



# ***TRISSETUP***

## ***TRICORDER CONFIGURATION SOFTWARE***

## **OPERATION MANUAL**



**TRILITHIC**

The Best Thing on Cable



# TRILITHIC

TRILITHIC, Inc., one of the fastest growing privately held companies in the U.S. (Inc. 500, #10), is a leading supplier of test equipment to the CATV industry. Through the years, we have introduced a range of products to make CATV maintenance simpler, faster and more precise. Our contributions include the first PRACTICAL CATV sweep system (1976), the first CATV return adjustment system (1981), the SEARCHER PLUS for leakage measurement (1989) and the SUPER PLUS for overbuilt leakage and ingress measurement (1994).

Among our most popular products is the TRICORDER series of CATV analyzers (led by the new TRICORDER III, the most versatile member of the popular TRICORDER family).

TRILITHIC is especially well known for its leakage products. More than 15,000 SEARCHER PLUSES are in daily use as well as the SUPER PLUS and SUPER CT measurement devices (which take leakage measurement into the new era of overbuilds and digital services).

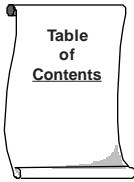
In addition to developing instrumentation for the CATV industry, TRILITHIC produces RF and microwave components and equipment for aerospace and wireless communications, as well as computer controlled assemblies for automated test systems, headend automation and communications signal routing.

TRILITHIC products are designed and manufactured at our facility in Indianapolis, Indiana. These products are distributed by sales agents in over 40 countries.

Should you have any questions or need our service, please contact us at the address or telephone numbers below:

TRILITHIC, Inc.  
9202 East 33rd. Street  
Indianapolis, IN 46236  
(317) 895-3600  
(800) 344-2412





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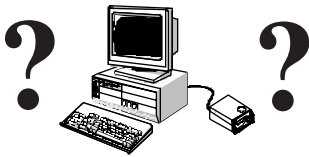
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# GENERAL INFORMATION

## Introduction

**TriSetup** is Trilithic's exciting software which will enable you to use your **Tricorder II**, **Tricorder III** or **Tricorder III-VIA** more effectively.

You use this software to program your Tricorder automatically from a PC rather than having to program the Unit manually. This makes it even easier to use the Tricorder's many options.

A Trilithic Tricorder is designed to be a full function signal level meter, a sensitive, tunable leakage detector, and a flexible measurement data recorder. Depending on which Unit you have, the Tricorder may also be able to measure carrier-to-noise and hum; detect leakage to levels below 5  $\mu\text{V}/\text{m}$ ; measure and store up to 24 records via its data logging feature; download information to a PC or printer for later analysis; verify drop levels; and verify FCC part 76 compliance.

TriSetup makes it far easier for you to program your Tricorder so that you can get the most out of your Unit.

## Tricorder Compatibility

The TriSetup application is compatible with all Tricorder IIs, IIIs and III-VIAs. However, it is not designed for use with a Tricorder I.

TriSetup is designed to check the Tricorder Model on all write commands so that the Software will not write to a Tricorder I.

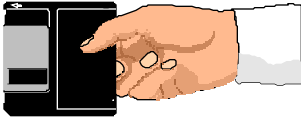
**NOTE:** TriSetup will set compensation values for ALL Tricorder IIs, IIIs and III-VIAs which are version 3.02 or higher.

# System Requirements

In order to run TriSetup, you need an IBM compatible computer with the following options:

- 486-33 or greater is necessary for optimal performance; a 386 is the minimum accepted to run the software.
- 4 Meg of RAM or greater
- 2 Communications Ports or more:
  - 1 COM Port for the Mouse
  - 1 COM Port for the Tricorder
- 2 Meg of Hard Drive space for installation
- VGA Color Monitor with a resolution of 640 x 480 and 256 Colors (the screen may look odd if other resolutions are used). The Windows System color map determines the color of the message boxes which appear.
- A PC compatible mouse
- Windows 3.1 or higher operating system
- Floppy Drive

TriSetup is designed to work with the same hardware setup you use for Windows 3.1, Windows 3.11 or Windows 95. If your Windows setup works smoothly, you should have no difficulty running TriSetup.



# INSTALLATION PROCEDURES

## Install Software

Now that you've checked the system requirements, you can install TriSetup.

TriSetup can be installed in PCs with:

- Windows 3.1+
- Windows 95

### WINDOWS 3.1+ METHOD

To install the software via the Windows 3.1 Method, use the following procedure:

1. Turn ON your PC and enter Windows.
2. Insert the TriSetup disk into drive **A** or **B** (depending on your drive configuration).
3. In your Program Manager Window, select **File**.
4. Once you are in the FILE Menu, select **Run**.
5. When you are in the RUN Menu, type the following on the command line:

**A:\SETUP (or B:\SETUP)**

6. Click on the **OK** button or press the **ENTER** key.
7. Select the components you wish to install.

If you wish to install TriSetup without any sample files, make sure that the SAMPLE FILES box is blank. Then, *click* on the **OK** button.

If you wish to install TriSetup with the sample files, *click* the **SAMPLE FILES** box. An “X” will appear in the box. Sample files require only a few kilobytes of disk space. So, live a little and install the files, you may find them helpful.

Once the components have been selected, *click* on the **OK** button.

8. The software’s setup utility will install the software and your desired components automatically into your PC.
9. Once TriSetup is installed, you should have the following files:

- 5 (five) Tricorder **.CFG** files
- 1 (one) **.HLP** file
- 1 (one) **.EXE** file

## **WINDOWS 95 METHOD**

To install the software via Windows 95, use the following procedure:

1. Turn **ON** your PC.
2. Insert the disk into drive **A** or **B** (depending on your drive configuration and the size of your installation disk).
3. Click on the **START** icon and then *click* on **SETTINGS/CONTROL PANEL**.

If you wish to install TriSetup without any sample files, make sure that the **SAMPLE FILES** box is blank. Then, *click* on the **OK** button.

If you wish to install TriSetup with the sample files, *click* the **SAMPLE FILES** box. An “X” will appear in the box. Sample files require only a few kilobytes of disk space. So, live a little and install the files, you may find them helpful.

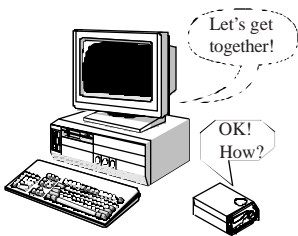
Once the components have been selected, *click* on the **OK** button.

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5. Once TriSetup is installed, you should have the following files:
  - 5 (five) Tricorder **.CFG** files
  - 1 (one) **.HLP** file
  - 1 (one) **.EXE** file

## Troubleshoot the Installation

If you have difficulties installing TriSetup, you will need to call Trilithic at (1-800-344-2412).





# CONNECTING PC AND TRICORDER

## Introduction

Now that you have installed TriSetup, you can connect a Tricorder to your PC.

**REMINDER:** TriSetup is designed to work with a Tricorder II, III or III-VIA. Do NOT use TriSetup with a Tricorder I.

Make sure that you connect the devices with Trilithic's RS-232C (P/N 2070698000) cable which is designed specifically for connecting Tricorders. RS-232 cables from other sources might not work correctly. The diagram for the cable is shown below.

### Tricorder Cable Pins

9 Pin (Male)	25 Pin (Female)
1 NC	
2 REC	3
3 XMIT	2
4 NC	
5 GND	7
6 NC	
7 RTS	4, 20
8 CTS	5, 6
9 NC	

It may also be necessary to use an adaptor. The diagram for the adaptor is shown below.

