    Second       Msg Len
-------------------------------------------------------------|-----------------------------------------------------------------
 1/2     1111:03  01:00:04        690        0         0     |   1.27%      1.27%   25.36%  100.00%    0.191     158.97 bytes
 1/3     1111:04  01:00:04        803        9         0     |   1.39%      1.38%   27.52%   98.99%    0.223     148.24 bytes
-------------------------------------------------------------|-----------------------------------------------------------------
                                 1493        9         0     |   1.33%      1.32%   26.44%   99.45%    0.414     153.60 bytes

Calculations:
    Traffic = (message rcvd + retransmit count) x mean msg length x bits per byte) / (channel rate x seconds in period)
    Throughput = (message rcvd x mean msg length x bits per byte) / (channel rate x seconds in period)
    Optimal loading factor = throughput / recommended ICC throughput
    Probability of success = throughput / traffic
    Messages per second = messages received / seconds in period
    Mean message length = (inbound byte count / messages received) + satellite overhead
```

Qualifier	Usage	Default
/INPUTFILENAME=*directory* /OUPUTFILENAME=*name*	Specify location of archived STTLOG.DAT file. Name the output file.	Online statistics log ICCLOAD.RPT
/DATE=*dd-mmm-yyyy* /HOUR=hh	Specify the date when the statistics were logged. Specify which hour's loading to report.	Date of the most recent CU statistics logged. All hours (*)

```
From: 12-SEP-1998 at 10:00:00
  To:   12-SEP-1998 at 11:00:00

---------------- Data ------------------|---------------- Analysis -----------------
                                        |            Optimal
 Channel     CU     Collection  Messages |            Loading       Msgs per      Mean
 Set/Num Chase:Slot Period      Transmitted | Traffic   Factor        Second      Msg Len
----------------------------------------|-----------------------------------------------
   1/1     1111:02  01:00:04      11698  |   24.06%    48.12%     3.244     178.04 bytes
----------------------------------------|-----------------------------------------------
                                  11690  |   24.06%    48.12%     3.244     178.04 bytes


Calculations:
    Traffic = (msgs transmitted x mean msg length x bits per byte) / (satellite rate x secs in period)
    Optimal loading factor = traffic / recommended OCC traffic
    Messages per second = messages transmitted / seconds in period
    Mean message length = (outbound byte count / messages transmitted) + satellite overhead
```

Qualifier	Usage	Default
/INPUTFILENAME=*directory* /OUTPUTFILENAME=*name*	Specify location of archived STTLOG.DAT file. Name the output file.	Online statistics log OCCLOAD.RPT
/DATE=*dd-mmm-yyyy* /HOUR=hh	Specify the date when the statistics were logged. Specify which hour's loading to report.	Date of the most recent CU statistics logged. All hours (*)

```
From: 12-SEP-1998 at 10:00:00
To:   12-SEP-1998 at 11:00:00

----------------- Data -------------------------------------------|------- Analysis ---------
                                                                  |  Traffic      Volume
Hunt     Number  Number  Answered  -- CU Allocation Time --       |  Volume       per CU
Group    of CUs  of Calls  Calls       Maximum        Mean        |  (Erlangs)    (Erlangs)
------------------------------------------------------------------|-------------------------
HTCU17H    2        0        0      00:00:00:00    00:00:00       |    0.000        0.000
HTCU18H    2        0        0      00:00:00:00    00:00:00       |    0.000        0.000
HGNUG2     1        0        0      00:00:00:00    00:00:00       |    0.000        0.000
------------------------------------------------------------------|-------------------------
           5        0        0      00:00:00:00    00:00:00       |    0.000        0.000

Calculations:
   Traffic volume = (mean CU allocation time * number of calls) / secs in period
   Volume per CU = traffic volume / number of CUs
```

Qualifier	Usage	Default
/INPUTFILENAME=*directory* /OUTPUTFILENAME=*name*	Specify location of archived STTLOG.DAT file. Name the output file.	Online statistics log HUNTLOAD.RPT
/DATE=*dd mmm yyyy* /HOUR=hh	Specify the date when the statistics were logged. Specify which hour's loading to report.	Date of the most recent CU statistics logged. All hours (*)

```
Date: 12-SEP-1998                          Filters:
                                               Hunt Group: *
                                               Chassis: *
                                               Slot: *

