


REV B	APPLICATION			REVISIONS		
	PRODUCT LINE	REV	DESCRIPTION	DATE	APPROVED	APPROVED
SH 1	RT-5000D	A	Initial Release per DCA W7045	04/23/08	DA/SMW	L. Evans
		B	Revised per DCA W7365	7/25/08	Stan Wild	L. Andujo
DWG. NO. 150-015525-28						

**APPLICABILITY:
-50XX THRU -60XX, -8211, -9999**

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APPROVALS		DATE	 Wulfsberg Electronics <i>A Chelton Group Company</i>			
DRAWN	S. Allbritton	04/23/08				
CHECKED	Jay Jensen	04/23/08				
PRODUCT MANAGER	Dave Auer	04/23/08				
ENGINEER	Stan Wild	04/23/08	SIZE	CAGE CODE	DWG NO.	REV
ISSUED	Leslie Evans	04/23/08	A	1B7G3	150-015525-28	B
Typed signatures indicate approval. Handwritten signature approval of this document is on file at Wulfsberg Electronics, Prescott, Arizona.			SCALE: NONE		DO NOT SCALE DRAWING	



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SERVICE INSTRUCTION

EQUIPMENT: RT-5000D

DATE: 07/25/08

INSTRUCTION NUMBER: WSI RT-5000-28 Revision A

EFFECTIVITY

Affects 400-015525-5011 thru -99XX

REASON

Fix channel change bug in RT-5000 with XTS-5000 P25 trunking radios. This involves mapping zone / channel data from RPWIN to a single zone in CPS. See instructions below.

DESCRIPTION

Replace DSP Logic board EPROM, load new MTMC software and firmware, load new RT5KDSP configuration file and apply SWID 17 label.

COMPLIANCE

Upon customer request, or as required.

WARRANTY INFORMATION

This modification is covered under warranty.

APPROVAL

This modification does not affect the original approval.

REFERENCES

Maintenance Manual, RT-5000 (Digital), P/N 150-041459

Service Notification, WSN RT-5000-4, P/N 150-049982

MATERIAL INFORMATION

The parts required to modify this unit in accordance with this Service Instruction are available from Wulfsberg Electronics at (928) 708-1518.

PARTS REQUIRED

NOTE: Exact REV's for 320- software listed below MUST be used.

<u>ITEM</u>	<u>QTY</u>	<u>U/M</u>	<u>WED P/N</u>	<u>REV</u>	<u>DESCRIPTION</u>
1.	1	EA	106-841134-08	A	I.C., PROGRAMMED EPROM, DSP-LOGIC, RT-5000
2.	1	EA	057-03284-17		TAG, SOFTWARE CONFIGURATION ID (SWID)

3rd PARTY SOFTWARE REQUIRED ON PC COMPUTER

- Phillips In System Programmer V2.24 or equivalent
- Terminal Emulator - Microsoft HyperTerminal or equivalent
- Xilinx IMPACT V7.1i or equivalent
- Motorola Astro 25 Portable CPS Software, Version R11.00.00 or higher for XTS-5000.

FINAL SOFTWARE CONFIGURATION TABLE

Software Components For SWID 17						Load Module Part Number
Location (Sub-Assembly)	Description	Device	Type	Ver	Rev	
DSP-Logic	Main Control Program, Signal Processor Program	8051, DSP56000	CPU CPU	02	08	320-141134-08
MTM Controller	Main Control Program	XA-G49	CPU	01	13	320-140915-13
MTM Controller	Signal Routing Logic	XC95108	PLD	01	02	320-140460-02

MODIFICATION PROCEDURE

CAUTION

ANY DISASSEMBLY / ASSEMBLY OF THIS UNIT MUST BE DONE AT A STATIC SAFE WORKSTATION.
REMOVED MODULES SHOULD BE PLACED IN ANTISTATIC BAGS WHEN NOT INSTALLED IN THE UNIT.

REQUIRED EQUIPMENT FOR ALL TESTS

<u>ITEM</u>	<u>QTY</u>	<u>U/M</u>	<u>WED P/N</u>	<u>REV</u>	<u>DESCRIPTION</u>
1.	1	EA	320-140915-013	A	SOFTWARE LOAD MODULE, XA-G49 PROCESSOR, MTM CONTROLLER, RT-5000
2.	1	EA	320-140460-02	A	SOFTWARE LOAD MODULE, XC95108 CPLD, MTM CONTROLLER, RT-5000
3.	1	EA	320-142343-01	C	SOFTWARE LOAD MODULE, RT5DSPCFG, RT-5000
4.	1	EA			+28 VDC 10 AMP POWER SUPPLY
5.	1	EA	129-242330	A	RS422 CABLE, RT-5000
6.	1	EA	300-040883	A	EXTENDER CABLE, MTM MODULE, RT-5000
7.	1	EA			PC COMPUTER LOADED WITH 3 RD PARTY SOFTWARE LISTED ABOVE
8.	1	EA	124-042369	A	ASSY, ISP/TEST PROGRAMMING CABLE, MTMC, RT-5000
9.	1	EA	DLC7		XILINX PARALLEL CABLE IV
10.	1	EA	311-017802	G	TEST SET SUB ASSEMBLY TSH-5000 (RT SYSTEM INTERFACE)- MUST BE REV G OR LATER
11.	1	EA	31300-1X02-12XX		C-5000
12.	1	EA			XTS-5000 DISPLAY MODULE
13.	1	EA	311-017802-01		TEST SET SUB ASSEMBLY TSH-5000 (RT SERIAL INTERFACE) OR SERIAL CABLE

NOTE:

1. Unique equipment required for each test is listed under that test.
2. Do NOT corrupt the current code plugs loaded into the XTS-5000 modules.