### 9-Pin Adaptor Pins

9 Pin (Male)	25 Pin (Female)
1 NC	
2 REC	3
3 XMIT	2
4 DTR	20
5 GND	7
6 DSR	6
7 RTS	4
8 CTS	5
9 NC	

## Make Connections

Connect the Tricorder to your PC with the Tricorder RS-232C cable.

**NOTE:** PC COM Ports are either 9-Pin males or 25-Pin males.

Power up the Tricorder. At this time, you need to set its Address. and place the Unit in the REMOTE Mode. You can either follow the instructions listed in the *SELECT SETTINGS* section below, refer to the procedure in the Operation Manual which came with your Tricorder or refer to BASIC SETUP under the HELP Menu in TriSetup as a refresher for this procedure.

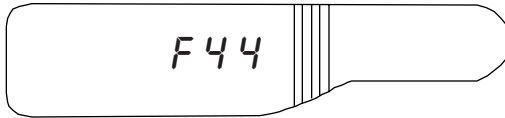
## Select Settings

Once the Tricorder is connected, you need to set the address, set the Tricorder to REMOTE Mode, and set the PC's communications parameters.

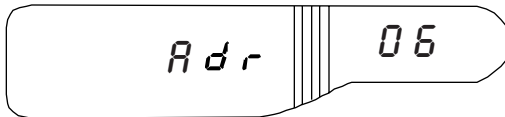
## SET ADDRESS

To set the Tricorder's address, PRESS/RELEASE the **FUNC** button on the front panel.

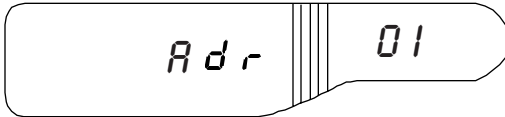
ROTATE the Spin Knob on the front panel until "F44" appears in the LEFT display.



PRESS/RELEASE the Spin Knob to enter **F44**. The Meter displays "Adr" and the current address (0 – 255).



ROTATE the Spin Knob to change the address to "01".



PRESS/RELEASE **FUNC** to set the address in the nonvolatile memory and return to SLM Mode.

## SET TRICORDER TO REMOTE MODE

Set the Tricorder to the REMOTE Mode. PRESS/RELEASE **FUNC** and ROTATE the Spin Knob until "F93" appears in the LEFT display. PRESS/RELEASE the Spin Knob to enter **F93**. This prepares the Tricorder to receive data from the PC.

### **HOT TIP**

*The following steps, SET PARAMETERS VIA TRIS SETUP, SET BAUD RATE and SELECT COM PORT are not needed unless you wish to change Trisetup's default protocol which is stored in the c:\Windows\Trisetup.ini file.*

*The first time you run Trisetup, you will be prompted to enter the COM PORT to which the Tricorder is connected.*

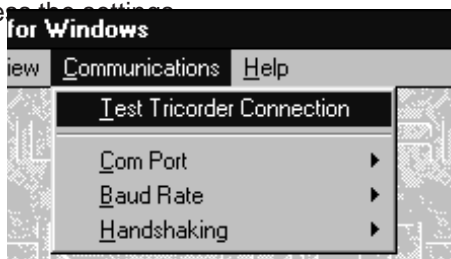
## SET PARAMETERS VIA TRISETUP

Once the Address is set to “01” and the Tricorder is in the REMOTE Mode, you need to set the Baud Rate and select a COM PORT. The easiest way is to make the settings is via TriSetup.

To access TriSetup’s COMMUNICATIONS Menu, you must first start the TriSetup program. Start WINDOWS in your PC and go to the TRILITHIC PROGRAM GROUP. Double *click* on the TRISETUP icon. This will start TriSetup and take you to the

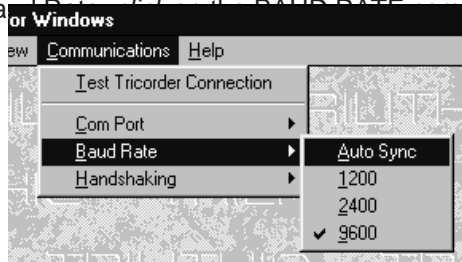


When you are in TriSetup, *click* on the COMMUNICATIONS Menu to access the



## Set Baud Rate

To set the Baud Rate, click on the BAUD RATE command.

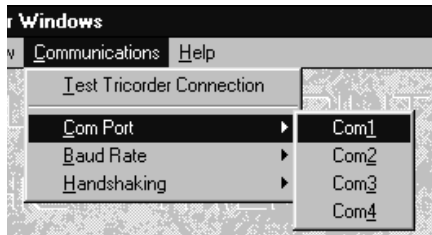


The best way is to *click* on AUTO SYNC which enables TriSetup to automatically synchronize the Baud Rate. Once you select this command, TriSetup will take a few seconds to determine the Tricorder's Baud Rate. If TriSetup cannot determine the Tricorder's Baud Rate, you need to check the connections to make sure that TriSetup and the Tricorder are communicating. Refer to *TROUBLESHOOTING THE CONNECTION* on page 14.

Alternatively, if you know your Tricorder's Baud Rate, you can select 1200, 2400 or 9600. The main thing to keep in mind is that TriSetup and the Tricorder need to be set to the same Baud Rate in order for them to communicate with each other.

## Select COM Port

*Click* on COM PORT to select the communications port for your connection.



*Click* on the Communications Port which you are using for your Tricorder.

**REMINDER:** You may NOT use the same COM PORT for your mouse and your Tricorder. If your mouse is set to COM PORT 1, you should connect the Meter to COM PORT 2, 3 or 4 and select that COM PORT in the COMMUNICATIONS Menu.

If you used the AUTO SYNC feature to set your Baud Rate, you will get a message that the Baud Rate is okay when you select the COM PORT.

**NOTE:** Regardless of which Baud Rate you use, you will receive a GOOD or BAD status report back. If you get a BAD status report, you need to check the connections (see *TROUBLESHOOTING THE CONNECTION* below).

## Test the Connection

Now that you have set up the PC and the Tricorder, you need to make sure that the two are communicating. To test the connection, run the Test Tricorder Connection function.

In the COMMUNICATIONS Menu, select TEST TRICORDER CONNECTION. This function forces the PC to command the Tricorder to transmit its model number and other configuration data.

Once the data is received and read, TriSetup displays a message indicating whether the connection was made or not.

If the Test is a success, you may now use TriSetup to program your Tricorder.

## TROUBLESHOOTING THE CONNECTION

If the Test fails, you need to troubleshoot your connection.

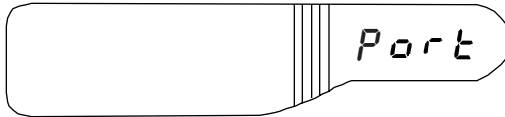
### Check Hardware

The first thing you should check is the hardware.

1. Make sure that you are using a Tricorder II, III or III-VIA.
2. Make sure that the Unit is ON.

3. Verify that the Tricorder is set up for RS-232 communication as delivered from the factory.

Do this by selecting function **F93** on your Tricorder. If it is set up for RS-232 communication, the word “port” will appear in the smaller display window.



4. Make sure that you using a Tricorder RS-232C cable.

**REMINDER:** Generic cables will NOT work with the Tricorder and TriSetup.

If the hardware checks out, you need to examine the connection parameters.

## Check Settings on Tricorder

Check the following on your Tricorder:

1. Make sure that the Address has been set to “01”.
2. Make sure that the Unit is in the REMOTE Mode (Tricorder function **F93**).