----------------- Data ------------------------------------|------- Analysis ---------
                                                          |  Traffic      Volume
      Number  Number  Answered  -- CU Allocation Time --  |  Volume       per CU
Hour  of CUs of Calls  Calls       Maximum       Mean     |  (Erlangs)    (Erlangs)
----------------------------------------------------------|-------------------------
  0     119      0        0     00:00:00:00   00:00:00   |    0.00         0.00
  1     119      0        0     00:00:00:00   00:00:00   |    0.00         0.00
 ...
  9     119      4        4     00:15:24:34   15:24:25   |   61.63         0.52
 10     119      0        0     00:00:00:00   00:00:00   |    0.00         0.00
----------------------------------------------------------|-------------------------
        119      4        4     00:15:24:34   15:24:25   |    5.60         0.05

Calculations:
    Traffic volume = (mean CU allocation time * number of calls) / secs in period
    Volume per CU = traffic volume / number of CUs
```

Qualifier	Usage	Default
/INPUTFILENAME=*directory*	Specify location of archived STTLOG.DAT file.	Online statistics log
/OUPUTFILENAME=*name*	Name the output file.	CULOAD.RPT
/DATE=*dd-mmm-yyyy*	Specify the date when the statistics were logged.	Date of the most recent CU statistics logged.
/HUNTGROUP=*huntgroup*	Specify a hunt group by name.	All hunt groups (*)
/CHASSIS=*cccc*	Specify a chassis ID.	All chassis IDs (*)
/SLOT=*ss*	Specify a slot number.	All slots (*)

```
From: 12-SEP-1998 at 9:00:00                          Filters:
  To:   12-SEP-1998 at 10:00:00                            Hunt Group: *
                                                           Chassis: *

 Hunt Group      CU          Incoming    Incoming    Outgoing    Outgoing    Call
   Name       Chass:Slot     Seizures    Failures    Seizures    Failures    Rejects
-------------------------------------------------------------------------------------
              2003:01           0           0           0           0           0
              2003:03           0           0           0           0           0
              2003:04           0           0           0           0           0
              2007:02           0           0           0           0           0
              2007:04           0           0           0           0           0
-------------------------------------------------------------------------------------
                                0           0           0           0           0
```

Qualifier	Usage	Default
/INPUTFILENAME=*directory* /OUTPUTFILENAME=*name*	Specify location of archived STTLOG.DAT file. Name the output file.	Online statistics log SIGINT.RPT
/DATE=*dd mmm yyyy* /HOUR=hh /HUNTGROUP=*huntgroup* /CHASSIS=*cc*	Specify the date when the statistics were logged. Specify which hour's statistics to report. Specify the hunt group by name. Specify a chassis ID.	Date of the most recent CU statistics logged. All hours (*) All hunt groups (*) All chassis IDs (*)

```
Date: 12-SEP-1998                                               Filters:
 Busy hour: 24                                                   Bandwidth Pool: *
 Busy hour circuit usage: 0 ccs
 Maximum busy circuits: 2

------------------------------------ Data ------------------------------------|---------------- Analysis----------------
                                                                              | Total     Traffic per  Circuit    Call
     Available  - Allocation Time -  - Busy Ckts -  Calls    - Calls Rejected -| Traffic    Circuit     Usage    Attempts
 Hour Circuits       Max       Mean    Max   Mean  Allocated Total  No Circuit |(Erlangs)   (Erlangs)   (ccs)    per Sec
------------------------------------------------------------------------------|-----------------------------------------
 01        23   00:00:00:00  00:00:00   2    0.0      0        0       0      |   0.000     0.000        0     0.0000
 02        23   00:00:00:00  00:00:00   2    0.0      0        0       0      |   0.000     0.000        0     0.0000
 03        23   00:00:00:00  00:00:00   2    0.3      0        0       0      |   0.000     0.000        0     0.0000
 04        23   00:00:00:00  00:00:00   2    0.0      0        0       0      |   0.000     0.000        0     0.0000
 ...
 09        23   00:15:24:34  00:00:00   2    0.0      0        0       0      |   0.000     0.000        0     0.0000
 10        23   00:00:00:00  00:00:00   0    0.0      0        0       0      |   0.000     0.000        0     0.0000
------------------------------------------------------------------------------|-----------------------------------------
         23.0   00:15:24:34  00:00:00   2    0.0      0        0       0      |   0.000     0.000        0     0.0000

