

# Equipment Location – Certification Information Database (EL-CID)

*Version 5.1*

## User Training Manual

Manual 5.1 Revision 1.3

Prepared by:



**ITT**

*Engineered for life*

ITT Corporation  
AES Division

16701 Melford Blvd.

Bowie, MD 20715

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## **EL-CID Point of Contact Information**

### ***EL-CID Support Center Web Site***

<http://www.ntia.doc.gov/osmhome/elcid/>

### ***NTIA Office of Spectrum Management Web Site***

<http://www.ntia.doc.gov/osmhome/osmhome.html>

### ***EL-CID Help Desk***

Email: [ELCIDHelp@jsc-eses.com](mailto:ELCIDHelp@jsc-eses.com)

Phone 301.867.2955

### ***Program Manager NTIA***

Craig Scammon, [CScammon@ntia.doc.gov](mailto:CScammon@ntia.doc.gov)



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## INTRODUCTION

The intent of this manual is to introduce you to some of the capabilities of the EL-CID program. An introduction to all of the capabilities would occupy more time than we are allotted. The user should become familiar with the help file that gives a greater in-depth explanation of the options of the model. Additional help can be obtained from the resources printed on the inside cover of this document.

We understand that these examples are simple in nature and may not completely mimic your operation, but are employed to demonstrate the capabilities of the system.

If you have any comments please send them to the EL-CID help desk or if you have a suggestion for the program operation, write a program change request (form can be found under the References Folder on the EL-CID CD) and send it to the EL-CID help desk.

Thank you,

*EL-CID Development Team*  
*EL-CID Training Team*

**Please click on the desktop icon “Student Information Sheet” and fill in your information at this time.**

## SOFTWARE INSTALLATION

If not already done, install the EL-CID software. If you are taking this course with an Instructor, follow his instructions (**Appendix B**). If you are taking this course on your own, and have the software Installation CD, follow the instructions you will find on the Training CD in folder **Installation Instructions**. You can also install EL-CID by downloading from the Internet. Go to the EL-CID Support Center Web Site at the web address given on the inside cover of this manual for instructions.

## USEFUL TERMS AND HINTS

**Save** There are at least three ways to save data:

1. **Click** on the save button . This will save your data and allow you to continue processing.
2. **Click** on the left side of the screen in the tree view section (any node). This will save your data and allow you to continue processing.
3. **Click** on the close button . This will save your data and close the Certification.

### Tree View

Refers to the left side of the screen which presents an image similar to windows explorer.

### Expand Tree View

To expand the tree view, highlight a node in the tree view and press  . All nodes under the highlighted node will be expanded. You can also expand the node by **clicking** on the  button.

### Collapse Tree View

To collapse the tree view, highlight a node in the tree view and press  . All nodes under the highlighted node will be collapsed. You can also collapse the node by **clicking** on the  button.

### Data Grid

Refers to the right side of the screen and is a place to input data. Data items in bold are required data items.

### Move between lines in the data grid.

To move between lines in the data grid, **click** the mouse  in the data field, or use the   to move up or the   to move down the grid. The  key also moves the cursor between fields in the data grid.

## DOCUMENT CONVENTIONS

### On-screen elements

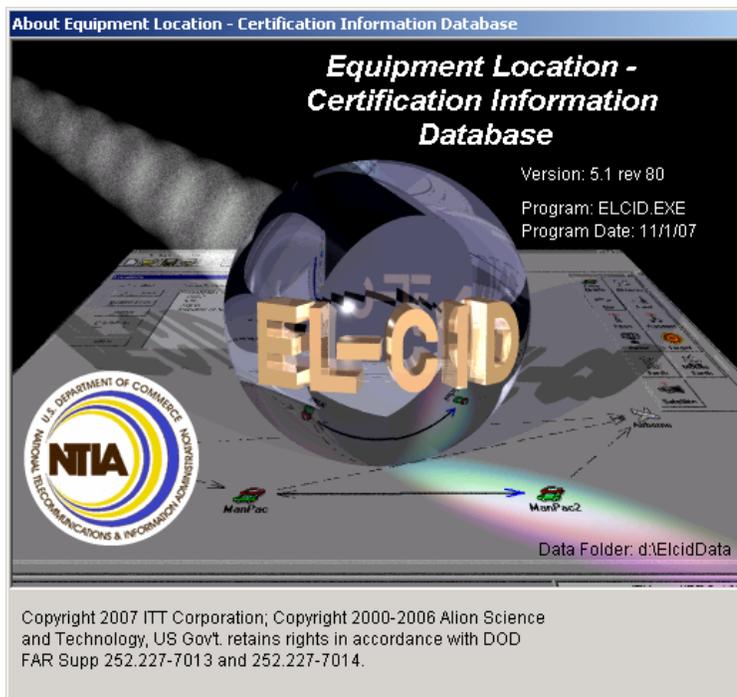
Text you see on the screen is **bolded**.

### User Actions and input data

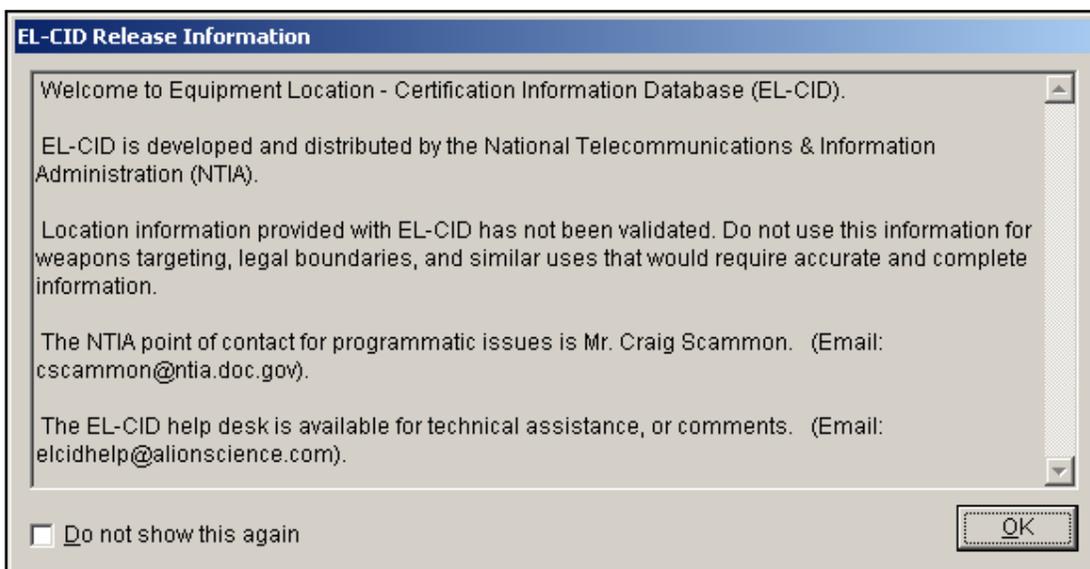
User actions and input data are **highlighted**. You should perform these actions (or type in the indicated text) as you work through the training.

## 1.0 STARTING THE EL-CID PROGRAM

**Step 1.** To start the EL-CID program, **double-click** the EL-CID icon  on the Windows desktop. The **About EL-CID** “splash” window will be displayed.



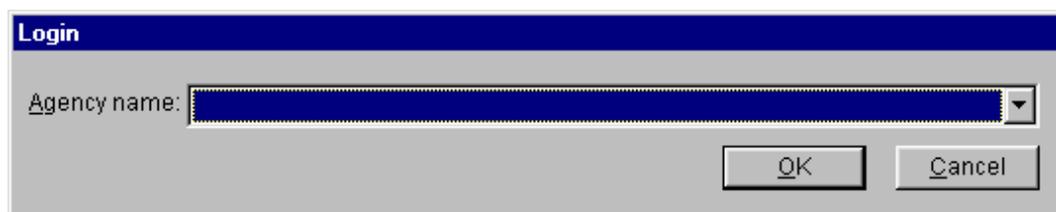
The **EL-CID Release Information** window will then be displayed.



**Step 2.** Check the **Do not show this again** check box if you don't want to see the **Release Information** window in the future and then **click OK**.

**HINT:** If you check  **Do not show this again** you can still retrieve this window by resetting the option in the **Preferred Settings** window.

The **Login** window is displayed.



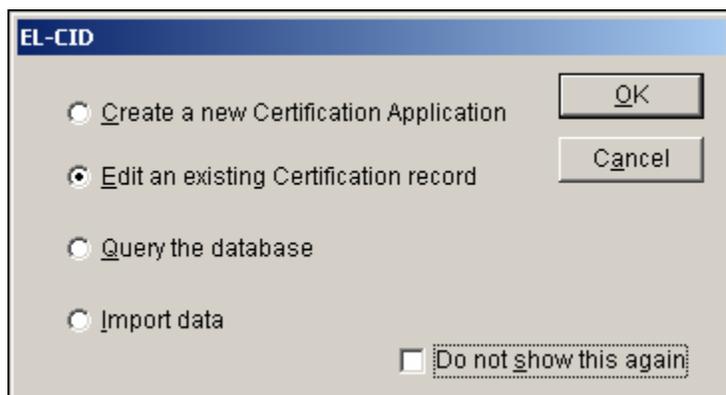
- Step 3.** Choose your **Agency name** by **clicking** the **down arrow** button  and **clicking** on your agency (e.g., AR - Department of the Army) in the list that drops down. When you are logged in as a DoD agency, additional data items appear on many of the windows and the printed reports differ from when you are not logged in as a DoD agency. The DoD agencies are:

AF – Department of the Air Force  
 AR – Department of the Army  
 N – Department of the Navy

For purposes of this training, choose **AR – Department of the Army**.

**HINT:** You can type in the first character of your agency name **abbreviation** to go down in the list. Pressing the letter again will go to the next agency whose abbreviation begins with the letter.

- Step 4.** **Click OK.** The **Startup EL-CID Wizard** window is displayed.



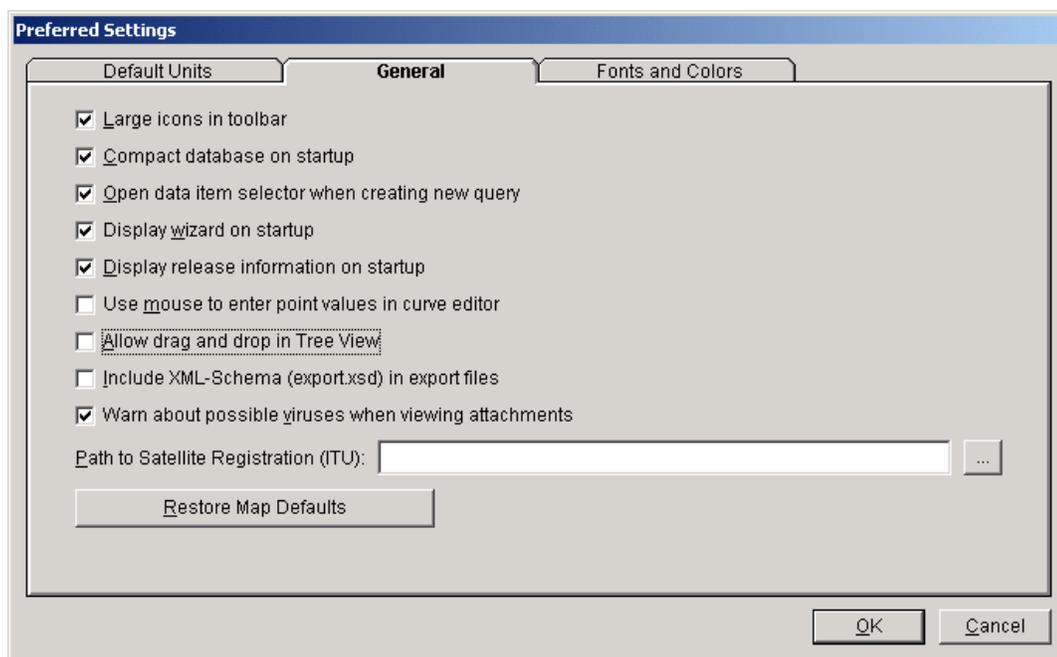
- Step 5.** This screen allows you to select one of the four EL-CID wizards that will guide you through each capability. You may also **click Cancel** to go directly into the EL-CID program without the aid of the Startup Wizard.

**HINT:** Check the **Do not show this again** check box if you don't want to use the Startup Wizard in the future.

## 2.0 SETTING SYSTEM PREFERENCES

The **Preferred Settings** window provides options for setting the data item default units displayed throughout EL-CID and for the customization of wizard and window displays. Three tabs are available for setting preferences: **Default Units**, **General**, and **Fonts and Colors**.

**Step 1.** To change or review your system preference settings, **click** the **Preferences** button  on the tool bar. The **Preferred Settings** window is displayed. The options currently checked in the tab are the installed defaults.

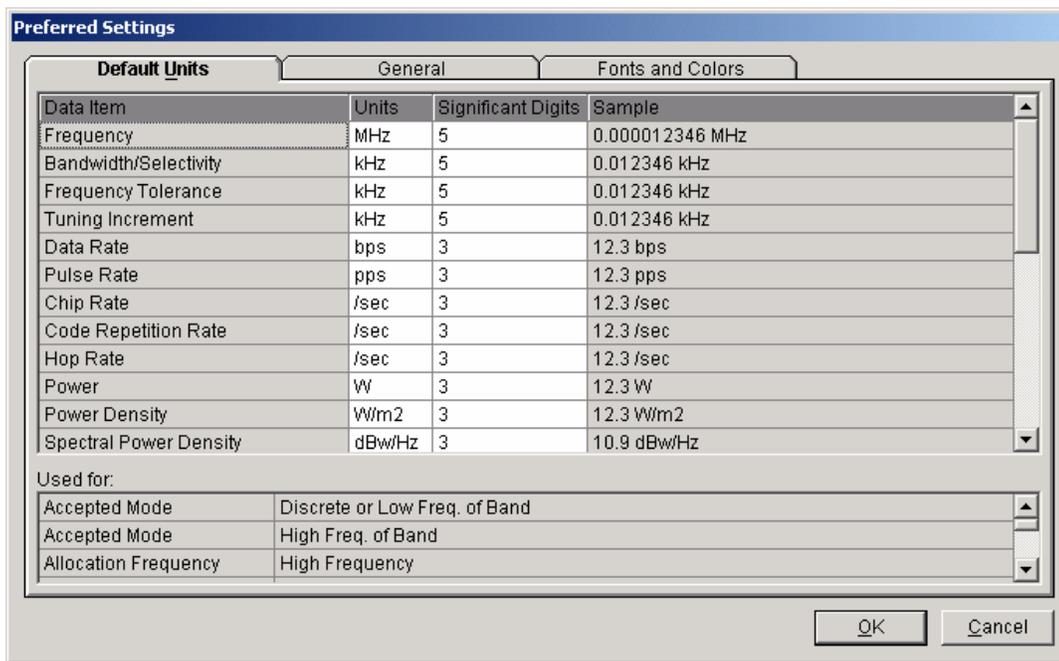


The **General** tab permits you to set the following options:

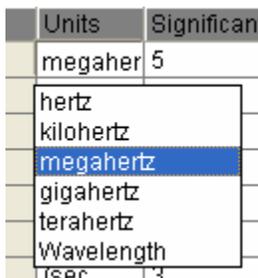
- **Large icons in toolbar** - Uncheck the **Large icons** check box if you want the tool bar to display using small pictures.
- **Compact database on startup** - To save some time at startup of the EL-CID program, uncheck the **Compact database on startup** check box (Compacting the database saves disk space and improves the performance of the software.) Remember to manually compact the database from time-to-time by choosing Compact Database on the Maintenance menu.
- **Open data item selector when creating new query** - When you create a new database query, the program normally assumes that you want to immediately pick a data item to query on and automatically displays the Data Item Selector screen. Uncheck the **Open data item selector** check box if you don't want to automatically display the Data Item Selector screen when starting a new query.
- **Display wizard on startup** - When the EL-CID program first starts, an optional Startup Wizard is displayed to assist beginning users. Uncheck **Display wizard on startup** to turn this feature off.

- **Display release information on startup** - When the EL-CID program first starts, a screen displaying release information, including how to obtain help, is displayed. Uncheck **Display release information on startup** to turn this feature off.
- **Use mouse to enter point values in curve editor** - In the Curve Editor screen, you may enter curve points or drag them using the mouse. Check **Use mouse to enter point values in curve editor** to turn this feature on.
- **Allow drag and drop in Tree View** - In the Tree View screen, you can copy and paste nodes of the tree using the Windows clipboard. If you check **Allow drag and drop in Tree View**, you can also copy nodes by dragging them with the mouse.
- **Include XML-Schema (export.xsd) in export files** - EL-CID export files are in XML format. If you want the export file to include the XML-Schema as well, check **Include XML-Schema (export.xsd) in export files**. (advanced users only)
- **Warn about possible viruses when viewing attachments** When you view an attachment from EL-CID, the program will normally warn you about the possibility of viruses, trojans, and other malware that may be in the attachment. Unchecking the **Warn about possible viruses when viewing attachments** box will turn off this warning.
- **Path to Satellite Registration (ITU)** - The **Path to Satellite Registration (ITU)** box is used to tell EL-CID where to find the ITU program (Spacecap), which is used to enter ITU satellite data. If you have the ITU software installed, click the Browse button, and navigate to the ITU program executable file. If you installed the ITU software in the default location, it will be C:\BR\_SOFT\Spacecap\Spacecap.exe.
- **Restore map defaults** button - The EL-CID Locations Map normally preserves your layer settings from one viewing to the next. These settings include color, opacity, and labeling, and also your latest zoom settings. To restore the Map to the defaults used when EL-CID was first installed, click the Restore map defaults button.

**Step 2.** The **Default Units** tab permits you to control the units used to display and print numeric quantities throughout the program. Click in the **field** to select it and click the **Units** to get the drop down list.



You cannot change anything in the shaded columns. Click on the units abbreviation in the **Units** column next to the Data Item whose units you want to change. A pick list of available units drops down.

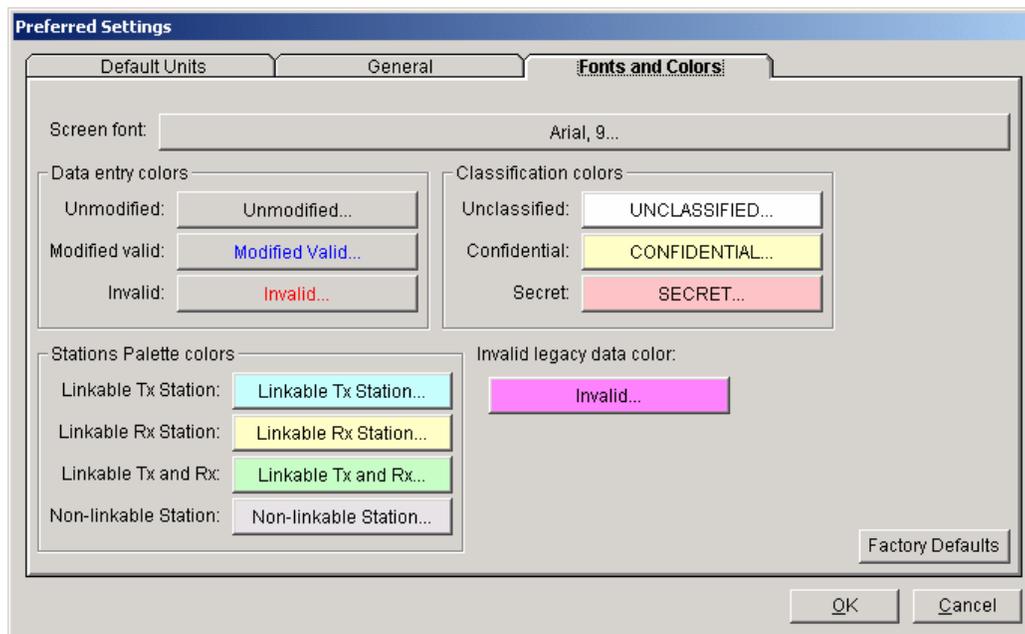


The **Sample** column displays an example of what a quantity might look like in the chosen units. Change the **Significant Digits** to control the rounding of the number displayed.

When you click on a data item, the **Used For** box displays the entities and data items in the database that are affected by changing the units of the highlighted item. The tree view node name is given first, followed by the field name.

**HINT:** Internally, the program always stores numeric quantities using fixed units. Changing the units on this screen only affects how the quantities are displayed. Another user can display the same quantities using different units and significant digits. The program always stores numeric quantities with the number of significant digits entered, but always rounds the display to the Significant Digits preference.

**Step 3.** The **Fonts and Colors** tab permits you change the fonts used in most EL-CID screens and to change the colors used in various places throughout the program. If you wish to use a different font, click the button next to **Screen** font and increase the font size.



The **Factory Defaults** button will restore the default fonts and colors as originally set by the EL-CID install program.

***HINT:*** Do not set the font larger than 12 point Arial, otherwise screens will become too crowded to be usable.

**Step 4.** Click **OK** to save any changes or **Cancel** to exit the screen.

## 3.0 REVIEWING HELP TOPICS

The Help file can be accessed from the EL-CID main menu and is available throughout the program. All items covered in training and many functions available within EL-CID, but not covered in training, are explained in extensive detail.

