Figure H-11: 3 Sector, 2 Carrier BTS Combiner DRDC/TRDC Cable Connection

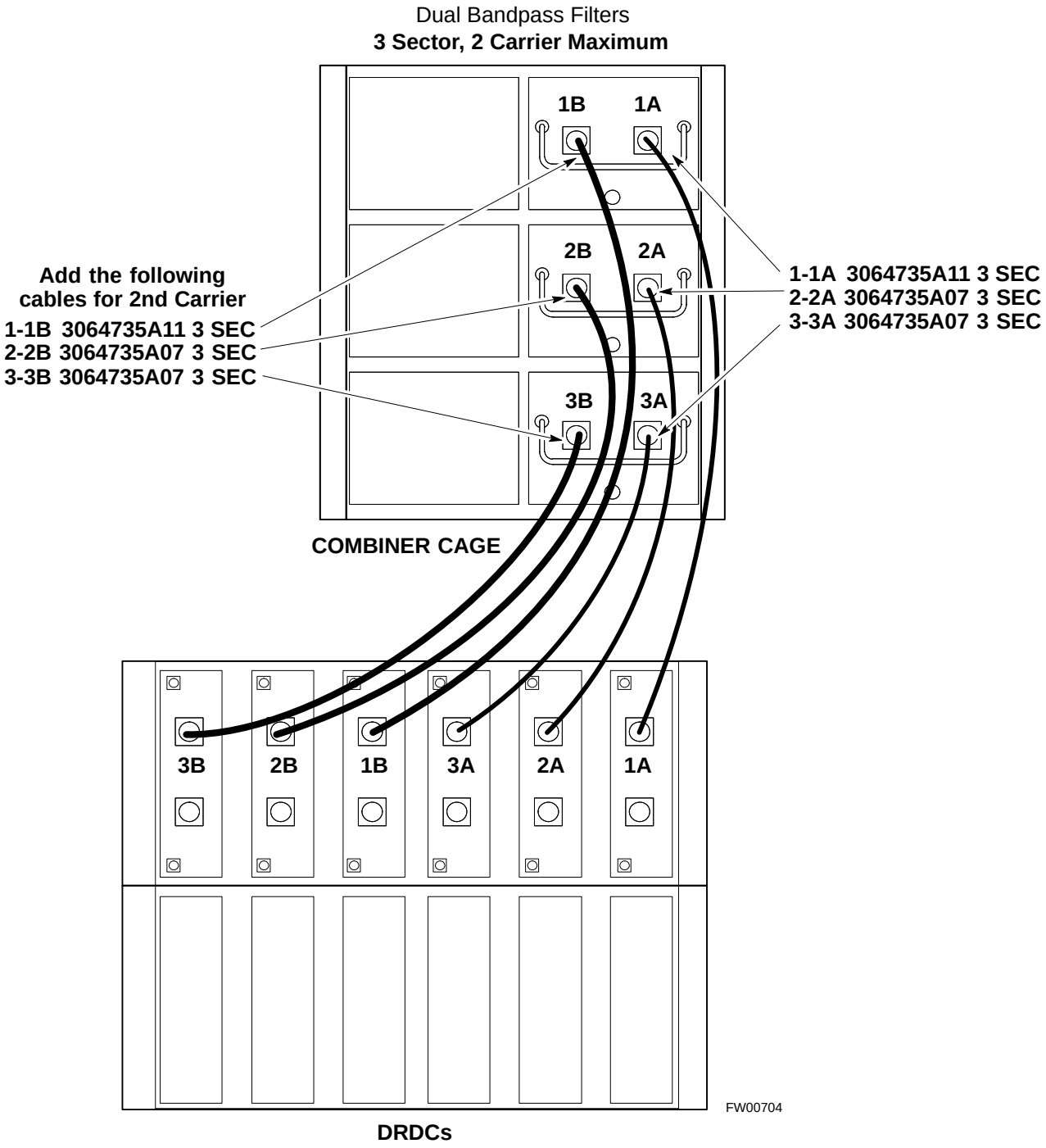

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Figure H-12: BTS 2 to 1, 3 or 6 Sector Combiner DRDC/TRDC Cable Connection