## Check COM Port

If the settings you made on the Tricorder appear in order, you should now check the COM PORT. Occasionally, you may need to set up the COM PORT through Windows’ CONTROL PANEL rather than through TriSetup.

**REMINDER:** The mouse and Tricorder COM PORTS must be different. If you attempt to connect the Tricorder to the mouse’s COM PORT, TriSetup will disable that selection and will NOT open the communications port. You MUST select a different COM PORT.

Use the following procedure to set up the Tricorder’s COM PORT.

1. Open Windows’ MAIN Window.
2. *Double-Click* on CONTROL PANEL.

3. *Double-Click* on PORTS.
4. Select the desired COM PORT.
5. Set up the COM PORT according to the list below.

Baud Rate	= 9600
Data Bits	= 8
Parity	= None
Stop Bits	= 1
Flow Control	= Hardware

Run TEST TRICORDER CONNECTION again to see if the connection is now made. If not, proceed to *CHECK BAUD RATE* below.

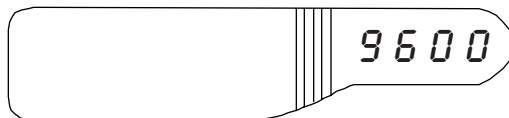
### Check Baud Rate

Once you have checked everything else, you should check the Baud Rate. This time, you should set the Baud Rate through the Tricorder's functions rather than through TriSetup.

**REMINDER:** To set the Tricorder's Baud Rate, you must first unlock the Tricorder's functions via **F59**.

Once the Unit's Functions are unlocked, PRESS/RELEASE the **FUNC** button and ROTATE the Spin Knob until F43 appears in the LEFT display. PRESS/RELEASE the Spin Knob to enter **F43**. The Meter has three Baud Rates available: 9600 (factory default), 2400 or 1200. ROTATE the Spin Knob to *toggle* between the three.

ROTATE the Spin Knob until "9600" appears in the RIGHT display.



PRESS/RELEASE **FUNC** to set the Baud Rate in the Tricorder's nonvolatile memory and return to SLM Mode.

Once you have manually set the Baud Rate and everything else seems to be in order but the connection still fails, contact Trilithic.



# HOW TRISETUP WORKS

## Introduction

Okay. You've installed the software, connected the Tricorder to your PC and have tested the connection. Everything is up and running and you're ready to go.

Before we get into the actual operation of TriSetup, you might want to take a minute or two to familiarize yourself with the way TriSetup works by looking at the sections on *MENU SELECTION* and *ON-LINE HELP* below.

## MENU SELECTION

Once you have installed TriSetup, you can connect a Tricorder to the PC.

The easiest way to get around in TriSetup is to use your mouse to *click* on desired functions just as you do in other Windows Applications.

If you prefer, you may also use the keyboard to highlight the Menus' features. To access these features, PRESS the **ALT** key plus the letter for the desired function.

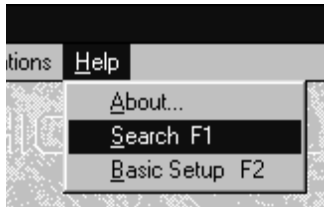


For example, to enter the FILE Menu, PRESS **ALT** and **F** at the same time.

Once you are in a Menu, you can use the arrow keys (←, ↑, →, ↓) to move within the Menu. You can use the **TAB** key to scroll through choices in the various functions. Once a desired function is highlighted, PRESS the **ENTER** key to select that function.

## ON-LINE HELP

TriSetup is equipped with an on-line help function to assist you in using the application. The basic help feature can be accessed by selecting the HELP command on the top MENU line.

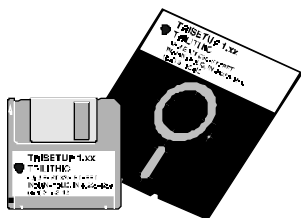


You can select **F1** to search for a specific TriSetup topic or you may select **F2** for help in doing the basic Tricorder setup.

In addition to using the HELP Menu, context sensitive help is available at all times while TriSetup is running. Context sensitive help is designed to give you instant help information rather than having to search for a given topic.

For example, when you are in a particular menu of TriSetup and you need information regarding that application, simply press **F1** and the ON-LINE HELP Screen for that menu appears.

Once you are inside the Help Menu System (Standard Windows Help), you can bring up other HELP Screens by searching for key words, referring to the HELP Menu's Table of Contents, or by bringing up previously viewed HELP Topics.



## OPERATION

### Introduction

TriSetup is designed so that you can use your PC to configure your Tricorder completely. In addition to the advantage of being able to configure the Unit at the click of a mouse, TriSetup enables you to save multiple configurations to disk for later use in one or more Tricorders. This capability means that you can “cross pollinate” configuration information from one Tricorder to another so that ALL of your Units will perform to YOUR specific needs. TriSetup ensures that Leakage Frequencies, Learned Channel Plans, Automatic Level Compensations and other information is the same for every Tricorder in your system.

**NOTE:** If you are using a Tricorder's configuration information for another Unit which may not have all of the options, TriSetup will program only those options which the Unit has and skip the ones it does not possess.

### How to Begin

There are three ways to use TriSetup to configure your Tricorder:

- **Open File Method** – enables you to open an existing Tricorder configuration.
- **Read Tricorder Config Method** – use Tricorder as the source for the configuration data.
- **Edit/View Method** – enables you to configure or modify a specific parameter or to build your own configuration from scratch.

## **OPEN FILE METHOD**

If you wish to use the first method, go to **F**ile on the scroll line and then select **O**pen File.



This will open an existing Tricorder configuration file which contains all of the data needed to configure a Tricorder. TriSetup includes several default configurations which have been supplied by Trilithic (see Chapter 6 on page 45) or you may select one which you have saved from a previous session.

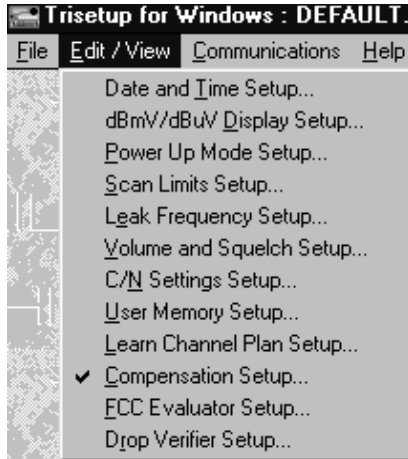
## **READ TRICORDER CONFIG METHOD**

A second way to customize your configuration with TriSetup is to use your current Tricorder as the source for your configuration data. Go to **F**ile and select **R**ead Tricorder Config. The PC gathers the required data from the Tricorder. The process takes about 90 seconds. You may then edit and reprogram the configuration data and/or save the data to a file.



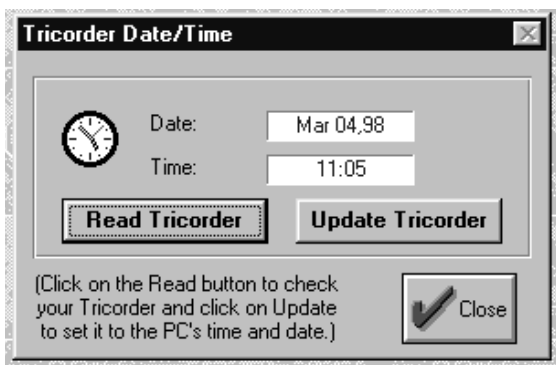
## EDIT/VIEW METHOD

You may also use a third method to modify certain Tricorder parameters. Go to the **Edit/View** Menu and select the desired sub-menu option.