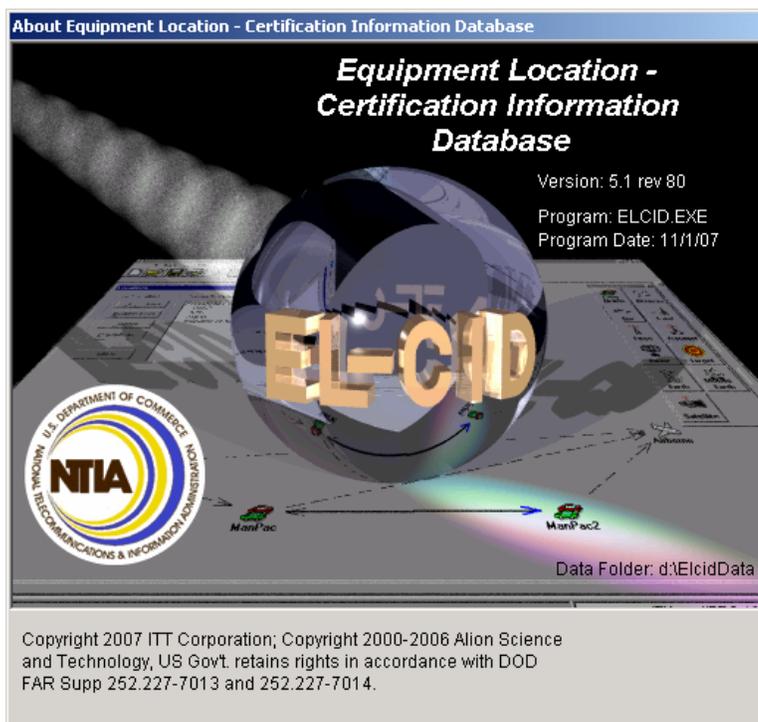
The Help Menu provides:

- **Contents and Index** - Help files for using EL-CID.
- **About**– Displays the **About EL-CID** “splash” window. The installed version number and revision number is available on this window, along with copyright information.

### Step 1. Select Help | About.

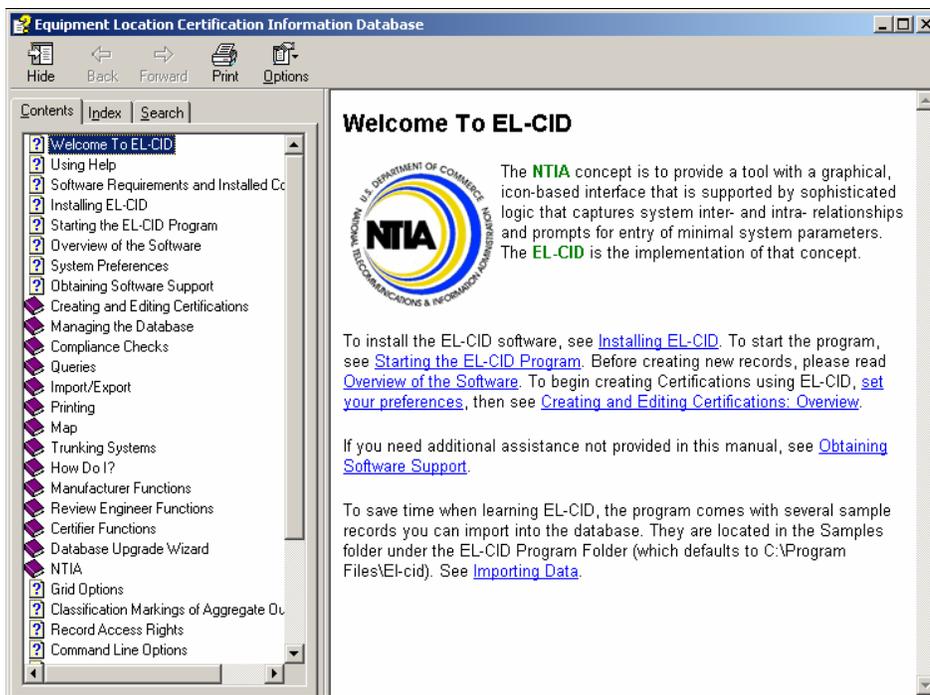


The **About Equipment Location – Certification Information Database** window will be displayed. Note the version and revision number. This will be requested by the help desk when calling for assistance.



### Step 2. Select **OK** to close the window.

The EL-CID help file will be displayed. These help topics have been saved to a Microsoft Word document and saved on the installation CD (**ELCIDHelp.pdf**) and in the Documents folder under the EL-CID program.



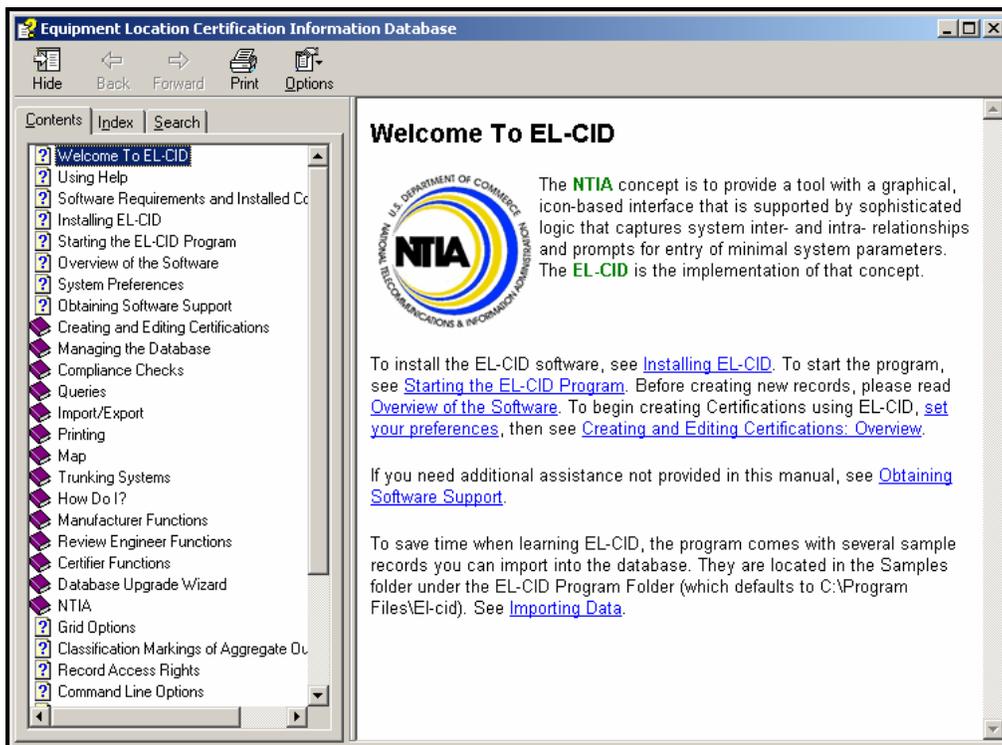
Step 2. **Close** the Help window by **clicking** the close button  in the upper right corner.

### 3.1 NAVIGATING THE HELP FILES

Step 1. **Select Help | Contents and Index**, or **select** the  button.



At the top of the help file screen, five navigation icons are visible (**Hide**, **Back**, **Forward**, **Print**, and **Options**). Directly below these icons are the **C**ontents, **I**ndex, and **S**earch tabs.



### 3.1.1 Icons



**Step 1.** Select the **Hide** navigation icon (note the right arrow on the icon) to hide the Table of Contents, and the **C**ontents, **I**ndex, and **S**earch tabs located on the left side of the window.



**HINT:** Only the right side of the screen will be visible with the navigation icons (**S**how, **P**rint, and **O**ptions) available. This enables you to view only the file desired.



**Step 2.** Select **Show** (note the left arrow on the icon) to restore the Table of Contents and the **C**ontents, **I**ndex and **S**earch tabs) available on the left side of the program screen.



**HINT:** The right and left arrows on the **Hide** and **Show** icons indicate the respective display desired – either a full screen (left and right frames) or only the right-hand side of the program screen.



The **Back** icon is grayed out until a topic has been opened and more than one topic has been accessed. Select the **Back** icon to return to the previous topic.



The Forward icon is also grayed out until more than one topic has been accessed and the back icon has been used. Select the **Forward** icon to display the next topic.

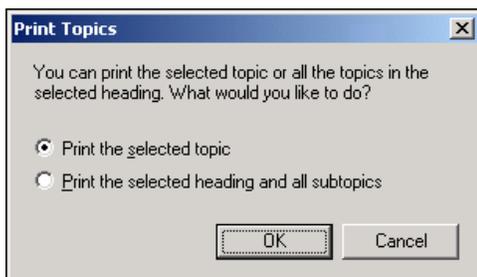
**Step 3.** **Right click** on the right-hand side of the screen to open the drop-down menu with the following options:

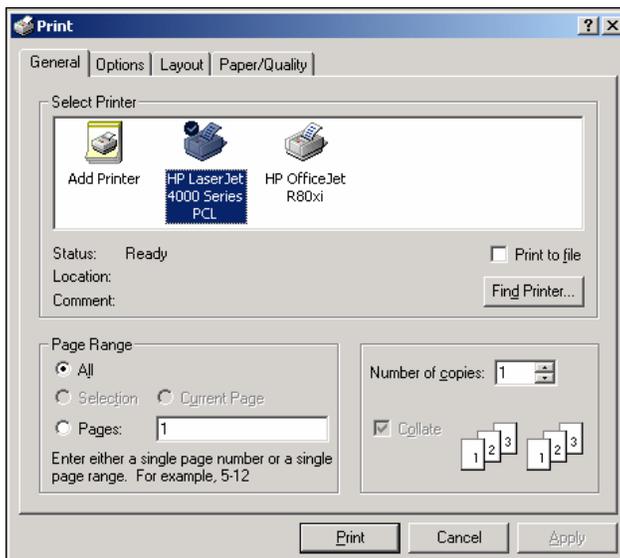


- **Back** - Used to re-access a previously opened screen.
- **Forward** - Used to move to the next topic that had been viewed.
- **Select All** - Used to select the entire contents of the right-hand screen (entire topic). All of the selected information can then be printed or copied.
- **View Source** - Used to view the HTML Source Code using Notepad.
- **Print** - Used to open the **Print** screen and print files or portions of files.
- **Refresh** - Used to refresh and resave the current screen displayed.
- **Properties** – *Not Applicable* in EL-CID.



**Step 4.** Click the **Contents** tab and then select the **Print** icon to print the current topic or multiple topics within the book. The first screen below is displayed when a topic is selected on the **Contents** tab; the second screen below is displayed when a topic on the **Index** or **Search** tab is selected for printing. Enter the appropriate information on the **Print Topics** screen or the **Print** screen.

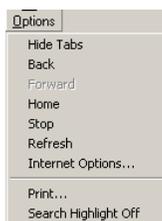




**Step 5.** Click **Cancel**.



**Step 6.** Select the **Options** icon to display the drop-down menu with the following options.



- **Hide Tabs** - Used to hide the tabs on the left side of the screen. This is the same function available using the **Hide** icon.
- **Back** - When available this will display the previous help topic that had been viewed.
- **Forward** - When available, this will display the next topic that had been previously viewed.
- **Home** - Used to return to the default page.
- **Stop** - Stops loading a new topic or page.
- **Refresh** - Refreshes the content displayed in the window.
- **Internet Options** - *Not Available*.
- **Print** – Used to print the help topics, as discussed previously.
- **Search Highlight Off/On** - When the menu displays "**Search Highlight Off**" it means that the highlighting option has been activated (because On is not displayed). Words that are searched for (options in the example below) will be highlighted in a darker shade for easy recognition.

Mean **power** = peak **power** X duty cycle

When the menu displays "Search Highlight On" it means that the highlighting option has been deactivated (Off is not displayed). Words that are searched will not be highlighted.

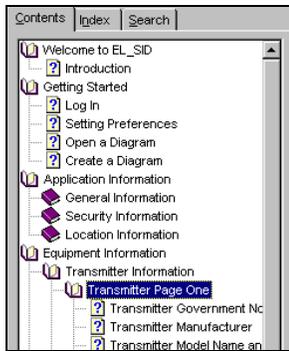
$$\text{Mean power} = \text{peak power} \times \text{duty cycle}$$

### 3.1.2 Help Tabs

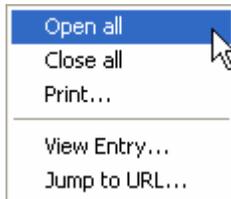
#### 3.1.2.1 Contents

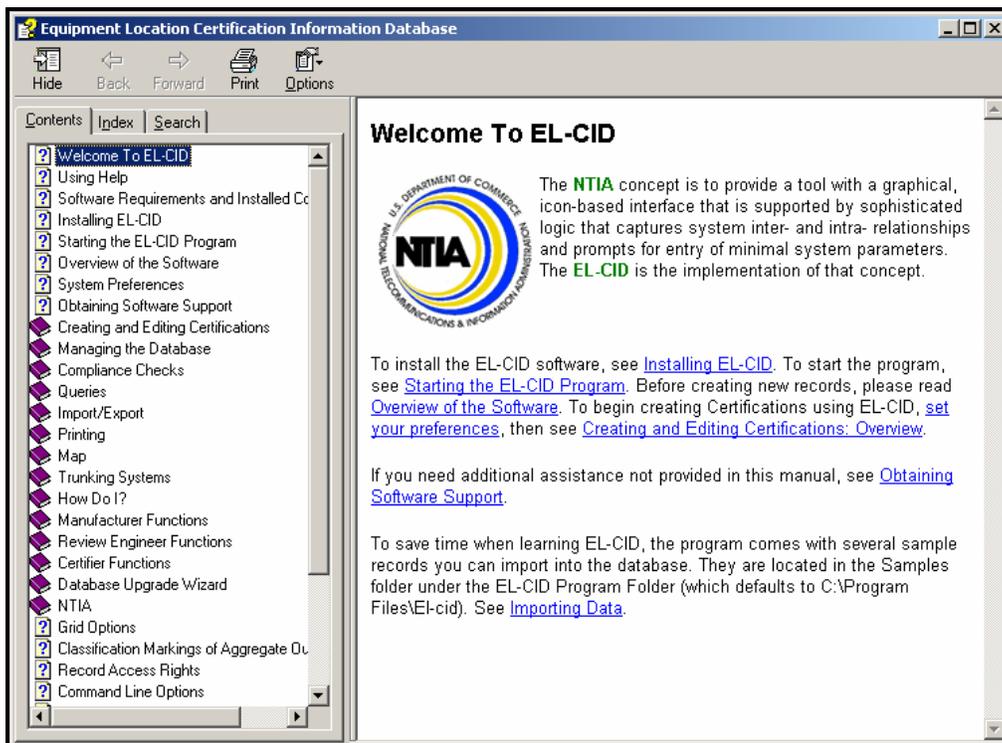
**Step 1.** Select the **Contents** tab to view the **Table of Contents**,

Scroll to search for the desired book **Getting Started** or topic **Log In**. **Highlighting** a topic will immediately display the topic information on the right of the screen. Double-clicking on a **book** will display subtopics of the book.



A drop-down list containing three options will appear if the user places the mouse pointer anywhere on the toolbar or Table of Contents and right-clicks the mouse. This is only available when the user has selected the Contents tab.





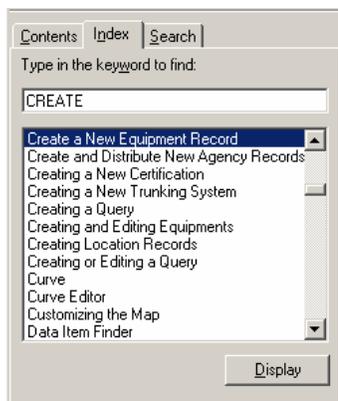
Notice the **GREEN BOLD** letters and the **blue bold underlined** text. The green bold letters are acronyms and, when clicked, display expanding text that defines the acronym. The blue bold underlined text is a hyperlink to other help topics.

**Step 2.** Click **EL-CID**. The acronym expands to display **(Equipment Location Certification Information Database)**.

**Step 3.** Click **Creating and Editing Certifications: Overview**. That topic will be displayed.

### 3.1.2.2 Index

**Step 1.** Select the **Index** tab and type in the keyword to be found, **CREATE**. The keyword list will be displayed automatically, with an alphabetic list of keywords and the first topic entry highlighted that begins with the keyword entered.

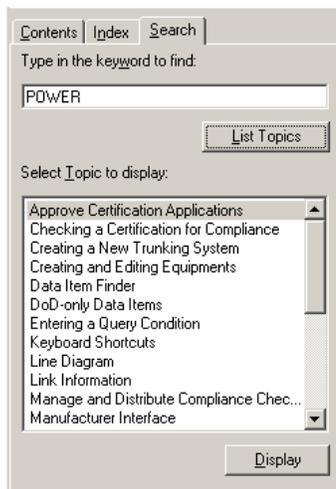


**Step 2.** Click **Display**. If this is the desired topic. Otherwise, highlight another topic and then click **Display**.

### 3.1.2.3 Search

**Step 1.** Select the **Search** tab and type in the keyword to be found, **POWER**.

**Step 2.** Click **List Topics**. A list of topics containing the selected keyword will be displayed. **Highlight** the desired topic and click **Display**. The topic will be displayed on the right of the screen with every occurrence of the keyword highlighted.



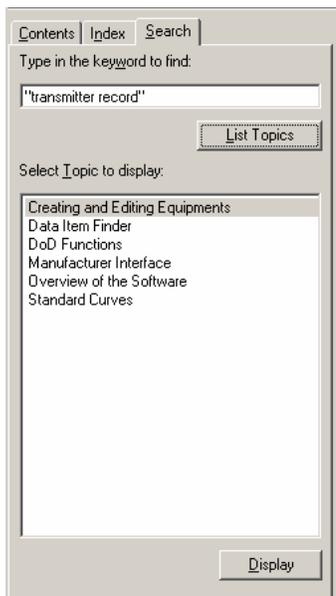
**Step 2.** Double-click the first topic **Creating and Editing Equipments**. Note the word power is highlighted throughout the Help topic.

**Step 3.** If you want to find a specific phrase of two or more words, you must enclose them within double quotes. Type in **transmitter record**, then click **List Topics**.



Notice how many topics were found. These topics contain the word **transmitter** or the word **record** somewhere in them.

**Step 4.** Type **“transmitter record”** and click **List Topics**.



The screenshot shows a search window with three tabs: 'Contents', 'Index', and 'Search'. The 'Search' tab is active. Below the tabs, there is a text input field containing the search term '"transmitter record"'. To the right of the input field is a button labeled 'List Topics'. Below this is a section titled 'Select Topic to display:' followed by a list of search results: 'Creating and Editing Equipments', 'Data Item Finder', 'DoD Functions', 'Manufacturer Interface', 'Overview of the Software', and 'Standard Curves'. At the bottom right of the window is a button labeled 'Display'.

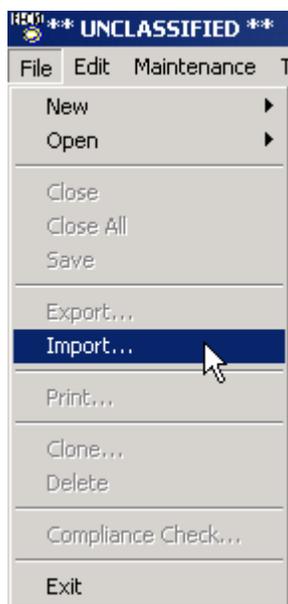
Notice that the number of topics has been reduced. These topics contain the phrase **transmitter record** only.

(This page intentionally left blank.)

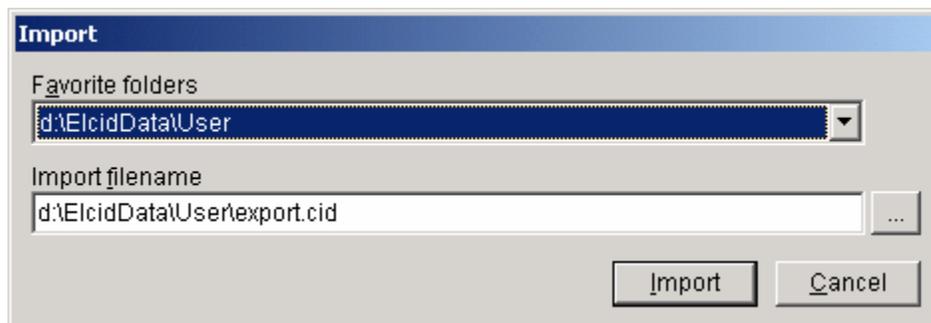
## 4.0 UPDATING NTIA DATA

From time to time, NTIA will issue data updates. For example, NTIA may distribute approved Certification records, or updated Compliance Checks. These updates will typically be posted on the EL-CID Support Center Web Site for you to download. Updates will be announced by e-mail to all users on the mailing list. (The Internet address for the web site is given on the inside cover of this manual.) In this chapter, we will apply some data updates to the EL-CID database by importing records from files on the Training CD.