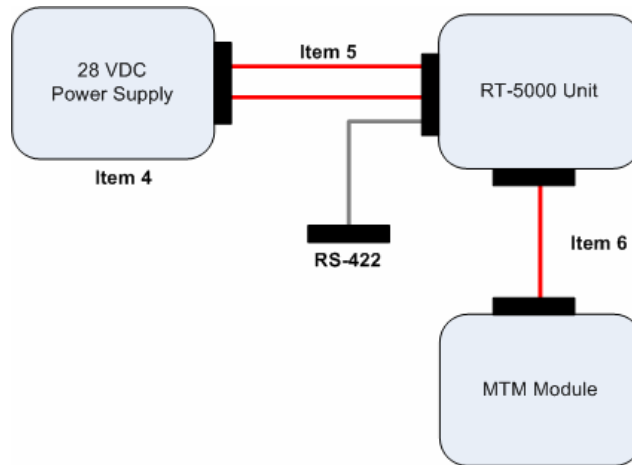
PROCEDURE

Open the RT-5000 and gain access to the DSP Module (PN 300-016260) and MTM Module (PN 300-040911) per the Maintenance Manual. Perform the following modifications.

Note: Unless otherwise noted, the sequence of rework can be adjusted to facilitate the process.

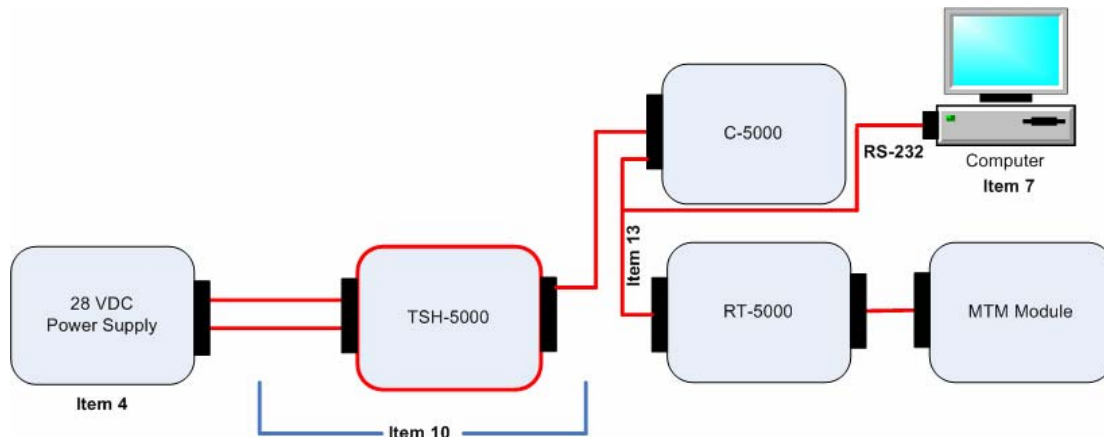
1. Remove A4 U13 on the RT-5000 DSP Module and install Item 1 (EPROM) from parts list.
2. Remove the MTM Module and connect the Extender Cable (item 6) from the RT-5000 to the MTM Module. See figure 1A.
3. Remove the cover from the MTM Module.
4. Verify the output of the 28 VDC power supply is correct ± 1.0 VDC
5. Turn power supply OFF.
6. Connect item 5 (129-242330 RS422 CABLE, RT-5000) to the power supply and the RT-5000 as shown in figure 1A below. Do not connect the remaining connector yet.

Figure 1A: Initial Test Setup



7. Using instructions referenced in APPENDIX A, load file 320-140915-13.A.hex (included in item 1: 320-140915-13) into the MTM controller XAG49 processor.
8. Using instructions referenced in APPENDIX B, load the CPLD software.
9. Using instructions referenced in APPENDIX C, run Hyperterm Procedure
10. Using instructions referenced in APPENDIX D, run DSPCNFG
11. Re-configure the Test Setup per figure 1B.

Figure 1B: Next Test Setup



12. Using Motorola CPS software, install the appropriate single zone archive file into the tanapa radio(s).
13. With a display module item 12 attached to the tanapa under test, rotate the channel knob of the C-5000 and observe the correct changing of the channel on the display module.
14. Completely disconnect all test cables and harnesses from the RT-5000
15. Replace cover on MTM Module.
16. Re-install MTM Module into RT-5000 and reassemble the unit in reverse order of disassembly.
17. Apply 156-040123-01 LABEL, TAMPER PROOF in 2 places.

IDENTIFICATION PROCEDURE

1. Affix new software label, SWID 17 (item 7), to the exterior enclosure in place of the existing label.

TESTING PROCEDURE

1. Perform a functional test of the unit in accordance with APPENDIX E.
2. Completely disconnect all test cables and harnesses from the RT-5000.

APPENDIX A PROGRAMMING INSTRUCTION XA-G49 PROCESSOR

PURPOSE

These instructions describe the programming procedure for the XA-G49 Processor installed on the MTM Controller.

REQUIRED EQUIPMENT

- Item 8 - 124-042369 ASSY, ISP/TEST PROGRAMMING CABLE, MTMC, RT-5000

REQUIRED SOFTWARE

The PC Computer must be loaded with the following software:

- Phillips In System Programmer V2.24 or equivalent
- Terminal Emulator - Microsoft HyperTerminal or equivalent

The following software must be available for loading onto the MTM Controller:

- Item 1 : 320-140915-13.A.HEX Software Load Module, XA-G49 Processor, MTM Controller, RT-5000
- Copy above file and rename it 'mtmc.hex'

TEST SETUP

1. Turn 28 VDC power supply OFF.
2. Connect the Programming Cable (item 8) between the PC COM 1 port and J301 (see figures 2 and 3). Be sure the toggle switch on the cable is set to OFF.

CAUTION: Be sure polarity is correct – Pin 1 to Pin 1 (markings on cable connector MUST match up with identifier for pin 1 on the MTM Controller).