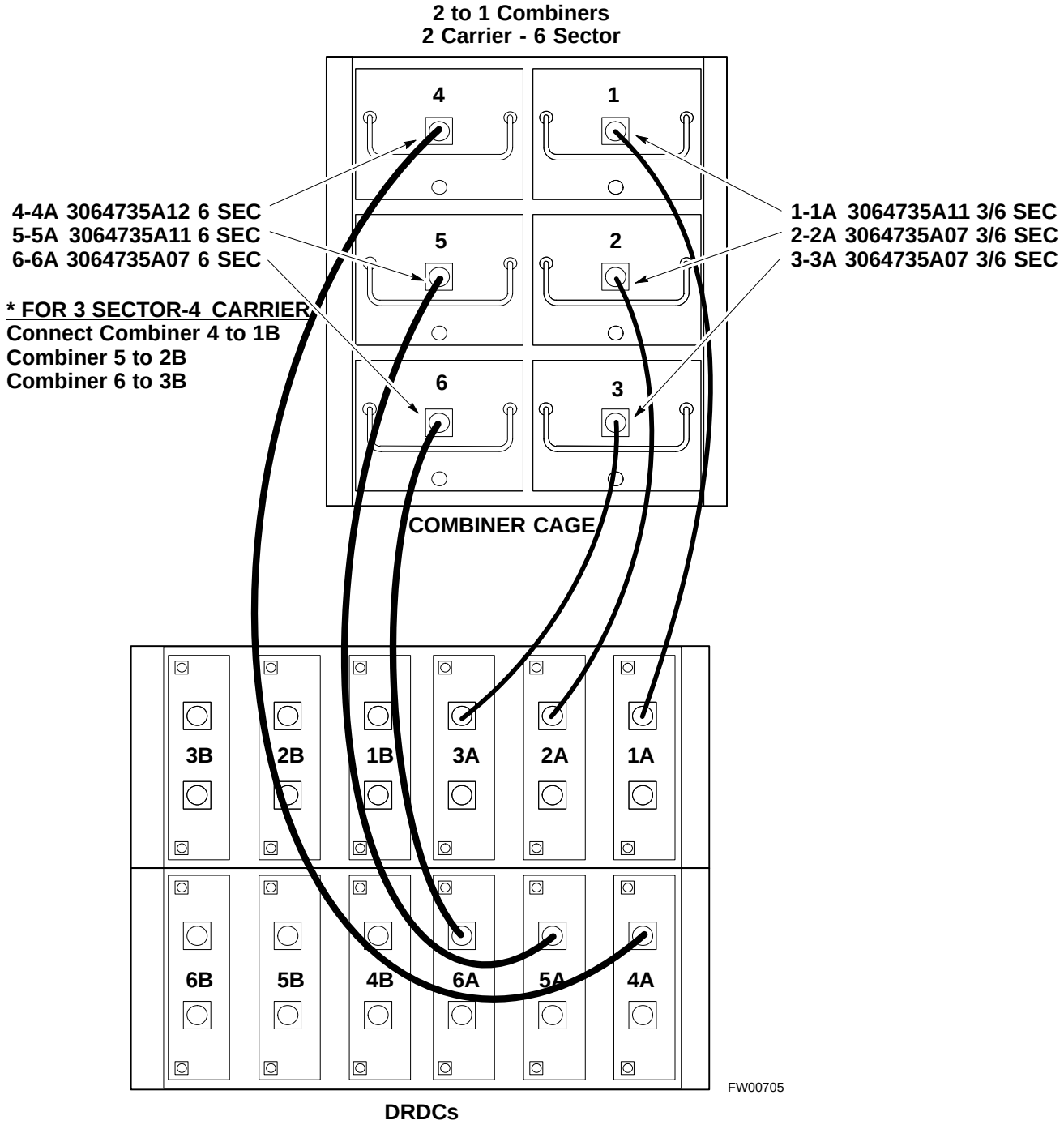

Figure H-13: BTS Combiner DRDC/TRDC Cable Connection

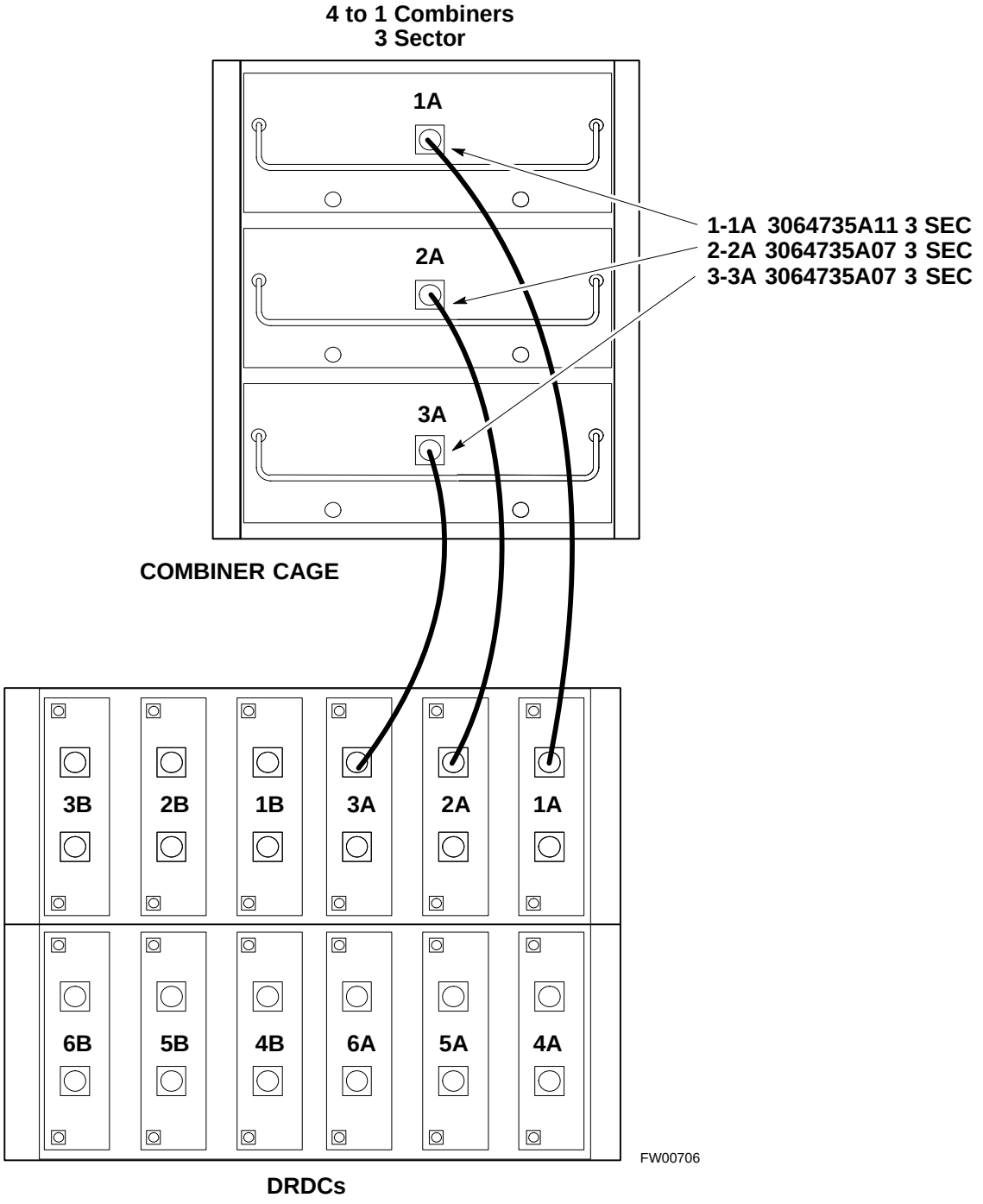

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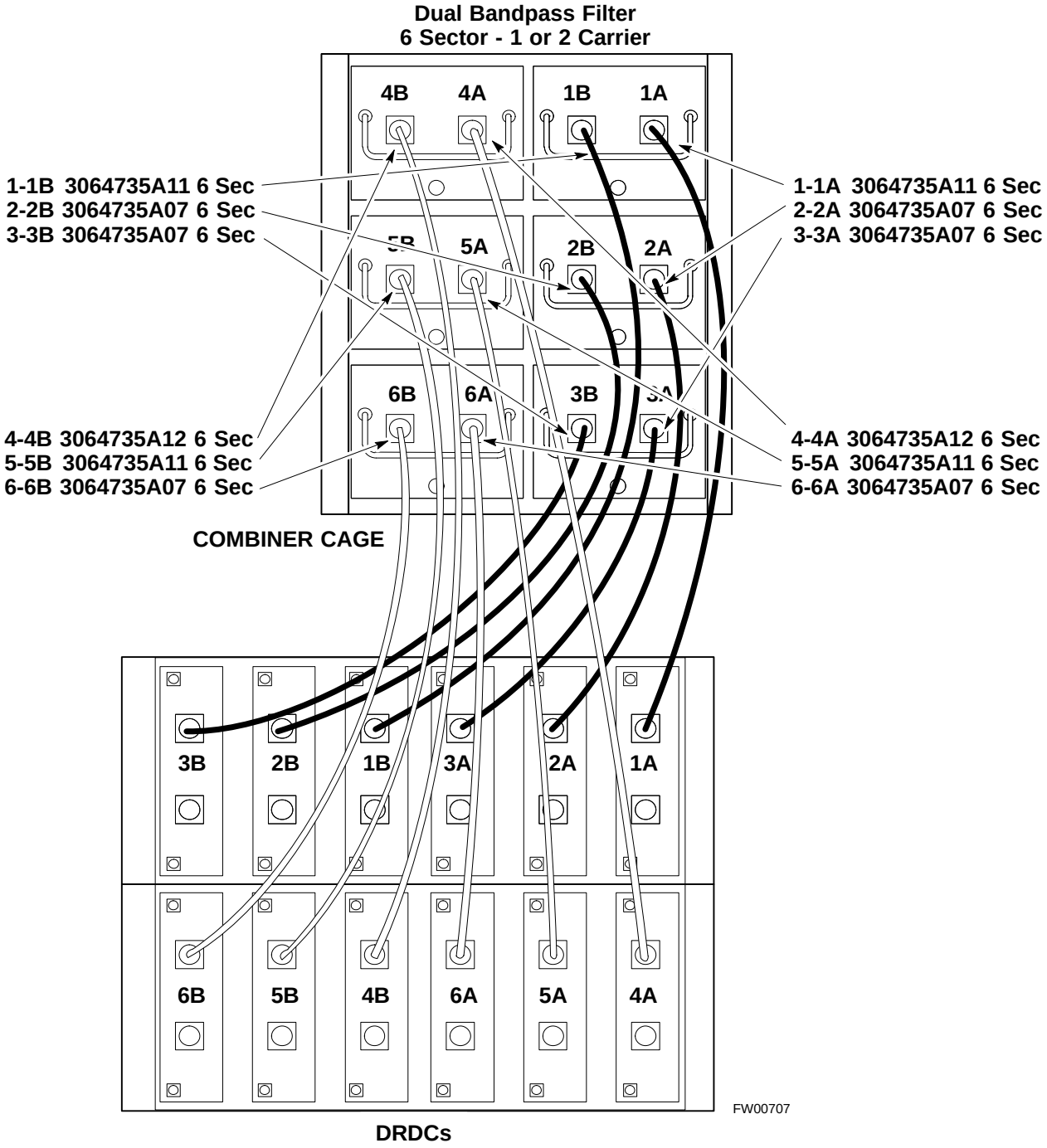
Figure H-14: SC 4812ET BTS Combiner DRDC/TRDC Cable Connection



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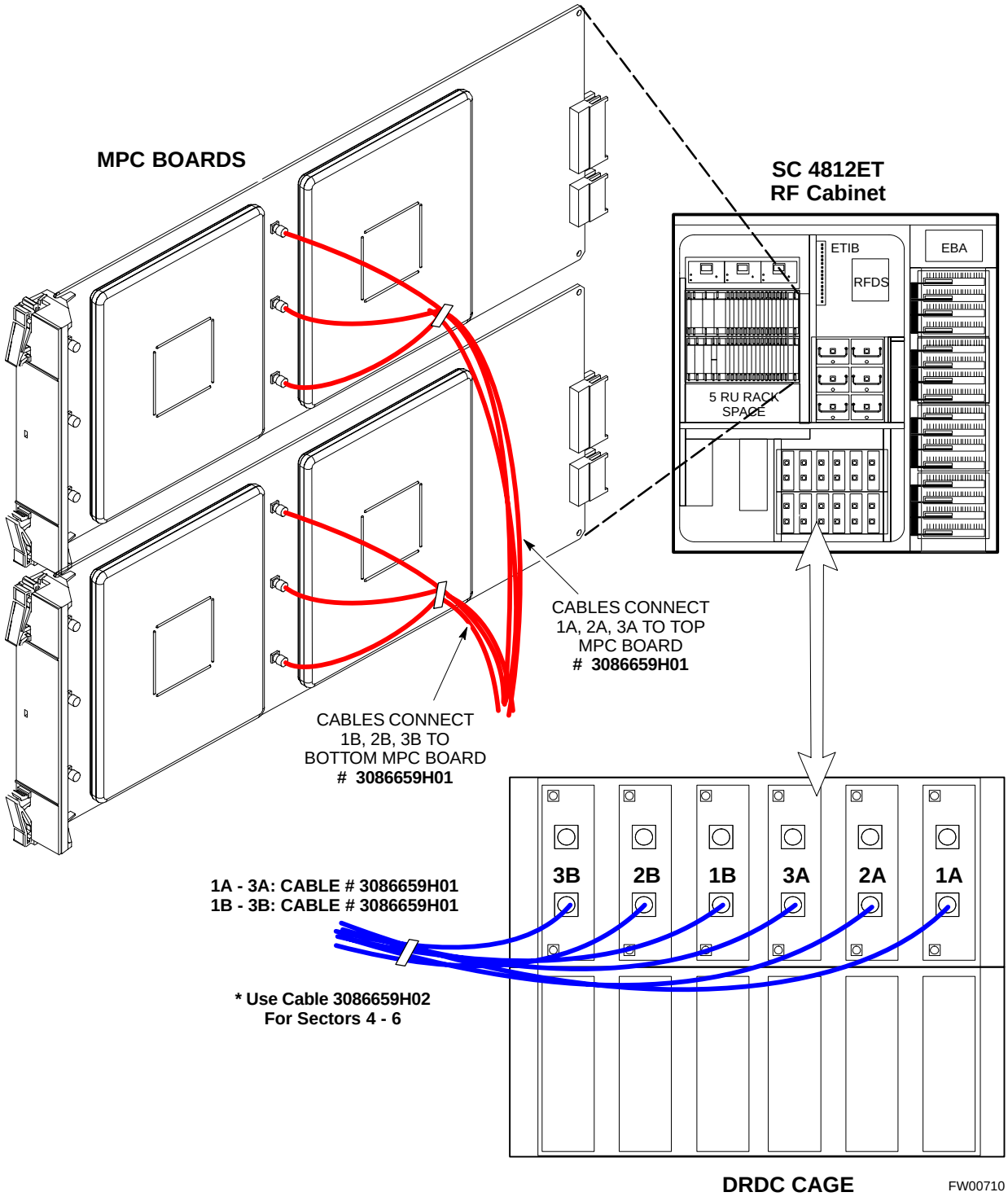
MPC Functional Description

The MPC card provides (see Figure H-15) low-noise amplification for all RX path signals. The low noise, high gain design improves frame RX sensitivity and overcomes the splitting loss in the receive path. DC voltages are monitored on the RF devices and regulators and are used to generate hard and soft alarms. The MPC is not redundant at the card-level, but includes dual-path amplifiers which provide soft-fail redundancy for all sectors.

MPC to DRDC Cabling

The cables connecting the MPC cards to the DRDCs for a three sector RF cabinet are shown in Figure H-15. A six sector RF cabinet would have six more DRDC's and they would be connected to the front of the MPC cards.

Figure H-15: DRDC To C-CCP Cage MPC Boards Cable Connections



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RFDS Cabling Details

Figure H-16 shows the components of the RFDS. Table H-2 depicts the cabling for a 3-Sector Duplexed configuration and Table H-3 depicts the cabling for a 6-Sector Duplexed configuration. Figure H-17 shows the connection of the RFDS to the BTS combiners.