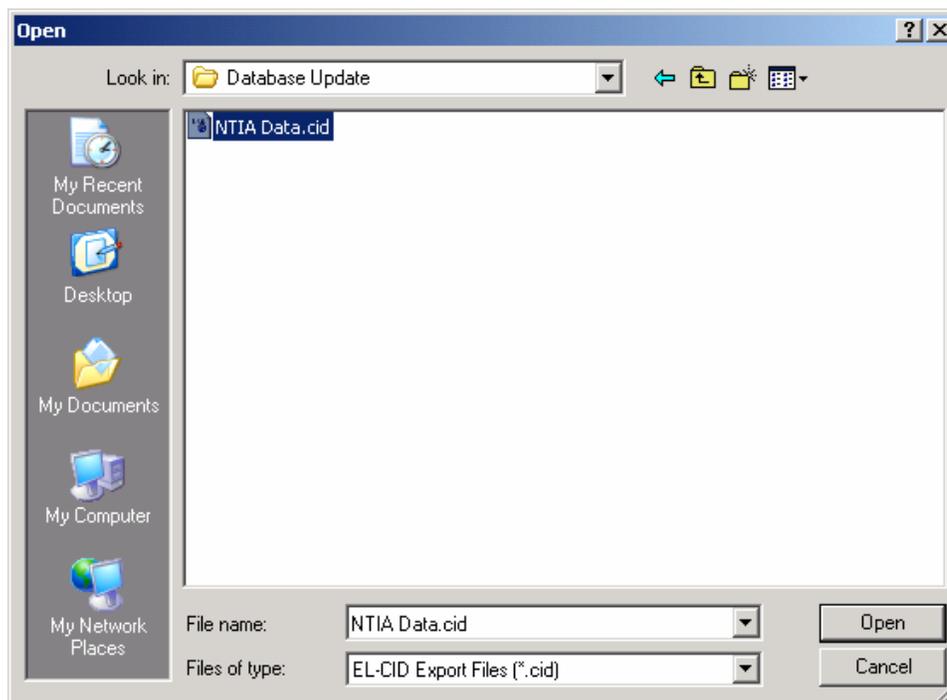
**Step 1.** **Insert** the training CD in the CD drive. If Autorun appears, **click** Cancel. **Click** the **Import** button  on the tool bar, or from the **File** menu, **select Import**



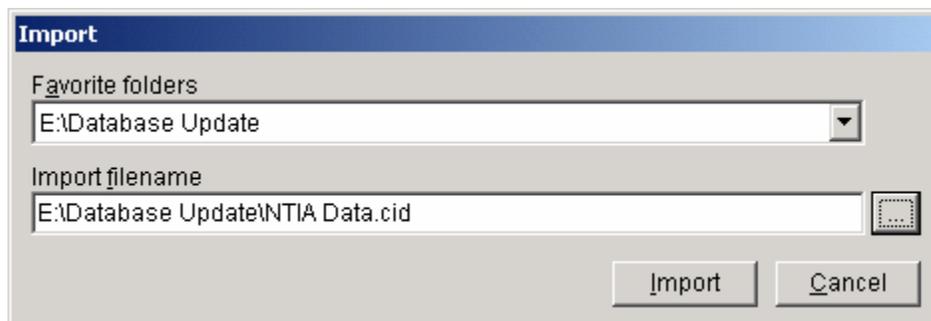
The **Import** window is displayed.



**Step 2.** Click the **browse** button  to select the file to import. The folder we are using for training is on the Training CD and called **Database Update**. Highlight the filename **NTIA Data.cid** and then **click Open**.



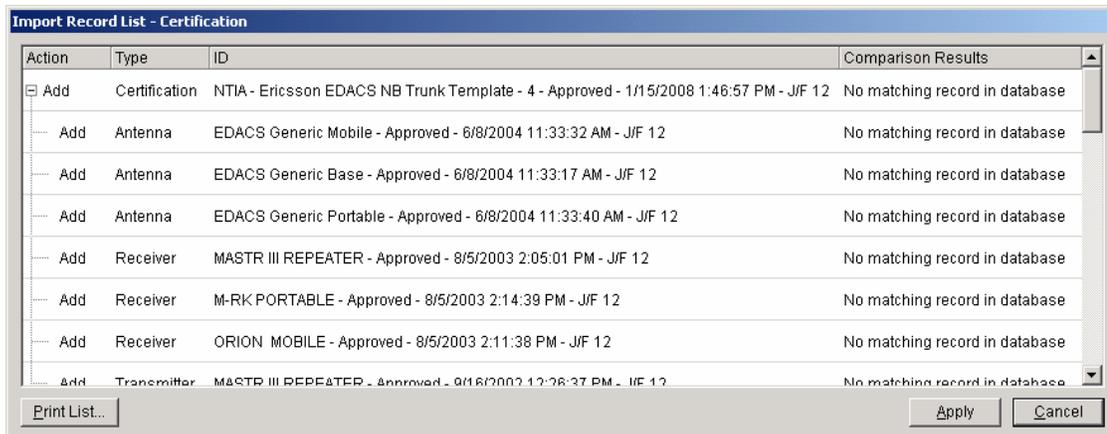
The **Import** window displays the selection.



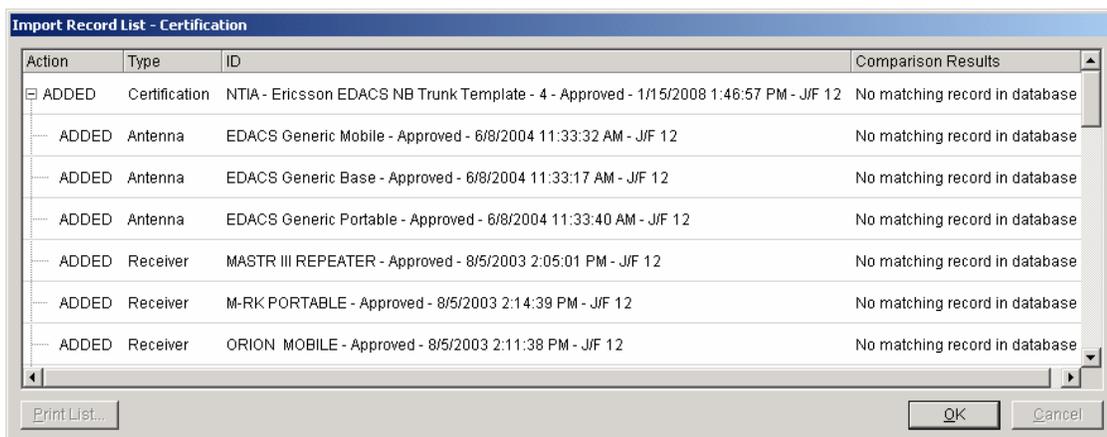
**Step 3.** Click **Import**. A progress window is displayed followed by the **File Description**.



**Step 4.** Click **OK**. The **Import Record List - Certification** window is displayed.



**Step 5.** Click **Apply**. The **Progress** window is briefly displayed and then the **Import Record List - Certification** window is again displayed.



Notice that **Add** changes to **ADDED** in the **Action** column. At this point, the records have been added to the local EL-CID database.

**Step 6.** Click **OK** to close the window.

The procedure for importing updated Compliance Checks is similar to above, but slightly different. If your instructor tells you to, turn to Appendix C and follow the instructions there to import updated Compliance Checks.

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## 5.0 CREATING A NEW CERTIFICATION

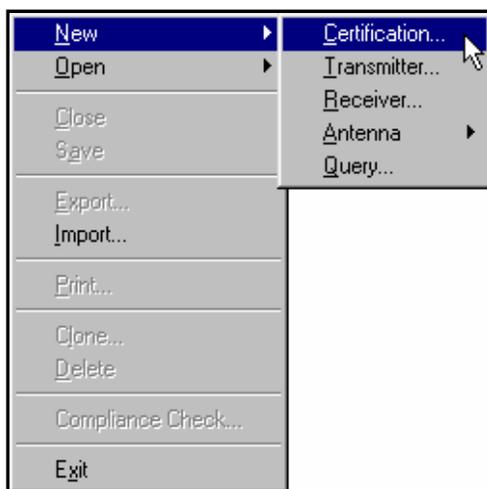
The main purpose of EL-CID is the creation and maintenance of Certification Applications along with their supporting equipment and location data. When you create a Certification Application, the first thing you normally do is to create a line diagram which is a logical picture of the system.

Next, you add Transmitter, Receiver, and Antenna equipment records to the stations. You may use existing equipments in the database, or create new ones.

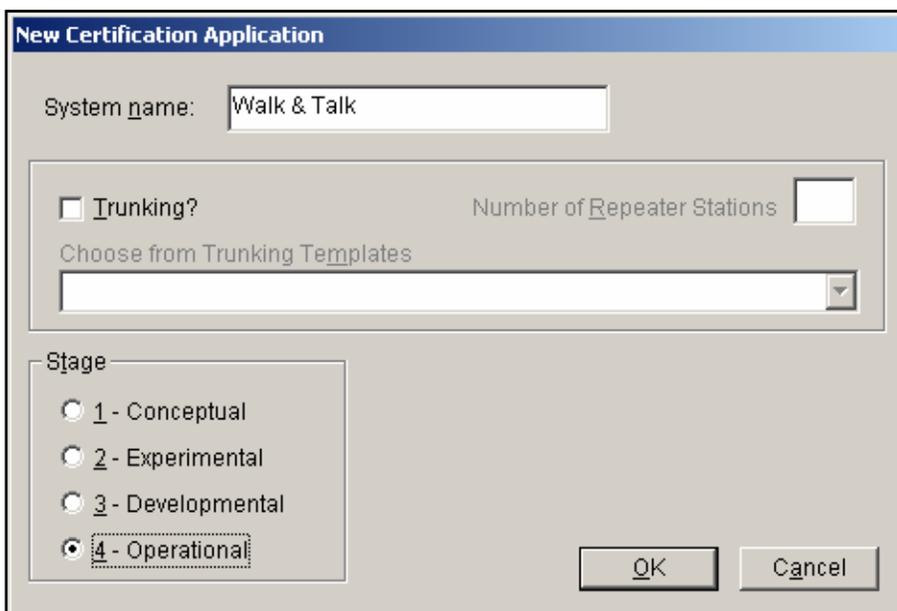
Next, you specify Locations where you want the equipment to be certified for use.

Finally, for each Link in the diagram, you select Station Class(es), select the transmitting and receiving equipment(s), and select the modes (frequencies, powers, and emissions) to be certified

**Step 1.** Click the **Create New Certification** button  on the tool bar or from the **File** menu **select New | Certification**.



The **New Certification Application** window is displayed.

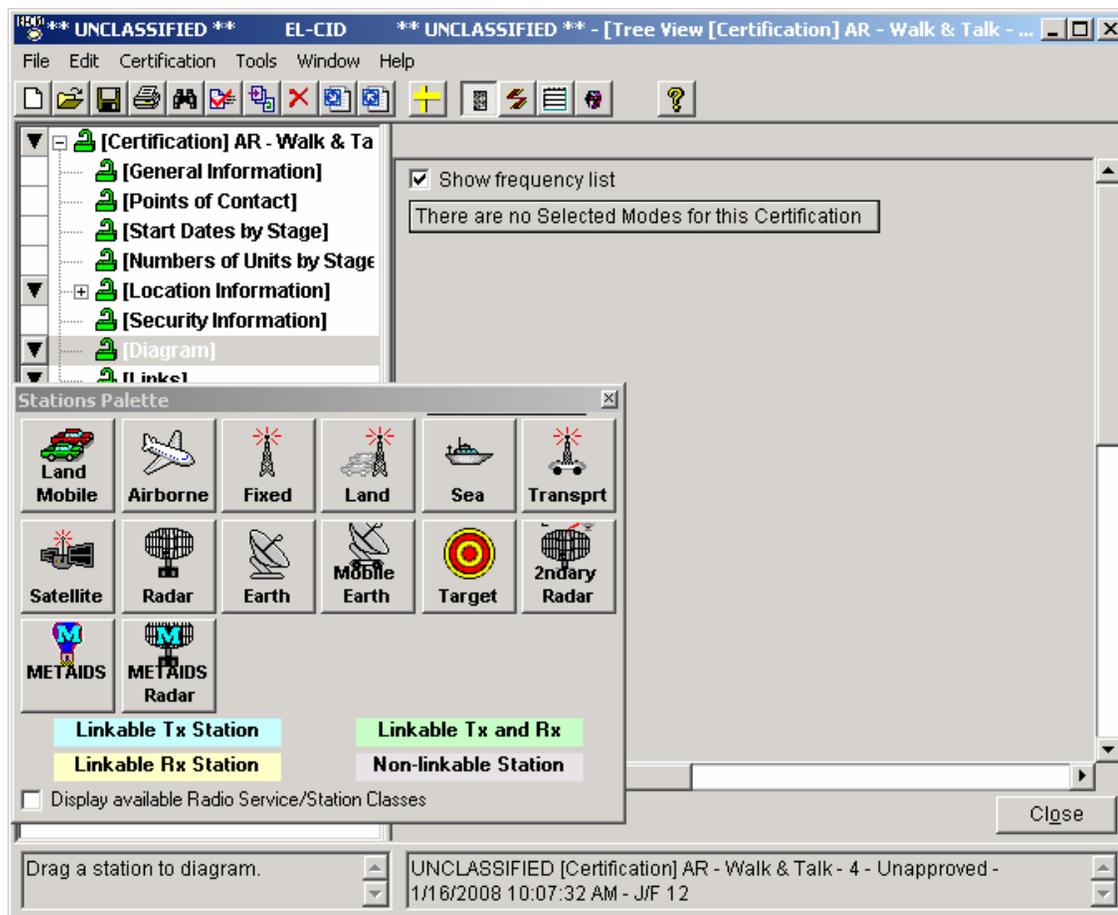


Step 2. Enter the following data and then click OK.

Field	Value
System name	Walk & Talk
Stage	4-Operational

**HINT:** You may not use the word “and” in a System Name. You may use the ampersand or “AND” (uppercase).

The **Tree View** is displayed with a blank Line Diagram automatically selected and the **Stations Palette** displayed. (When creating a new Certification Application, the Stations Palette is automatically displayed.)

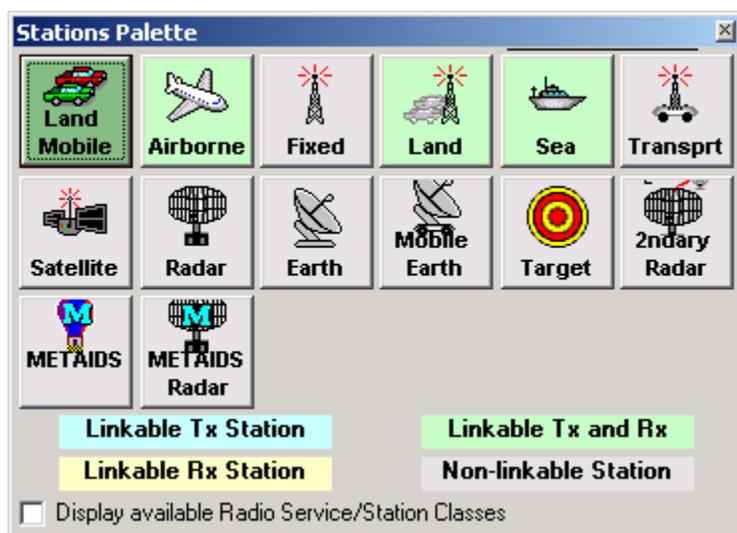


## 5.1 Selecting Stations

The Line Diagram is used to create a logical picture of a Certification system. The diagram consists of one or more named Stations depicted by icons, which you create by dragging onto the diagram. Links between stations are drawn as arrows from the transmitting Station to the receiving Station. In some cases, a reverse link also exists and is drawn as a single line with arrows on both ends.

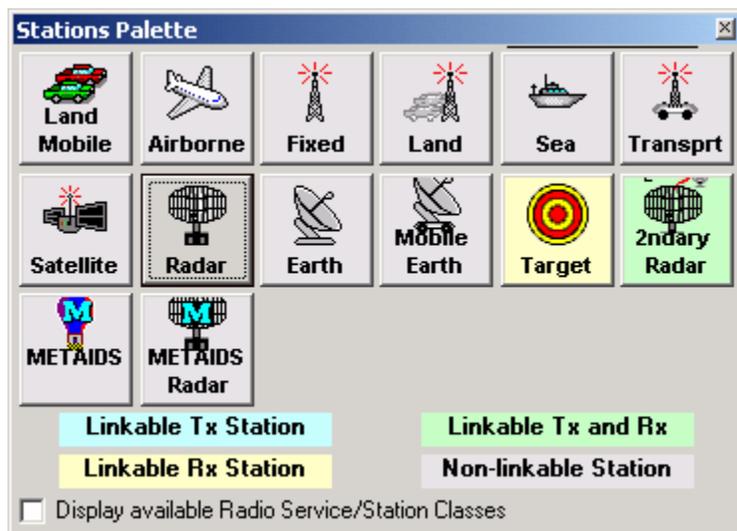
You are about to create a diagram by dragging icons from the **Stations Palette** to the **Diagram** drawing area. There are rules about which icons can be linked to each other. These rules are displayed using various colors on the **Stations Palette**.

**Step 1.** On the **Stations Palette** window, **click** (but do not drag) the **Land Mobile** icon.



The icon colors indicate that one may draw a link from a **Land Mobile** icon to an **Airborne**, **Land**, or **Sea** icon. One may also draw a link from any of these three icons back to a **Land Mobile** icon. Because the **Land Mobile** icon is a darker green color, one may also draw a link between two **Land Mobile** icons.

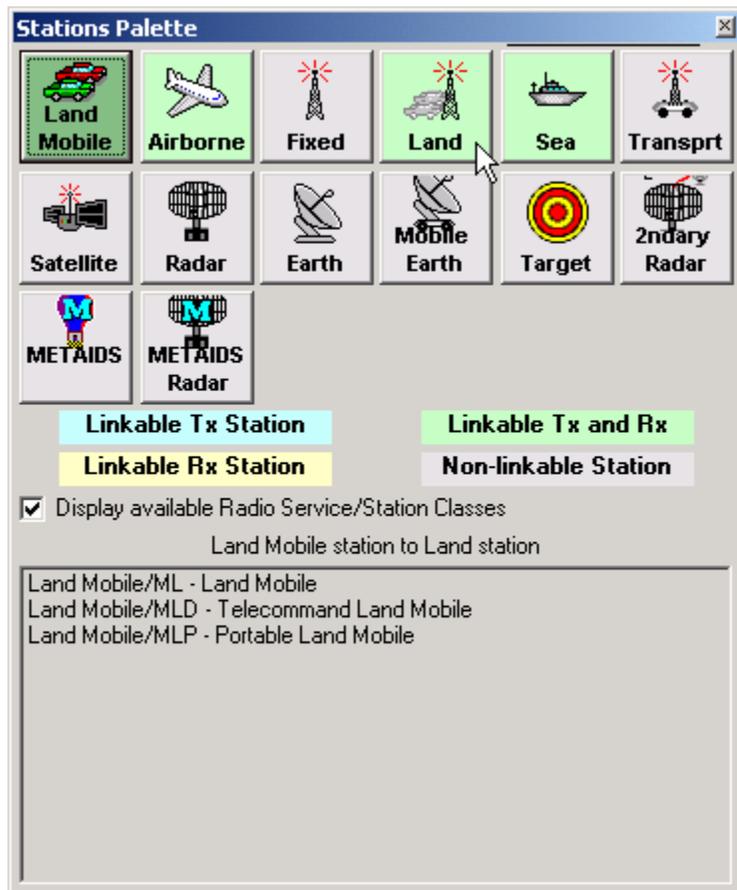
**Step 2.** **Click** (but do not drag) the **Radar** icon.



One may draw a link from a **Radar** icon to a **Target** icon, but not from a **Target** to a **Radar**. One may draw a link from a **Radar** to a **2ndary Radar**, or the reverse. One may not draw a link between two **Radar** icons.

The icons that you choose for your diagram determine the Radio Services and Station Classes available for the links between them.

- Step 3.** On the **Stations Palette** window check the **Display available Radio Service/Station Classes** check box. **Click** the **Land Mobile** icon, then move the mouse pointer so that it is positioned over the **Land** icon, but do not click.



The panel at the bottom of the **Stations Palette** informs us that when a link is drawn from a **Land Mobile** icon to a **Land** icon, one may only choose from Radio Service **Land Mobile**, and Station Classes **ML – Land Mobile**, **MLD – Telecommand Land Mobile**, and **MLP – Portable Land Mobile**.

**HINT:** Remember that the panel shows available choices from the selected icon to the icon under the mouse pointer.

- Step 4.** **Click** on the **Land Mobile** icon and **drag** it to the drawing area on the right.

The **Change Station Name** window is displayed with Land Mobile as the station name.

- Step 5.** **Type WAT1** and then **click OK**.

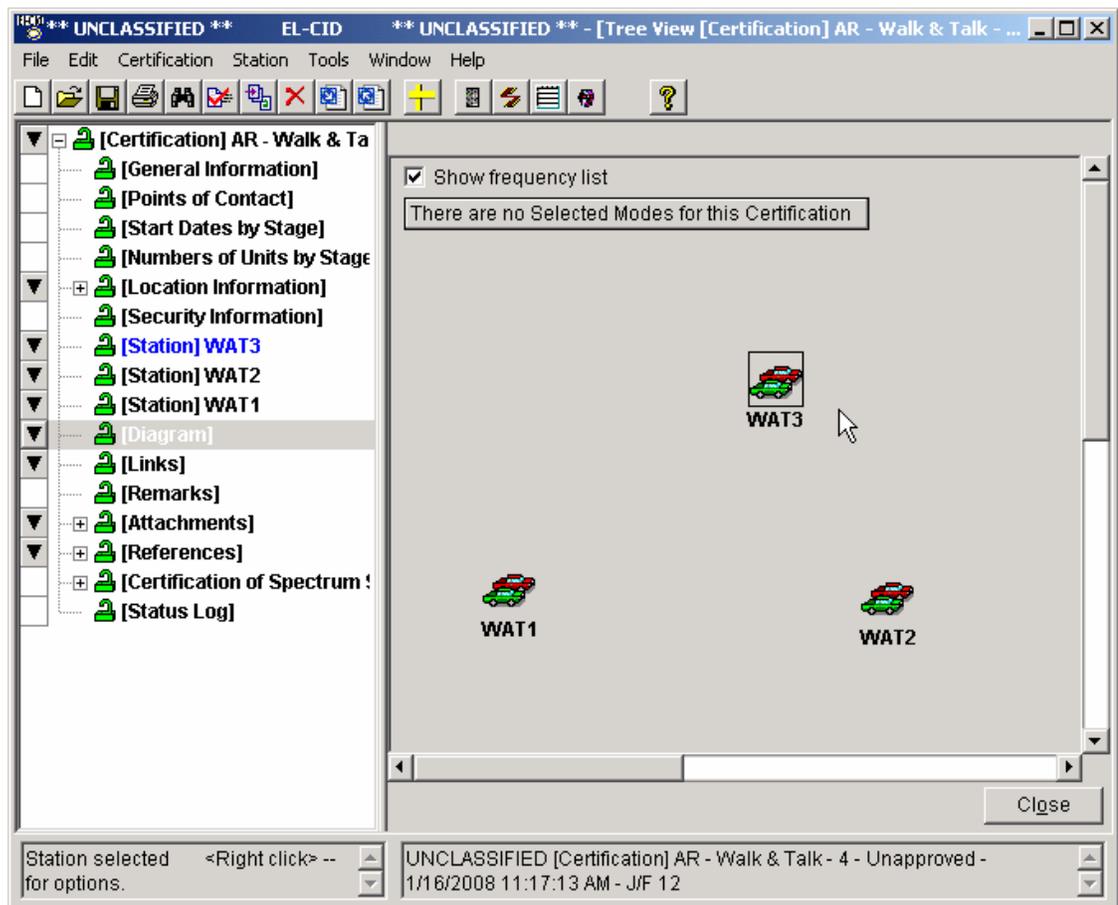


**Step 6.** Drag two more Land Mobile icons to the drawing area and name them WAT2 and WAT3.

**Step 7.** Close the palette using the X in the upper right or by clicking the Stations Palette button  on the tool bar.