Figure 2: Test Locations – MTM Controller Board

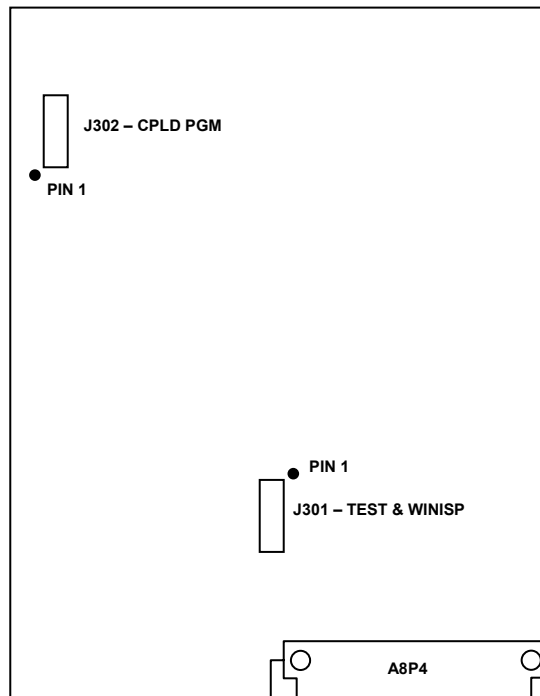
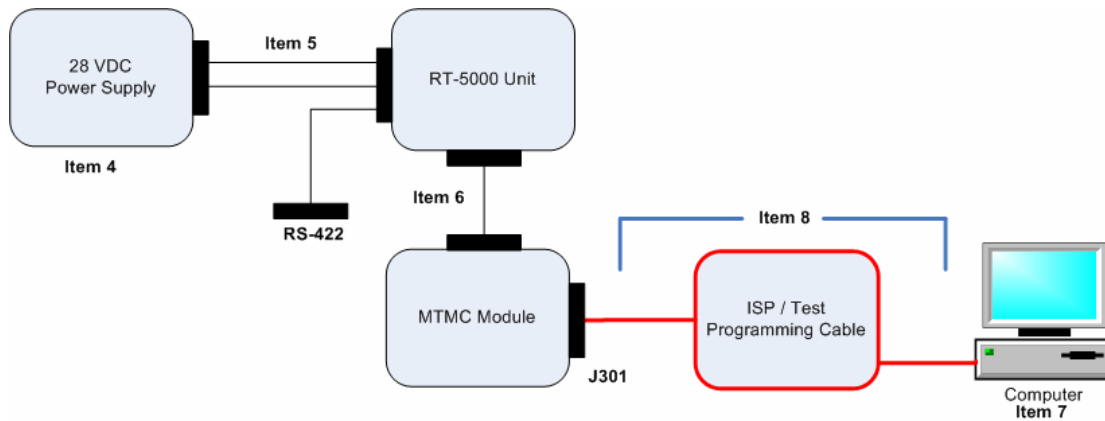


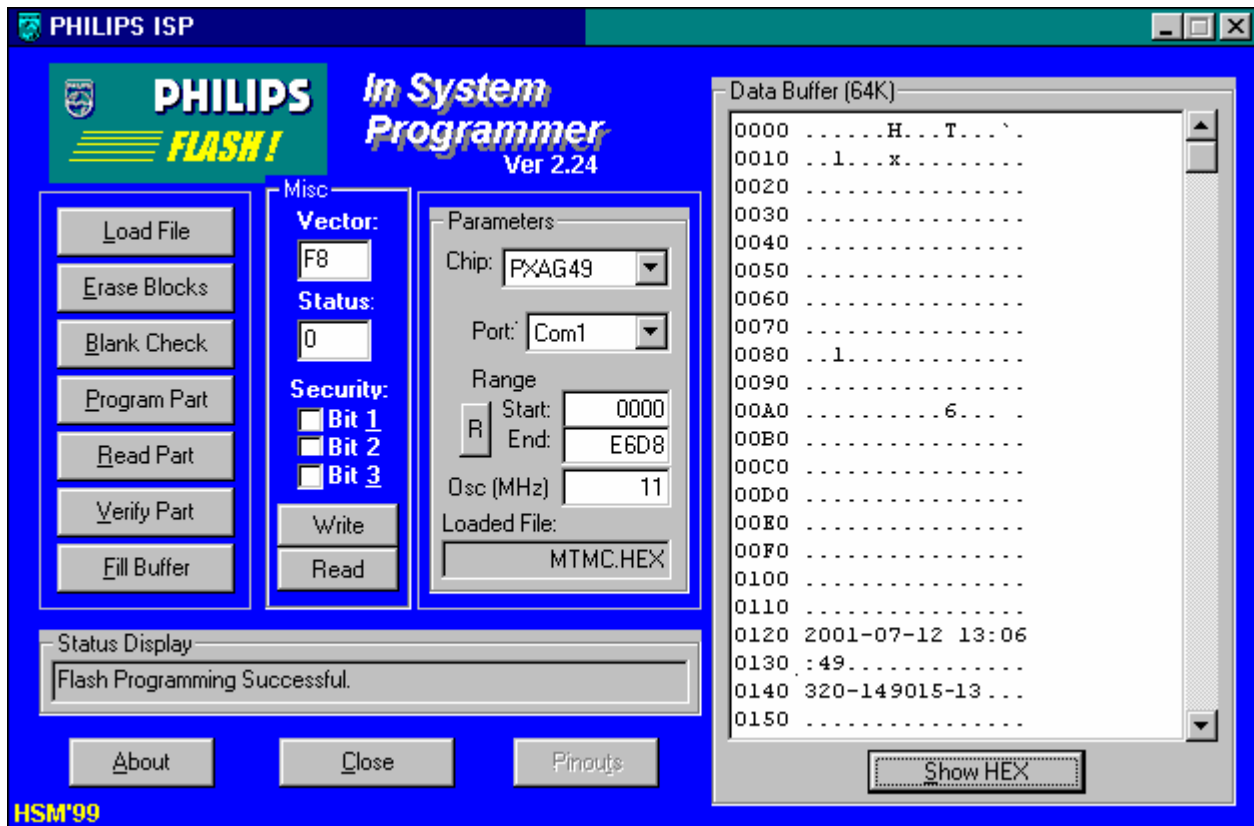
Figure 3: XA-G49 Processor Programming Test Setup



XA-G49 PROCESSOR PROGRAMMING

See Figure 4 for a typical display (for reference only) for the Phillips ‘In System Programmer’ V2.24 software.

Figure 4: Phillips ‘In System Programmer’ V2.24 Software Display



NOTE: The ‘In System Programmer’ display is divided into several different areas. We will be using **Parameters**, **Misc**, **Data Buffer**, the buttons on the left of the display, and the **Status Display** near the bottom.