Calculations:
    Total Traffic = (mean allocation time * number of calls allocated)/ seconds per collection period
    Traffic per circuit = Total traffic / number of available circuits
    Circuit usage = (mean allocation time in seconds * number of calls allocated)/ 100
    Call attempts per second = (calls allocated + total calls rejected) / seconds per collection period
```

Qualifier	Usage	Default
/INPUTFILENAME=*directory* /OUPUTFILENAME=*name*	Specify location of archived STTLOG.DAT file. Name the output file.	Online statistics log CKTLOAD.RPT
/DATE=*dd-mmm-yyyy* /BANDWIDTHPOOL=*poolname*	Specify the date when the statistics were logged. Specify a bandwidth pool by name.	Date of the most recent CU statistics logged. All bandwidth pools (*)

```
From:  9-SEP-1998 at 16:36:25.05                                                    Filters:
 To:   11-SEP-1998 at 17:38:48.00                                                     Terminating Chassis: *
                                                                                                Originating Chassis: *
                                                                                                Either Chassis: *

------------------------------------ Data -------------------------------------|-------- Analysis --------
Terminating  Originating   Call     Answered        --- Call Duration ---      | Effective      Usage
  Chassis      Chassis    Attempts   Calls          Maximum          Mean      |  Traffic       (ccs)
-------------------------------------------------------------------------------|--------------------------
   2803         2003         35       20        00:15:24:11    00:01:35:41     |   57.1%       1148.2
   2807         2003          5        0        00:00:00:00    00:00:00:00     |    0.0%          0.0
------------------------------------------------------------------------------------------------------------
                             40       20        00:15:24:11    00:01:35:41     |   50.0%       1148.2
```