**HINT:** The **Stations Palette** may be redisplayed by clicking the Stations Palette button again.

The diagram will resemble the following.



**HINT:** You may move the Stations by clicking and dragging them.

**HINT:** When you hover the mouse pointer over an icon, the station type pops up in a small yellow box.

**Step 8.** Click on the WAT3 icon. Notice that a box is drawn around the WAT3 icon, indicating that it is selected. [Station] WAT3 is highlighted in blue in the tree view outline on the left. The status panel in the lower left corner indicates that a station has been selected.

**HINT:** If you right-click on an icon, a context menu pops up. One of the choices is **Rename**, which will permit you to change the name of a Station. To avoid confusion, make sure your Stations are named WAT1, WAT2, and WAT3 as you see in the picture above.

## 5.2 Drawing Links between Stations

Links between stations are drawn as arrows from the transmitting Station to the receiving Station. There can be only one link from any given transmitting Station to a receiving Station. In some cases, a reverse link also exists and is drawn as a single line with arrows on both ends. You draw a reverse link so that the receiving Station also becomes a transmitting Station and the transmitting Station also becomes a receiving Station. The link lines remain as dotted until certain parameters are set for each link.

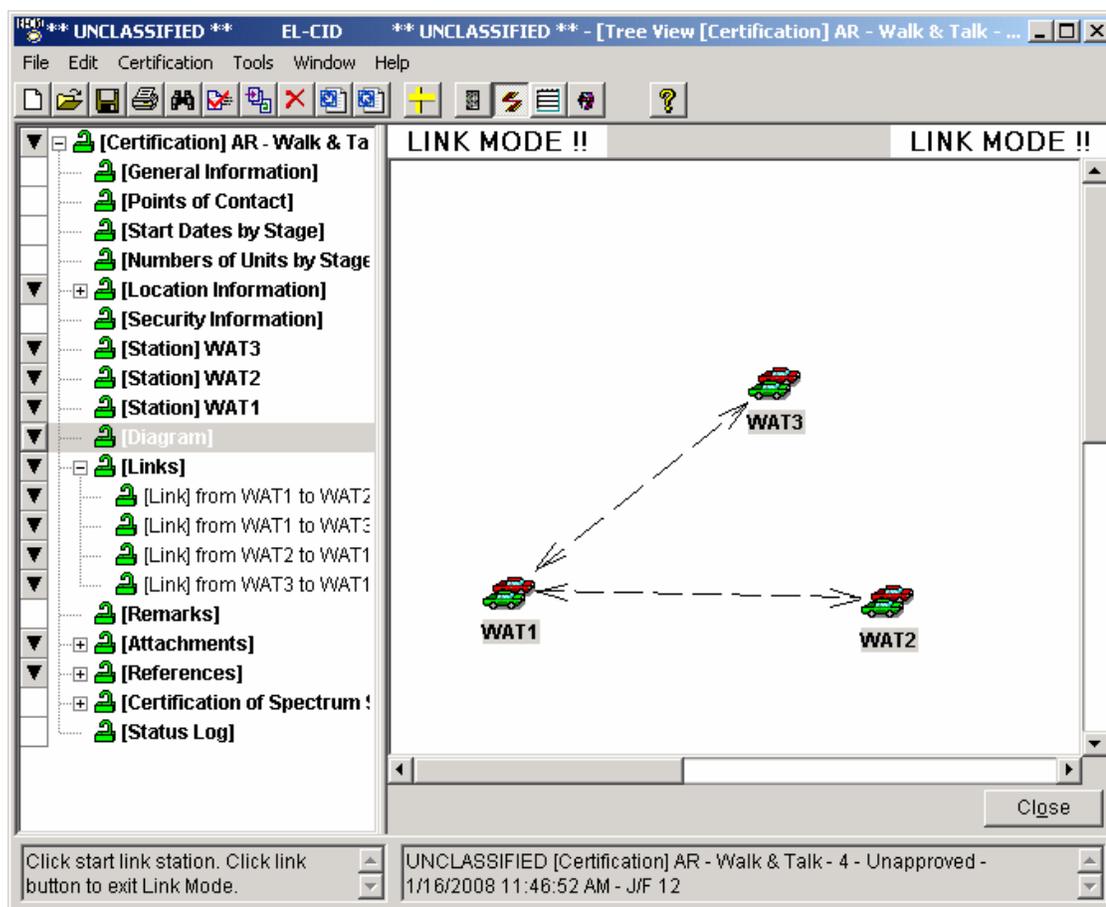
**Step 1.** Click the **Create New Links** button  on the tool bar. The words **LINK MODE !!** appear at the top of the diagram, and the screen changes color, whenever the program is in Link Mode.

**Step 2.** Click **once** on the transmitting station **WAT1** icon, and then **click once** on the receiving station, **WAT2** icon. A dotted line will be drawn between the stations, with an arrowhead at the receiving end of the link. Notice that the link was added to the tree view.

**HINT:** Watch the status panel in the lower left corner. It will indicate which step you are on while drawing links.

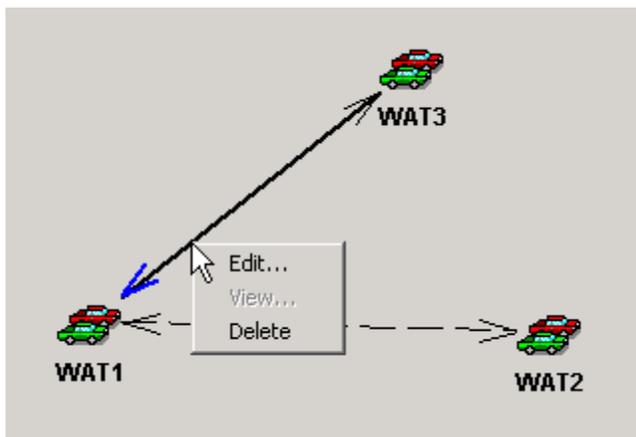
**HINT:** If it is not permitted to draw a link between two Stations, the mouse pointer will change to . For example, it is not permitted to draw a link from a Station to itself. In fact, this is a handy way to cancel drawing a link -- if you start a link by clicking on the wrong Station, click the same Station again.

**Step 3.** Draw additional links **from WAT2 to WAT1** and **from WAT1 to WAT3** and **from WAT3 to WAT1**.



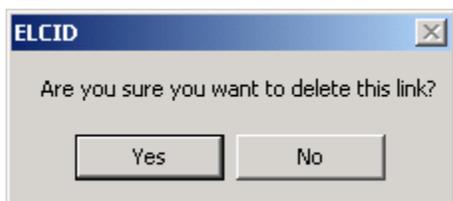
**Step 4.** Click the **Create New Links** button  on the tool bar. The words **LINK MODE!!** will disappear from the top of the diagram and the screen will change color.

**Step 5.** In Step 3 above, we purposefully made an error. We should not have drawn a link from WAT3 to WAT1. Now we want to delete that link. **Right-click** on the **link line near to the WAT1** icon and select **Delete** in the menu that pops up.

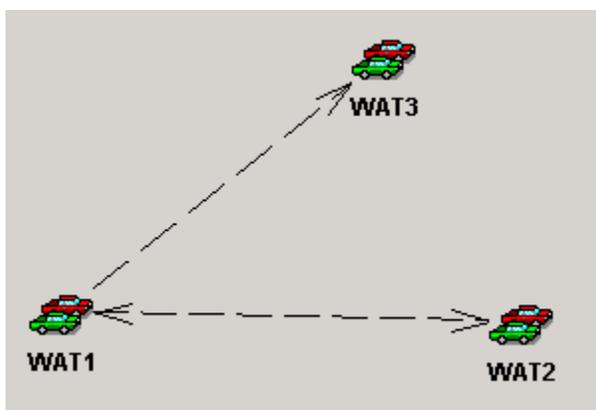


**HINT:** Note where the mouse pointer is in the picture above at the moment the user right-clicked. It is near the **WAT1** end of the line, but not too close to the end, otherwise the user would select the WAT1 Station and not the link. Also notice how the arrowhead has turned blue, indicating which link is selected.

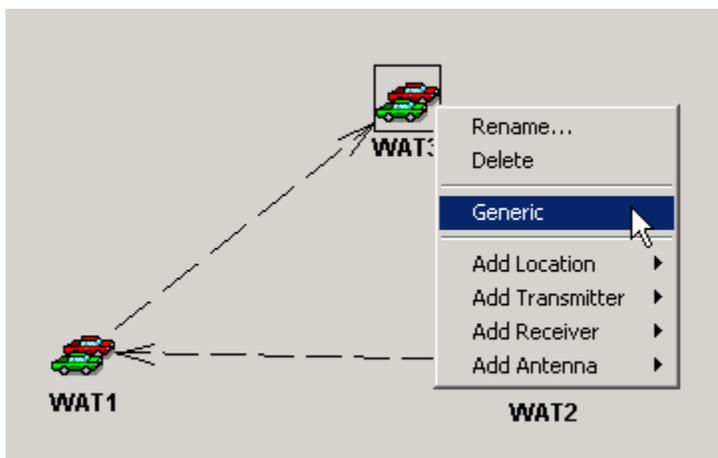
When you select **Delete**, the following window appears.



**Click Yes.** Your diagram should now look something like this.



**Step 6.** Right-click on the **WAT3** Station icon, and then click **Generic** in the popup menu that is displayed,



A shaded background is displayed around the Station icon to indicate that it is generic.

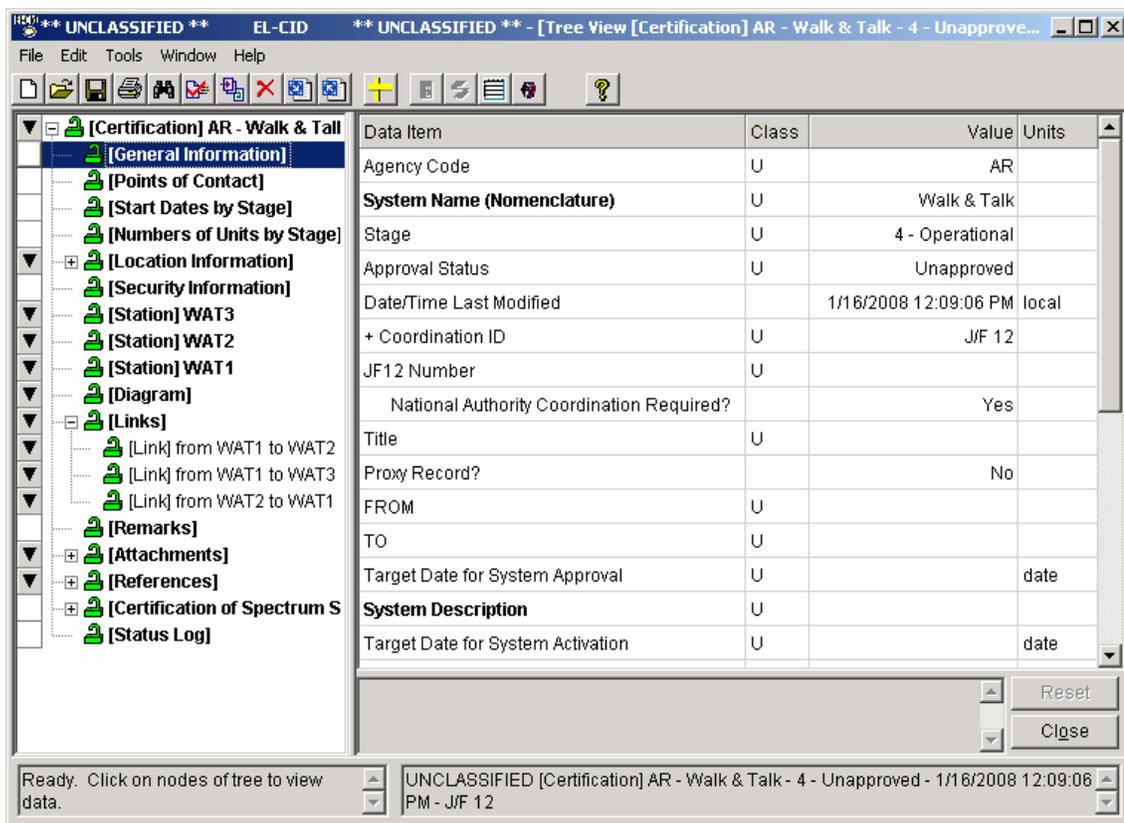


**HINT:** A generic icon does not allow receiving equipment data to be entered. The generic icon may be used as a termination for a link but cannot be used as a transmitting station. The transmitting station (**WAT1**) is now able to enter the link data between the transmitter and the generic station.

### 5.3 Entering General Information

The Tree View is the main screen for entering Certification and equipment data. The Tree View has two main panels -- the tree on the left and the data entry panel on the right. The tree panel on the left displays the parts of the record in a tree-like outline (hence the name Tree View). Each node has a type in square brackets and (for some nodes) a name. When you single-click on a node of the tree, the right-hand panel displays all the data item fields for that node.

**Step 1.** Click on the **General Information** node in the tree view.



**Step 2.** Enter the following information by clicking in the appropriate field and entering the information.

Field	Value
Target Date for System Approval	10/30/2009
System Description	This unit is a small, lightweight radio capable of providing two-way ground communications
Target Date for System Activation	10/30/2010
Target date for System Termination	10/30/2020

**HINT:** If entering data with units, select the units first, then enter the data. Check each data field to determine if there is a drop down list (indicated by ) , an expanded text/memo field or user select list (indicated by  ). Entries in **BLUE** indicate that the data is in the correct format. Entries in **RED** indicate that there is a problem with the data format. Data items in bold are required data items.

**HINT:** There are several fields in the **General Information** node that are only visible when logged in as a DoD agency. If not logged in as DoD, they are hidden. These items include:

**National Authority Coordination Required?**

**Title**

**FROM**

**TO**

**Extent of Use**

**Number of Units in Same Environment**

**System Cost Comments**

When you click on these items, **DoD Only** appears in the description block near the bottom.

**Step 3.** Save the data you've entered by **clicking on any node in the tree view** (including the node you are working on), or by **clicking the Save button** . When saved, the data will turn **BLACK**.

**HINT:** At any time before saving the data, you can click the **Reset** button to restore the node to its previous state, discarding your changes.

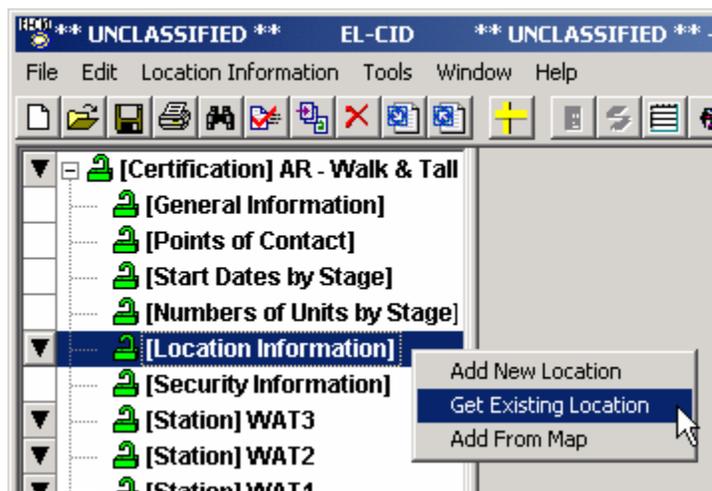
**WARNING:** Do not click the **Close** button in the lower right corner. This will save the data, but it will also close the Tree View screen and return to the main window! If you inadvertently do this, use the Open button  on the tool bar to reopen the Walk & Talk system.

## 5.4 Entering Location Data

Before approving a Certification Application, NTIA needs to know where you will operate the equipment. You do this by adding Location records to the Certification record in the Tree View. Where you should place Locations within a Certification depends upon the kind of system you are certifying. Refer to the Help for requirements

Locations are separate records in EL-CID, which means they may be separately displayed, created, edited, queried, imported, and exported using EL-CID capabilities. They may be used in more than one Certification record.

**Step 1.** Right-click on the **Location Information** node in the tree view, then click **Get Existing Location**.

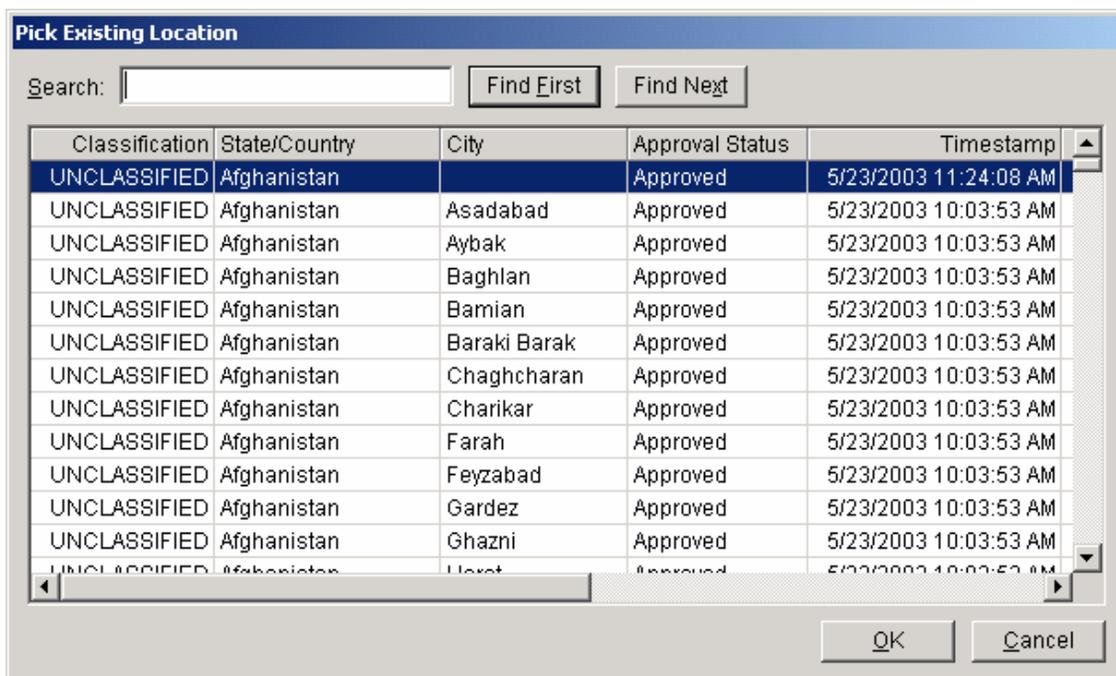


**HINT:** Another way to pop up menus on the tree view outline is to click the down arrow button  to the left of the node. A third method is to click the node to select it, and then choose the desired option from the main menu – in this case **Location Information**.

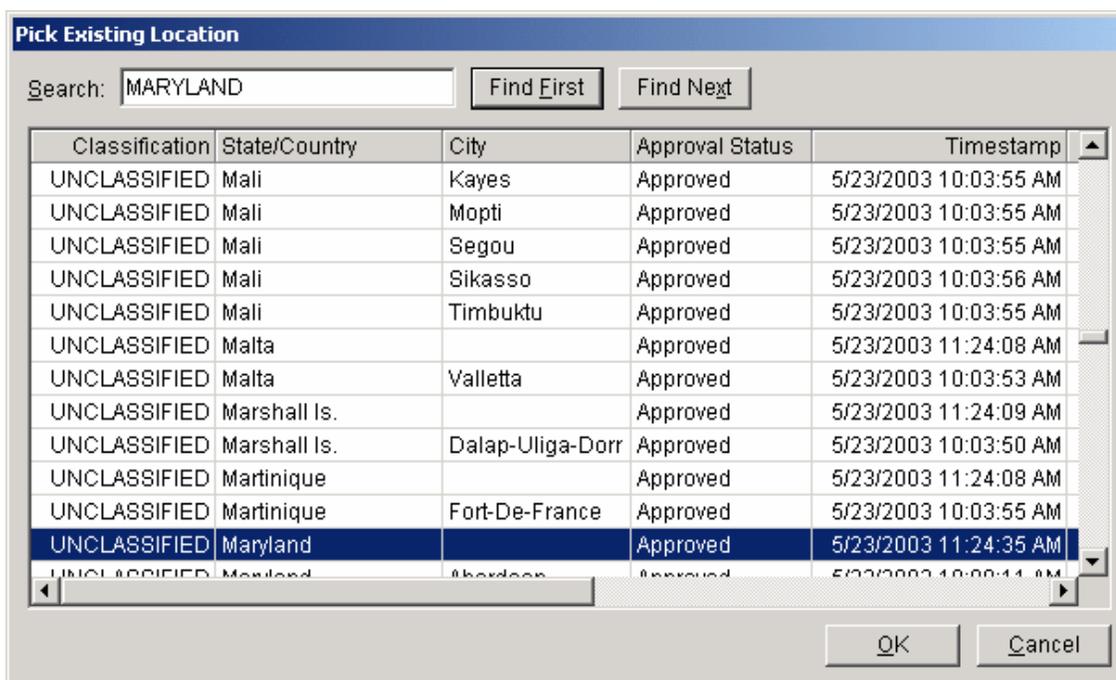
The **Select Stage** window appears.