1. Turn the 28 VDC Power Supply ON.
2. Place the XAG49 in ISP mode by placing the Test Harness toggle switch ON and momentarily depressing the RESET button.
3. Run the Phillips 'In System Programmer' V2.24 software. Select or enter the following under **Parameters**:
 - Chip - PXAG49
 - Port – Com1
 - Osc (MHz) – 11
5. Select **Read** under the **Misc** area.
 - You must get a 'Boot Vector Read OK' in the **Status Display** before continuing. If this test fails, check all hardware connections and cables and retry.
6. Select **Load File**
 - Select file **mtmc.hex** previously saved.
 - If file load is successful, the **Status Display** will show 'File Loaded OK' and the **Parameters** area will show 'Loaded File': MTMC.HEX.
7. Select **Erase Blocks**
 - At the 'Block Erase Selection' display, select **Full Chip Erase**.
 - At the 'Full Erase Confirmation' screen, select **Yes**.
 - A Status Display of 'Chip Fully Erased' will be displayed if successful.
 - NOTE:** This will take about 15 seconds. Do NOT select anything else during this time.
8. Select **Program Part**
 - Status of 'Programming Flash' will be displayed in the **Status Display** area during the actual programming. A status of 'Flash Programming Successful' will be displayed if successful.
 - ANY other status constitutes a FAILURE.
 - NOTE: This will take about 5 minutes to complete. Do NOT select anything else during this time.
9. Place the XAG49 in RUN mode by placing the Test Fixture ISP switch OFF and momentarily depressing the RESET button.
10. Do NOT remove the test cable.

SOFTWARE VERSION CHECK

At the bottom of the **Data Buffer** area of the display, select the button until it reads 'Show HEX'. The button toggles between 'Show ASCII' and 'Show HEX'.

Verify that the line at about address 0120 displays the date of 2008-04-02 and the line at about address 0140 displays the software part number of 320-140915-13.

APPENDIX B PROGRAMMING INSTRUCTION XC95108 CPLD

PURPOSE

This instruction describes the programming procedure for the XC95108 CPLD installed on the MTM Controller.

REQUIRED EQUIPMENT

- Item 9 - XILINX PARALLEL CABLE IV OR EQUIVALENT

REQUIRED SOFTWARE

The PC Computer must be loaded with the following software:

- Xilinx IMPACT V7.1i or equivalent

The following software must be available for loading onto the MTM Controller:

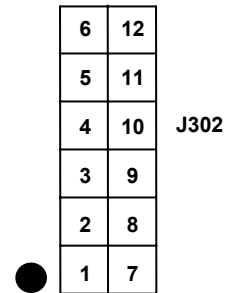
- Item 2: 320-140460-02 Software Load Module, XC95108 CPLD, MTM Controller, RT-5000
- Contains file 320-140460-02.a.jed which is used to program the CPLD chip

TEST SETUP

The following steps should be followed to prepare the system for programming.

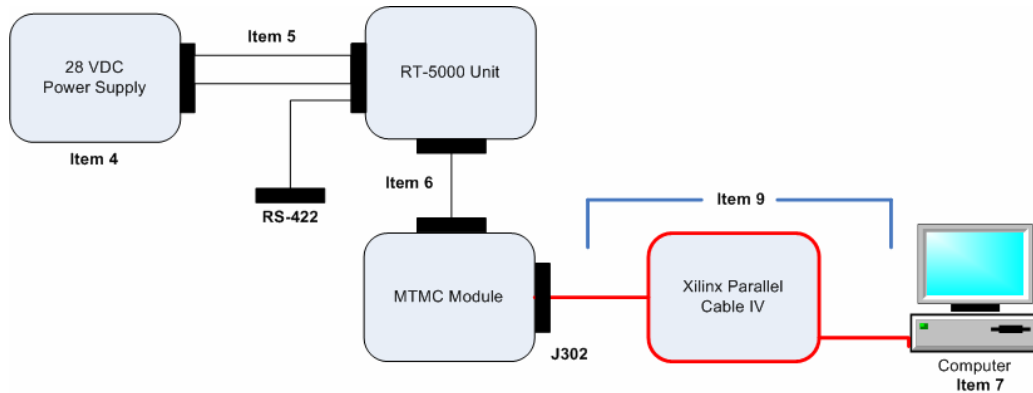
1. Turn the 28 VDC Power Supply OFF.
2. Connect Xilinx Parallel Cable IV (item 9) leads to the corresponding pins on the MTMC Controller 12 pin connector J302 as shown below. See figure 2 for location of J302.

Xilinx Parallel Cable Pin	Cpu Board Pin J302
TMS	1
TDI	2
TDO	3
TCK	4
GND	5
+5VDC	6