```
Calculations:
    Effective Traffic = answered calls / call attempts
    Usage = (answered calls x mean call duration in seconds) / 100
```

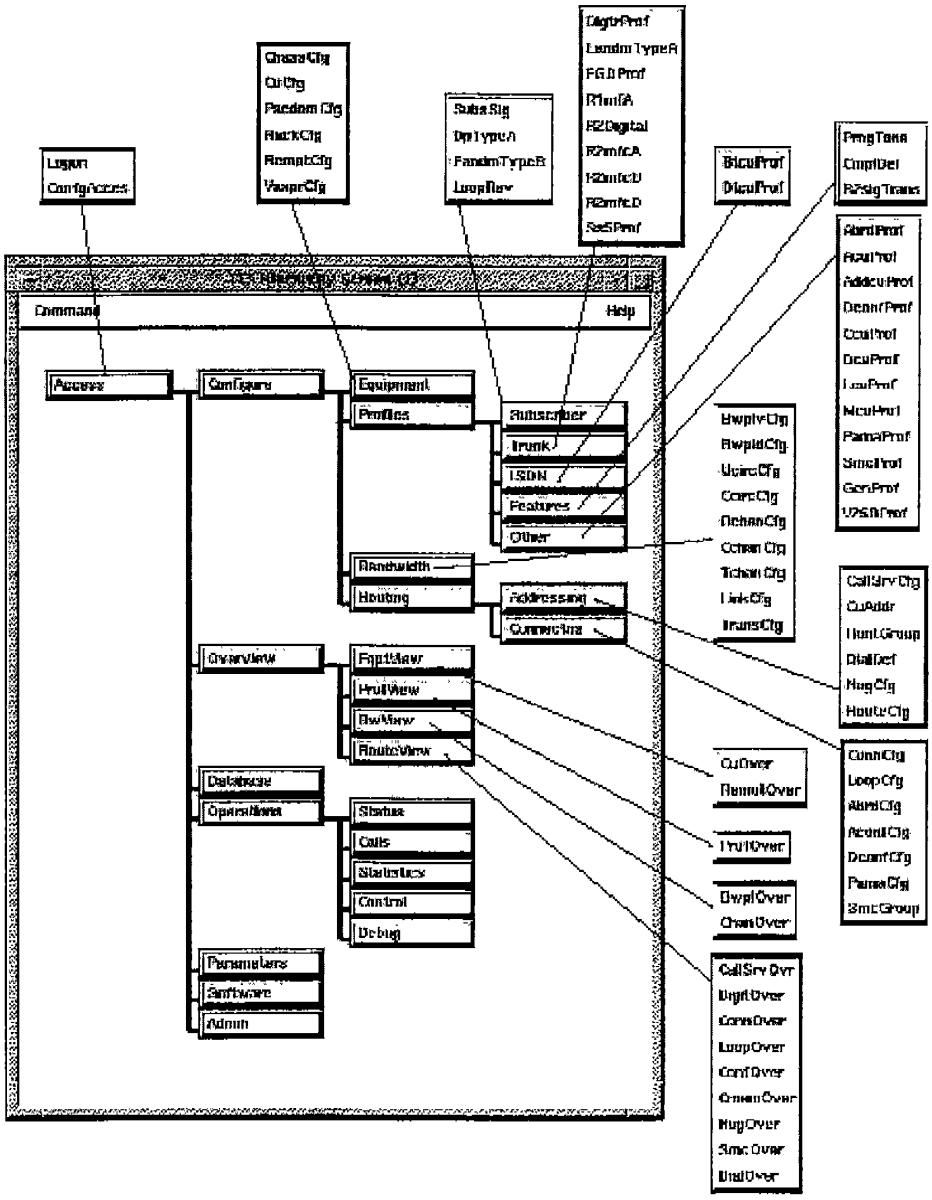
Qualifier	Usage	Default
/INPUTFILENAME=*directory* /OUPUTFILENAME=*name*	Specify location of archived CRMLOG.DAT file. Name the output file.	Online call record log CALLREC.RPT
/ORIGCHASSIS=*cccc* /TERMCHASSIS=*cccc* /EITHERCHASSIS=*cccc* /STRDATE=*dd-mmm-yyyy* /STRTIME=*hh:mm:ss.cc* /ENDDATE=*dd-mmm-yyyy* /ENDTIME=*hh:mm:ss.cc*	Specify the chassis for the originating CU. Specify the chassis for the terminating CU. Specify the chassis for originating or terminating CU. Specify the earliest record to include. Specify the earliest record to include. Specify the latest record to include Specify the latest record to include	All chassis (*) All chassis (*) All chassis (*) Earliest record in log file. Earliest record in log file. Latest record in log file. Latest record in log file.

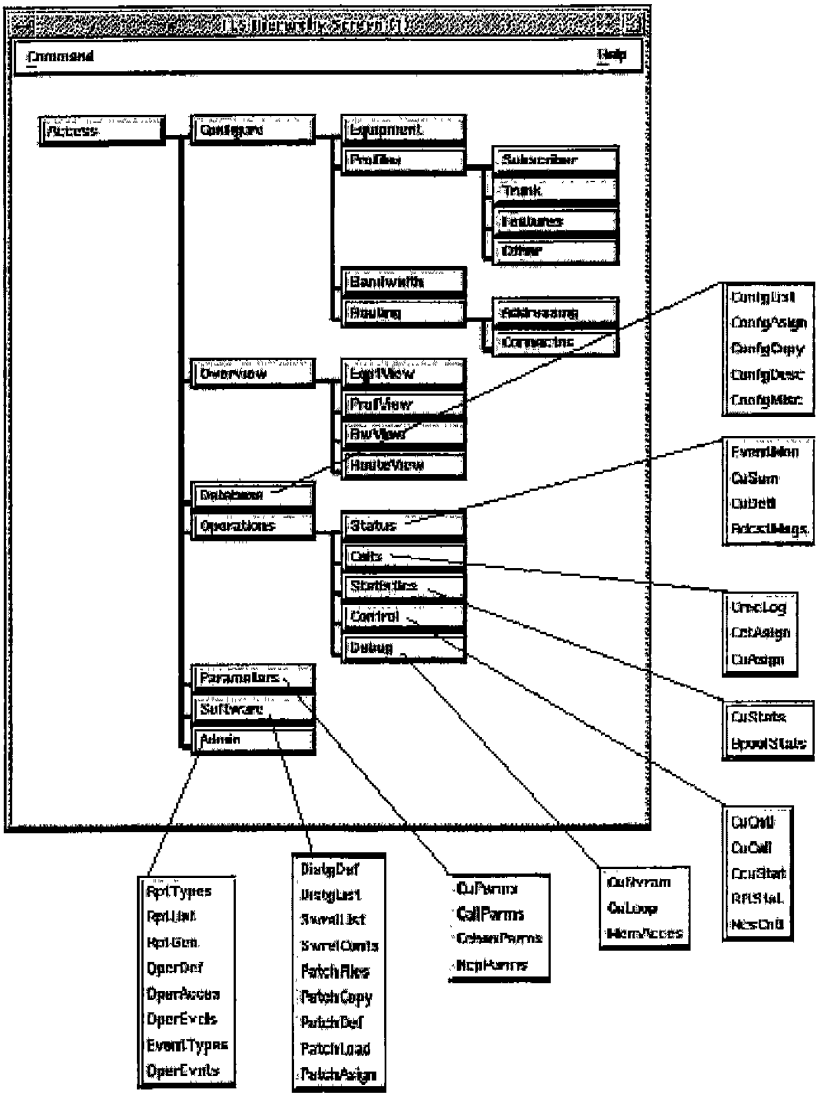
附錄二：

（一） IllumiNET 視窗架構說明

（二） 視窗名稱縮寫說明

（一）、IllumiNET 視窗架構說明：




Command
Help
Access
Configure
Equipment
Profiles
Subscriber
Trunk
Features
Other
Bandwidth
Routing
Addressing
Connectns
Overview
EqptView
ProfView
RwView
RouteView
Database
Operations
Status
Calls
Statistics
Control
Debug
Parameters
Software
Admin
ConfigList
ConfigAssign
ConfigCopy
ConfigDesc
ConfigMisc
EventMon
CuSum
CuDetl
PolicyMsgs
UnecLog
CctAssign
CuAssign
CuStats
EposStats
CuCntl
CuCall
CctStat
RflStat
NesCntl
RptTypes
RptList
RptGen
OperDef
OperAccss
OperEvnts
EventTypes
OperEvnts
DisfgDef
DisfgList
SwrelList
SwrelConfg
PatchFiles
PatchCopy
PatchDef
PatchLoad
PatchAssgn
CuParms
CallParms
OperParms
NcpParms
CuNvram
CuLoop
MemAccss

（二）、視窗名稱縮寫說明：

Screen	Description	Hierarchy box
ABRD CFG	Audio broadcast configuration	*CONNECTNS*
ABRD PROF	Audio broadcast profile	*OTHER*
ACONF CFG	Audio conference configuration. Define members of conference, enable/disable the conference.	*CONNECTNS*
ACU PROF	Audio conference CU profile.	*OTHER*
ADDCU PROF	Async DAMA data CU profile	*OTHER*
BCHAN CFG	Data broadcast channel configuration.	*BANDWIDTH*
BCU PROF	Changed to DCONF PROF.	*OTHER*
BDCST MSGS	Broadcast messages. Display current messages.	*STATUS*
BPOOL STATS	Bandwidth pool statistics. Display traffic statistics for a given bandwidth pool	*STATISTICS*
BTCU PROF	ISDN B-channel profile	*ISDN*
BWPLD CFG	Data bandwidth pool configuration.	*BANDWIDTH*
BWPL OVER	Bandwidth pool overview. List of bandwidth pools.	*BW VIEW*
BWPLV CFG	Voice bandwidth pool configuration.	*BANDWIDTH*
CALL PARMS	Call parameters. Define system-wide call processing parameters.	*PARAMETERS*
CALLSRV CFG	Assign calling services to digits	*ADDRESSING*