**Step 2.** With **4 – Operational** chosen (the default), **click OK**. The **Pick Existing Location** window is displayed.

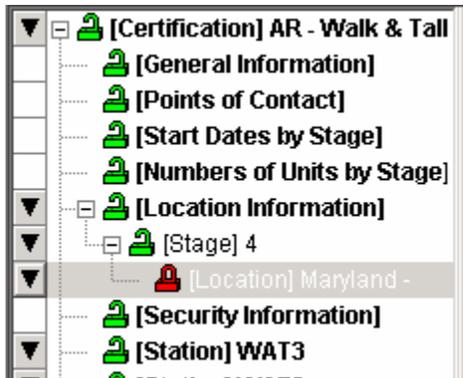


**Step 3.** **Type maryland**, and **click** the **FindFirst** button. The list scrolls down and **Maryland** (without a city) is highlighted.



**HINT:** The Maryland location without a **City** name represents the entire state of Maryland.

**Step 4.** Click **OK** The location data will be added and another entry in the tree view will be created.



The red, closed padlock next to **[Location] Maryland** indicates that this is an Approved location and you are not permitted to alter the Maryland data.

**HINT:** The **Points of Contact**, **Start Dates by Stage**, and **Numbers of Units by Stage** nodes in the picture above only appear because you are logged in as a DoD agency. If you had not logged in as a DoD agency, they would not appear. Similarly, the **Remarks** node only appears when logged in as DoD.

**Step 5.** Next, we'll add a location called Training Area 1 in the state of Virginia. **Repeat Steps 1 and 2** above to display the **Pick Existing Location** window.

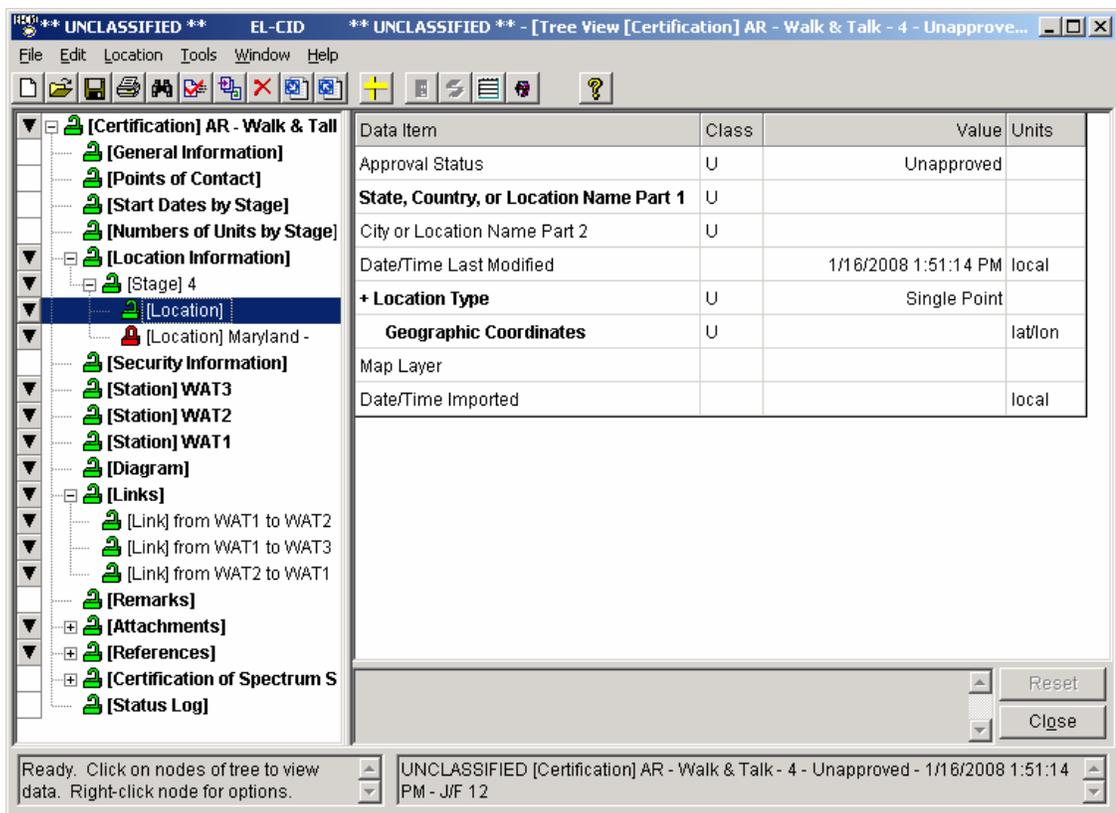
**Step 6.** **Type training area** in the **Search** box and verify that a location with City **Training Area 1** and State/Country **Virginia** does not already exist. **Click Cancel** on the **Pick Existing Location** window to close it.

**Step 7.** To create a new location, **right-click** on the **Location Information** node in the tree view and then **click Add New Location**.



When the **Select Stage** window appears, **click OK**.

The new **Location** data grid is displayed.



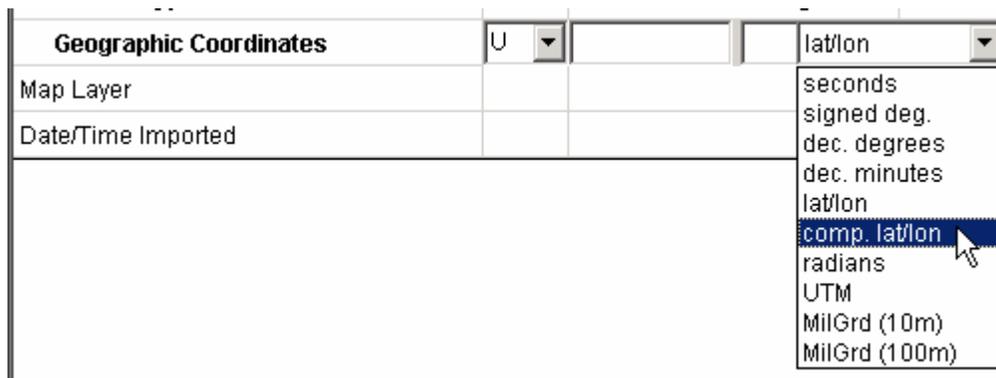
**Step 8.** Enter the following information.

Field	Value
State, Country, or Location Name Part 1	Virginia
City or Location Name Part 2	Training Area 1
Location Type	Center point and Radius
Geographic Coordinates	370000N 0800000W
Radius	100 km

**HINT:** The Geographic Coordinates are divided into two segments in the data item (latitude on the left and longitude on the right). Since the minutes and seconds are zero, you need only type **37N** for the latitude, press **TAB** key, type **80W** for the longitude, and press **TAB** key.

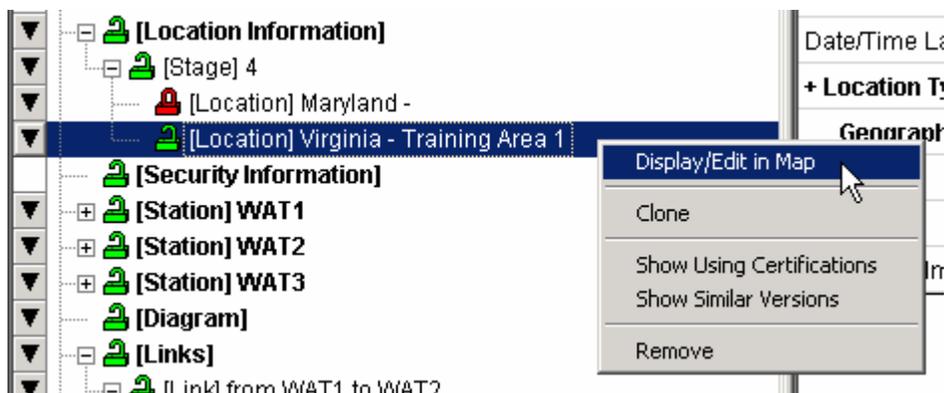


**HINT:** If you are familiar with entering coordinates in SPECTRUM XXI, you can click on the units selector at the right side labeled **lat/lon**. Select **comp. lat/lon** in the drop down list that appears, then type in **370000N0800000W**. When focus leaves the coordinates data item, it returns to the default units format (determined by your Preferences).

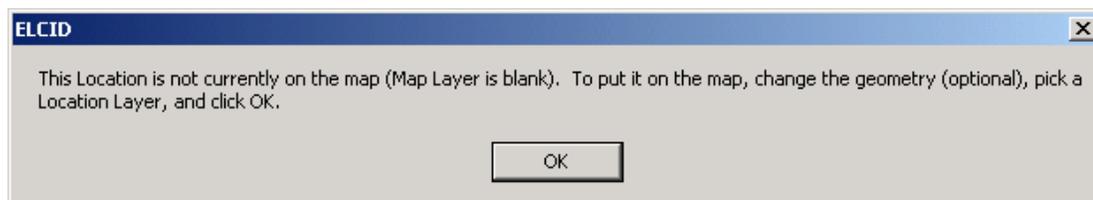


**Step 9.** Save the data.

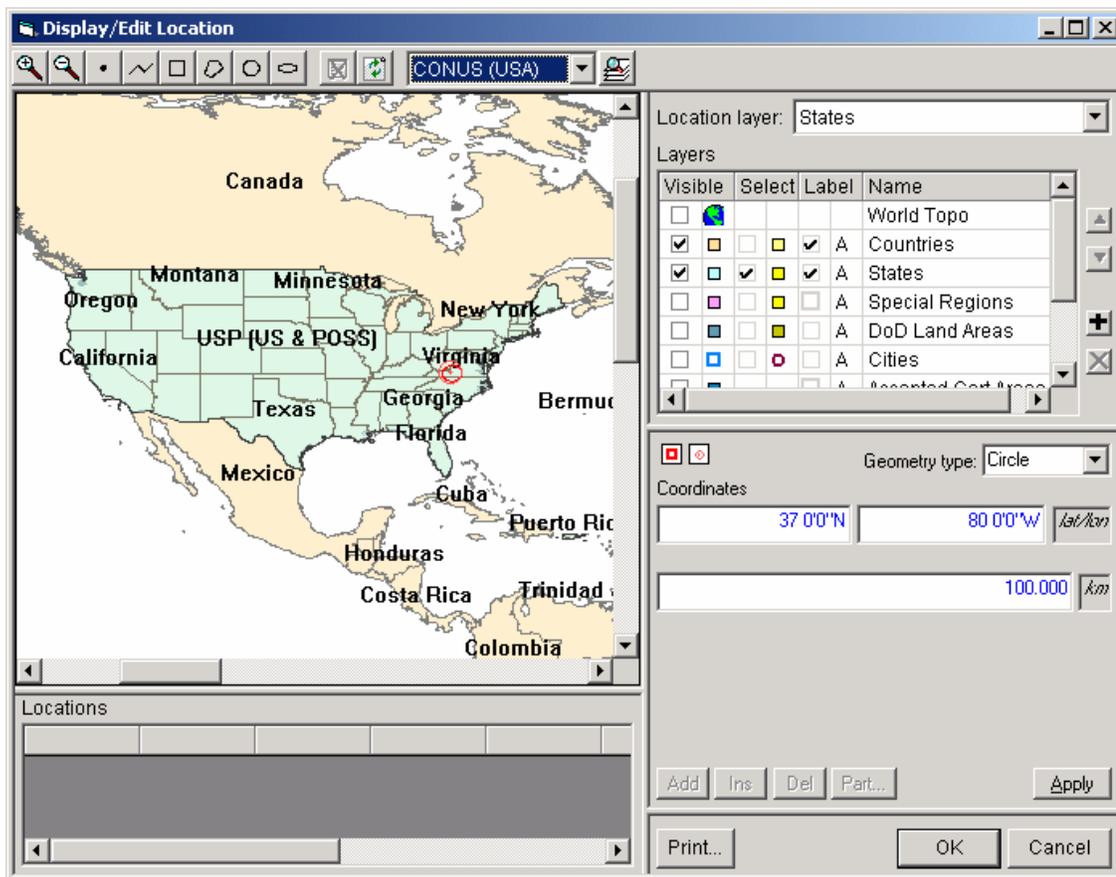
**Step 10.** Notice that the **Map Layer** item may not be edited. To enter the Map Layer, we must put the location “on the map”. To do this, **right-click** on the **[Location] Virginia – Training Area 1** node in the tree view and then **click Display/Edit in Map**.



The following informational dialog appears.



**Step 11.** Click **OK**. The **Display/Edit Location** window appears.



**WARNING:** Do not click anywhere on the map. Doing so will change the coordinates of the **Virginia – Training Area 1** location. If you inadvertently do that, click **Cancel** and go back to Step 10.

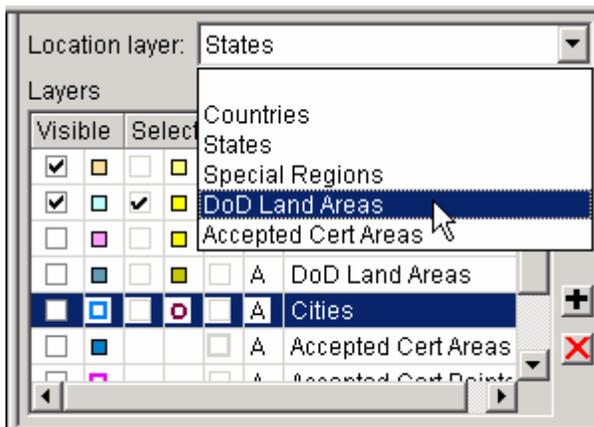
The **Layers** grid in the upper right corner lists the various layers of location data. The map software supports layers of three types, depending upon the type of location geometry that may be stored in the layer:

- Polygon            The layer may contain locations whose coordinates form a polygon, rectangle, or circle. The **Countries**, **States**, **Special Regions**, and **DoD Land Areas** are examples.
- Point              The layer may contain locations that have single point coordinates. **Cities** is such a layer.
- Line                The layer may contain locations whose coordinates form a line or multiple line segments. **Interstates** is such a layer.

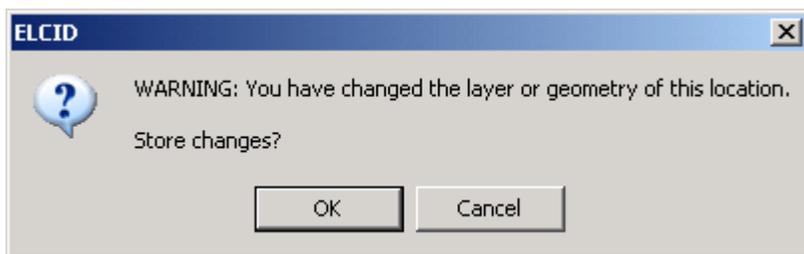
One may not mix geometry types within a layer. For example, you cannot mix polygons and points within a single layer.

To put the **Virginia – Training Area 1** location on the map, you must select a layer whose geometry type is compatible. Since we created the location as a **Center Point and Radius** (circle), we must pick a layer that contains polygons.

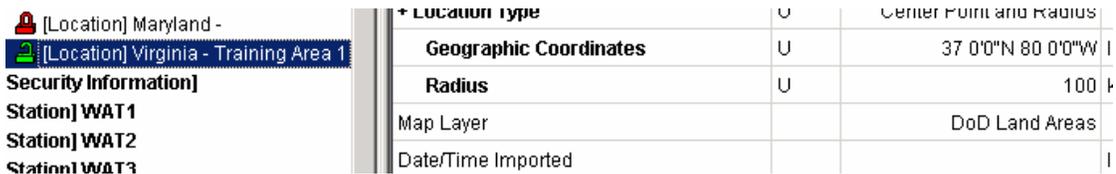
**Step 12.** Click the down arrow next to the **Location layer** box in the upper righthand corner of the window. Notice that the program lists all the layers whose geometry type is polygon. **Select DoD Land Areas.**



**Step 13.** Click **OK** button. The following window appears.



**Step 14.** Click **OK**. After a moment, the **Tree View** window reappears. **DoD Land Areas** now appears in the **Map Layer** data item.



## 5.5 Entering Application Classification Markings

EL-CID handles data up to the Secret level of classification. For most individual data items you can enter a classification. In the Tree View, the classification of individual data items is displayed and edited in the Class column.

Throughout the program, classified data items are colored to help you locate them as follows:

- White - Unclassified
- Yellow - Confidential
- Pink - Secret

Note: If an output would be considered classified when several items are output together, then all of the individual data items should be marked at that minimum classification. For example, if Nomenclature and Frequency are considered to be Confidential when appearing together, then both Nomenclature and Frequency should be marked Confidential or higher.

When you change the classification of any data item; the overall classification of the record is recalculated and upgraded or downgraded as necessary. The overall classification of the record is displayed in the lower right-hand corner of the Tree View screen. In addition, the highest classification of all the data in the database is displayed in the title bar.

**Step 1.** Click the **Security Information** node from the tree view. The **Security Information** window will be displayed.

Code	Description
<input checked="" type="checkbox"/> A	Approved for public release; distribution is unlimited (DoD Directive 5230.24)
<input type="checkbox"/> B	Releasable to soil country and the North Atlantic Treaty Organization (NATO); otherwise, not releasable outside the US Government in accordance with (IAW) Section 552 (b)(1) of Title 5 of the US Code.
<input type="checkbox"/> E	Not Releasable outside the US Government IAW Section 552 (b)(1) of Title 5 of the US Code.
<input type="checkbox"/> F	Not releasable to foreign nationals and not releasable outside the US Government IAW Section 552 (b)(1) of Title 5 US Code.
<input type="checkbox"/> H	Releasable to soil country only; otherwise, not releasable outside the US Government IAW Section 552 (b)(1) of Title 5 US Code.
<input type="checkbox"/> J	Contingency Assignment - The record contains unified commander comments only; not releasable to foreign nationals unless formally coordinated; otherwise, not releasable outside the US Government IAW Section 552 (b)(1) of Title 5 US Code.
<input type="checkbox"/> K	Permanent Assignment - Available for contingency use within the theater after coordination with and approval of the cognizant unified commander - releasable to soil nation; otherwise, not releasable outside the US Government IAW Section 552 (b)(1) of Title 5 US Code.
<input type="checkbox"/> N	Releasable to NATO; otherwise, not releasable outside the US Government IAW Section 552 (b)(1) of Title 5 US Code.
<input type="checkbox"/> -	Proprietary; otherwise, not releasable outside the US Government IAW Section 552 (b)(1) of

Record Classification: UNCLASSIFIED

OK Cancel

The overall Record Classification is displayed at the bottom left of this screen. You may not change this, except by changing the classification of individual data items in the record.

The Security Information screen has four tabs used for entering the following information:

- Special Handling. All Certification records are required to specify a Special Handling Code.
- Classification Source(s). Enabled only if the record is Confidential or Secret.
- Declassification Instructions. Enabled only if the record is Confidential or Secret.
- Downgrading Instructions. Enabled only if the record is Secret.

All Certification records are required to have a Special Handling Code. When you create a brand new Certification, the record is unclassified and the Special Handling Code defaults to "A", which means unlimited distribution. If a record becomes classified, the "A" code is erased and you must specify a new Special Handling Code. In addition, all classified records are required to have a Classification Source and Declassification Instructions. Secret records may also have Downgrading Instructions.

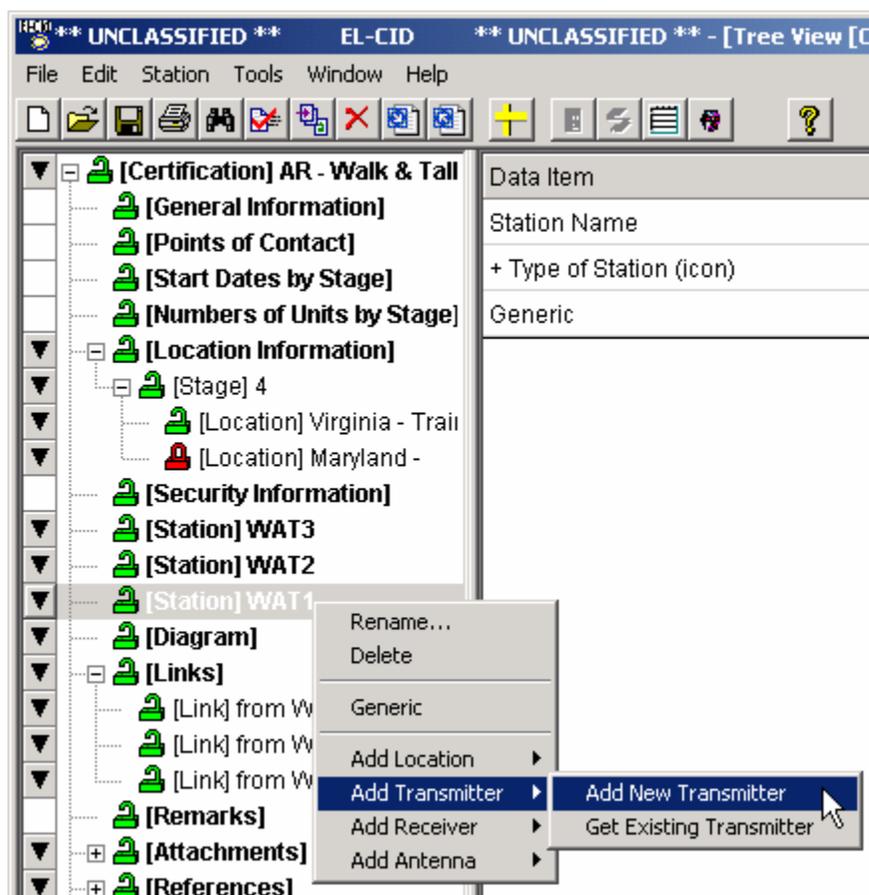
**Step 2.** **Click OK** to save the data.