Figure H-16: RFDS Component Identification

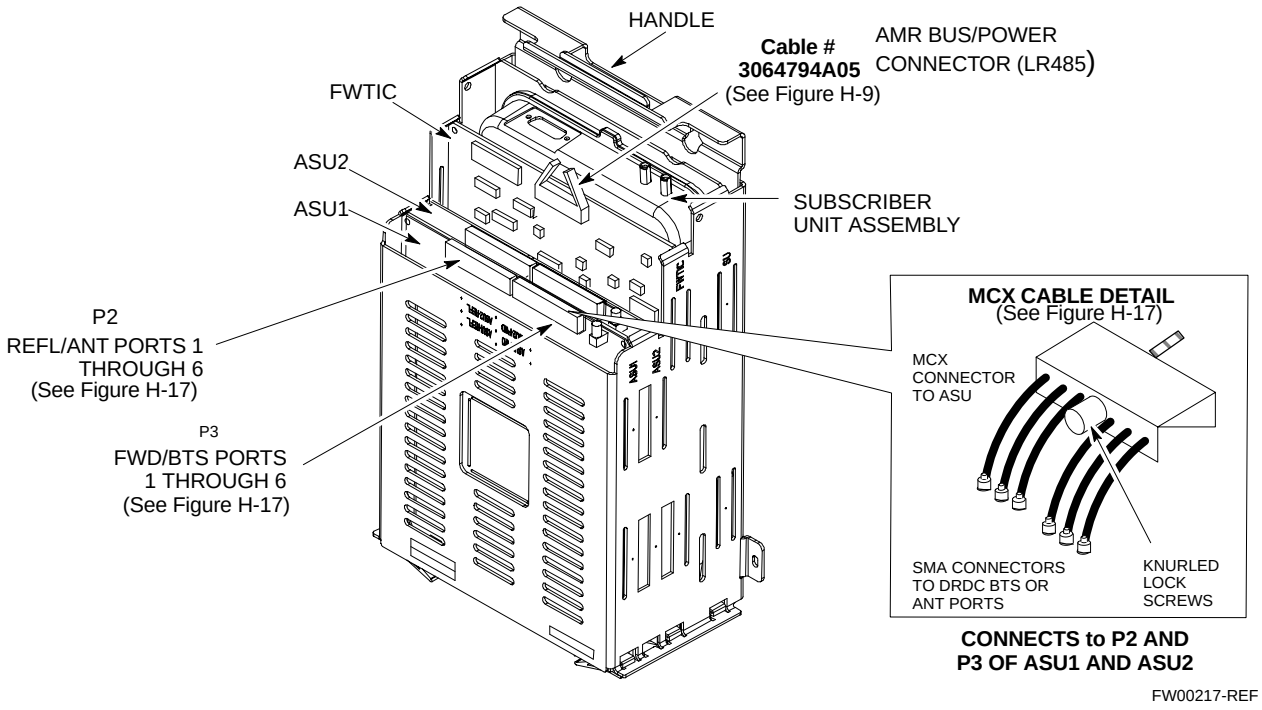
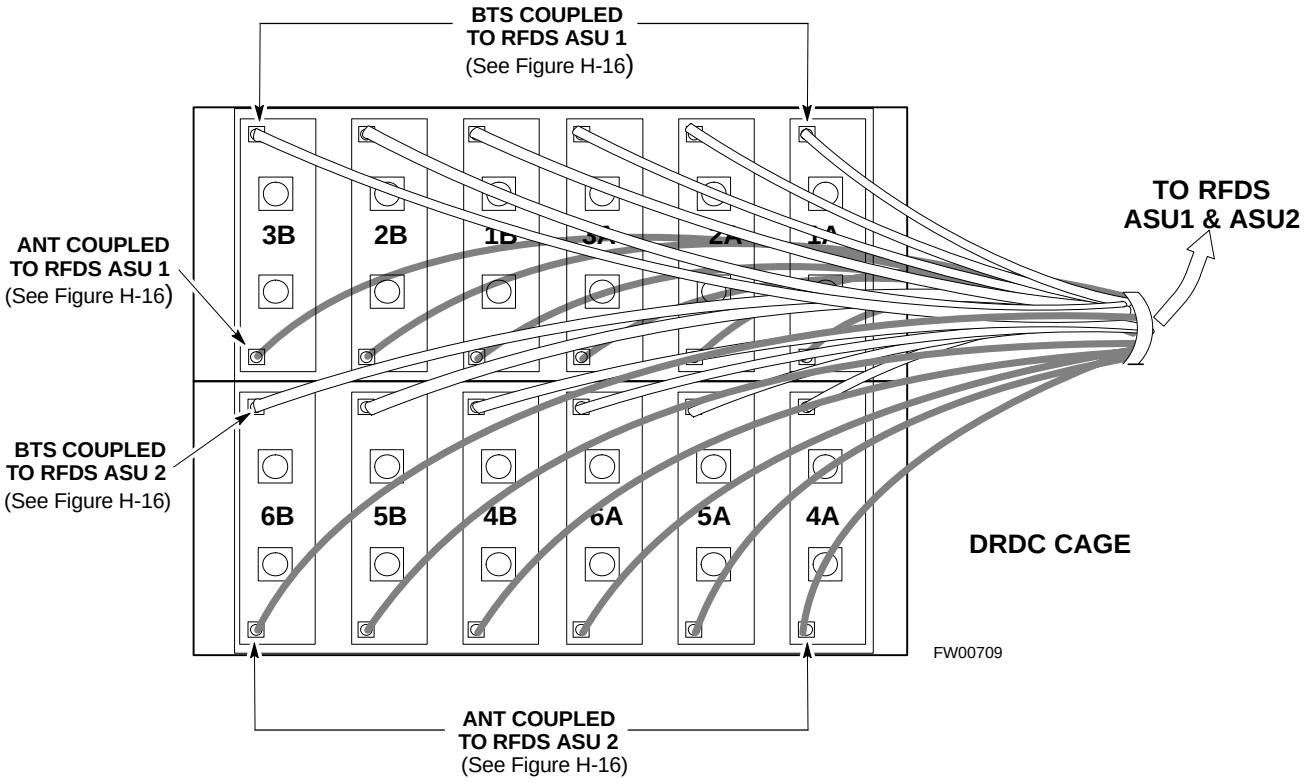


Table H-2: SC 4812ET Series 3-Sector Duplexed Directional Coupler to RFDS Cabling Table		
DRDC Label	**Directional Coupler Port**	**Cobra RFDS Port**
ASU 1 - FWD (six pack MCX)		
1A BTS	Sector 1 Main BTS	ASU1-FWD BTS-1
1B BTS	Sector 1 Diversity BTS	ASU1-FWD BTS-2
2A BTS	Sector 2 Main BTS	ASU1-FWD BTS-3
2B BTS	Sector 2 Diversity BTS	ASU1-FWD BTS-4
3A BTS	Sector 3 Main BTS	ASU1-FWD BTS-5
3B BTS	Sector 3 Diversity BTS	ASU1-FWD BTS-6
ASU 1 - REF (six pack MCX)		
1A ANT	Sector 1 Main ANT	ASU1-REF ANT-1
1B ANT	Sector 1 Diversity ANT	ASU1-REF ANT-2
2A ANT	Sector 2 Main ANT	ASU1-REF ANT-3
2B ANT	Sector 2 Diversity ANT	ASU1-REF ANT-4
3A ANT	Sector 3 Main ANT	ASU1-REF ANT-5
3B ANT	Sector 3 Diversity ANT	ASU1-REF ANT-6

Table H-3: SC 4812ET Series 6-Sector Duplexed Directional Coupler to RFDS Cabling Table		
DRDC Label	**Directional Coupler Port**	**Cobra RFDS Port**
ASU 1 - FWD (six pack MCX)		
1A BTS	Sector 1 Main BTS	ASU1-FWD BTS-1
1B BTS	Sector 1 Diversity BTS	ASU1-FWD BTS-2
2A BTS	Sector 2 Main BTS	ASU1-FWD BTS-3
2B BTS	Sector 2 Diversity BTS	ASU1-FWD BTS-4
3A BTS	Sector 3 Main BTS	ASU1-FWD BTS-5
3B BTS	Sector 3 Diversity BTS	ASU1-FWD BTS-6
ASU 2 - FWD (six pack MCX)		
4A BTS	Sector 4 Main BTS	ASU2-FWD BTS-1
4B BTS	Sector 4 Diversity BTS	ASU2-FWD BTS-2
5A BTS	Sector 5 Main BTS	ASU2-FWD BTS-3
5B BTS	Sector 5 Diversity BTS	ASU2-FWD BTS-4
6A BTS	Sector 6 Main BTS	ASU2-FWD BTS-5
6B BTS	Sector 6 Diversity BTS	ASU2-FWD BTS-6
ASU 1 - REF (six pack MCX)		
1A ANT	Sector 1 Main ANT	ASU1-REF ANT-1
1B ANT	Sector 1 Diversity ANT	ASU1-REF ANT-2
2A ANT	Sector 2 Main ANT	ASU1-REF ANT-3
2B ANT	Sector 2 Diversity ANT	ASU1-REF ANT-4
3A ANT	Sector 3 Main ANT	ASU1-REF ANT-5
3B ANT	Sector 3 Diversity ANT	ASU1-REF ANT-6
ASU 2 - REF (six pack MCX)		
4A ANT	Sector 4 Main ANT	ASU2-REF ANT-1
4B ANT	Sector 4 Diversity ANT	ASU2-REF ANT-2
5A ANT	Sector 5 Main ANT	ASU2-REF ANT-3
5B ANT	Sector 5 Diversity ANT	ASU2-REF ANT-4
6A ANT	Sector 6 Main ANT	ASU2-REF ANT-5
6B ANT	Sector 6 Diversity ANT	ASU2-REF ANT-6

Figure H-17: SC 4812ET BTS Combiner DRDC/TRDC RFDS Cable Connection



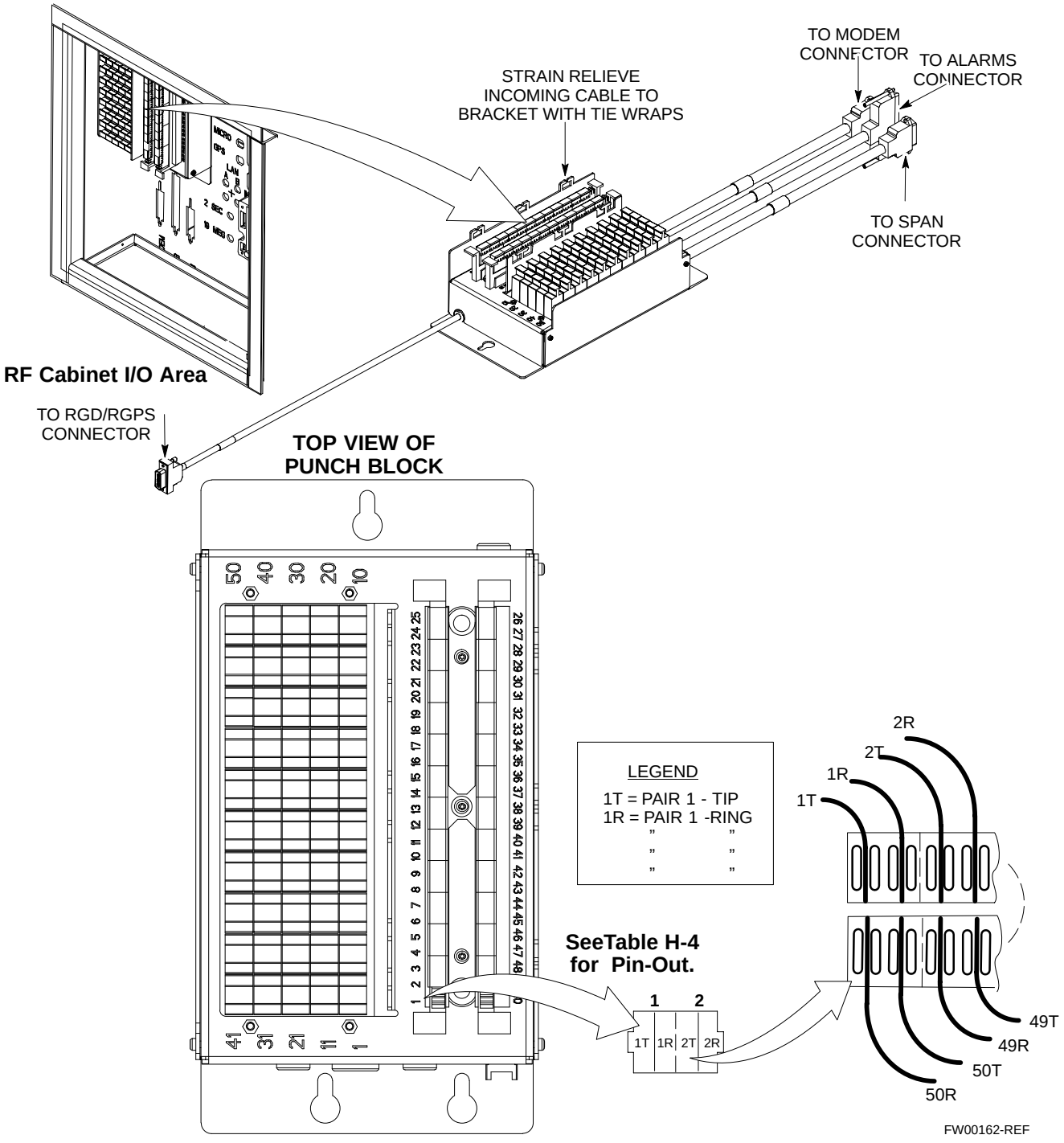
50 Pair Punchblock

The 50 pair punchblock is the main interface point for RGPS, span lines, customer I/O, Power Cabinet alarm lines, and the modem. The punchblock provides primary protection for all lines. Refer to Figure H-18 and Table H-4 for punchblock pin-out.