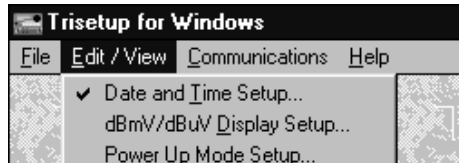
Use this method when you need to modify a specific parameter or wish to build your own custom configuration but do not wish to use any of the defaults.

With the **Edit/View** sub-menu open, select the particular parameter you wish to change, i.e. **Date and Time Setup...** When you select the parameter, TriSetup opens a dialogue box.



Change the parameter as desired and then *click* on **Update Tricorder** to change the setting to that parameter. TriSetup will update that particular parameter in your Tricorder. *Click* on **Close** to leave the dialogue box.

The next time you open the **Edit/View** Menu, you will see that a “Check Mark” is next to the parameter you updated.



As in any PC application, it is a good idea to save your work periodically. Simply open the **File** Menu and *click* on **Save** or **Save As**. TriSetup will then save your work in progress.

## Utility Features

TriSetup has several utility features which include: Utility functions in the COMMUNICATIONS Menu, FILE OPERATIONS, the UPDATE TRICORDER button, RESETING THE TRICORDER, and the AUTO SYNC BAUD RATE option.

## COMMUNICATIONS MENU UTILITIES

The COMMUNICATIONS Menu includes several utilities in addition to the command lines for setting the Baud Rate and COM PORT parameters.

## FILE OPERATIONS

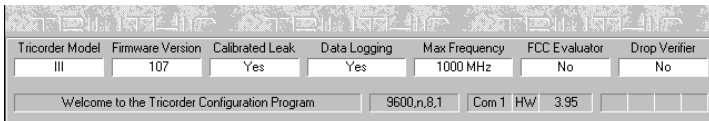
The **File** Menu is a powerful function which allows you to open existing configurations, and to save your Tricorder configuration for later use.

**NOTE:** The **Open File**, **Save to File** and **Save As to File** functions do not send or receive data from your Tricorder. These commands are used only to communicate with the PC's disk drive system.

## Open File

The **Open File** command enables you to open an existing configuration file so that you may modify the Tricorder's settings or download information into the Tricorder. You may also use the existing file as is and download it into the Tricorder without modification.

When a file is opened, the model and option information for the connected Tricorder appears in the status bar at the bottom of the screen.



Tricorder Model	Firmware Version	Calibrated Leak	Data Logging	Max Frequency	FCC Evaluator	Drop Verifier
III	107	Yes	Yes	1000 MHz	No	No
Welcome to the Tricorder Configuration Program		9600,n,8,1	Com 1	HW	3.95	

## Save to File

The **Save to File** command enables you to save an opened file once you make updates to it. Every time that you save a file, TriSetup prompts you to create a note which consists of a 40 character title for that particular file.

The single purpose of this note is to inform you of the contents of the configuration file. For example, to set up a configuration file for all field personnel, type "Field Personnel Standard File". The next time you open this file, the title will be displayed immediately. If you press **ENTER** without typing, the old title will be reused. As a precaution, TriSetup prompts you to **Save** before you exit.

## Save As to File

The **Save As to File** command is similar to the **Save to File** command. In addition to saving the file, however, this also enables you to change the file name. Use this command when you wish to save a modified file without overwriting the original file. All files should be saved with a **.CFG** extension. TriSetup will place .cfg if you forget.

## UPDATE TRICORDER BUTTON

As you work through TriSetup, you will note that the set up Submenus, such as those found under the **Edit/View** Menu, contain a button which is labelled **UPDATE TRICORDER**.



When you press this button, the data you are viewing in the particular submenu is transferred into the Tricorder's memory. If you do NOT press the **UPDATE TRICORDER** button, the Tricorder is not affected and you remain in the VIEW Mode.

If you press the **UPDATE TRICORDER** button in one or more submenus, you need to also press the **COMPLETED CONFIGURATION** button on the Main Screen before you exit TriSetup. See *Resetting the Tricorder* below for more information concerning this procedure.

## RESETTING THE TRICORDER

Certain changes you make to your Tricorder's configuration using TriSetup do not take effect until the Tricorder cycles power and is reinitialized to its "Power up" status. You should turn the Unit OFF and then back ON upon completion while the Tricorder is still in REMOTE Mode.

## Communicating with the Tricorder

There are two features under the **File** Menu which enable your PC and Tricorder to exchange data: Reading a Tricorder Configuration File and Writing a Tricorder Configuration File.

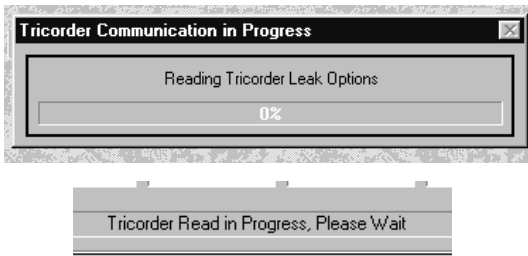
## READING A TRICORDER CONFIGURATION FILE

To use this feature, you must have a COM PORT selected in the COMMUNICATIONS Menu.

This feature enables TriSetup to upload into the PC all configuration data which is currently in the Tricorder. The process takes about ninety seconds to complete.

**CAUTION:** Do NOT do anything else in Windows while the reading function is taking place as it will slow down the process.

As the data is being read, you can verify the information in the display area of the progress bar as well as in the message block of the status bar.



When TriSetup has read all of the data, it returns program control back to you.

The data is now in the PC's memory so that you may examine and modify the configuration information. When you are finished, update the Tricorder or perform a **Save As to File** to write the data to a disk and save the new configuration as a disk file.

## WRITING A TRICORDER CONFIGURATION FILE

To use this feature, you must have a COM PORT selected in the COMMUNICATIONS Menu. You must also open a file (see *Open File* page 23) or “read” a configuration file from the Tricorder (see *Reading a Tricorder Configuration File* page 24).

This function enables TriSetup to download the current configuration to the Tricorder.

**WARNING:** The “**WRITE**” command writes ALL parameters into the Tricorder. If you only want to change specific parameters, use the **Edit/View** Menu with the **UPDATE TRICORDER** button. Otherwise you may find that you have reconfigured your Tricorder with undesired parameters.

TriSetup will only program those standard and optional features which are present in the Tricorder you are programming. For example, if your desired configuration contains parameters for the FCC Evaluator but your Unit does not have this option, TriSetup will simply skip or ignore all references to the FCC Evaluator.

**NOTE:** The Date and Time are not updated in this procedure and need to be programmed separately using the DATE AND TIME SETUP... Submenu under **Edit/View**.

The writing process takes about 90 seconds to complete.

**CAUTION:** Do NOT do anything else in Windows while the reading function is taking place as it will slow down the process.

As the data is being written, you can verify the information in the display area of the progress bar. When TriSetup has written all of the data, it returns program control back to you.

Before using the Tricorder, remember to turn the Unit OFF and then ON so that all settings will be stored in the Tricorder's memory.

## **Edit/View Menu**

As mentioned earlier in the *How to Begin* section on page 19, you have the option of changing the entire configuration or of changing specific individual parameters in the **Edit/View** Menu.

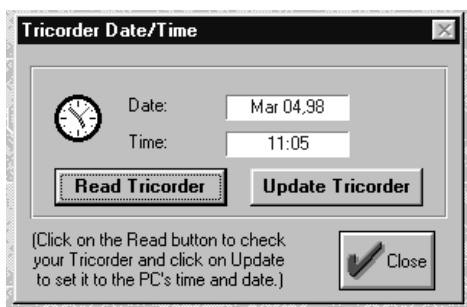
You can access each parameter you wish to change by *clicking* on the submenu command for that parameter. Once you have modified the parameter, remember to *click* on the **UPDATE TRICORDER** button. *Click* on **CLOSE** to go back to the Main Screen.