## 5.6 Entering Station Data

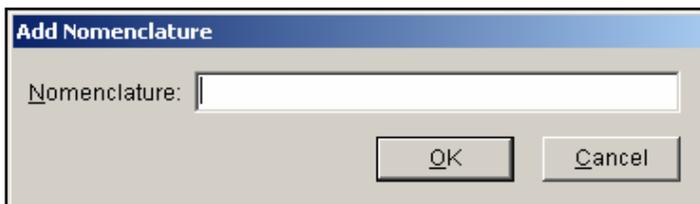
Station data consists of transmitter data, receiver data, and antenna data. If required, you could also enter specific location data.

### 5.6.1 Entering Transmitter Data

- Step 1.** Right-click on the [Station] WAT1 node in the tree view and then select **Add Transmitter | Add New Transmitter**.



The **Add Nomenclature** window will be displayed.



Step 2. Type **Walk & Talk Tx** and then **click OK**.

The **Transmitter** data grid is displayed:

Data Item	Class	Value	Units
<b>Nomenclature</b>	U	Walk & Talk Tx	
Manufacturer	U		
Model Name and Number	U		
Approval Status	U	Unapproved	
Date/Time Last Modified		1/16/2008 2:40:29 PM	local
Coordination ID	U	J/F 12	
Type	U		
Filter Type	U		
Proxy Record?			No
FCC Acceptance Number	U		
<b>Frequency Stability (+/-)</b>	U		
<b>Frequency Stability Units</b>			
<b>Output Device</b>	U		
<b>Tuning Method</b>	U		
<b>Suppression of Harmonic</b>	U		No
Radar or Communications?	U	Communications	
Date/Time Imported			local

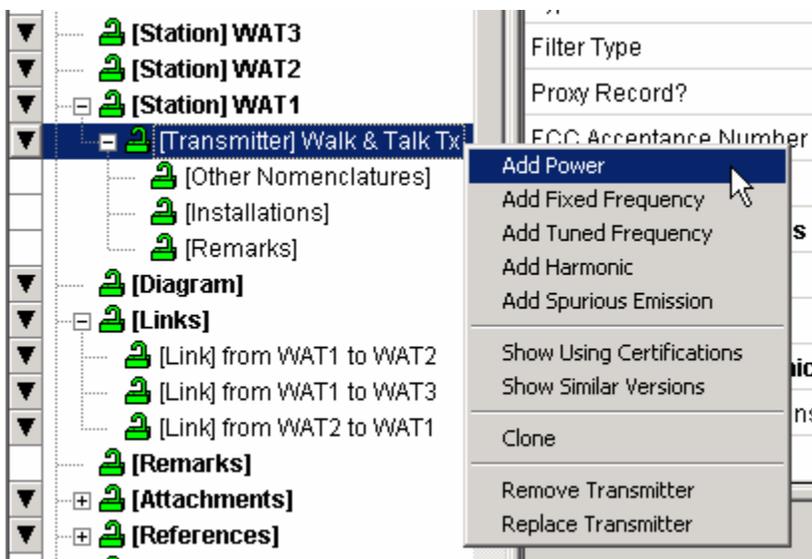
Step 3. **Enter** the following data

Field	Value
<b>Manufacturer</b>	<b>RELM Communications, Inc</b>
<b>Model Name and Number</b>	<b>Model 127A</b>
<b>FCC Acceptance Number</b>	<b>K95LT20002</b>
<b>Frequency Stability (+/-)</b>	<b>5</b>
<b>Frequency Stability Units</b>	<b>ppm</b>
<b>Output Device</b>	<b>Transistor</b>
<b>Tuning Method</b>	<b>Synthesizer</b>

**HINT:** Manufacturer is a user select list (indicated by  ). You can type **relm** in the **Search** box and click **Find First** to find the correct entry.

The bolded items are required. You are expected to enter **Frequency Stability** and **Frequency Stability Units**. If you click on **Output Device**, you will see **DoD required item** appear in the description block at the bottom. This indicates that this item is required when logged in as a DoD agency. It is optional when not logged in as a DoD agency. Similarly, **Tuning Method** and **Suppression of Harmonic** are DoD required items.

Step 4. Right-click on [Transmitter] Walk & Talk Tx and then select Add Power.



The Power data grid is displayed.

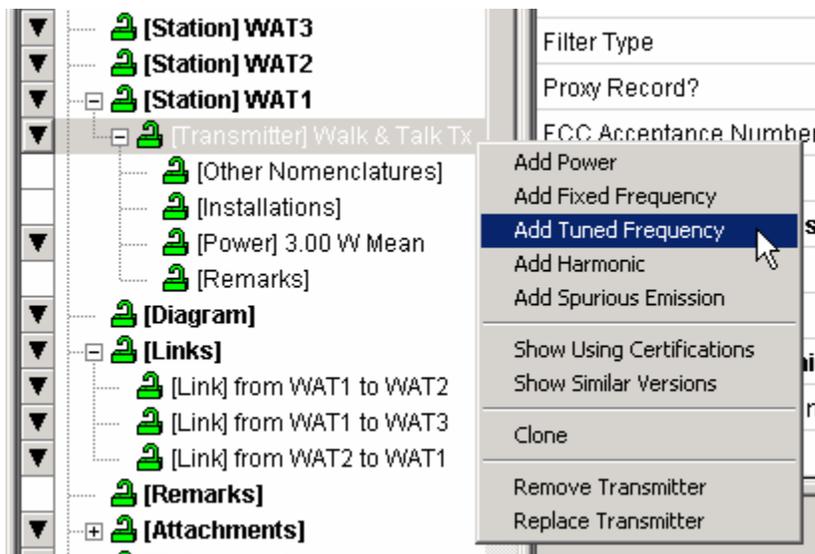
Data Item	Class	Value	Units
<b>Power Type</b>			
Power Lower Limit	U		W
<b>Power Upper Limit</b>	U		W

Step 5. Enter the following data.

Field	Value
<b>Power Type</b>	<b>Mean</b>
<b>Power Upper Limit</b>	<b>3 W</b>

**HINT:** Power Lower Limit only appears when logged in as a DoD agency. NTIA wants only the maximum power of the transmitter.

Step 6. Right-click on [Transmitter] Walk & Talk Tx and then select Add Tuned Frequency.



The Tuned Frequency data grid is displayed.

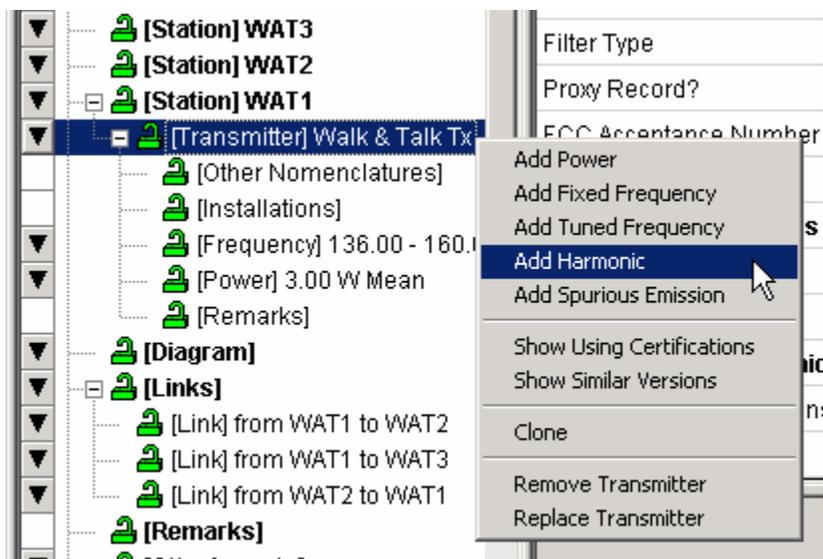
Data Item	Class	Value	Units
+ Fixed Frequency?		No	
<b>Lowest Tuned Frequency</b>	U		MHz
<b>Highest Tuned Frequency</b>	U		MHz
<b>Tuning Increment</b>	U		kHz
<b># of Frequencies Required for Operation</b>	U		
<b>Minimum Required Frequency Separation</b>	U		MHz
Frequency Blocking Indicator	U	No	
Lowest Usable Channel	U		MHz

Step 7. Enter the following data.

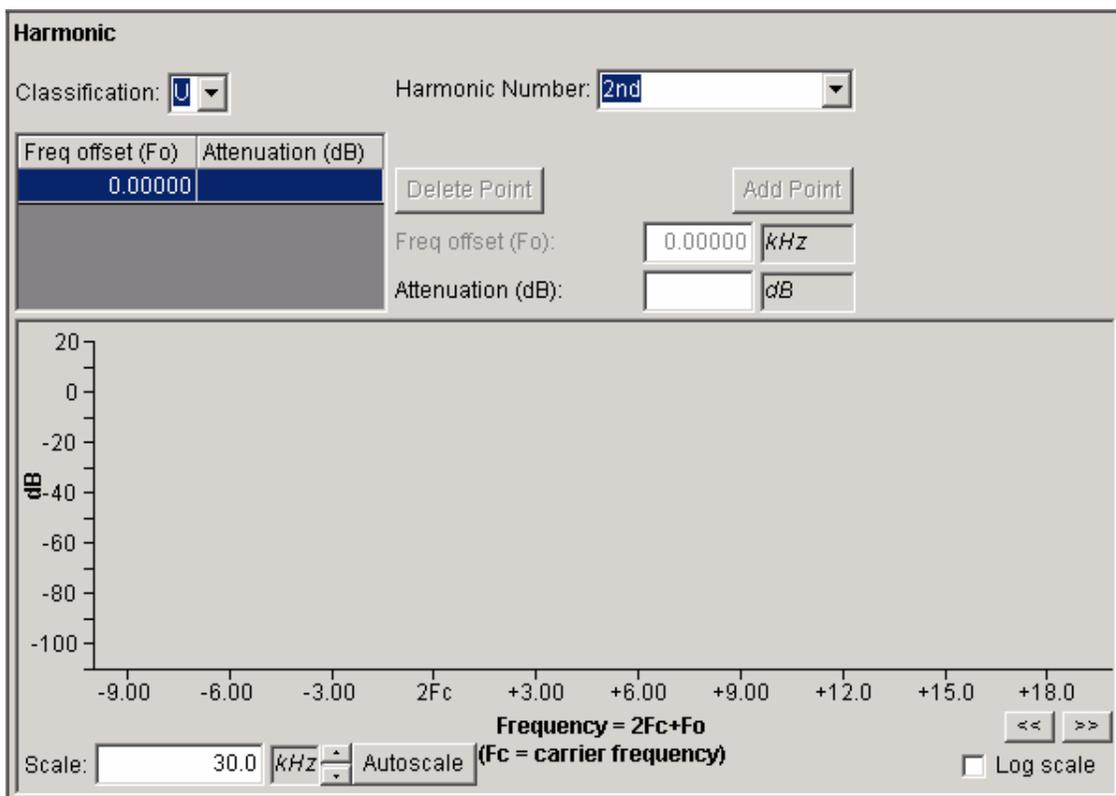
Field	Value
<b>Lowest Tuned Frequency</b>	<b>136 MHz</b>
<b>Highest Tuned Frequency</b>	<b>160 MHz</b>
<b>Tuning Increment</b>	<b>12.5 kHz</b>

**HINT:** Frequencies may be entered as M136, 136M, K136000, 136000K, or 136m etc.

Step 8. Right-click on [Transmitter] Walk & Talk Tx and then select Add Harmonic.



The Harmonic window is displayed.



Step 9. Enter the following data and Save.

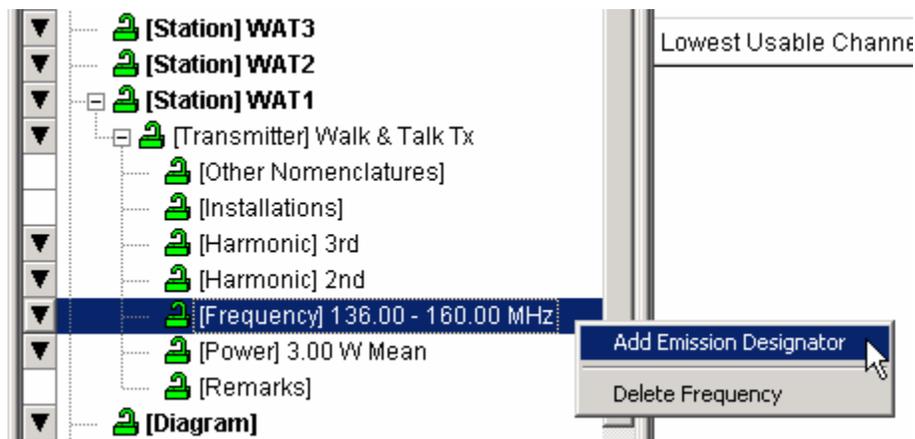
Field	Value
Harmonic Number	2nd
Attenuation	-60 dB

Step 10. Enter another harmonic data set as shown below, following step 8.

Field	Value
Harmonic Number	3rd
Attenuation	-60 dB

**HINT:** Do not use the **Add Point** button on the Harmonic window to add another Harmonic. Instead, **right click** on the **Transmitter** node and select **Add Harmonic** again.

Step 11. Right-click on **[Transmitter] Walk & Talk Tx | [Frequency] 136.00 – 160 MHz** and then select **Add Emission Designator**.



The **Emission Designator** data grid is displayed.

Data Item	Class	Value	Units
Necessary Bandwidth			kHz
<b>+ Emission Designator</b>	U		
Emission Digitized Spectrum Code	U		

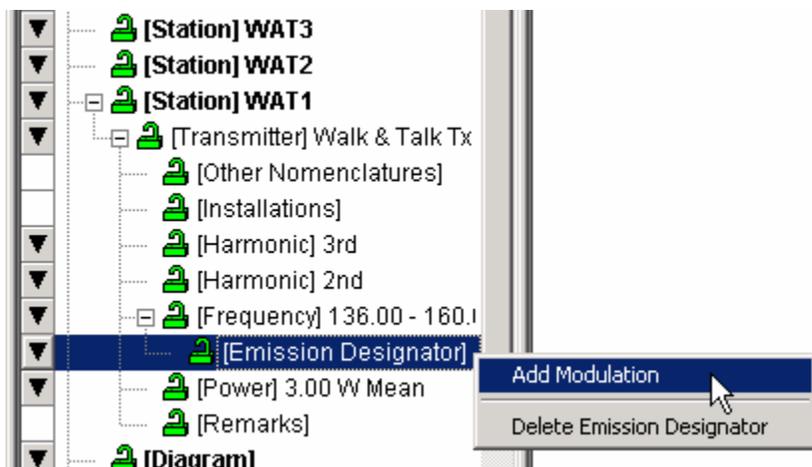
Step 12. Enter the following data and then **Save**.

Field	Value
Necessary Bandwidth	11 kHz
Emission Designator	11K0F3E

**HINT:** If you need help in determining the Necessary Bandwidth you can click on the button to access one of the models. The button only appears when focus is on the **Necessary Bandwidth** field.

**HINT:** If you need help in determining the Emission Designator you can click on the button to access the Emission Designator Wizard. The button only appears when focus is on the **Emission Designator** field.

Step 13. Right-click on [Emission Designator] 11K0F3E and then select Add Modulation.



The **Modulation** data grid is displayed.

Data Item	Class	Value	Units
+ Emission Designator		11K0F3E	
+ Radar or Communications?		Communications	
<b>Occupied Bandwidth</b>	U		kHz
<b>Measured or Calculated?</b>	U		
+ <b>Spread Spectrum?</b>		No	
+ <b>Modulation Type</b>	U		
Lowest Modulation Frequency	U		MHz
Pseudorandom Code Period	U		ms
Peak Frequency Deviation Index	U		
RMS Frequency Deviation	U		
RMS Frequency Deviation Code	U		
RMS Modulation Index	U		
Pulse Repetition Rate Lower Limit	U		pps
Pulse Repetition Rate Upper Limit	U		pps
Pulse Duration Lower Limit	U		ms
Pulse Duration Upper Limit	U		ms

**HINT:** There are quite a few DoD only data fields in this grid.

Step 14. Enter the following data and Save.

Field	Value
<b>Occupied Bandwidth</b>	11 kHz
<b>Measured or Calculated</b>	Measured
<b>Spread Spectrum</b>	No
<b>Modulation Type</b>	Analog Modulation (AM, FM, or Phase)
<b>Peak Deviation</b>	Leave blank
<b>Deviation Ratio</b>	0.833
<b>Maximum Modulation Frequency</b>	3 kHz

Notice that the **Peak Deviation**, **Deviation Ratio**, and **Maximum Modulation Frequency** items do not appear until Analog is chosen for **Modulation Type**. The program will hide irrelevant items. The plus sign (+) next to **Modulation Type** indicates that other items will appear or disappear depending upon what you choose for the **Modulation Type**.

**Step 15.** When you click on any of the three items – **Peak Deviation**, **Deviation Ratio**, or **Maximum Modulation Frequency** – a calculator button  appears. Since you left **Peak Deviation** blank in Step 14, **click on it now** and **click the calculator button**. The calculated value of 2.4990 kHz appears.

**HINT:** If any of the inputs to the calculation are classified, a message will appear advising you to check the classification of the calculated item.

**Step 16.** Click on **[RF Fundamental Curve]**.



**HINT:** The **[RF Fundamental Curve]** node was automatically created when you added the **[Modulation]** node. The fundamental curve cannot be deleted.

The **RF Fundamental Curve** window is displayed.

Freq offset (Fo)	Level (dB)
-3.00	-3.00
-20.0	
-40.0	
-60.0	

**Step 17.** Enter the following data.

Field	Value
Measured or Calculated	Measured

**Step 18.** Highlight the point to be entered in the point grid.

Freq offset (Fo)	Level (dB)
	-3.00
	-20.0
	-40.0
	-60.0

Step 19. Enter 4 in the Frequency offset.

Freq offset (Fo):	4	kHz
Level (dB):	-3.00	dB

**HINT:** Freq offset equals 1/2 bandwidth

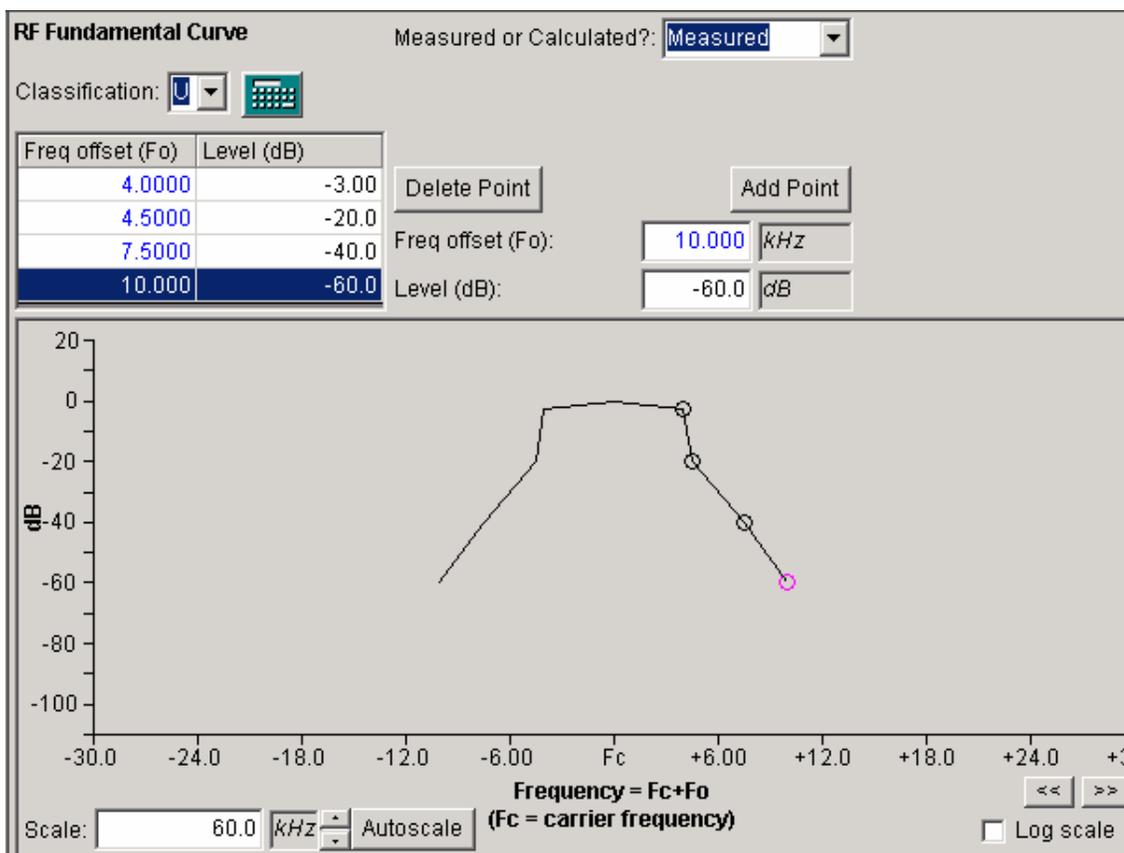
Step 20. Click on the -3 dB row in the point grid to complete entering the point.

Step 21. Enter the following data, by following Step 18 and Step 19.

Field	Value
Freq Offset (1/2 Bandwidth) at -20 dB	4.5 kHz
Freq Offset (1/2 Bandwidth) at -40 dB	7.5 kHz
Freq Offset (1/2 Bandwidth) at -60 dB	10 kHz

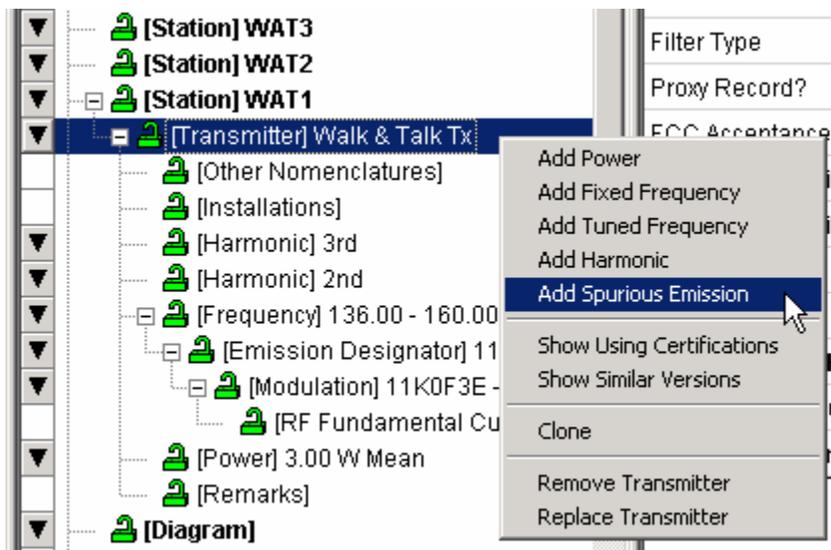
**HINT:** You may add additional rows to the point grid by clicking the Add Point button.