CAUTION	SC4812ET Span Line Labeling for Span B and Span C is swapped - On the SC4812ET's, the span cabel internal to the base station that connects the 50 pin header on the I/O plate to the CSU has Span B and Span C (RJ-45) connectors mis-labeled. - CFE will punch down the span on the 50 pair bunchblock as per Motorola documentation and punchdown chart. When connecting the span input to the CSU re-label "Span B" cable to"Span C" cable to "Span B". Connect to CSU as per documentation - Note: The labeling issue on the cable from the I/O plate to the CSU Part Number 3086601H01 Rev C shall be corrected on revision "D" to address this issue. The cut over date to Rev. D will be approximately January 30, 2001.

CAUTION	A wiring discrepancy exists between the manuals and the frame for remote GPS. - The TX and RX are reversed in the ETIB, leading to inoperability of the RGPS. The RGPS will not work in either a single standalone or multiple frame configuration. - Swap the White and White/Bk wires to punch pins 44T and 44R. The Green and Green/Bk go to 45T and 45R. This will correct non-expansion configurations. - Single frame and expansion BTSs without RGPS can use this workaround as a permanent solution. - For expansion with RGPS required a new cable (P/N 3086433H10) will correct the problem.

Figure H-18: 50 Pair Punchblock



Alarm and Span Line Cable Pin/Signal Information

Table H-4 lists the complete pin/signal identification for the 50-pin punch block.

Table H-4: Pin-Out for 50-Pair Punchblock

Punchblock Cable Connector	Function	Signal Name	Punch Pin	Ext. Cable Wire Color
ALARM	Power Cabinet	Power Cab Control - NC	1T	Blue
		Power Cab Control - NO	1R	Blk/Blue
		Power Cab Control-Com	2T	Yellow
		Reserved	2R	N/C
		Rectifier Fail	3T	Blk/Yellow
		AC Fail	3R	Green
		Power Cab Exchanger Fail	4T	Blk/Grn
		Power Cab Door Alarm	4R	White
		Power Cab Major Alarm	5T	Blk/White
		Battery Over Temp	5R	Red
		Power Cab Minor Alarm	6T	Blk/Red
		Reticifier Over Temp	6R	Brown
		Power Cab Alarm Rtn	7T	Blk/Brn
	HSO/LFR Extension	LFR_HSO_GND	7R	
		EXT_1PPS_POS	8T	
		EXT_1PPS_NEG	8R	
	LFR Antenna	CAL_+	9T	
		CAB_-	9R	
		LORAN_+	10T	
		LORAN_-	10R	
	Pilot Beacon	Pilot Beacon Alarm - Minor	11T	
		Pilot Beacon Alarm - Rtn	11R	
		Pilot Beacon Alarm - Major	12T	
		Pilot Beacon Control-NO	12R	
		Pilot Beacon Control - COM	13T	
		Pilot Beacon Control - NC	13R	

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Table H-4: Pin-Out for 50-Pair Punchblock

Punchblock Cable Connector	Function	Signal Name	Punch Pin	Ext. Cable Wire Color
ALARM	Customer Outputs	Customer Outputs 1 - NO	14T	
		Customer Outputs 1 - COM	14R	
		Customer Outputs 1 - NO	14T	
		Customer Outputs 1 - COM	14R	
		Customer Outputs 1 - NC	15T	
		Customer Outputs 2 - NO	15R	
		Customer Outputs 2 - COM	16T	
		Customer Outputs 2 - NC	16R	
		Customer Outputs 3 - NO	17T	
		Customer Outputs 3 - COM	17R	
		Customer Outputs 3 - NC	18T	
		Customer Outputs 4 - NO	18R	
		Customer Outputs 4-COM	19T	
		Customer Outputs 4 - NC	19R	
ALARM	Customer Inputs	Customer Inputs 1	20T	
		Cust_Rtn_A_1	20R	
		Customer Inputs 2	21T	
		Cust_Rtn_A_2	21R	
		Customer Inputs 3	22T	
		Cust_Rtn_A_3	22R	
		Customer Inputs 4	23T	
		Cust_Rtn_A_4	23R	
		Customer Inputs 5	24T	
		Cust_Rtn_A_5	24R	
		Customer Inputs 6	25T	
		Cust_Rtn_A_6	25R	
		Customer Inputs 7	26T	
		Cust_Rtn_A_7	26R	
		Customer Inputs 8	27T	
		Cust_Rtn_A_8	27R	
		Customer Inputs 9	28T	
		Cust_Rtn_A_9	28R	
		Customer Inputs 10	29T	
		Cust_Rtn_A_10	29R	

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Table H-4: Pin-Out for 50-Pair Punchblock

Punchblock Cable Connector	Function	Signal Name	Punch Pin	Ext. Cable Wire Color
SPAN I/O	Span 1	RCV_TIP_A	30T	
		RCV_RING_A	30R	
		XMIT_TIP_A	31T	
		XMIT_RING_A	31R	
	Span 2	RCV_TIP_B	32T	
		RCV_RING_B	32R	
		XMIT_TIP_B	33T	
		XMIT_RING_B	33R	
	Span 3	RCV_TIP_C (Note)	34T	
		RCV_RING_C (Note)	34R	
		XMIT_TIP_C (Note)	35T	
		XMIT_RING_C(Note)	35R	
	Span 4	RCV_TIP_D (Note)	36T	
		RCV_RING_D (Note)	36R	
		XMIT_TIP_D (Note)	37T	
		XMIT_RING_D(Note)	37R	
	Span 5	RCV_TIP_E (Note)	38T	
		RCV_RING_E (Note)	38R	
		XMIT_TIP_E (Note)	39T	
		XMIT_RING_E(Note)	39R	
	Span 6	RCV_TIP_F (Note)	40T	
		RCV_RING_F (Note)	40R	
		XMIT_TIP_F (Note)	41T	
		XMIT_RING_F(Note)	41R	
		NOTE Span 3 through 6 are spares for expansion purposes		

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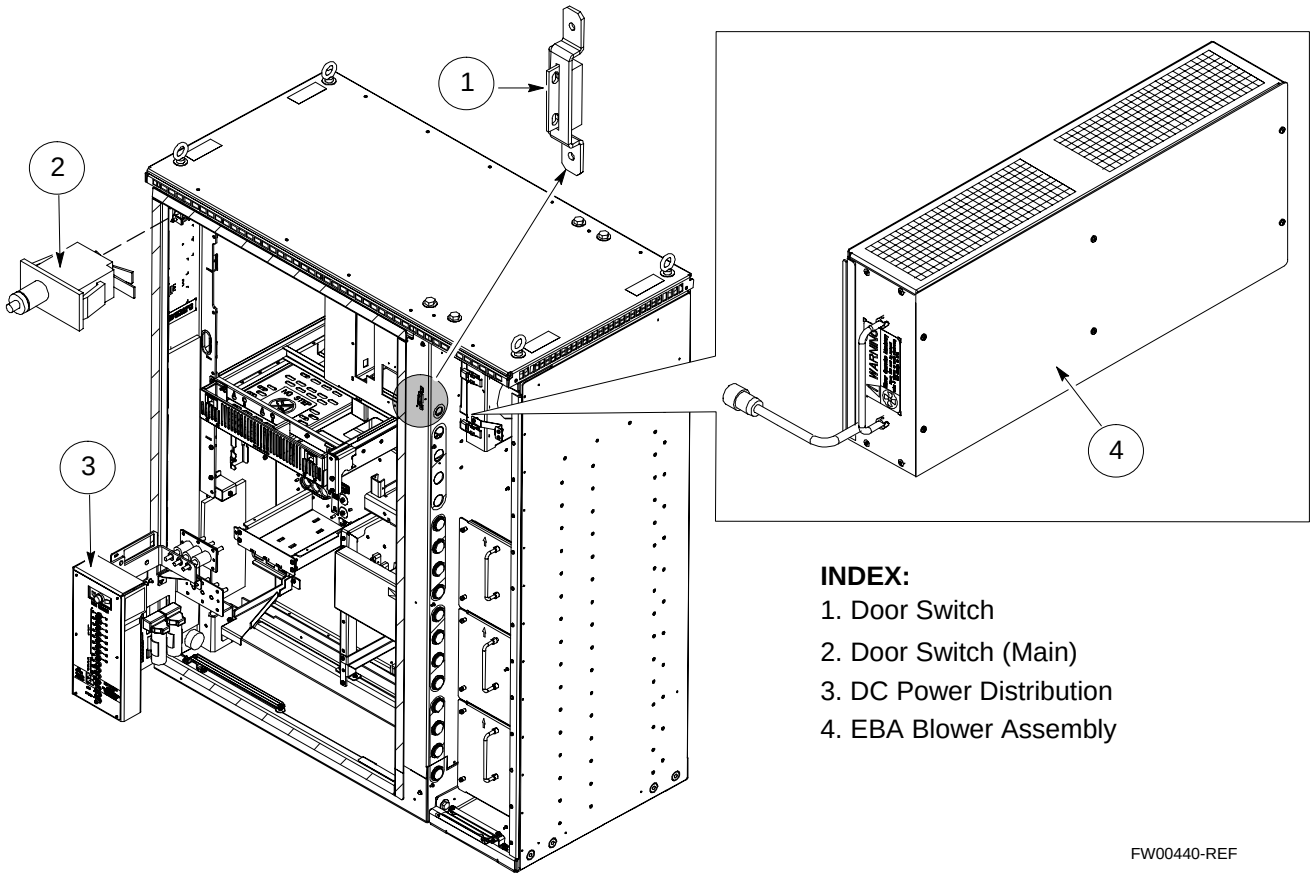
Table H-4: Pin-Out for 50-Pair Punchblock				
Punchblock Cable Connector	**Function**	**Signal Name**	**Punch Pin**	**Ext. Cable Wire Color**
RGD/RGPS	**For frame without RGD Expansion Punchblock** Single Frame BTS;RGPS Head Connection **OR** Multiple Frame BTS; RGD Connection at RGPS Secondary Frame	GPS_Power_A	42T	Yellow
		GPS_Power_A_Return	42R	Yellow/Black
		GPS_Power_B	43T	Blue
		GPS_Power_B_Return	43R	Blue/Black
		GPS_TXD+	44T	White
		GPS_TXD-	44R	White/Black
		GPS_RXD+	45T	Green
		GPS_RXD-	45R	Green/Black
		Signal Ground (TDR+)	46T	Red
		Signal Ground (TDR-)	46R	Red/Black
		GPS_1PPS+	47T	Brown
		GPS_1PPS-	47R	Brown/Black
RGD/RGPS	**For frame with RGD Expansion Punchblock** **OR** Multiple Frame BTS; RGPS Head Connection at RGPS Primary Frame	GPS_Power_A	42T	Yellow
		GPS_Power_A_Return	42R	Yellow/Black
		GPS_Power_B	43T	Blue
		GPS_Power_B_Return	43R	Blue/Black
		GPS_TXD+	44T	White
		GPS_TXD-	44R	White/Black
		GPS_RXD+	45T	Green
		GPS_RXD-	45R	Green/Black
		Signal Ground (TDR+)	46T	Red
		Master Frame (TDR-)	46R	Red/Black
		GPS_1PPS+	47T	Brown
		GPS_1PPS-	47R	Brown/Black
MODEM		Reserved	48T	
		Reserved	48R	
RGD/RGPS		Chassis Ground	49T	N/A
None		No Connection	49R	None
ALARM		Reserved	50T	None
		Reserved	50R	None

RF Cabinet Parts Locator

Figure H-19 illustrates the location of door switch interlocks, DC Power distribution and the EBA blower assembly.