**NOTE:** By modifying the various parameters, you can build a complete or partial custom configuration file.

## DATE AND TIME SETUP

This command enables you to check the date and time of the Tricorder you are programming. If you select READ TRICORDER, the PC will poll the Tricorder for its date and time. It will then display that information on the menu.

If you select UPDATE TRICORDER, the PC will program the Tricorder to the PC's current date and time. It will then display that information on the menu.



**NOTE:** The clock in TriSetup is based on 24-hour time rather than 12-hour. For example, 2:15 in the afternoon appears as 14:15.

The **Date and Time Setup...** submenu performs the same procedure as Tricorder functions **F45** and **F46**. When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

## dBmV/dB $\mu$ V DISPLAY SETUP

This command enables you to modify the units in which your Tricorder displays the amplitude. The Tricorder can be set up to display the data in dBmV or dB $\mu$ V depending on your preference.



Once the desired amplitude is selected, *click* on the **UPDATE TRICORDER** button to send this data to the Tricorder.

When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

## POWER UP MODE SETUP

This command enables you to modify the mode in which the Tricorder will “Power up”. The Unit can be set up to “Power up” in the mode it was in when it “Powered down” or to “Power up” always in LEAKAGE Mode.



Select the desired mode and then *click* on the **UPDATE TRICORDER** button to send this data to the Tricorder.

**NOTE:** This option is available only when the Tricorder is operating from battery power. If you have the Tricorder on its charge cube, it will always “Power up” in SLM Mode. If the Unit is in the mobile mount, it will always “Power up” in the LEAKAGE Mode.

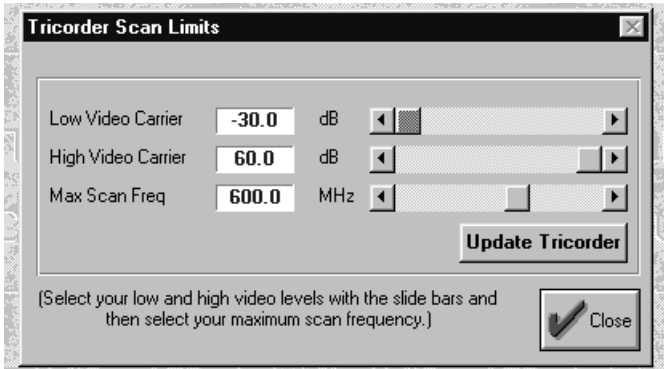
The **Power Up Mode Setup...** submenu performs the same procedure as Tricorder function **F6**.

When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

## SCAN LIMITS SETUP

This command enables you to modify and/or define the Tricorder scan limits for their minimum and maximum range. This is useful for creating Learned Channel Plans, executing Manual Data Logging and utilizing the FCC Evaluator.

To set the Low Video Carrier limit, move the slide bar RIGHT to LEFT to select the appropriate level.



Repeat this procedure for the High Video Carrier limit and for the Maximum Scan Frequency.

There are several factors you need to keep in mind when setting these scan limits.

First, the Low limit must be LESS than the High limit by 1.0 dB.

Secondly, the Maximum Frequency can only be 600 MHz for a Tricorder optioned with a 600 MHz limit and 1000 MHz for one with a 1000 MHz limit. TriSetup prevents you from setting the Low limit greater than the High limit and vice versa.

The maximum scan frequency is also utilized by the FCC Evaluator for determining maximum level variations. See *FCC EVALUATOR SETUP* on page 42.

When your adjustments are completed, *click* on the **UPDATE TRICORDER** button to send this data to the Tricorder.

The **Scan Limit Setup...** submenu performs the same procedures as Tricorder functions **F22**, **F23** and **F24**.

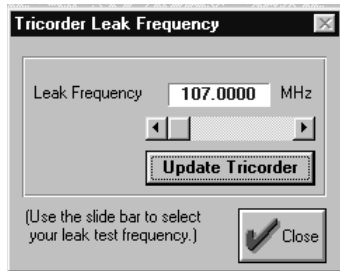
When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

## LEAK FREQUENCY SETUP

This command enables you to set the Tricorder's leakage frequency. The minimum is 107.0000 MHz while the maximum is 157.2500 MHz in 12.5 kHz steps.

**NOTE:** These limits may vary in models made for non-U.S. customers where specific countries have different frequency requirements.

Slide the control LEFT and RIGHT to obtain the desired frequency.



Once the leakage frequency is set as desired, *click* on the **UPDATE TRICORDER** button to send this data to the Tricorder.

The **Leak Frequency Setup...** submenu performs the same procedure as Tricorder function **F20**.

When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

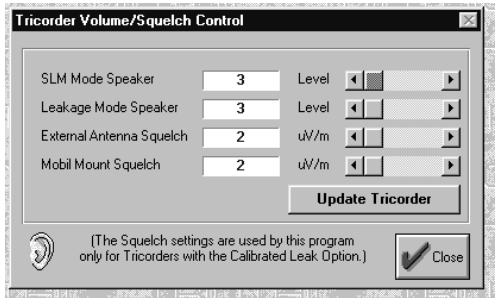
## VOLUME AND SQUELCH SETUP

This command enables you to modify the Tricorder's Volume and Squelch settings. There are four settings which you can modify.

The Volume Control has separate settings for the SLM and LEAKAGE Modes. The Squelch Control can be set for the external antenna as well as for the mobile mounted antenna.

When adjustments are completed, *click* on the **UPDATE TRICORDER** button to send this date and time data to the Tricorder.

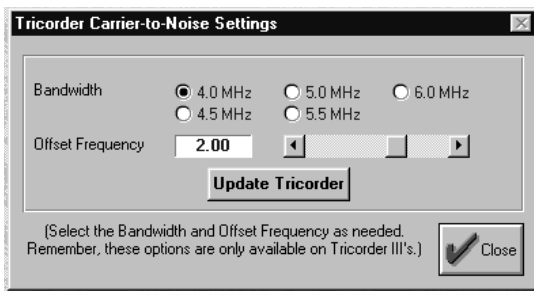
The **Volume and Squelch Setup...** submenu performs the same procedure as Tricorder function **F2** and Spin Knob volume changes.



When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

## C/N SETTINGS SETUP

This command enables you to modify the Carrier-to-Noise offset and bandwidth.



The recommended offset is 2 MHz which measures the noise 2 MHz above the video carrier. The permissible settings are from – 6.0 MHz to 6.0 MHz. The noise bandwidth correction is selectable from 4.0 MHz to 6.0 MHz in 500 kHz increments.

Once adjustments are completed, *click* on the **UPDATE TRICORDER** button to send this data to the Tricorder.