**HINT:** If your screen does not match the one below, Click the Autoscale button. The resulting RF Fundamental Curve should look like the following:

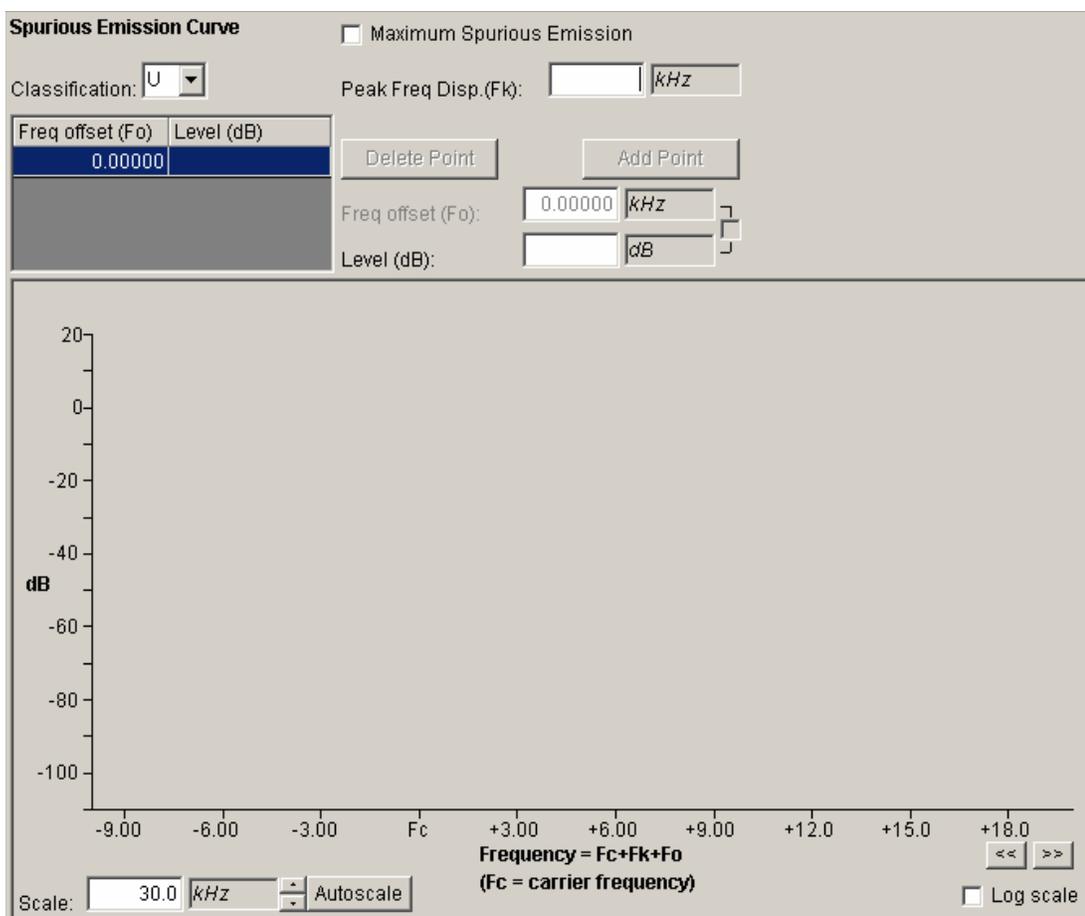


Step 22. Save the data.

Step 23. Right click on [Transmitter]Walk & Talk and then select Add Spurious Emission.



The Spurious Emission Curve window is displayed;

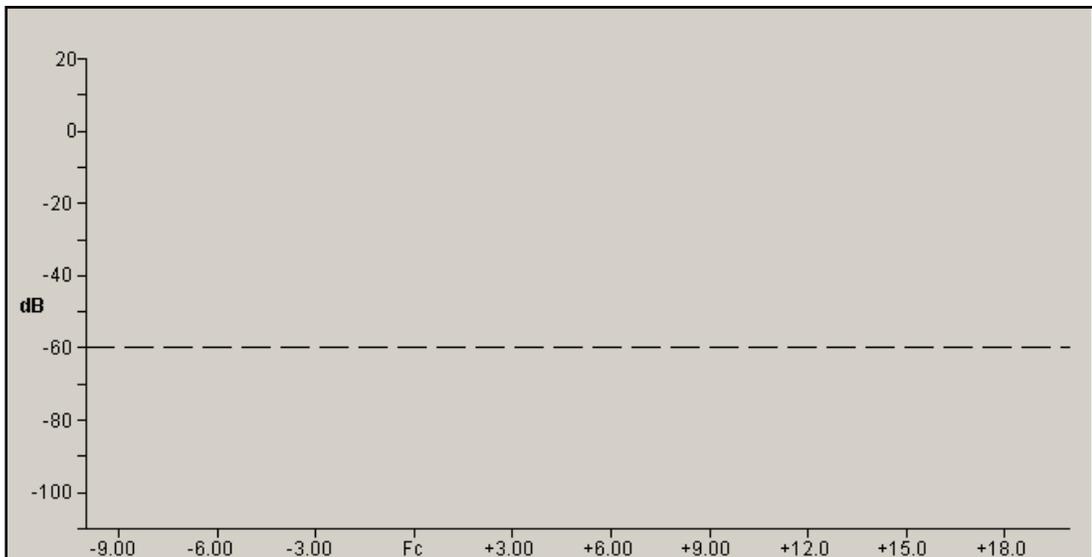


Step 24. Check the box  Maximum Spurious Emission.

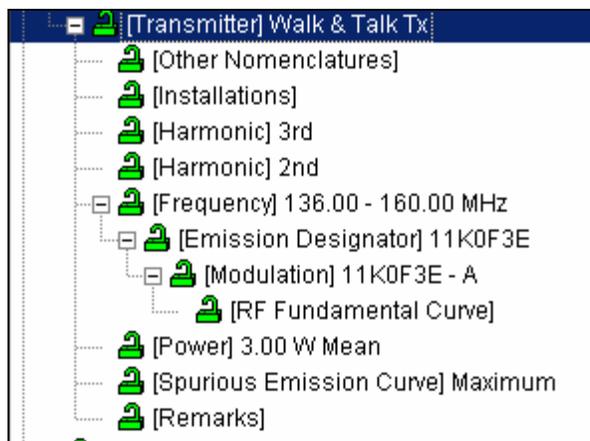
Step 25. Enter the following and Save.

Field	Value
Attenuation (dB)	-60 dB

The **Spurious Emission Curve** appears as a single line because it represents the maximum of all spurious emissions across all frequencies.



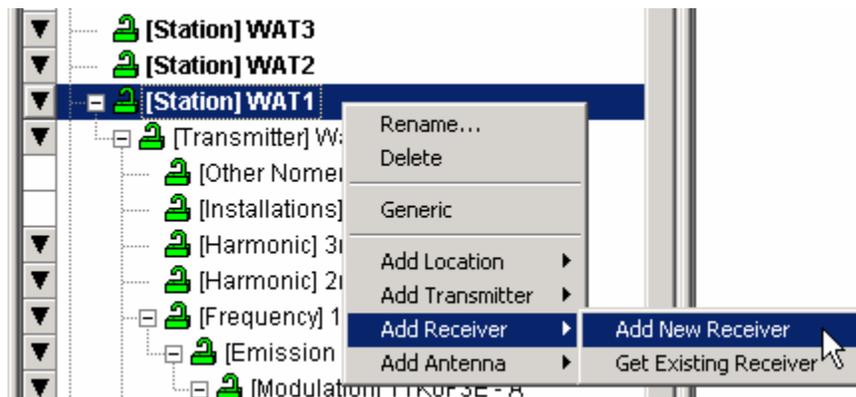
This completes the data entry for the Transmitter **Walk & Talk Tx**. The transmitter portion of tree view looks like the following:



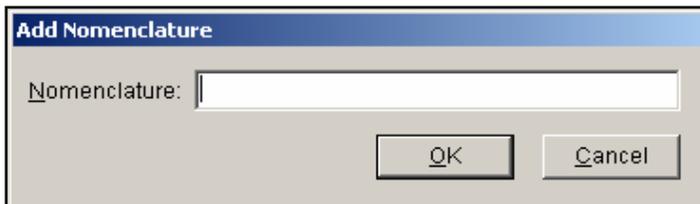
**HINT:** [Other Nomenclatures], [Installations], and [Remarks] only appear when logged in as a DoD agency.

## 5.6.2 Entering Receiver Data

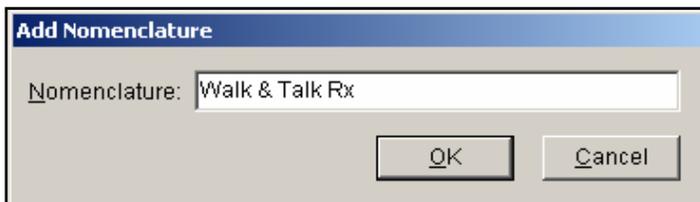
**Step 1.** Right-click on the [Station] WAT1 node and select **Add Receiver | Add New Receiver**.



The **Add Nomenclature** window is displayed.



**Step 2.** Type **Walk & Talk Rx** and click **OK**.



The **Receiver** data grid is displayed.

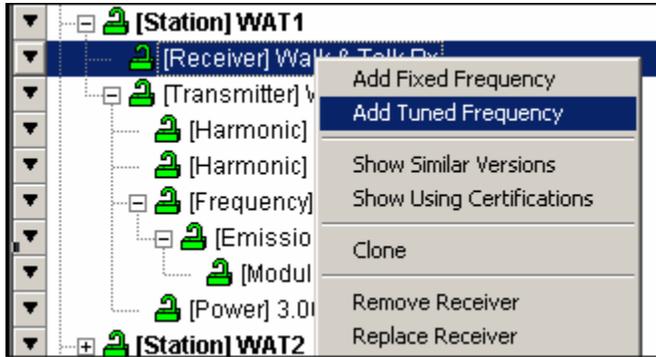
Data Item	Class	Value	Units
<b>Nomenclature</b>	U	Walk & Talk Rx	
<b>Manufacturer</b>	U		
Model Name and Number	U		
Approval Status	U	Unapproved	
Date/Time Last Modified		1/16/2008 4:31:45 PM	local
Coordination ID	U	J/F 12	
Type	U		
Proxy Record?		No	
FCC Acceptance Number	U		
<b>Frequency Stability (+/-)</b>	U		
<b>Frequency Stability Units</b>	U		
<b>Image Rejection Level</b>	U		dB
<b>Conducted Undesired Emissions</b>	U		dBm
Local Oscillator Tuned Indicator	U		
<b>Tuning Method</b>	U		
Maximum Bit Rate	U		bps
Minimum Post Detection Frequency	U		MHz
Maximum Post Detection Frequency	U		MHz
Preselection Type	U		
Date/Time Imported			local

Step 3. Enter the following receiver data.

Field	Value
<b>Manufacturer</b>	<b>RELM Communications, Inc</b>
<b>Model Name and Number</b>	<b>Model 127A</b>
<b>FCC Acceptance Number</b>	<b>K95LT20002</b>
<b>Frequency Stability (+/-)</b>	<b>5</b>
<b>Frequency Stability Units</b>	<b>ppm</b>
<b>Local Oscillator Tuned Indicator</b>	<b>Below</b>

**HINT:** You can type the Manufacturer name in the block, but it has to be the exact spelling and punctuation as appears in the user select list.

Step 4. Right-click on [Receiver] Walk & Talk Rx and select Add Tuned Frequency.



The Tuned Frequency data grid is displayed

Data Item	Class	Value	Units
+ Fixed Frequency?		No	
<b>Lowest Tuned Frequency</b>	U		MHz
<b>Highest Tuned Frequency</b>	U		MHz
<b>Tuning Increment</b>	U		kHz

Step 5. Enter the following tuned frequency data and Save.

Field	Value
<b>Lowest Tuned Frequency</b>	<b>136 MHz</b>
<b>Highest Tuned Frequency</b>	<b>160 MHz</b>
<b>Tuning Increment</b>	<b>12.5 kHz</b>

Step 6. Right-click on the Receiver [Frequency] 136 – 160 MHz node and select Add Emission – Stage Sensitivity.



The **Emission – Stage Sensitivity** data grid is displayed.

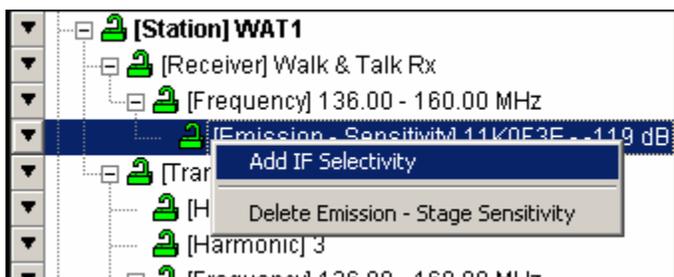
Data Item	Class	Value	Units
<b>+ Emission Designator</b>	U		
Necessary Bandwidth			kHz
<b>Performance Criteria</b>	U		
<b>Performance Value</b>	U		
<b>Sensitivity</b>	U		dBm
Noise Figure	U		dB
Noise Temperature	U		K
<b>Spurious Rejection Level</b>	U		dB
Adjacent Channel Selectivity	U		dB
Intermodulation Rejection Level	U		dB

**Step 7.** Enter the following emission data and **Save**.

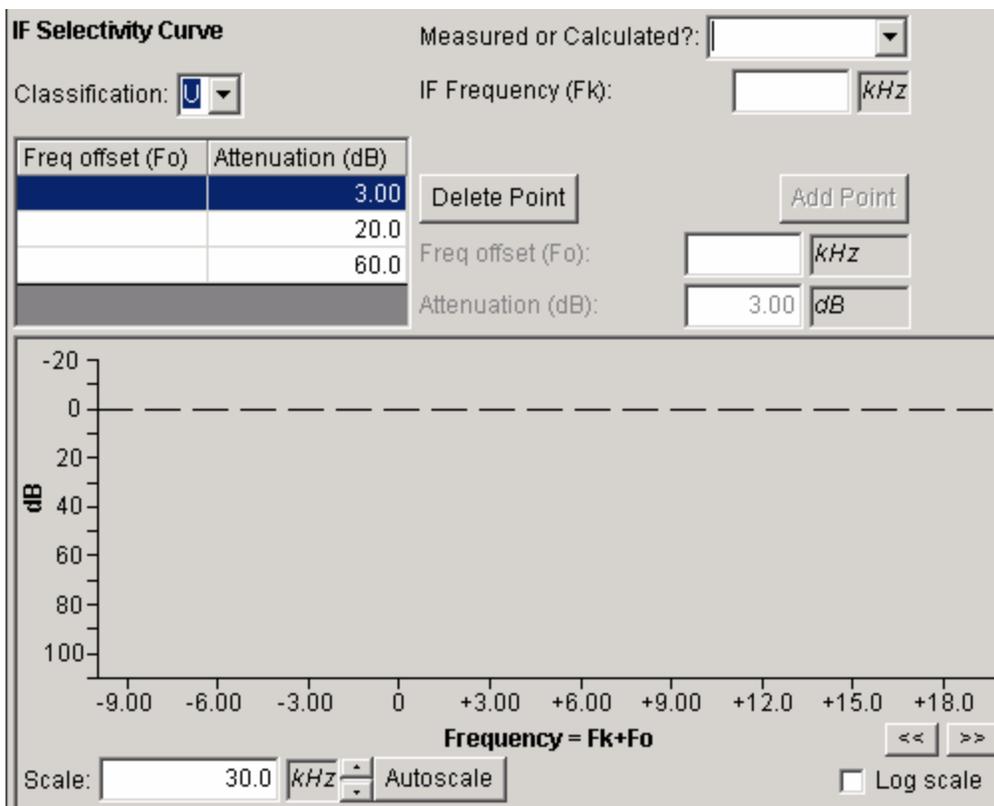
Field	Value
<b>Emission Designator</b>	<b>11K0F3E</b>
<b>Performance Criteria</b>	<b>SINAD–Signal+Noise+Distortion-to-Noise+Distortion Ratio (dB)</b>
<b>Performance Value</b>	<b>10</b>
<b>Sensitivity</b>	<b>-119 dBm</b>
<b>Spurious Rejection Level</b>	<b>75 dB</b>
<b>Adjacent Channel Selectivity</b>	<b>75 dB</b>
<b>Intermodulation Rejection Level</b>	<b>75 dB</b>

**HINT:** The **Necessary Bandwidth** field is automatically filled when the **Emission Designator** is entered.

**Step 8.** Right-click on the **[Emission – Sensitivity] 11K0F3E – 119 dBm** node and select **Add IF Selectivity**.



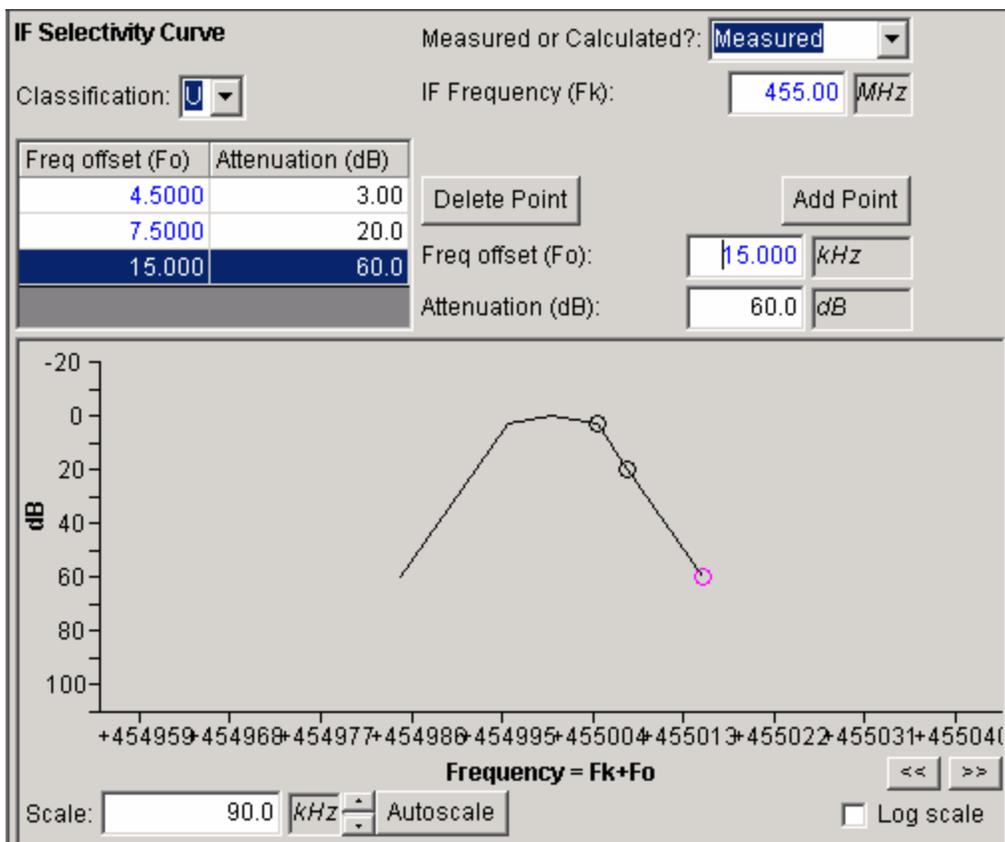
The **IF Selectivity Curve** window is displayed.



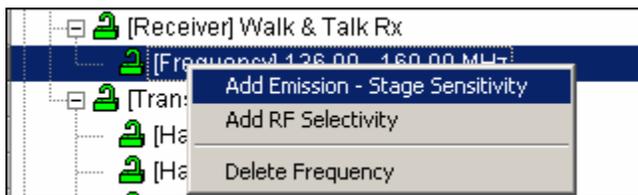
Step 9. Enter the following intermediate frequency data.

Field	Value
Measured or Calculated	Measured
IF Frequency	M455
Freq Offset (1/2 Bandwidth) at 3 dB	4.5 kHz
Freq Offset (1/2 Bandwidth) at 20 dB	7.5 kHz
Freq Offset (1/2 Bandwidth) at 60 dB	15 kHz

Step 10. Click the Autoscale button to redraw curve. The resulting IF Selectivity Curve should look like the following:



**Step 11.** Right-click on the [Frequency] 136 – 160 MHz node and select **Add Emission – Stage Sensitivity** to enter a second set of data.

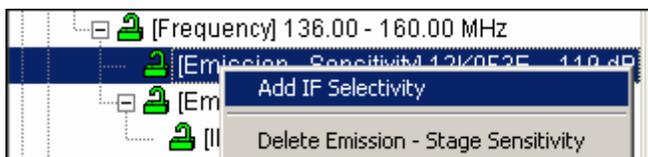


The **Emission – Stage Sensitivity** data grid is displayed.