Figure H-19: SC 4812ET RF Cabinet Parts Locator



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MOTOROLA

Appendix I

GPIB Addressing

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GPIB

GPIB Introduction

Use the procedures in this appendix to verify and/or change the GPIB addresses of the applicable test equipment.

HP437 Power Meter GPIB Address

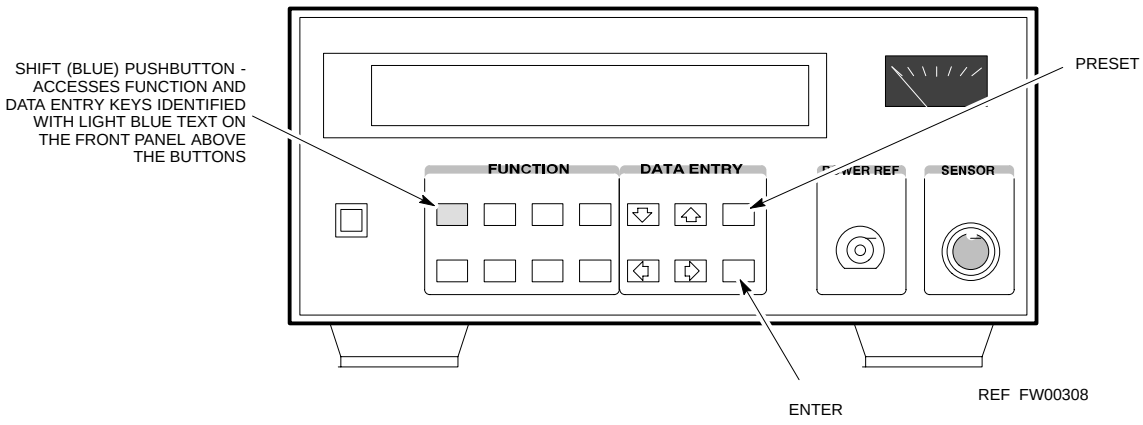
Follow the steps in Table I-1 to verify and, if necessary, change the HP437 GPIB address.

NOTE	This procedure assumes that the test equipment is set up and ready for testing.

Table I-1: Verify and/or Change HP437 Power Meter GPIB Address

Step	Action
1	Press **Shift** and **PRESET** (see Figure I-1).
2	Use the ▲ arrow key to navigate to HP-IB ADRS and press **ENTER**. The HP-IB address is displayed. **NOTE** HP-IB is the same as GPIB.
3	If the current GPIB address is not set to **13**, perform the following to change it: - Use the ▲ ▼ arrow keys to change the HP-IB ADRS to **13**. - Press **ENTER** to set the address.
4	Press **Shift** and **ENTER** to return to a standard configuration.

Figure I-1: HP437 Power Meter



Gigatronics 8541C Power Meter GPIB Address

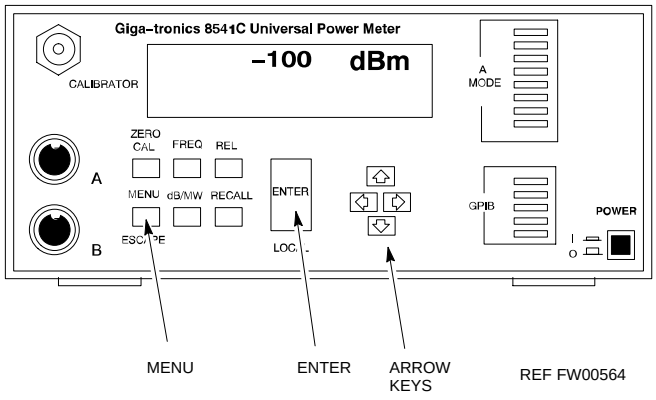
Follow the steps in Table I-2 to verify and, if necessary, change the Gigatronics 8541C power meter GPIB address.

NOTE	This procedure assumes that the test equipment is set up and ready for testing.

Table I-2: Verify and/or Change Gigatronics 8541C Power Meter GPIB Address

Step	Action
	! CAUTION Do not connect/disconnect the power meter sensor cable with AC power applied to the meter. Disconnection could result in destruction of the sensing element or miscalibration.
1	Press **MENU** (see Figure I-2).
2	Use the ▼ arrow key to select **CONFIG MENU** and press **ENTER**.
3	Use the ▼ arrow key to select **GPIB** and press **ENTER**. The current **Mode** and GPIB **Address** are displayed.
4	If the **Mode** is not set to **8541C**, perform the following to change it: Use the ◀ ▶ arrow keys as required to select **MODE**. Use the ▼▲ arrow keys as required to set **MODE** to **8541C**.
5	If the GPIB address is not set to **13**, perform the following to change it: Use the ▶ arrow key to select **ADDRESS**. Use the ▼▲ arrow keys as required to set the GPIB address to **13**.
6	Press **ENTER** to return to normal operation.

Figure I-2: Gigatronics 8541C Power Meter Detail



Motorola CyberTest GPIB Address

Follow the steps in Table I-3 to verify and, if necessary, change the GPIB address on the Motorola CyberTest. Changing the GPIB address requires the following items:

- Motorola CyberTest communications analyzer
- Computer running Windows 3.1/Windows 95
- Motorola CyberTAME software program “TAME”
- Parallel printer port cable (shipped with CyberTest)

NOTE	This procedure assumes that the test equipment is set up and ready for testing.

Table I-3: Verify and/or Change Motorola CyberTest GPIB Address

Step	Action
1	On the LMF desktop, locate the CyberTAME icon. Double click on the icon to run the CyberTAME application.
2	In the CyberTAME window taskbar, under **Special,** select **IEEE.488.2.**
3	CyberTAME software will query the CyberTest Analyzer for its current GPIB address. It then will open the IEEE 488.2 dialog box. If the current GPIB address is not 18, perform the following procedure to change it: - Use the up or down increment arrows, or double-click in the field and type the number. - Click on the **OK** button. The new address will be written to the CyberTest via the parallel port and saved.
	NOTE Verify that the address has been set by repeating steps 2 and 3. The new address should now appear in the IEEE 488.2 dialog box Address field.

HP8935 Test Set GPIB Address

Follow the procedure in Table I-4 to verify and, if necessary, change the HP8935 GPIB address.

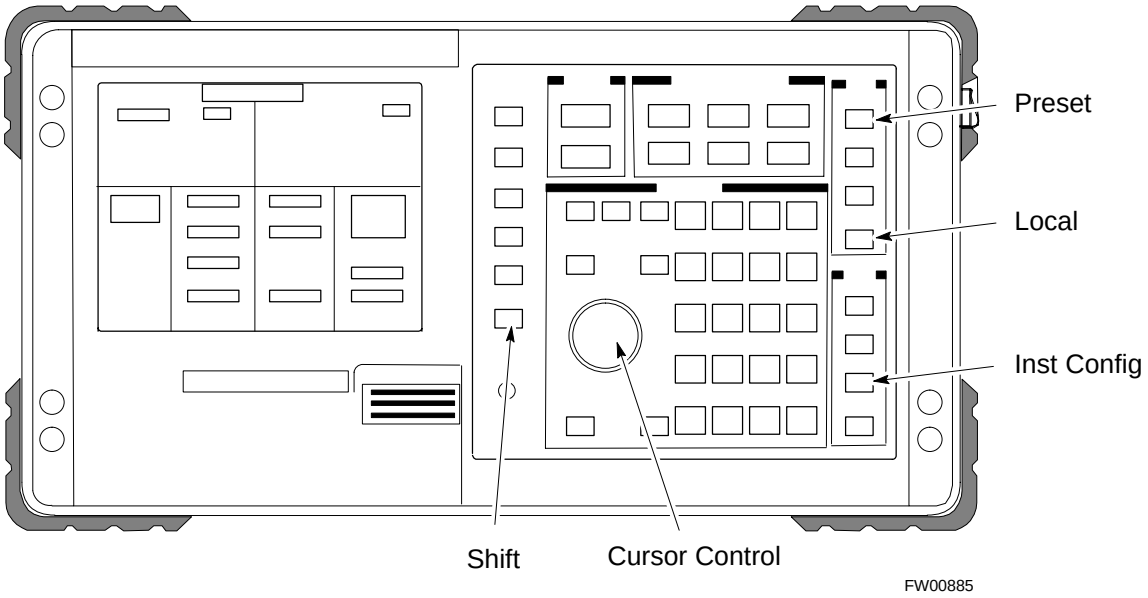
NOTE	This procedure assumes that the test equipment is set up and ready for testing.

Table I-4: Verify and/or Change HP8935 GPIB Address

Step	Action
	*** IMPORTANT** The HP I/O configuration MUST be set to **Talk & Listen,** or NO device on the GPIB bus will be accessible. (Consult test equipment OEM documentation for additional information as required.)
1	To verify that the GPIB addresses are set correctly, press **Shift** and **LOCAL** on the HP8935 (see Figure I-3). The current HP-IB address is displayed at the top of the screen. **NOTE** HP-IB is the same as GPIB.

Table I-4: Verify and/or Change HP8935 GPIB Address	
Step	**Action**
2	If the current GPIB address is not set to **18**, perform the following to change it: - Press **Shift** and **Inst Config**. - Turn the **Cursor Control** knob to move the cursor to the **HP-IB Adrs** field. - Press the **Cursor Control** knob to select the field. - Turn the **Cursor Control** knob as required to change the address to 18. - Press the **Cursor Control** knob to set the address.
3	• Press **Preset** to return to normal operation.

Figure I-3: HP8935 Test Set



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Setting HP8921A and HP83236A/B GPIB Address

Follow the procedure in Table I-5 to verify and, if necessary, change the HP8921A HP83236A GPIB addresses.

NOTE	This procedure assumes that the test equipment is set up and ready for testing.