CALLSRV OVR	List digits with calling services configured.	*ROUTE VIEW*
CCHAN CFG	Control channel configuration.	*BANDWIDTH*
CCHAN PARMS	Control channel parameters. Define message intervals for a control channel.	*PARAMETERS*
CCIRC CFG	Audio conference circuit configuration.	*BANDWIDTH*
CCT ASIGN	Circuit assignment. Status of a given circuit.	*CALLS*
CCU PROF	Control channel unit profile configuration.	*OTHER*
CCU STAT	CCU status. Display/change channel assignments.	*CONTROL*
CHAN OVER	Channel overview. All defined circuits and channels.	*BW VIEW*
CHASS CFG	Chassis configuration. Define interfaces, assign OCCs and software release.	*EQUIPMENT*
CMEM OVER	Conference member overview. List of audio and data conference members.	*ROUTE VIEW*
CMPL DEF	Compeller definition.	*FEATURE*
CONFG ACCES	Configuration access. Connect to configuration database with read or change access.	*ACCESS*
CONFG ASIGN	Configuration assignment. Put config database online.	*DATABASE*
CONFG COPY	Configuration copy. Duplicate a database.	*DATABASE*
CONFG DESC	Configuration description. Text describing database.	*DATABASE*
CONFG LIST	Configuration list. List all databases, including non-configuration databases.	*DATABASE*

Screen	Description	Hierarchy box
CONFG MISC	Configuration miscellaneous. Reserve, release, or delete a database.	*DATABASE*
CONF OVER	Conference overview. List of audio and data conferences.	*ROUTE VIEW*
CONN CFG	Connection configuration. Define data connection.	*CONNECTNS*
CONN OVER	Connection overview. List data connections.	*ROUTE VIEW*
CREC LOG	Call record log. Display all or select call records.	*CALLS*
CU ADDR	CU address. Assign CU's hunt group or dialed digits, name the dial scheme used by CU.	*ADDRESSING*
CU ASIGN	CU assignment. Most recent circuit assignment and call for a given CU. From NCS.	*CALLS*
CU CALL	CU call. Most recent call for a given CU. From CU. Also used to clear a call.	*CONTROL*
CU CFG	CU details. Used after CHASS CFG defines interface.	*EQUIPMENT*
CU CNTL	CU control. Direct control of a CU: reset, restart, disable, etc.	*CONTROL*
CU DETL	CU detail. Query to CU for current status details.	*STATUS*
CU LOOP	CU loopback. Display loopback test results.	*DEBUG*
CU NVRAM	CU non-volatile random access memory. Query CU for NVRAM contents.	*DEBUG*
CU OVER	CU overview. List all/selected interfaces.	*EQPT VIEW*
CU PARMS	CU parameters. Define system-wide parameters for CUs, such as downline load and fade timing.	*PARAMETERS*
CU STATS	CU statistics. Display traffic statistics for a CU. From NCS.	*STATISTICS*
CU SUM	CU summary. Status of all/selected CUs.	*STATUS*
DCONF CFG	Data broadcast configuration. Define members of broadcast, enable/disable the broadcast.	*CONNECTNS*