3. Connect the other end of the cable to the PC parallel printer port.
4. Turn the 28 VDC Power Supply ON.

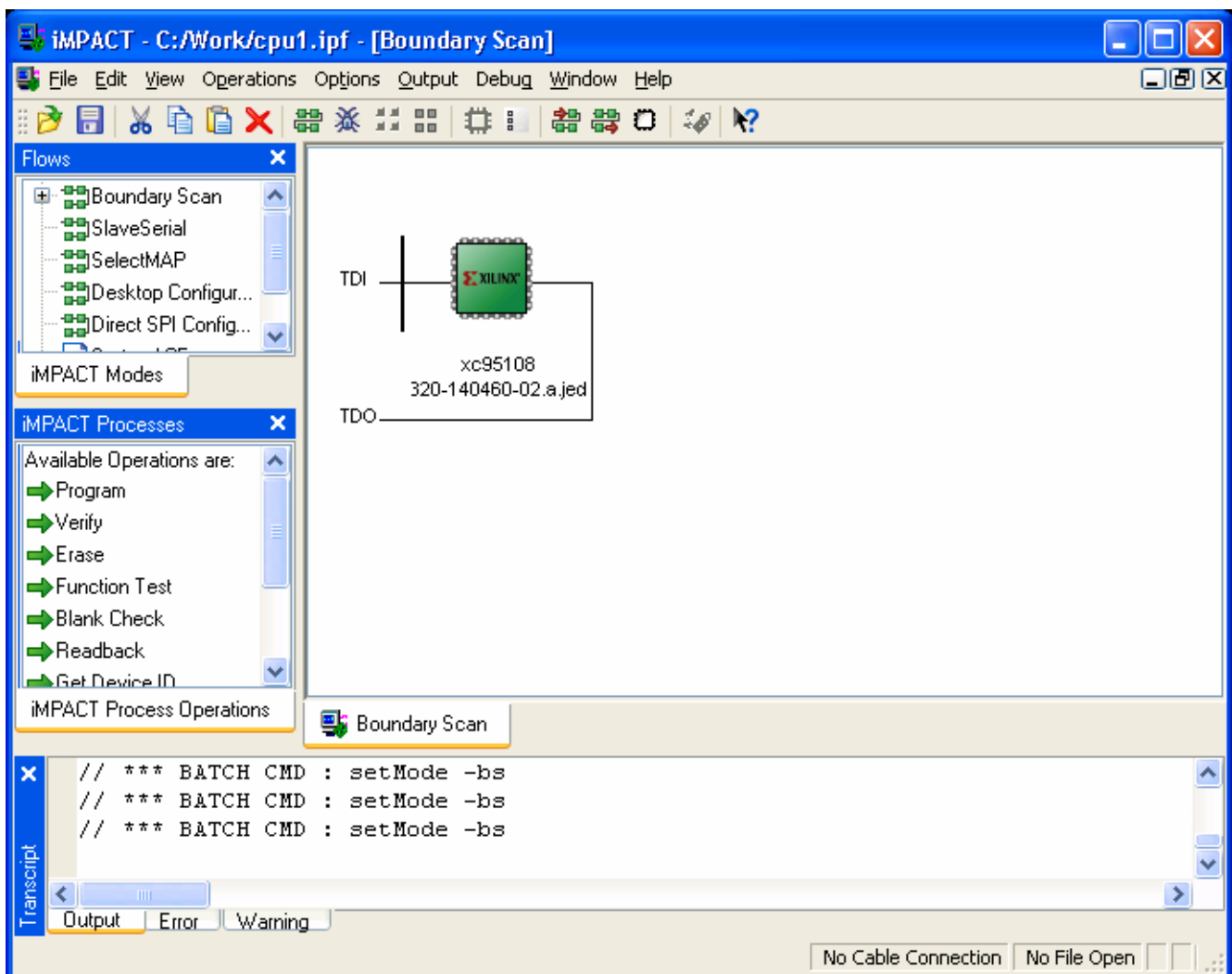
Figure 5: CPLD Programming Test Setup



XC95108 CPLD PROGRAMMING

See Figure 6 for a typical display for the Xilinx Program software.

Figure 6: CPLD Program Software Display



To program the XC95108 CPLD, proceed as follows.

1. Run the Xilinx IMPACT V7.1i software.
2. Select **File** -> **Initialize Chain** from the main menu.
3. Double click on the XC95108 chip icon and select the file **320-140460-02.A.JED** as determined above.
4. Single click on the XC95108 chip icon.
5. Select **Operations** -> **Program**, from the main menu. Ensure the “Erase Before Programming” and “Verify” options are checked in the ensuing **Options** dialog, then select **OK**.
6. Wait for the message “All operations were completed successfully” to appear on the display. Any other result constitutes a failure.
7. Select **OK**.

If a failure occurs, exit the Xilinx IMPACT program, verify all connections are correct, cycle power on the display board, and retry the load per the instructions above.

VERIFICATION

To verify the device was successfully programmed, do the following:

1. Single click on the chip icon.
2. Select **Operations** -> **Verify** from the main menu.
3. Verify the Checksum matches.
4. Select **OK** on the IMPACT display.

POWER DOWN

1. Close the program.
2. Turn the 28 VDC Power Supply OFF.
3. Disconnect the Xilinx Parallel Cable IV from the PC and J302 on the MTM Controller.

APPENDIX C HYPERTERMINAL PROCEDURE

PURPOSE

These instructions describe the procedure to configure the MTM Controller for the installed XTS-5000 radios.

REQUIRED EQUIPMENT

- Item 8 - 124-042369 ASSY, ISP/TEST PROGRAMMING CABLE, MTMC, RT-5000

TEST SETUP

- The PC serial port to the MTM Controller test port cable should already be in place from the **APPENDIX A - XAG49 PROCESSOR PROGRAMMING** procedure above. If it is not, refer to that procedure to reconnect it.
- Be sure that the toggle switch is OFF.

HYPERTERMINAL PROCEDURE

- Turn the 28 VDC Power Supply ON.
- Start Hyper Terminal and create a connection with the following parameters:

Parameter	Value
Baud rate	57600
Parity	None
Data bits	8
Start bits	2
Stop bits	1
Flow control	OFF

- Press ENTER on the keyboard. The **MTMC>** prompt should appear. If it does not, check the terminal setup and all connections.
- Type in the following command:

```
Ver  
Enter
```

Verify the CPLD version is 320-140460-**02**.

If version is NOT **-02**, load the CPLD per instructions in APPENDIX B.

Verify the XAG49 software version is 320-140915-**13**.

If version is NOT **-13**, load the software per instructions in APPENDIX A.

- Type in the following commands:

```
radinfo 1  
Enter - press ENTER on the keyboard  
0, 1, or 2 - enter one digit to select type of radio:  
0 = No Radio  
1 = XTS-3000  
2 = XTS-5000
```

1, 2, 3, or 4 - enter one digit to select the frequency band installed in MTMC slot 1 (see the 'radinfo' **Digit vs Frequency Band Cross Reference** table on the next page below):

1 = VHF
2 = UHF L
3 = UHF H
4 = UHF800

radinfo 2

Enter - press ENTER on the keyboard

0, 1, or 2 - enter one digit to select type of radio:

0 = No Radio
1 = XTS-3000
2 = XTS-5000

1, 2, 3, or 4 - enter one digit to select the frequency band installed in MTMC slot 2:

1 = VHF
2 = UHF L
3 = UHF H
4 = UHF800

6. Type in the following command:

Zoneopt one

Enter - press ENTER on the keyboard

NOTE: This data can ONLY be entered once after a 'fresh' software load. If data has already been entered once, you will get an error message and you MUST reload the software and then redo this section.