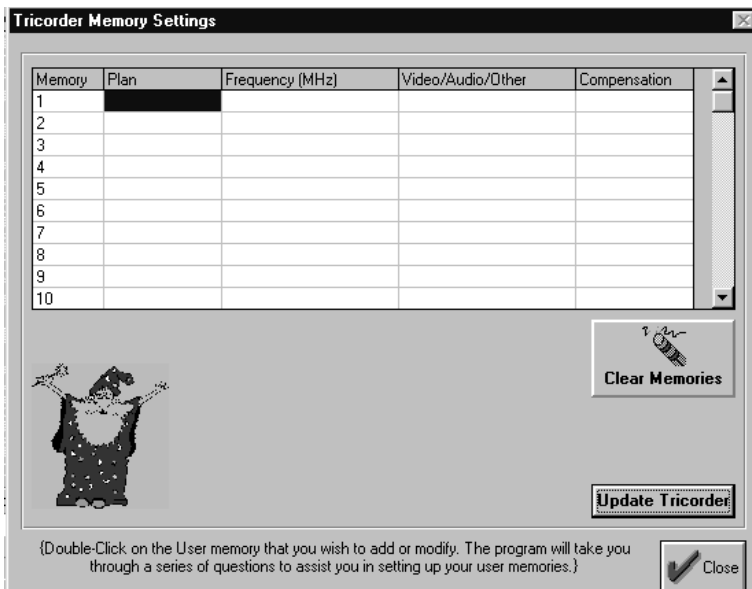
The **C/N Settings Setup...** submenu performs the same procedures as Tricorder functions **F30** and **F31**.

When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

## USER MEMORY SETUP

This command enables you to modify the 10 user memories. If you do not press any buttons other than **CLOSE**, TriSetup remains in the BROWSE Mode. This enables you to view what is currently in the ten user memories.

**NOTE:** If you will be using compensation values, you will need to set up the compensations **BEFORE** you set your user memories. See *COMPENSATION SETUP* on page 35.



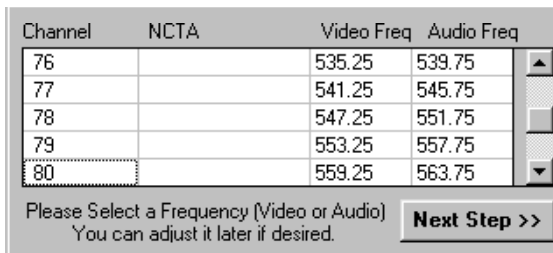
If you wish to set up a Tricorder memory, just *double-click* on the desired slot (1 through 10) and TriSetup will take you through the USER MEMORY SETUP wizard.

**NOTE:** You may access memories which exist in the Unit plus one memory position beyond the final existing one. If you attempt to create a user memory other than these, TriSetup will automatically select the next available user memory for you.

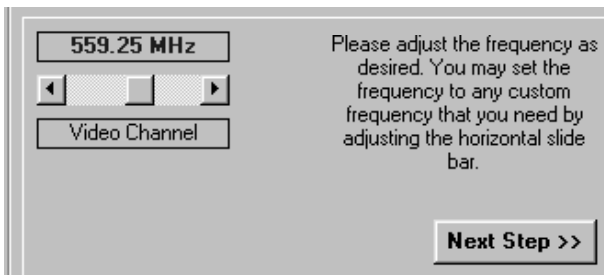
In the first screen of the USER MEMORY SETUP wizard, you will select a channel plan from a provided list to serve as a starting point for creating your own user memory. If you do not select a Channel Plan or select "NONE", TriSetup will abort the USER MEMORY creation.



Double-click on the desired plan (i.e. NCTA). The wizard will advance to the next screen. You can also single-click on the plan and then click the **NEXT STEP>>** box.

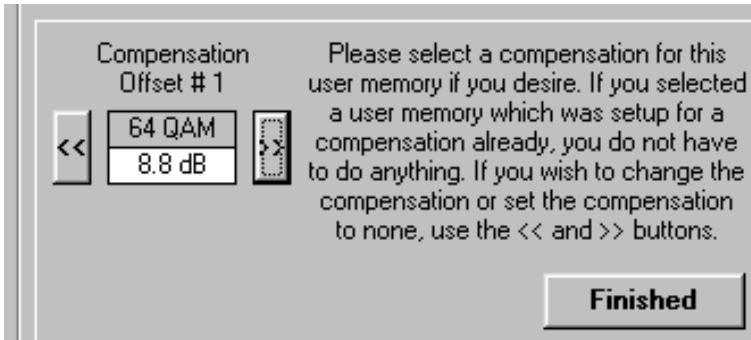


In this screen you will select the frequency (video/audio) for the user memory (i.e. Channel 80). If you desire a custom frequency, pick the closest channel and then proceed to the next step. When you double-click on a frequency or click the **NEXT STEP>>** box, the wizard advances to the next screen which you can use to adjust the selected frequency as needed.



Some Tricorders (Firmware version 3.02 or better) are equipped to automatically compensate for non-NTSC signals such as QAM, QPSK and QPR on a channel-by-channel basis. To check your Tricorder's firmware, click on the TEST TRICORDER CONNECTION command under TriSetup's COMMUNICATIONS Menu or execute Function **F28** on the Tricorder.

In this screen of the wizard, you can assign the compensation offsets for the selected memory by *clicking* on the << and >> buttons (i.e. 64 QAM).



**NOTE:** In addition to the default compensations, you may also assign your own compensation to a user memory. To change the offset value, merely *double-click* on the << or >> buttons until the desired compensation appears. The compensations are limited to values between  $\pm 10.0$  dB.

**CAUTION:** You can assign offsets to as many channels in a User Memory as you wish. However, each offset (1 - 15) can only have one value. For example, if you assign Offset 1 (with a compensation of 8.4 dB) to Channel 2 and then change Offset 1's value to 3.4 dB and assign it to Channel 3, Channel 2's offset will also be changed to 3.4 dB.

This is also true when you change the offsets' compensation values in the LEARNED CHANNEL PLAN screen. If you assign a new value to Offset 1 for the learned channels, it will change the value of the offset in User Memory as well.

When you are done, *click* the **FINISHED** button. The channel plan with the selected frequency and compensation values appears on the line for that memory (i.e. User Memory 1).

Memory	Plan	Frequency (MHz)	Video/Audio/Other	Compensation
1	NCTA	559.25 MHz	Video Channel Selected	64 QAM
2				

If you need to change any of the memory data, you will need to start over. *Click* on the **CLEAR MEMORIES** button or simply *double-click* on an existing user memory and follow the USER MEMORY SETUP wizard.



When you have the user memory data completed, *click* on the **UPDATE TRICORDER** button to send the data to the Tricorder.



When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

## COMPENSATION SETUP

This menu enables you to adjust any of the compensation values (up to fifteen) and store them into your Tricorder.

**Tricorder Digital / Misc. Compensation Settings**

#	Description	Compensation	Default
1)	64 QAM	8.8 dB	8.8 dB
2)	QPSK	-1.0 dB	-1.0 dB
3)	9 QPR	1.9 dB	1.9 dB
4)	unused	0.0 dB	0.0 dB
5)	unused	0.0 dB	0.0 dB
6)	unused	0.0 dB	0.0 dB
7)	unused	0.0 dB	0.0 dB
8)	unused	0.0 dB	0.0 dB
9)	unused	0.0 dB	0.0 dB
10)	unused	0.0 dB	0.0 dB
11)	unused	0.0 dB	0.0 dB
12)	unused	0.0 dB	0.0 dB
13)	unused	0.0 dB	0.0 dB
14)	unused	0.0 dB	0.0 dB
15)	unused	0.0 dB	0.0 dB

(Select the Offset that you desire to change and double-click on the value to change it. You may also change any of the unused Defaults by double-clicking on them as well.)