Table I-5: Verify and/or Change HP8921A and HP83236A GPIB Addresses

Step	Action
1	To verify that the GPIB addresses are set correctly, press **Shift** and **LOCAL** on the HP8921A (see Figure I-4). The current HP-IB address is displayed at the top of the screen. **NOTE** HP-IB is the same as GPIB.
2	If the current HP-IB address is not set to **18**, perform the following to change it: - Turn the **Cursor Control** knob to move the cursor to **More** and press the knob to select the field. - Turn the **Cursor Control** knob to move the cursor to **I/O Config** and press the knob to select the field. - Turn the **Cursor Control** knob to move the cursor to **Adrs** and press the knob to select the field. - Turn the **Cursor Control** knob to change the HP-IB address to 18 and press the knob to set the address. - Press **Shift** and **Preset** to return to normal operation.
3	To set the HP83236A (or B) PCS Interface GPIB address=19, set the dip switches as follows: - A1=1, A2=1, A3=0, A4=0, A5=1, HP-IB/Ser = 1

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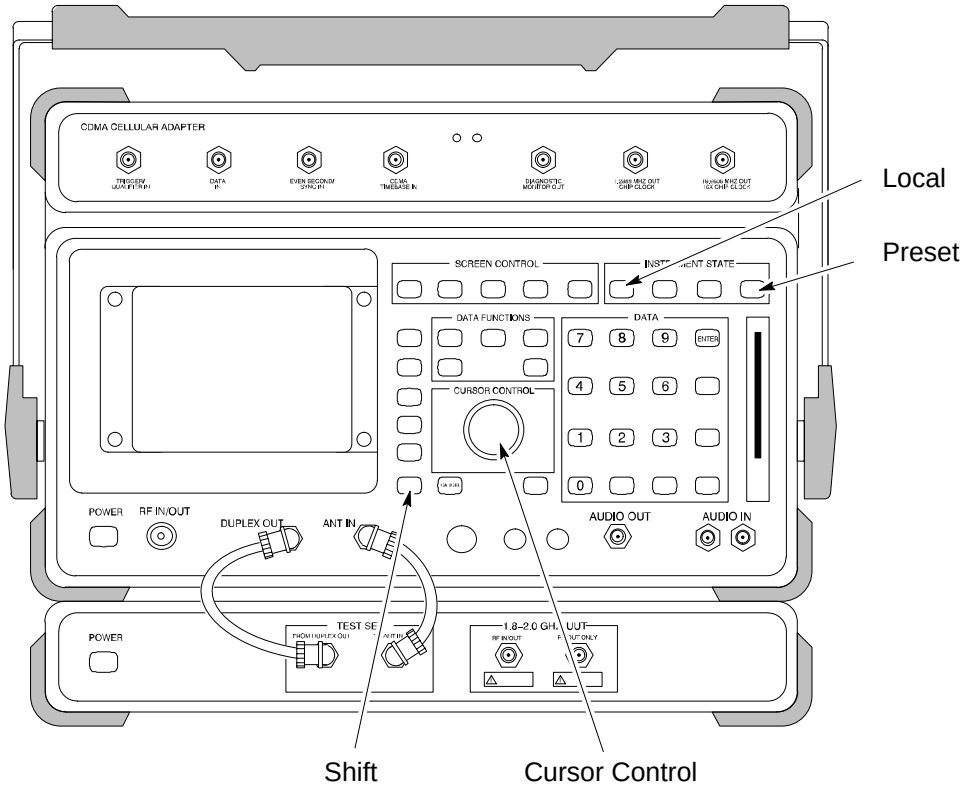
Figure I-4: HP8921A and HP83236A/B



Advantest R3465 GPIB Address

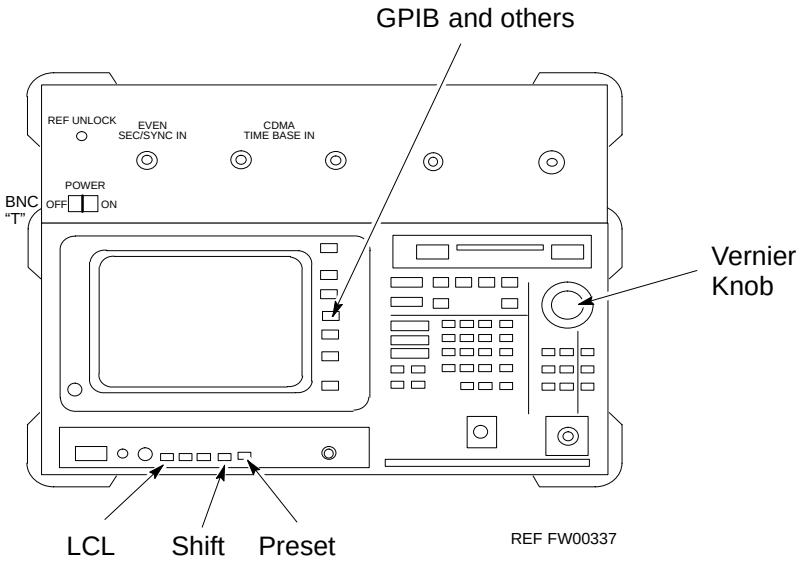
Table I-6 describes the steps to verify and, if necessary, change the GPIB address for the Advantest R3465.

NOTE	This procedure assumes that the test equipment is set up and ready for testing.

Table I-6: Verify and/or Change Advantest R3465 GPIB Address

Step	Action
1	To verify that the GPIB address is set correctly, perform the following procedure: - Press **SHIFT** then **PRESET** (see Figure I-5). - Press **LCL**. - Press the **GPIB and Others** CRT menu key to view the current address.
2	If the current GPIB address is not set to **18**, perform the following to change it: - Turn the vernier knob as required to select **18**. - Press the vernier knob to set the address.
3	To return to normal operation, press **Shift** and **Preset**.

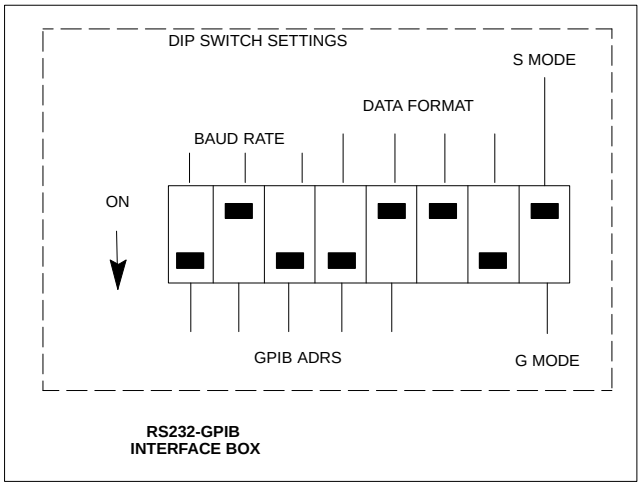
Figure I-5: R3465 Communications Test Set



RS232 GPIB Interface Box

Ensure that the RS232 GPIB interface box dip switches are set as shown in Figure I-6.

Figure I-6: RS232 GPIB Interface Box

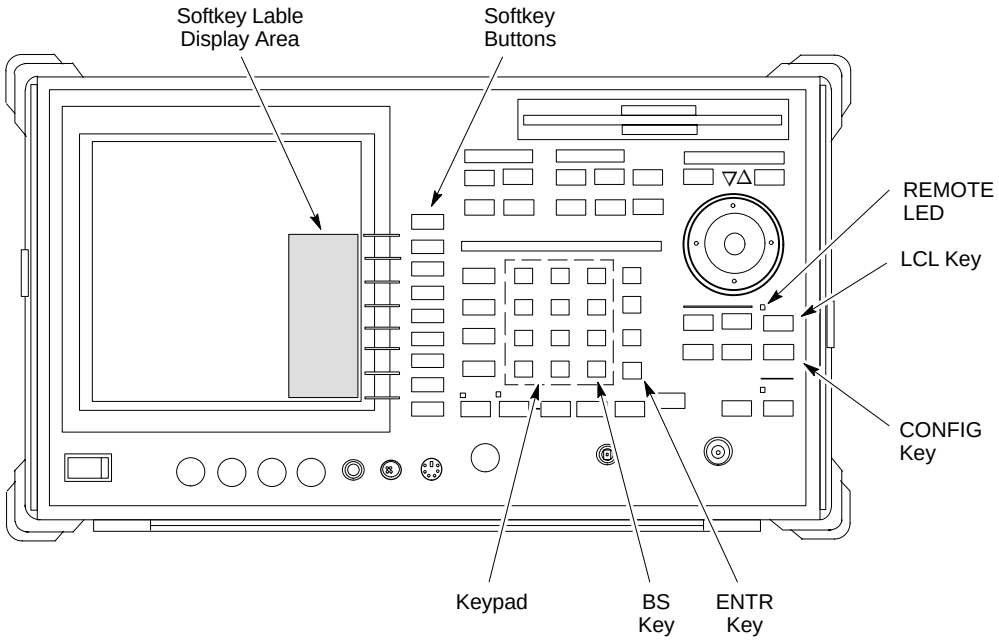


Advantest R3267 Spectrum Analyzer GPIB Address

Perform the procedure in Table I-7 and refer to Figure I-7 to verify and, if necessary, change the Advantest R3267 spectrum analyzer GPIB address.

Table I-7: Verify and Change Advantest R3267 GPIB Address	
Step	**Action**
1	If the **REMOTE** LED is lighted, press the **LCL** key. - The LED turns off.
2	Press the **CONFIG** key. - The **CONFIG** softkey labels will appear in the softkey label display area of the instrument display. - The current GPIB address will be displayed below the **GPIB Address** softkey label.
3	If the current GPIB address is not set to **18**, perform the following to change it:
3a	- Press the **GPIB Address** softkey. -- A **GPIB Address** entry window will open in the instrument display showing the current GPIB address.
3b	- Enter **18** on the keypad in the **ENTRY** section of the instrument front panel. -- Characters typed on the keypad will replace the address displayed in the **GPIB Address** entry window. **NOTE** To correct an entry, press the **BS** (backspace) key at the lower right of the keypad to delete one character at a time.
3c	- Press the **ENTR** key to the lower right of the keypad to enter the address. -- The **GPIB Address** entry window closes. -- The new address is diplayed in the bottom portion of the **GPIB Address** softkey label.