'radinfo' Digit vs Frequency Band Cross Reference

RT-5000 P/N	Frequency Band			
	radinfo 1	radinfo 2		
	1 = VHF	2 = UHF L	3 = UHF H	4 = UHF 800
(XTS-3000)				
400-015525-06XX	•			
400-015525-07XX	•			
400-015525-08XX		•		
400-015525-09XX		•		
400-015525-10XX			•	
400-015525-11XX			•	
400-015525-12XX				•
400-015525-13XX				•
400-015525-14XX	•			•
400-015525-15XX	•			•
400-015525-16XX	•			•
400-015525-17XX	•			•
400-015525-18XX	•		•	
400-015525-19XX	•		•	
400-015525-20XX	•		•	
400-015525-21XX	•		•	
400-015525-22XX	•	•		
400-015525-23XX	•	•		
400-015525-24XX	•	•		
400-015525-25XX	•	•		
400-015525-26XX			•	
400-015525-27XX				•
400-015525-28XX	•			
400-015525-29XX	•			
400-015525-30XX				•
400-015525-31XX				•
400-015525-32XX		•		
400-015525-33XX	•			
400-015525-34XX	•		•	
400-015525-35XX	•	•		
(XTS-5000)				
400-015525-50XX	•			•
400-015525-51XX	•	•		
400-015525-52XX	•		•	
400-015525-53XX				•
400-015525-54XX		•		
400-015525-55XX			•	
400-015525-56XX	•			
400-015525-57XX			•	
400-015525-58XX	•			
400-015525-59XX	•			
400-015525-60XX	•	•		
400-015525-8211		•		
400-015525-9999		•		

APPENDIX D DSPCNFG PROGRAMMING INSTRUCTION

PURPOSE

These instructions describe the use of the RT5DSPCFG utility to configure the RT-5000's NVM.

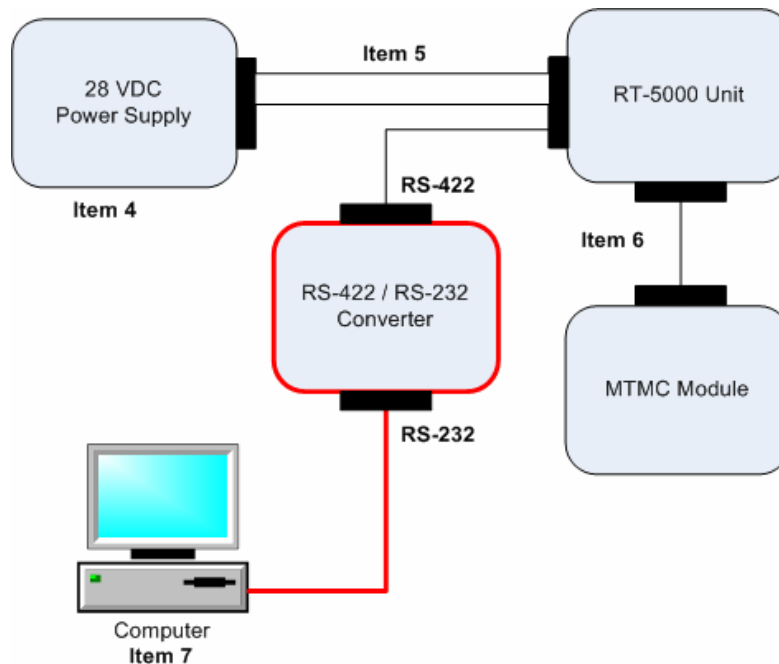
REQUIRED EQUIPMENT

- **Data**
Obtain the RT-5000 part number of the RT-5000 being modified.
- **Software**
The following software must be installed on the computer:
 - RT5DSPCFG (Wulfsberg load module 320-142343-01 REV C)
- **Cables**
 - RS-422/RS-232 Converter (B&B Electronics Model 422PP9R or equivalent)

CONFIGURATION UTILITY PROCEDURE

1. Turn the 28 VDC Power Supply OFF.
2. If not already installed, install item 3 - RT5DSPCFG, Wulfsberg Part Number 320-142343-01 REV C, onto the PC being used.
3. Connect the Breakout Cable, and RS-422/RS-232 Converter listed above as shown in figure 7.
4. Turn the 28 VDC Power Supply ON.
5. Wait 20 seconds for RT-5000 to complete its initialization

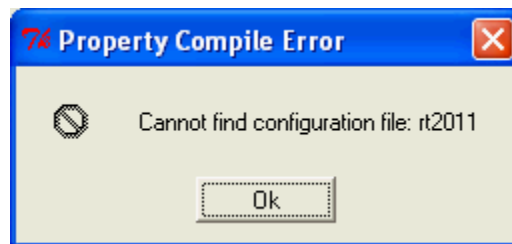
Figure 7 DSPCNFG Connection Diagram



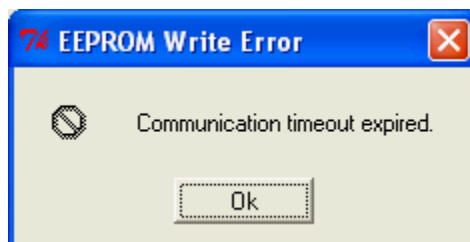
6. Open the RT5DSPCFG utility by double clicking the RT5DSPCFG icon on the Windows Desktop.
7. Enter the name of the COM (Serial) port to use for communicating with RT-5000 in the **COM** field. Refer to figure 8 for the **COM** field's location. The default is COM1.
8. Enter the last 4-digits of the RT-5000 part number of the unit being configured in the **P/N** field. Refer to figure 8 for the **P/N** field's location. The default is 5011.
9. Click the **Configure** button to begin downloading the specified configuration data into the RT-5000.
10. If the **Unable to open COM** error dialog is displayed, RT5DSPCFG was unable to open the COM port specified in step 7. Ensure the specified COM port is valid for the PC in use, and that no other programs are using the COM port. A sample of the **Unable to open COM** error dialog is given below.



11. If the **Cannot find configuration file** error dialog is displayed, RT5DSPCFG was unable to find a data configuration file for the RT-5000 part number specified in step 8. Ensure the specified part number is correct and try again. The problem is most likely a missing configuration data file, but could result from an incorrect installation of RT5DSPCFG. A sample of the **Cannot find configuration file** error dialog is given below.