DCONF PROF	Data broadcast CU profile.	*OTHER*
DCU PROF	Data channel unit profile configuration.	*OTHER*
DIAL DEF	DialWare scheme definition.	*ADDRESSING*
DIAL OVER	DialWare overview. List all/selected programs.	*ROUTE VIEW*
DIGIT OVER	Dial digits overview. List dial digits and associated CUs or hunt groups.	*ROUTE VIEW*
DIGTR PROF	Digital trunk (PAC) profile	*TRUNK*
DISTG DEF	Distribution group definition. Assign software release for a distribution group.	*SOFTWARE*
DISTG LIST	Distribution group list. Display groups and their definitions.	*SOFTWARE*
DP TYPEA	Phase 1 VCU profile configuration: dial pulse.	*SUBSCRIBER*
DTCU PROF	ISDN D-channel profile	*ISDN*

Screen	Description	Hierarchy box
EANDM TYPEA	Phase I VCU profile configuration: E&M type A.	*TRUNK*
EANDM TYPEB	Phase I VCU profile configuration: DTMF.	*SUBSCRIBER*
EVENT MON	Event monitor. Display and clear events.	*STATUS*
EVENT TYPES	Event types. Display/modify class, severity, and message for given event number.	*ADMIN*
FGD PROF	Feature Group D profile	*TRUNK*
GEN PROF	Generic profile (for pre-release features)	*OTHER*
Hierarchy	Hierarchy screen. Lists all menus, provides pull-down access to any screen.	*Open from banner*
HUNT GROUP	Hunt group definition. Assign dial digits, display associated CUs.	*ADDRESSING*
LCU PROF	Loopback profile configuration.	*OTHER*
LINK CFG	Satellite configuration. Link parameters for communications to/from satellite.	*BANDWIDTH*
LOGON	Log on/log off the NOC.	*ACCESS*
LOOP CFG	Loopback configuration.	*CONNECTNS*
LOOP OVER	Loopback overview. List loopbacks.	*ROUTE VIEW*
LOOP REV	Loop reversal telephony profile configuration.	*SUBSCRIBER*
MCU PROF	MCU profile configuration.	*OTHER*
MEM ACCES	Memory access. Read/write a CU's memory.	*DEBUG*
NCP PARMS	NCP parameters. System-wide parameters: major event severity, poll timing, Aloha backoffs, etc.	*PARAMETERS*
NCS CNTL	NCS control. Check or change status of redundant NCS machines.	*CONTROL*
NOC PARMS	No longer used. Replaced by options on screens.	—
NUG CFG	Network user group definition.	*ADDRESSING*
NUG OVER	List of network user groups.	*ROUTE OVER*
OPER ACCES	Operator access. Enable/disable functions for each screen for a given operator type.	*ADMIN*
OPER DEF	Operator definition. Name, type, and password.	*ADMIN*
OPER EVCLS	Operator event class. Define which events will be displayed for which operator types.	*ADMIN*
OPER EVNTS	Operator events. Send operator message to log or other operators.	*ADMIN*
PACDOM CFG	PAC domain configuration. Define mapping of E1/T1 channels to VCUs.	*EQUIPMENT*
PAMA CFG	PAMA connection configuration	*CONNECTNS*
PAMA PROF	PAMA profile	*OTHER*