Close

### HOT TIP

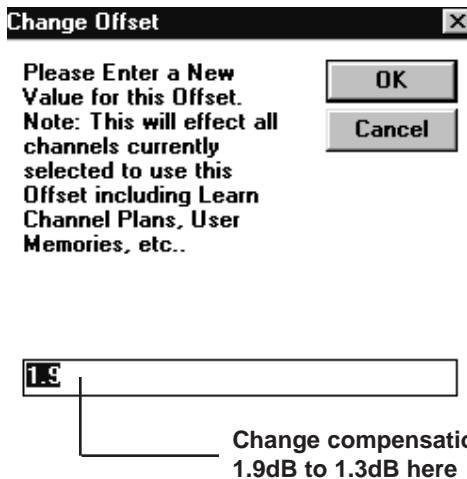
*The automatic level compensation feature is also useful for compensating almost any type of modulation or for matching you Tricorder's readings with your favorite piece of test equipment. All you need to do is: take a reading with the reference equipment, take a second reading with your Tricorder, figure the difference between the two and then, using TRISSETUP, program that compensation into the Tricorder.*

If you wish to modify an existing compensation, *double-click* on the **COMPENSATION** box for that particular modulation scheme. For example, if you wish to modify the compensation of **9QPR** from its default value of 1.9dB to 1.3dB, *double-click* on the white box containing 1.9dB

3)	9 QPR	1.9 dB	1.9 dB
4)	unused	0.0 dB	0.0 dB

Click on COMPENSATION box

The CHANGE OFFSET menu appears.



Type the desired compensation in the box (i.e. 1.3dB) and then *click* the **OK** button.

The **COMPENSATION** box in the COMPENSATION SETTINGS screen turns yellow which indicates that you are no longer using the default value.

**Box turns YELLOW and new compensation value appears**

3)	9 QPR	1.3 dB	1.9 dB
4)	unused	0.0 dB	0.0 dB

TriSetup also enables you to assign a default value for any of the “unused” modulation schemes in the list.

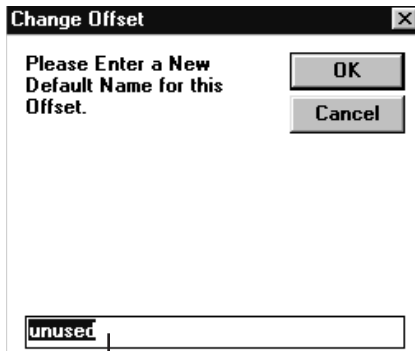
**NOTE:** New modulations will also be available for download on Trilithic’s Web page ([www.trilithic.com](http://www.trilithic.com)) which you can add to the your compensation list (1 - 15).

Let’s say that you want to assign a default compensation for a modulation called 16 PSK. To assign a value, *double-click* on the word “unused” at position #4.

3)	9 QPR	1.9 dB	1.9 dB
4)	unused	0.0 dB	0.0 dB

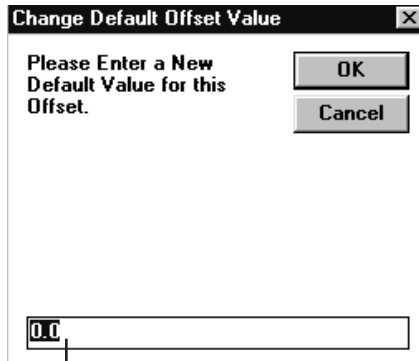
**Click on “unused”**

The CHANGE OFFSET menu appears. Change the word “unused” to the name you wish to call the new modulation (i.e. 16 PSK)



**Change name from “unused” to “16 PSK” here**

TriSetup then asks you to assign a default value for the new modulation (i.e. 1.10dB).



Change compensation  
from 0.0dB to 1.10dB

Once you have assigned the compensation value, *click* the **OK** button. The new modulation's name and default compensation appear in the LEFT and RIGHT columns (i.e. Compensation # 4 shows as **16 PSK - 1.1 dB**).

3)	9 QPR	1.9 dB	1.9 dB
4)	16 PSK	0.0 dB	1.1 dB

Initially, the COMPENSATION box will show 0.0 dB. To assign the default value for Compensation #4, *double-click* on the COMPENSATION box. The CHANGE OFFSET box appears. If you wish to keep the default value, simply *click* **OK**. If you wish to modify the compensation value, type in the modified compensation and then *click* **OK**.

Once you have assigned and/or modified the desired compensation values, *click* on the **UPDATE TRICORDER** button to download the settings into your Tricorder.



**Update Tricorder**


The compensation values (middle column) are stored with the configuration files of your Tricorder(s). The default text and compensation values (left and right columns) are stored in the **trisetup.ini** file in your PC's windows directory.

Consequently, once you change “unused” to a particular name, you will NOT be able to modify its DEFAULT value. If you make a mistake in assigning the value, you can only change it via the following method:

1. Close TriSetup (any changes you make to the trisetup.ini file will not take affect if the program is running).
2. Edit the file **c:\windows\trisetup.ini**
3. Find the default text and its value (stored in tens format, i.e. 1.6dB appears as 16) that you wish to change.

**CAUTION:** While you can change the text back to the word “unused”, use extreme care in doing so since TriSetup will no longer be able to identify any Tricorders which were configured with that particular compensation.

To reset the compensation to their default values, *click* on the **RESET TO DEFAULTS** button.

A rectangular button with a grey gradient and a black border. The text "Reset to Defaults" is centered in a bold, black, sans-serif font.

**CAUTION:** *Clicking* the **RESET TO DEFAULT** button will reset ALL compensations to their default value. If you wish to reset only specific compensations, you will need to *click* on each box and reset them one at a time.

## LEARN CHANNEL PLAN SETUP

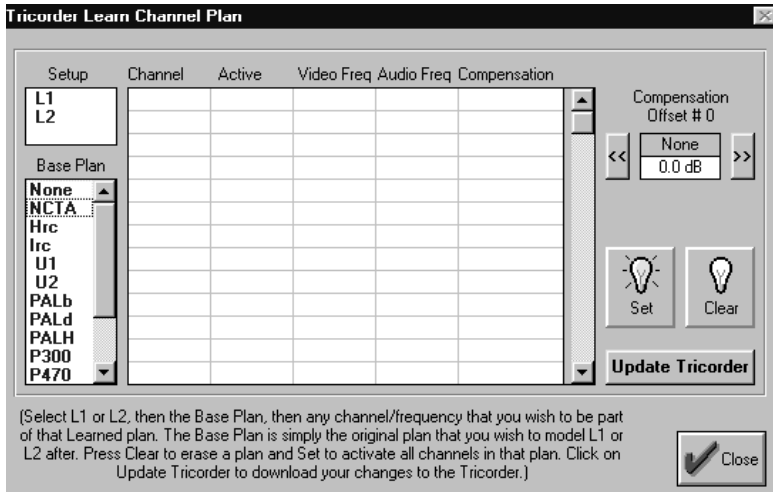
This command enables you to create your own Learned Channel Plan.

**NOTE:** If you will be using compensation values, you will need to set up the compensations **BEFORE** you set your user memories. See *COMPENSATION SETUP* on page 35.

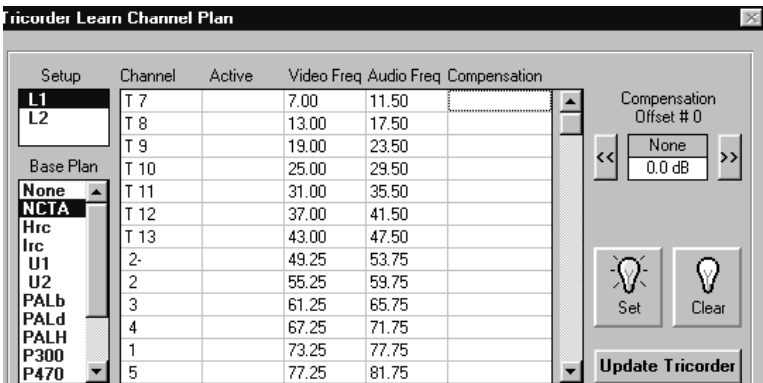
To start, *click* the **CLEAR** button.