12. The configuration process may take several minutes. The progress bar at the bottom of RT5DSPCFG's screen shows the percent complete. RT5DSPCFG's **Log Window** field displays diagnostic information, including the messages being transmitted over the RS-422 link. Refer to figure 8 for the **Log Window** field's location.
13. If the **Communication timeout expired** error dialog is displayed, RT5DSPCFG was unable to communicate with the RT-5000. Ensure the RT-5000 is connected to the PC via the COM port specified item 7. Ensure the RT-5000 is powered on and is alive. Cycle power on the RT-5000 and retry. A sample of the **Communication timeout expired** error dialog is given below.



14. If the **Communication retry limit exceeded** error dialog is displayed, RT5DSPCFG detected errors during communication with the RT-5000, and was unable to correct the problem before the retry limit was exceeded. Cycle power on the RT-5000 and retry. A sample of the **Communication retry limit exceeded** error dialog is given below.



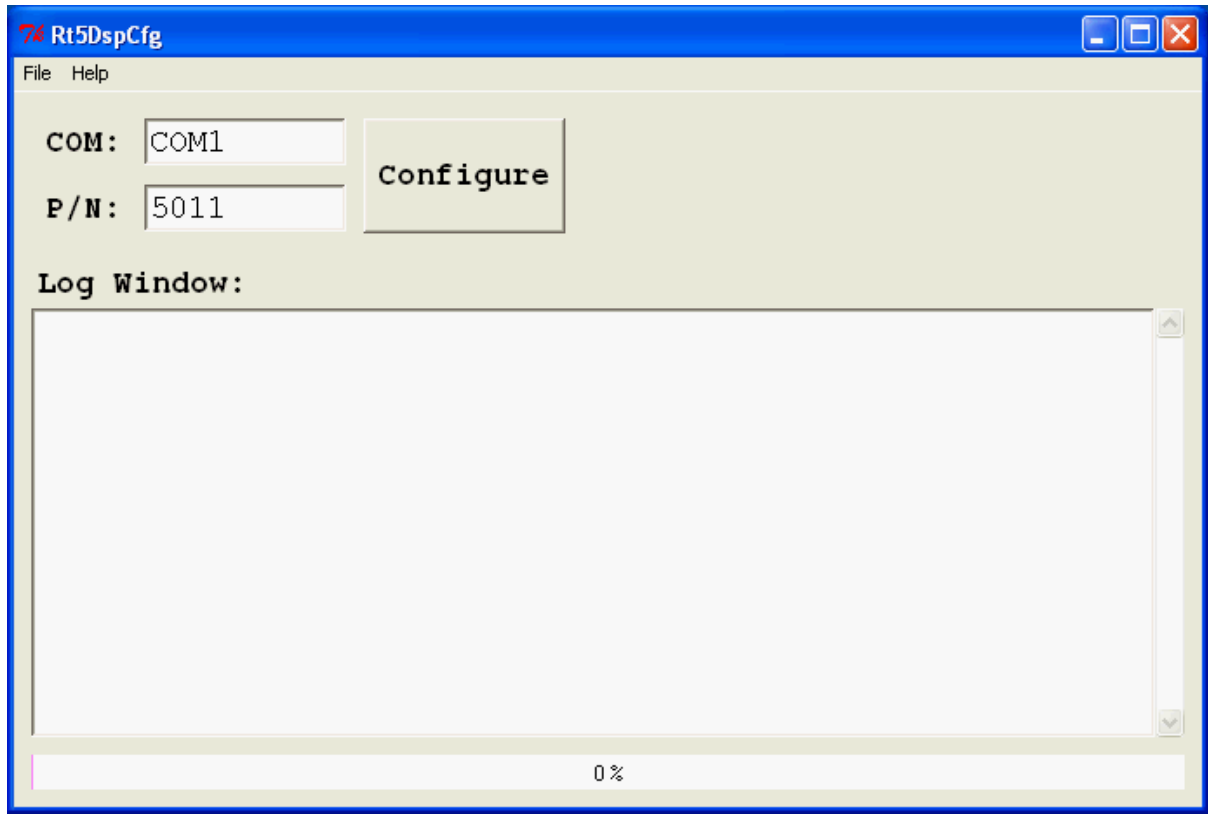
15. If the **RT-5000 successfully configured** dialog (shown below) is displayed, RT5DSPCFG has finished loading the RT-5000 with the required configuration data.



Finish

1. Close the RT5DSPCFG utility.
2. Turn the 28 VDC Power Supply OFF.
3. Disconnect the RS422 / RS232 Converter from the cables.

Figure 8 RT5DSPCFG Screen



APPENDIX E LIMITED RETURN TO SERVICE TEST (RTS)

PURPOSE

These instructions describe the Return to Service Test for the RT-5000.

REQUIRED EQUIPMENT

- **Software**
 - 320-141395-04 SOFTWARE, LOAD MODULE, REMOTE PROGRAMMER SETUP, RPWIN, C-5000 must be installed on the PC.
 - 320-649130-XX03.A.ZIP SOFTWARE, DATA, XTS-5000, TANAPA RADIO -XX, CODEPLUG - SW MOD 17 TEST, RT-5000 contains the Single Zone codeplug **archXX03.cpg**, where XX is the dash number of the tanapa being tested.
 - 320-641355-YY SOFTWARE DATA, XTS-5000, RT5KTEST.RP2, REMOTE PROGRAMMER, where -YY = -01 or -02 for XTS-5000.
- **Hardware**
 - General Dynamics, R2670 COMM ANALYZER (COMAN)
 - 3'-5' Coaxial Cable, RG-142
 - Cable, BNC to Banana, RG-58 or equivalent
 - Cable, BNC- BNC, 3' – 5', RG-58 or equivalent
 - Adaptor, BNC female to Banana

INSTRUCTIONS:

Note: the LRU must be completely sealed with all hardware in place.