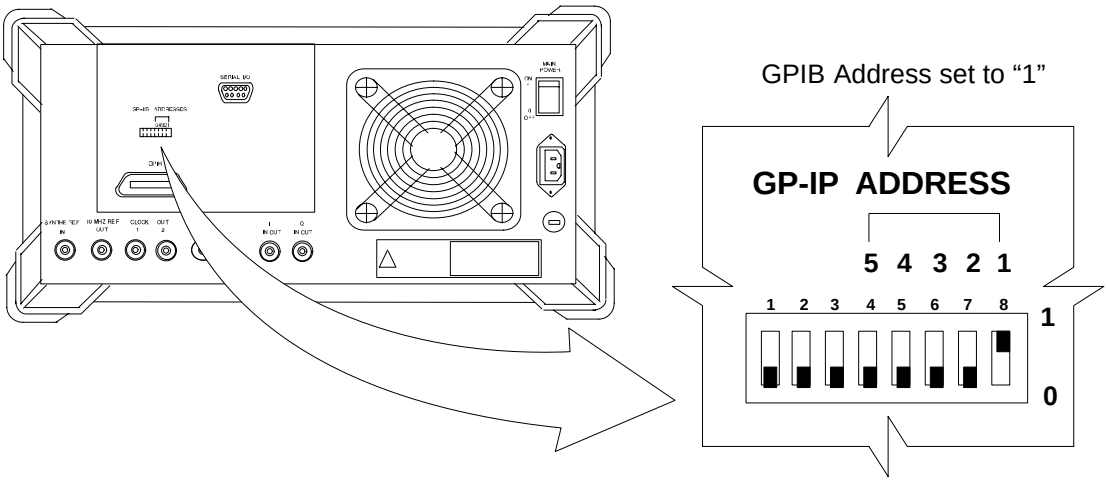
Figure I-7: Setting Advantest R3267 GPIB Address



Advantest R3562 Signal Generator GPIB Address

Set the GP-IB ADDRESS switch on the rear of the Advantest R3562 signal generator to address **1** as shown in Figure I-8.

Figure I-8: Advantest R3562 GPIB Address Switch Setting



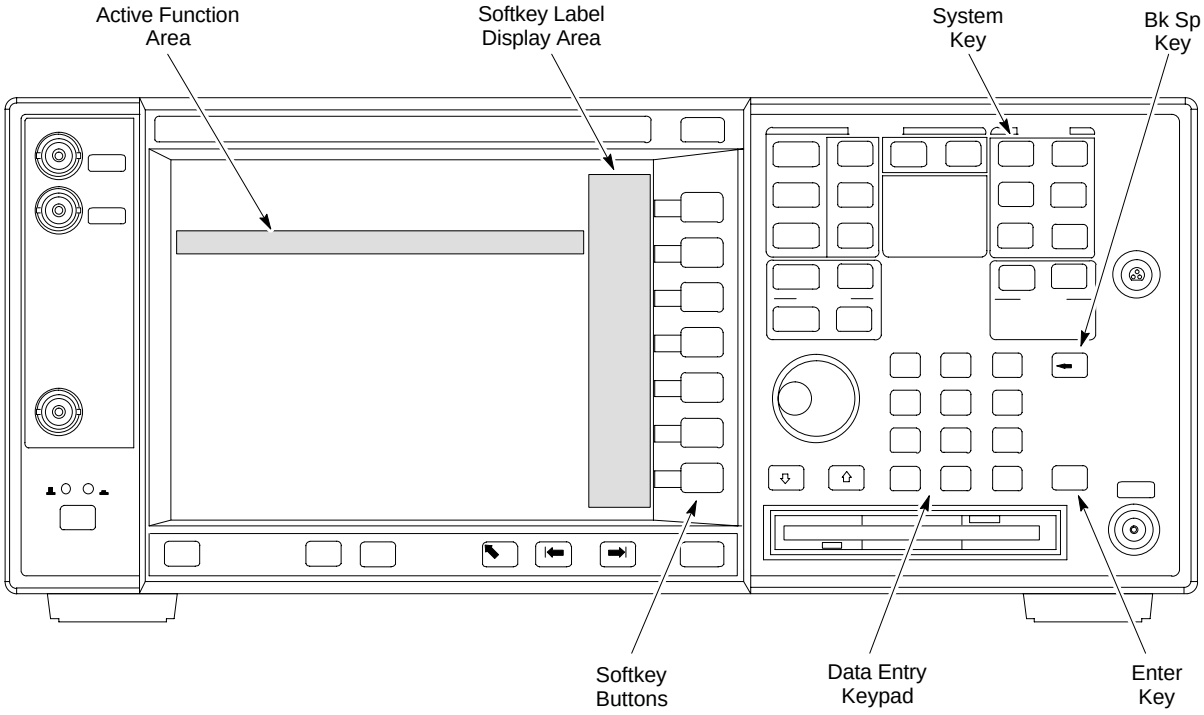
Agilent E4406A Transmitter Tester GPIB Address

Follow the procedure in Table I-8 and refer to Figure I-9 to verify and, if necessary, change the Agilent E4406A GPIB address.

Table I-8: Verify and Change Agilent E4406A GPIB Address

Step	Action
1	In the **SYSTEM** section of the instrument front panel, press the **System** key. - The softkey labels displayed on the right side of the instrument screen will change.
2	Press the **Config I/O** softkey button to the right of the instrument screen. - The softkey labels will change. - The current instrument GPIB address will be displayed below the **GPIB Address** softkey label.
3	If the current GPIB address is not set to **18**, perform the following to change it:
3a	- Press the GPIB Address softkey button. -- In the on-screen Active Function Area, **GPIB Address** will be displayed followed by the current GPIB address.
3b	- On the front panel Data Entry keypad, enter the communications system analyzer GPIB address of **18**. -- The **GPIB Address** label will change to **Enter**. -- Digits entered with the keypad will replace the current GPIB address in the display. **NOTE** To correct an entry, press the **Bk Sp** key at the upper right of the keypad to delete one character at a time.
3c	- Press the **Enter** softkey button or the keypad **Enter** key to set the new GPIB address. -- The **Config I/O** softkey labels will reappear. -- The new GPIB address will be displayed under the **GPIB Address** softkey label.

Figure I-9: Setting Agilent E4406A GPIB Address



Agilent E4432B Signal Generator GPIB Address

Follow the procedure in Table I-9 and refer to Figure I-10 to verify and, if necessary, change the Agilent E4432B GPIB address.

Table I-9: Verify and Change Agilent E4432B GPIB Address

Step	Action
1	In the **MENUS** section of the instrument front panel, press the **Utility** key. - The softkey labels displayed on the right side of the instrument screen will change.
2	Press the **GPIB/RS232** softkey button to the right of the instrument screen. - The softkey labels will change. - The current instrument GPIB address will be displayed below the **GPIB Address** softkey label.
3 3a	If the current GPIB address is not set to **1**, perform the following to change it: - Press the **GPIB Address** softkey button. -- The **GPIB Address** label and current GPIB address will change to boldface. -- In the on-screen Active Entry Area, **Address:** will be displayed followed by the current GPIB address.

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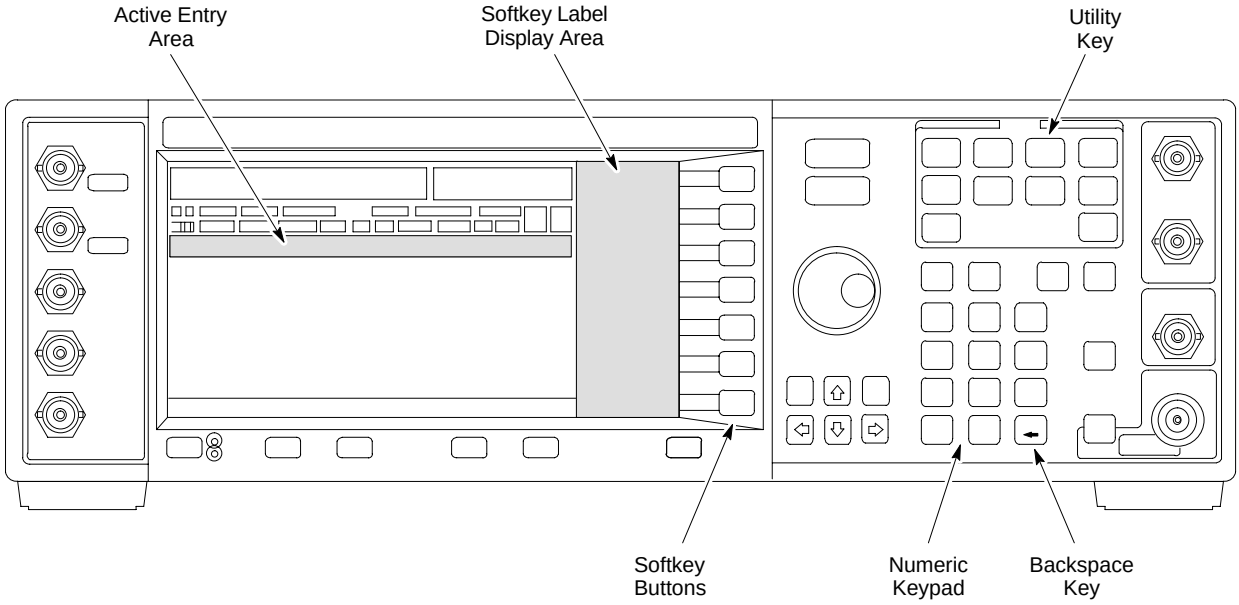
Table I-9: Verify and Change Agilent E4432B GPIB Address	
Step	**Action**
3b	- On the front panel Numeric keypad, enter the signal generator GPIB address of **1**. -- The **GPIB Address** label will change to **Enter**. -- Digits entered with the keypad will replace the current GPIB address in the Active Entry display. **NOTE** To correct an entry, press the backspace key at the lower right of the keypad to delete one character at a time.
3c	- Press the **Enter** softkey button to set the new GPIB address. -- The new GPIB address will be displayed under the **GPIB Address** softkey label.

Figure I-10: Setting Agilent E4432B GPIB Address



Notes

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Appendix J

Downloading ROM

Downloading ROM Code

Exception Procedure - Downloading ROM Code

This procedure is not part of a normal optimization.

Perform this procedure only on an exception basis when no alternative exists to load a BTS device with the correct version of ROM code.

NOTE	One GLI must be INS_ACT (bright green) before ROM code can be downloaded to non-GLI devices.

CAUTION	The correct ROM and RAM codes for the software release used on the BSS must be loaded into BTS devices. To identify the correct device ROM and RAM code loads for the software release being used on the BSS, refer to the Version Matrix section of the SC™ CDMA Release Notes (supplied on the tape or CD-ROM containing the BSS software). All devices in a BTS must be loaded with the ROM and RAM code specified for the software release used on the BSS before any optimization or ATP procedures can be performed. If a replacement device is loaded with ROM code which is not compatible with the BSS software release being used, the device ROM code can be changed using the LMF before performing the BTS optimization and ATPs. *A device loaded with later release ROM code can not be converted back to a previous release ROM code in the field without Motorola assistance*

If it is necessary to download ROM code to a device from the LMF, the procedure in Table J-1 includes steps *for both ROM and RAM code download using LMF.*

Prerequisites

Prior to performing this procedure, ensure the correct ROM and RAM code files exist in the LMF computer's applicable *lmf home directory* **code** folder for each of the devices to be loaded.

CAUTION	The Release level of the ROM code to be downloaded must be the one specified for the software release installed in the BSS. The release level of the ROM code resident in the other devices in the BTS must also be correct for the BSS software release being used. ROM code must not be downloaded to a frame loaded with code for a BSS software release with which it is not compatible. *This procedure should only be used to upgrade replacement devices for a BTS.* It should NOT be used to upgrade all devices in a BTS. If a BTS is to be upgraded from R15.x to R16.0, the upgrade should be done by the OMC-R using the DownLoad Manager.