PATCH ASIGN	Patch assignment. Assign patch file to a software release.	*SOFTWARE*
PATCH COPY	Patch file copy.	*SOFTWARE*

Screen	Description	Hierarchy box
PATCH DEF	Patch definition. Description and contents of patch.	*SOFTWARE*
PATCH FILES	Patch files. Create/delete a patch file. Display sequence of patches in file.	*SOFTWARE*
PATCH LOAD	Patch load. Download patch file to a CU.	*SOFTWARE*
PROF OVER	Profile overview. List all/selected profiles.	*PROF VIEW*
PROG TONE	Call progress tone table definition.	*FEATURE*
Quick Acces	Quick access popup window for any screen.	*F9 key*
R1 MFA	R1 MFA profile	*TRUNK*
R2 DIGITAL	Digital R2 profile	*TRUNK*
R2 MFCA	R2 MFC profile—generic R2 profile	*TRUNK*
R2 MFCB	R2 MFC profile—single-frequency line signals	*TRUNK*
R2 MFCD	R2 MFC profile—multi-frequency line signals	*TRUNK*
R2SIG TRANS	R2 signal translation table definition.	*FEATURE*
RACK CFG	Rack configuration. Define chassis in a rack.	*EQUIPMENT*
REMOT CFG	Remote configuration. Define an antenna location and transmit/receive power factors.	*EQUIPMENT*
REMOT OVER	Remote overview. List all/selected remotes.	*EQPT VIEW*
ROUTE CFG	Route configuration. Define group of hunt groups with priority ratio routing.	*ADDRESSING*
RFT STAT	RFT status. Display status. Disable/enable a remote's transmit capability. (Harris antennas only.)	*CONTROL*
RPT GEN	Report generation. Generate selected report.	*ADMIN*
RPT LIST	Report list. Display reports of a given type.	*ADMIN*
RPT TYPES	Report types. Display types.	*ADMIN*
SATEL CFG	Changed to LINK CFG.	*BANDWIDTH*
SMC GROUP	Define characteristics of NCS port and members of SMC group.	*CONNECTNS*
SMC OVER	SMC overview. List of SMC groups.	*ROUTE VIEW*
SMC PROF	Profile for SMCUs, including port characteristics.	*OTHER*
SS5 PROF	SS5 profile for international gateways	*TRUNK*
SiteWatch	Monitor status of CUs and remotes.	*Open from session manager*
SUBS SIG	Multi-purpose profile for phase 2 handsets and PBXs	*SUBSCRIBER*
SWREL CONTS	Software release contents. List files in a given release.	*SOFTWARE*
SWREL LIST	Software release list. List releases.	*SOFTWARE*
TCHAN CFG	Spare test channels needed for certain RFTs	*BANDWIDTH*
TRANS CFG	Transponder RF configuration. Define uplink/downlink frequencies and total bandwidth for the system.	*BANDWIDTH*

Screen	Description	Hierarchy box
UCIRC CFG	User circuit configuration. Display/modify circuit definitions.	*BANDWIDTH*
V25B PROF	Profile for dial-up V.25 data connections.	*OTHER*
VAXPR CFG	VAX port configuration. Display/modify VAX ports for CCUs.	*EQUIPMENT*
VUEVENT	Display current events in separate window.	*Open from session manager*
VULOG	Dump log files in readable form to screen or file.	
VUREPORT	View report files.	