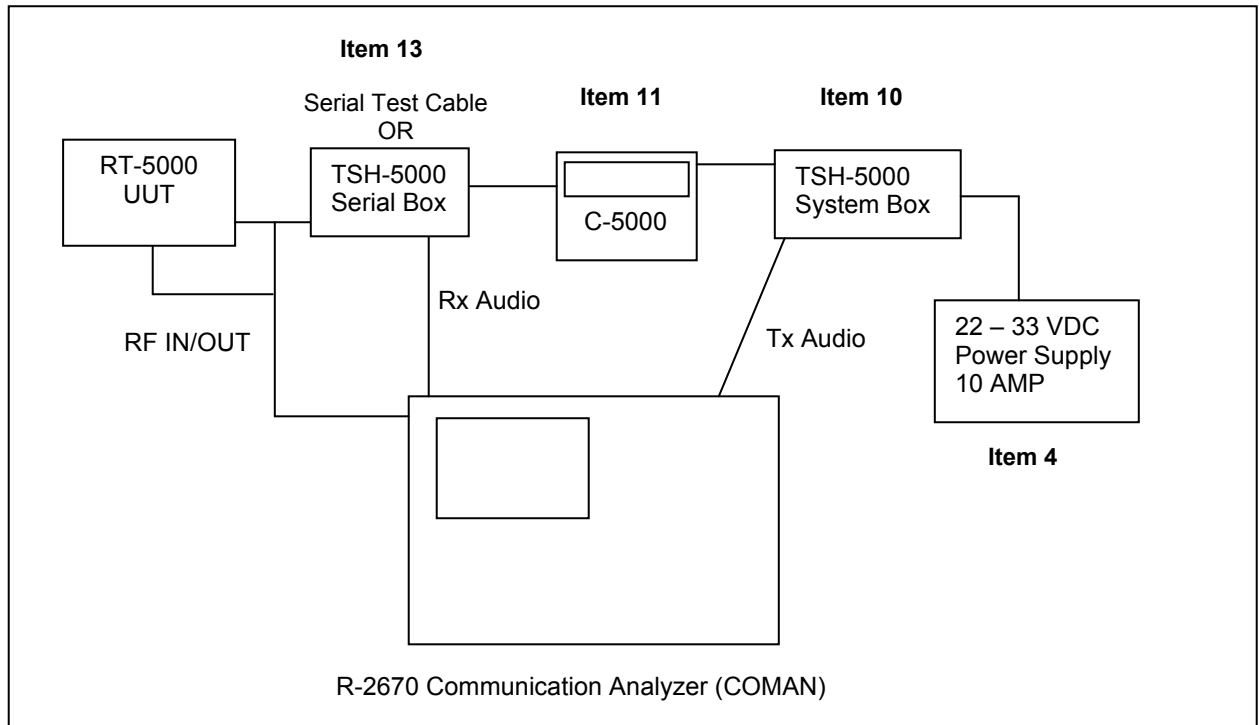
Setup

1. Connect the equipment as shown in figure 9, set all TX switches on TSH-5000 to PTT off.
2. Turn the 28 VDC Power Supply ON.
3. Turn on the C-5000
4. Verify the test RT5KTEST.RP2 RPWin file is loaded into the C-5000
5. Verify the appropriate Single Zone CPS Archive files are loaded into the Tanapa radios

Test – Refer to and complete attached data sheet

6. Tune the C-5000 to 154.125 MHz SBAND FM (or equivalent nearby channel)
7. Set the COMAN to generate the above frequency, FM, 1.0 kHz tone modulation, 3 kHz Deviation, – 80 dBm
8. On the C-5000, Verify the Receive indicator lights for Radio #1
9. Set the COMAN RF output level to 0.6uV, to measure SINAD, record the SINAD value.
10. Set the COMAN to Monitor, Scan 100-900 MHz, FM, 20 dB attenuation.
11. Set the COMAN to inject a 1 KHz tone @.25 Vrms into the TSH-5000 System box Pri Mic input.
12. On the TSH-5000 enable TX (PTT)
13. Measure the TX Power output and record
14. Measure the TX Deviation and record.
15. On the TSH-5000 disable the TX (PTT)
16. Using a main frequency of 560.000 MHz (or equivalent nearby channel), repeat steps 6 – 15.
17. Select an ITM customer channel near the low end of the frequency range.
18. Repeat steps 9 – 15 for this channel, substituting 0.5uV on COMAN output level for ITM Rcvr test.
19. Select an ITM customer channel near the middle of the frequency range.
20. Repeat steps 9 – 15 for this channel, substituting 0.5uV on COMAN output level for ITM Rcvr test.
21. Select an ITM customer channel near the high end of the frequency range.
22. Repeat steps 9 – 15 for this channel, substituting 0.5uV on COMAN output level for ITM Rcvr test.
23. If a second ITM is installed, repeat steps 17 – 22 for this radio.

Figure 9: RTS Test Setup



RT-5000

FIELD TEST DATA SHEET - LIMITED RETURN TO SERVICE

(6) Main Transceiver Frequency 1

(8) Receive indicator lights

OK _____

(9) LO SPLIT, Freq: 154.125 MHz

Rcv Sinad _____ dB @ 0.6uv (>12dB)

(13) LO SPLIT, Freq: 154.125 MHz

Tx Power _____ W (8-12W)

(14)

Tx Deviation _____ (3 KHz ±500 Hz)

(16) Main Transceiver Frequency 2

(9) High Split, Freq: 560.000 MHz

Rcv Sinad _____ dB @ 0.6uv (>12dB)

(13) High Split, Freq: 560.000 MHz

Tx Power _____ W (8-12W)

(14)

Tx Deviation _____ (3 KHz ±500Hz)

(17) ITM Frequency 1

(9) Frequency _____ MHz

Rcv Sinad _____ dB @ 0.5uV (>12dB)

(13) ITM Frequency _____ MHz

Tx Power _____ W (Vhf 10W±2W, Uhf 3W±1W)

(14)

Tx Deviation _____ (3 KHz ±200Hz)

(19) ITM Frequency 2

(9) Frequency _____ MHz

Rcv Sinad _____ dB @ 0.5uV (>12dB)

(13) Frequency _____ MHz

Tx Power _____ W (Vhf 10W±2W, Uhf 3W±1W)

(14)

Tx Deviation _____ (3 KHz ±200Hz)

(21) ITM Frequency 3

(9) Frequency _____ MHz

Rcv Sinad _____ dB @ 0.6uV (>12dB)

(13) Frequency _____ MHz

Tx Power _____ W (Vhf 10W±2W, Uhf 3W±1W)

(14)

Tx Deviation _____ (3 KHz ±200Hz)

SERIAL NO: _____ PN: _____

TECHNICIAN: _____ DATE: _____