Table J-1: Download ROM and RAM Code to Devices	
Step	**Action**
1	Click on the device to be loaded. **NOTE** More than one device of the *same* type can be selected for download by either clicking on each one to be downloaded or from the BTS menu bar **Select** pull-down menu, select the *device* item that applies. Where: *device* = the type of device to be loaded (BBX, CSM, MCC)
2	From the BTS menu bar **Device** pull-down menu, select **Status**. - A status report window will appear.
3	Make a note of the number in the **HW Bin Type** column. **NOTE** "HW Bin Type" is the Hardware Binary Type for the device. This code is used as the last four digits in the filename of a device's binary ROM code file. Using this part of the filename, the ROM code file can be matched to the device in which it is to be loaded.
4	Click **OK** to close the status window.
5	Click on the device to be loaded.
6	*** IMPORTANT** The LMF will not automatically select ROM code files for download. ROM code files must be selected *manually.* From the BTS menu bar **Device** pull-down menus, select **Download > Code Manual**. - A file selection window will appear.
7	Double-click on the version folder with the desired version number for the ROM code file (for example *2.16.0.x*).
8	Double-click the **Code** folder. - A list of ROM and RAM code files will be displayed.
9	**! CAUTION** A ROM code file with the correct HW Bin Type must be chosen. Using a file with the wrong HW Bin Type can result in unpredictable operation and damage to the device. Click on the ROM code file with the filename which matches the device type and HW Bin Type number noted in step 3 (for example, file **bbx_rom.bin.0604** is the ROM code file for a BBX with a HW Bin Type of 0604). - The file should be highlighted.
10	Click on the **Load** button. - A status report window is displayed showing the result of the download. **NOTE** If the ROM load failed for some devices, load them *individually* by clicking on one device, perform steps 6 through 10 for it, and repeat the process for each remaining device.
11	Click **OK** to close the status window.
12	From the LMF window menu bar **Tools** pull-down menus, select **Update NextLoad > CDMA**.
13	In the left-hand pane of the window which opens, click on the BTS number for the frame being loaded (for example, *BTS-14*).

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Table J-1: Download ROM and RAM Code to Devices	
Step	**Action**
14	On the list of versions displayed in the right-hand pane, click the button next to the version number of the folder that was used for the ROM code download (for example, *2.16.0.x*) and click **Save**. - A pop-up message will appear showing the CDF has been updated.
15	Click on the **OK** button to dismiss the pop-up message.
16	Click on the device that was loaded with ROM code.
17	**NOTE** RAM code is automatically selected for download. From the BTS menu bar **Device** pull-down menus, select **Download > Code/Data** to download RAM code and dds file data. - A status report is displayed showing the result of the download.
18	Click **OK** to close the status window.
19	Observe the downloaded non-GLI device to ensure it is OOS_RAM (yellow).
20	Click on the device which was loaded with code.
21	From the BTS menu bar **Device** pull-down menu, select **Status**. Verify that the correct ROM and RAM version numbers are displayed in the status report window.
22	Click **OK** to close the status window.

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Appendix K

Companion Frame Optimization

K

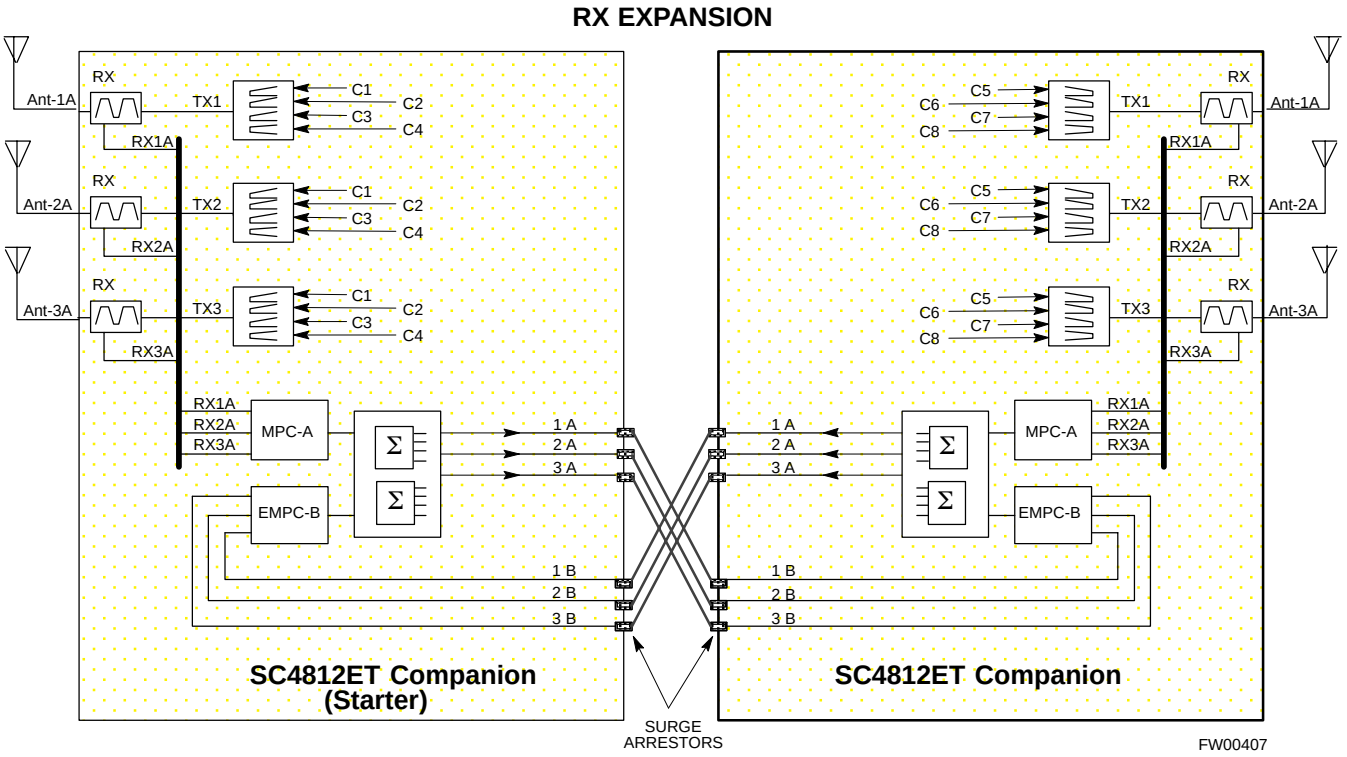
Optimizing the Companion Frame

Optimizing the TX section

The optimization/ATP procedure for the transmit side of the Companion Frame is identical to that of the SC4812ET BTS.

Table K-1: Optimizing the TX section of the Companion Frame		
✓	**Step**	**Action**
	1	Please refer to the TX Optimization/ATP - Chapter 3 of this manual for step-by-step TX Optimization/ATP instructions for the standalone frame
	2	Run the TX tests.

Figure K-1: Cabling of SC 4812ET Companion BTS to SC 4812ET Companion BTS (3 Sector)



Optimizing the RX section

RX (Main) Optimization/ATP

To test the RX Main antenna system follow the instructions in Table K-2 and refer to illustration Figure K-1(3-sector configuration).

Table K-2: Optimizing the RX (Main) section of the Companion Frame

✓	Step	Action
	1	Connect the RX test cables to the antenna ports 1A-3A (for 3-sector optimization) or antenna ports 1A-6A (for 6-sector optimization).
	2	Login the LMF and select MPC (see Figure K-2 for display screen and field location).
	3	Run the RX tests.

RX (Diversity) Optimization/ATP (Single Frame)

To test the RX Diversity antenna system follow the instructions in Table K-3.

Table K-3: Optimizing the RX (Diversity) on a Single Frame

✓	Step	Action
	1	Connect the RX test cables to the expansion ports on the I/O plates labeled 1B-3B (for 3-sector optimization) or expansion ports 1B-6B (for 6-sector optimization).
	2	Login the LMF under EMPC (see Figure K-2 for display screen and field location).
	3	Run the RX tests.

RX (Diversity) Optimization/ATP (Two Frame)

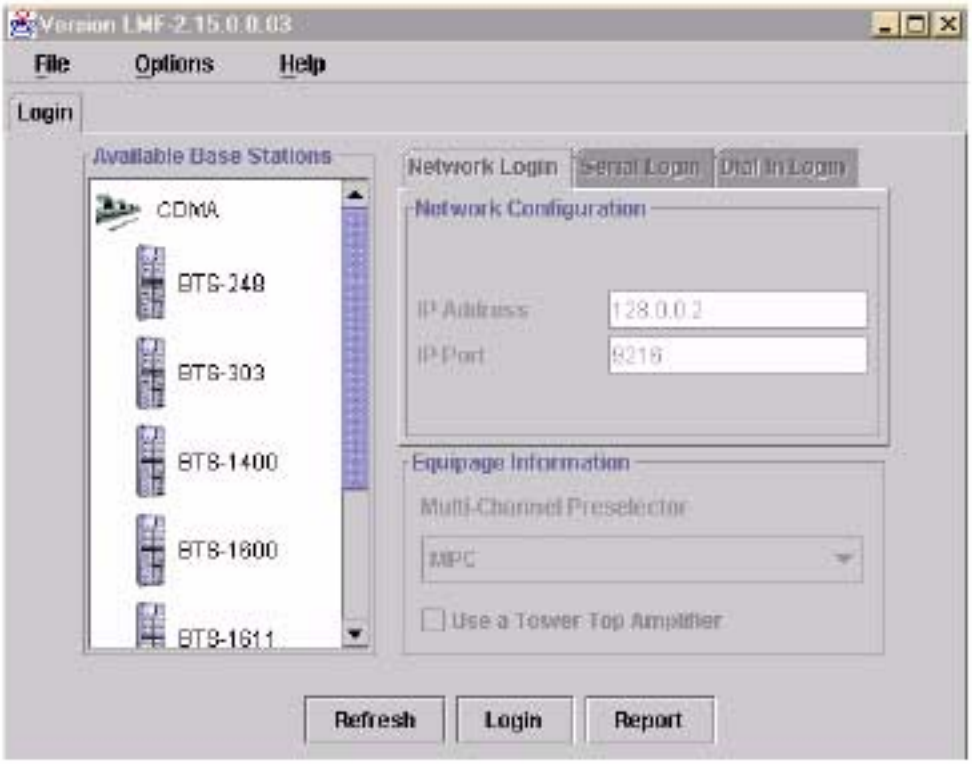
To test the RX Diversity antenna configuration on a two frame Companion BTS system follow the instructions in Table K-4.

Table K-4: Optimizing the RX (Diversity) on a Two Frame Companion Site

✓	Step	Action
	1	Connect RX expansion cables from the expansion ports on the other Companion frame labeled 1A-3A (for 3-sector optimization) or expansion ports 1A-6A (for 6-sector optimization) to the 1B-3B (for 3-sector optimization) or expansion ports 1B-6B (for 6-sector optimization) see Figure K-1 for an illustration of the configuration. **NOTE** Connect the cables from the 2nd frame A ports to the B ports of the 1st frame.
	2	Login using the LMF select MPC (see Figure K-2 for field location on LMF display screen) **NOTE** - Although the test will be done to one frame, the RX cable will be connected to the other frame's corresponding antenna ports. - The other frame has to be powered up and include all the RX Path Components.

K

Figure K-2: WinLMF Display Screen



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