Now you are ready to create your Channel Plan.



To create your own plan, select **L1** or **L2** and then select a base or root Channel Plan from the **BASE PLAN** list. In the example below, **NCTA** is used as the base for Channel Plan **L1**.



Once the base plan is loaded, you can add the frequencies you wish to use by *double-clicking* on the frequency (for example, VIDEO FREQ 7.00 at T7). Channels that have been added to the Channel Plan will have a YES beside them.

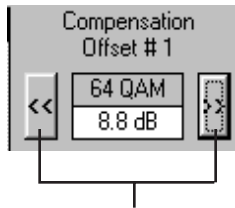
Setup	Channel	Active	Video Freq	Audio Freq	Compensation
L1	T 7	Yes	7.00	11.50	
L2	T 8		13.00	17.50	

You can activate ALL the channels at the same time in L1 or L2 by *clicking* on the **SET** button.



A BLANK indicates that the channel has NOT been added to the Learned Channel Plan.

Your Tricorder may be equipped to automatically compensate for non- NTSC signals such as QAM, QPSK and QPR on a channel-by-channel basis. You can assign the compensation value by *clicking* on the << and >> buttons under COMPENSATION OFFSET # to scroll through the available compensations (i.e. 64 QAM).



**Click here to scroll through available compensations**

**NOTE:** You should set up your desired compensation levels BEFORE you set up your Learned Channel Plans (see *COMPENSATION SETUP* page 35).

When the desired compensation appears in the window, *double-click* on the COMPENSATION box of the channel to which you are adding the compensation (in the example below, the 64 QAM compensation has been added to Channel 82 and the 9 QPR compensation has been added to Channel 83).

81		565.25	569.75	
82	Yes	571.25	575.75	64 QAM
83	Yes	577.25	581.75	9 QPR
84		583.25	587.75	

**CAUTION:** You can assign offsets to as many channels in a Learned Channel Plan as you wish. However, each offset (1 - 15) can only have one value. For example, if you assign Offset 1 (with a compensation of 8.4 dB) to Channel 2 and then change Offset 1's value to 3.4 dB and assign it to Channel 3, Channel 2's offset will also be changed to 3.4 dB.

This is also true when you change the offsets' compensation values in the USER MEMORY screen. If you assign a new value to Offset 1 for the learned channels, it will change the value of the offset in User Memory as well.

Once adjustments are completed, *click* on the **UPDATE TRI-CORDER** button to send this data to the Tricorder.

When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

## FCC EVALUATOR SETUP

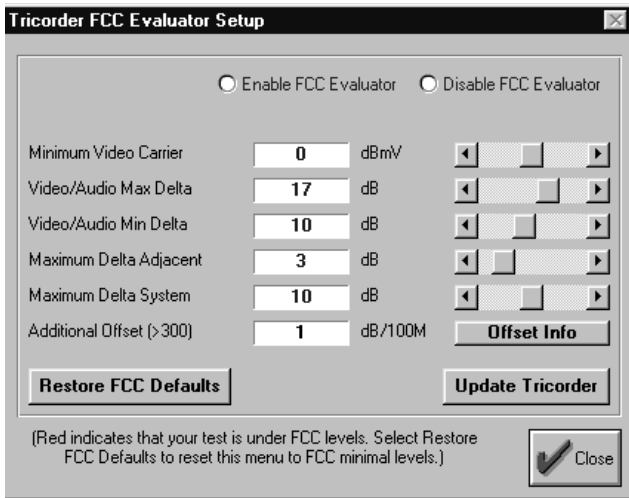
This command is available only when your Tricorder has the FCC Evaluator option. If so, you can use this procedure to change the parameters so that you may run an FCC Evaluation set to limits other than the FCC requirement.

**CAUTION:** If these altered values will result in a failure to meet FCC standards, the value changes to the color RED to indicate such failure.

The maximum level variation allowed by FCC Specifications is 10dB for the first 300MHz and an additional 1dB for each 100MHz beyond the initial 300MHz. The Tricorder determines the total variation limit by the setting of the maximum scan frequency (Tricorder Function **F24**).

For example, a maximum setting of 450MHz nets a total of 12dB - 10dB for the base allowance and 2 additional dB for the 150MHz over 300MHz.

If you desire to hold your system to a tighter tolerance, you need to reduce the base allowance by the appropriate amount (i.e. base allowance of 8dB at 300MHz for 10dB at 450MHz).



Once adjustments are completed, *click* on the **UPDATE TRICORDER** button to send this data to the Tricorder.

When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.

## DROP VERIFIER SETUP

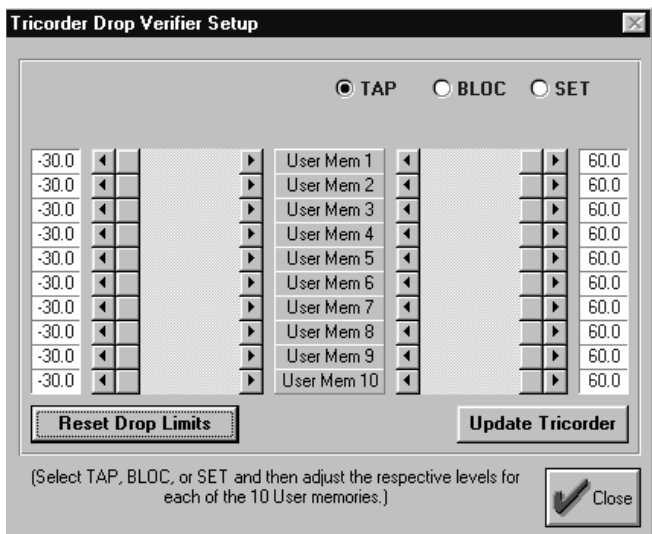
This command is available only when your Tricorder has the DROP VERIFIER option. If your Unit is so equipped, you can use this function to change the parameters so that you can run a drop test.

This option allows you to set individual limits on the 10 user memories for the following locations:

- Tap
- Ground Block
- Set Top Converter

Select either **TAP**, **BLOC** or **SET**.

After you have made your selection, adjust the respective levels for each of the 10 User memories.



To reset the drop limits to the default setting, *click* on the **RESET DROP LIMITS** button. This only affects the current selected drop point. If you wish to clear all, select **TAP**, then **RESET**, select **BLOC**, then **RESET** select **SET**, and then **RESET**.

Once adjustments are completed, *click* on the **UPDATE TRICORDER** button to send this data to the Tricorder.

When you have finished, *click* on the **CLOSE** button to go back to the Main Screen.



# **ADDITIONAL** **INFORMATION**



## **Default File Definition**

Below are listed several demo files which come with TriSetup for your examination.

<b>Frequency</b>	<b>Model</b>	<b>Features</b>	<b>File</b>
600 MHz	Tric. III	w/ Calculated Leakage, Data Logging	Factory1.cfg
1000 MHz	Tric. II	with Calculated Leakage, Data Logging	Factory2.cfg
1000 MHz	Tric. II	w/out Calculated Leakage, Data Logging	Factory3.cfg
1000 MHz	Tric. III	w/out Calculated Leakage, Data Logging	Factory4.cfg
1000 MHz	Tric. III- VIA		Factory5.cfg



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