**Step 12.** Enter the following data for the second set of emission data and **Save**.

Field	Value
Emission Designator	12K0F3E
Performance Criteria	SINAD–Signal+Noise+Distortion-to-Noise+Distortion Ratio (dB)
Performance Value	10
Sensitivity	-119 dBm
Spurious Rejection Level	75 dB
Adjacent Channel Selectivity	75 dB
Intermodulation Rejection Level	75 dB

**Step 13.** Right-click on the [Emission – Sensitivity] 12K0F3E – 119 dBm node and select **Add IF Selectivity** to add the IF Selectivity values for the 2nd emission designator.



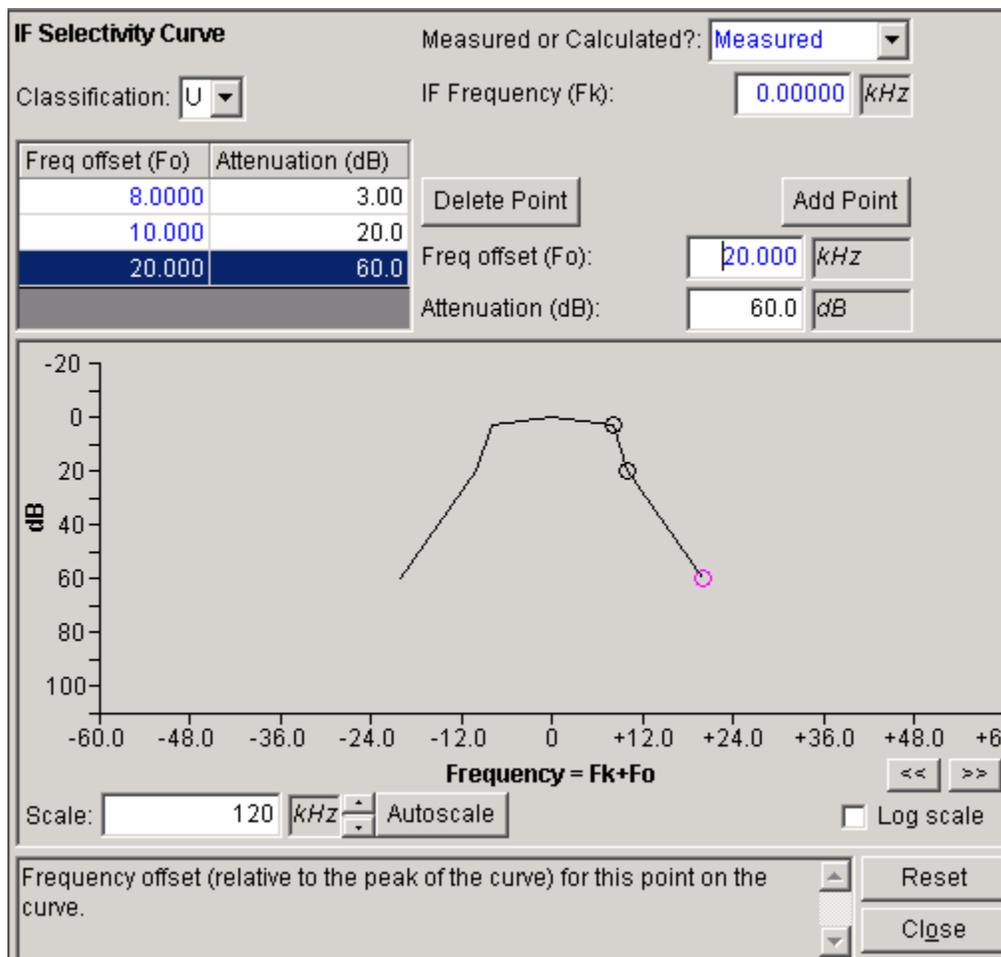
The **IF Selectivity Curve** window is displayed.

**Step 14.** Enter the following intermediate frequency data for the 12K0F3E emission.

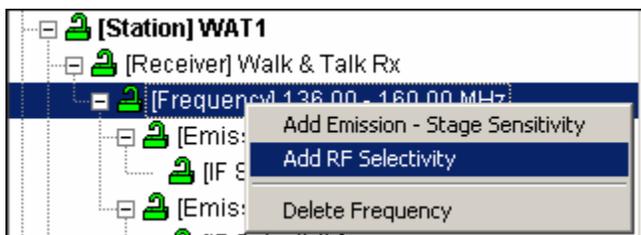
Field	Value
Measured or Calculated	Measured
IF Frequency	0
Freq Offset (1/2 Bandwidth) at 3 dB	8 kHz
Freq Offset (1/2 Bandwidth) at 20 dB	10 kHz
Freq Offset (1/2 Bandwidth) at 60 dB	20 kHz

**HINT:** If you do not know the **IF Frequency**, enter 0.

**Step 15.** Click the **Autoscale** button. The resulting **IF Selectivity Curve** should look like the following:



**Step 16.** Right-click on the [Frequency] 136 – 160 MHz node and select **Add RF Selectivity** to add the RF selectivity.



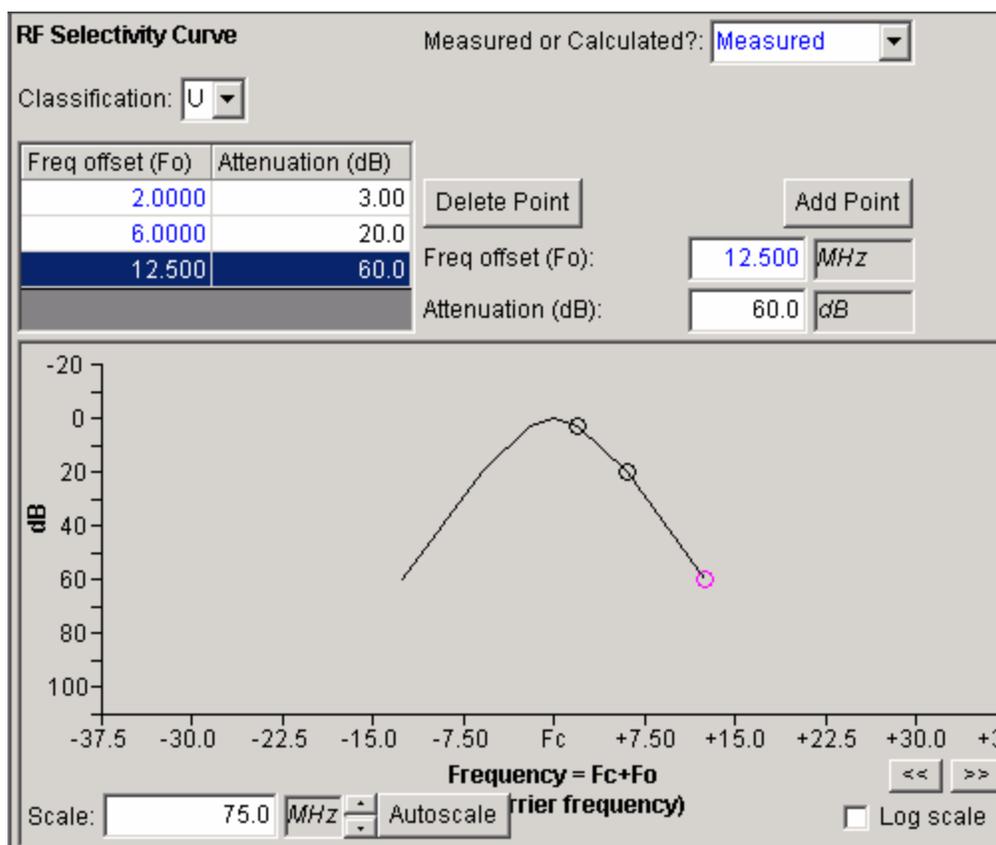
The **RF Selectivity Curve** window is displayed.

**Step 17.** Enter the following RF selectivity data.

Field	Value
Measured or Calculated	Measured
Freq Offset (1/2 Bandwidth) at 3 dB	2MHz
Freq Offset (1/2 Bandwidth) at 20 dB	6MHz
Freq Offset (1/2 Bandwidth) at 60 dB	12.5MHz

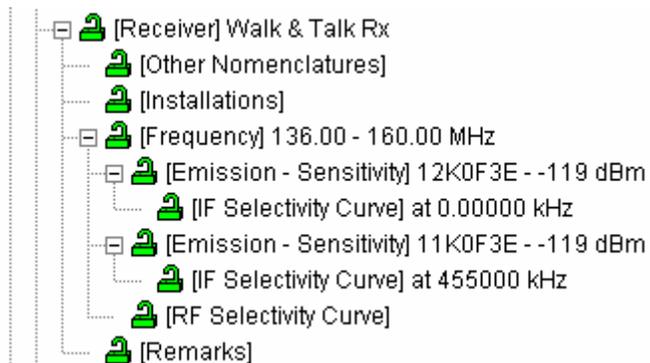
Notice that when you enter M to choose megahertz frequency offset units, the scale of the x-axis on the graph automatically changes to MHz.

**Step 18.** Click the **Autoscale** button. The resulting **RF Selectivity Curve** should look like the following:



**Step 19.** Save the data.

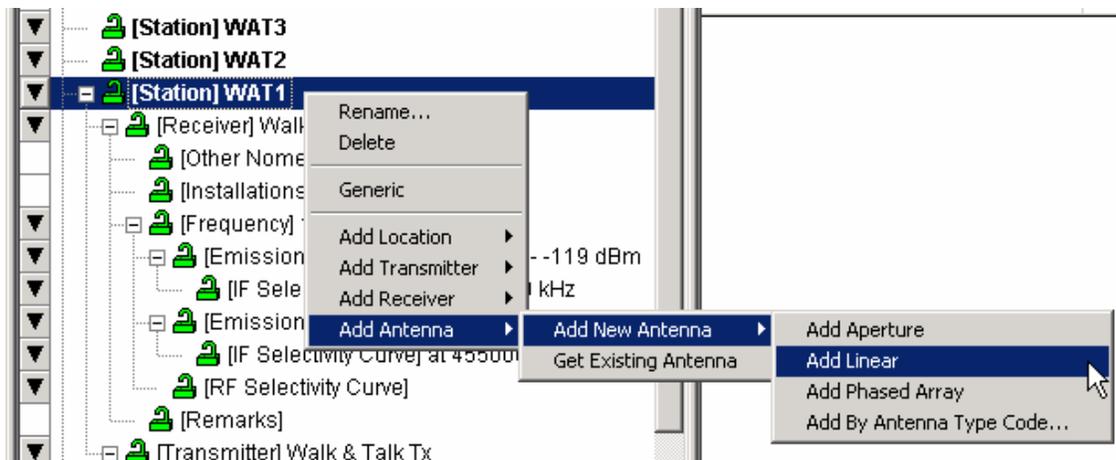
This completes the data entry for the Receiver **Walk & Talk Rx**. The receiver portion of the Tree View looks like the following



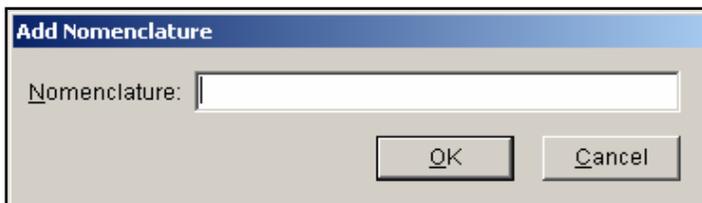
***HINT:*** The **[Other Nomenclatures]**, **[Installations]**, and **[Remarks]** nodes only appear when logged in as a DoD agency.

### 5.6.3 Entering Antenna Data

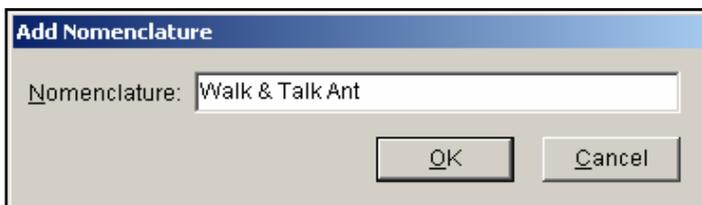
**Step 1.** Right-click on the [Station] WAT1 node and select **Add Antenna | Add New Antenna | Add Linear**.



The **Add Nomenclature** window is displayed.



**Step 2.** Type **Walk & Talk Ant** and click **OK**.



The **Antenna** data grid is displayed.

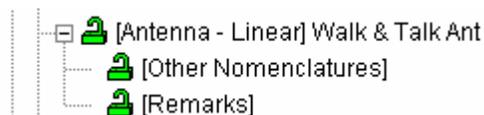
Data Item	Class	Value	Units
<b>Nomenclature</b>	U	Walk & Talk Ant	
Manufacturer	U		
Model Name and Number	U		
Approval Status	U	Unapproved	
Date/Time Last Modified		1/16/2008 5:22:36 PM	local
Coordination ID	U	J/F 12	
Proxy Record?		No	
<b>Antenna Type Code</b>	U		
<b>Antenna Horizontal Beamwidth</b>	U		degrees
<b>Antenna Vertical Beamwidth</b>	U		degrees
<b>Antenna Lower Frequency Limit</b>	U		MHz
<b>Antenna Upper Frequency Limit</b>	U		MHz
<b>Polarization</b>	U		
<b>+ Antenna Main Beam Gain</b>	U		dBi
Date/Time Imported			local

**Step 3.** Enter the following antenna data.

Field	Value
<b>Manufacturer</b>	<b>RELM COMMUNICATIONS, INC</b>
<b>Model Name and Number</b>	<b>Model 127A</b>
<b>Antenna Horizontal Beamwidth</b>	<b>360 degrees</b>
<b>Antenna Vertical Beamwidth</b>	<b>45 degrees</b>
<b>Antenna Lower Frequency Limit</b>	<b>136 MHz</b>
<b>Antenna Upper Frequency Limit</b>	<b>160 MHz</b>
<b>Polarization:</b>	<b>Linear</b>
<b>Antenna Main Beam Gain</b>	<b>0 dBi</b>

**Step 4.** Save the data.

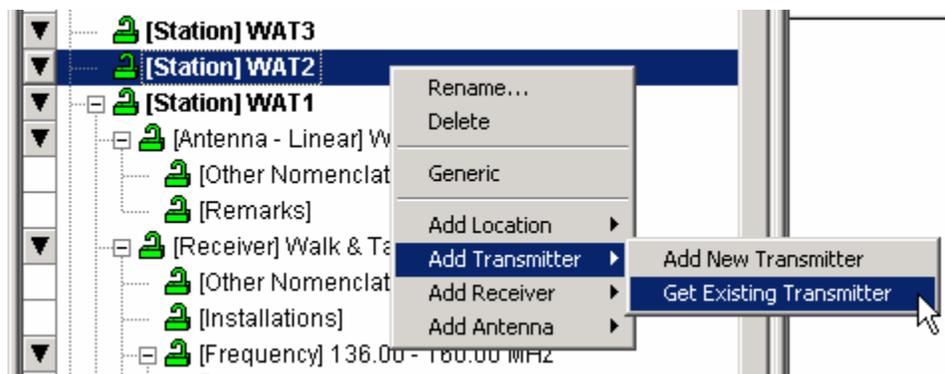
This completes the data entry for the antenna **Walk & Talk Ant**. The antenna portion of the Tree View looks like the following:



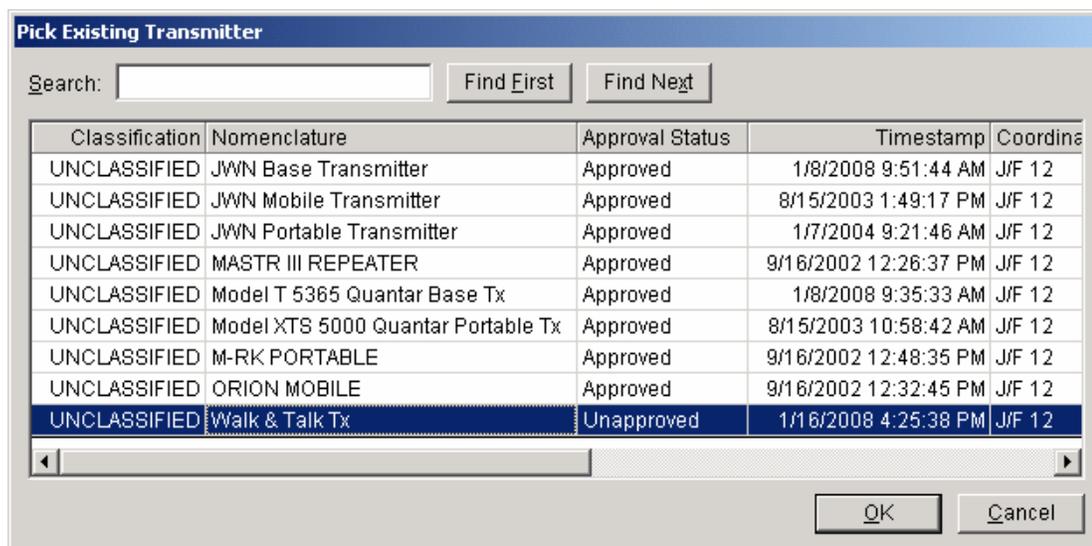
**HINT:** The **[Other Nomenclatures]** and **[Remarks]** nodes only appear when logged in as a DoD agency.

## 5.6.4 Getting Existing Transmitter Data

**Step 1.** We are going to add a transmitter to station WAT2 by selecting an existing transmitter from the list of transmitters that are already in the database. **Right-click** on **[Station] WAT2** and select **Add Transmitter | Get Existing Transmitter**.

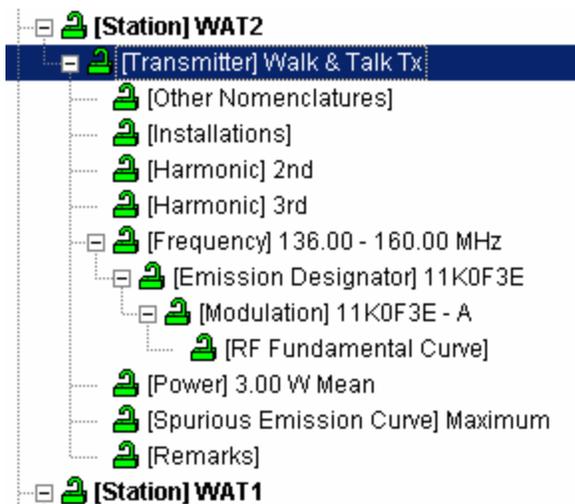


The **Pick Existing Transmitter** window is displayed.



**Step 2.** **Highlight Walk & Talk Tx** and **click OK** to add the **Walk & Talk Tx** to **Station WAT2**.

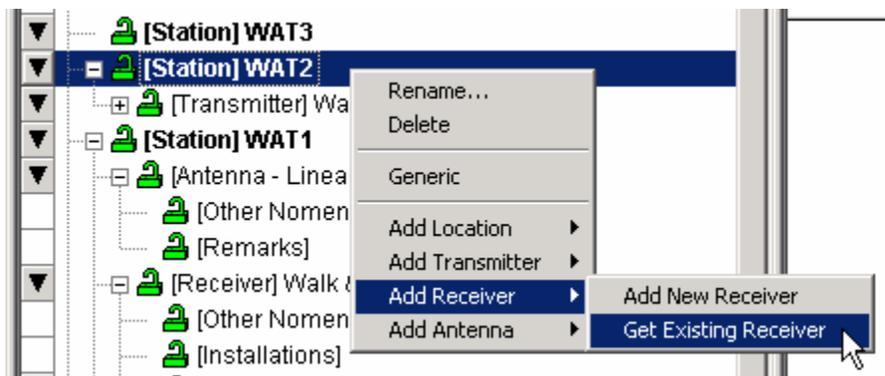
**Step 3.** Open all the nodes for the **WAT2** station by **clicking the +** beside each node. You will see that all of the transmitter data was inserted for the station. The data is identical to the data for the **Walk & Talk Tx** under **Station WAT1** because it is a single Transmitter record that is shared at both Stations. A change to the data at one Station will also change the same data at the other Station.



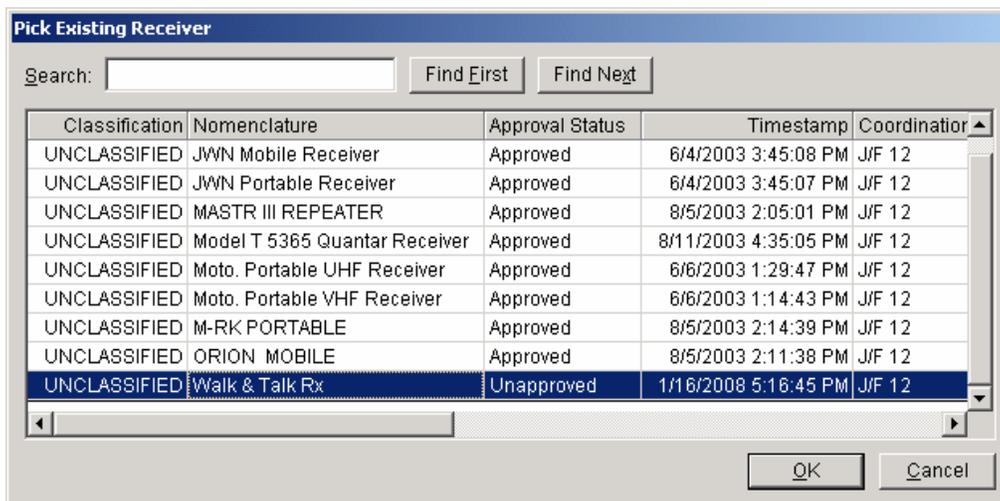
**HINT:** You may also expand a node and all its child nodes by holding down the Shift key and clicking on the node or by holding down the Shift key and pressing the right arrow key. Holding down the Shift key and pressing the left arrow key will collapse the node. Using the Ctrl key in combination with the left or right arrow keys will expand or collapse a node, but not the child nodes.

### 5.6.5 Getting Existing Receiver Data

**Step 1.** We are going to add a receiver to station WAT2 by selecting an existing receiver from the list of receivers that are already in the database. **Right-click** on **[Station] WAT2 | Add Receiver | Get Existing Receiver**.

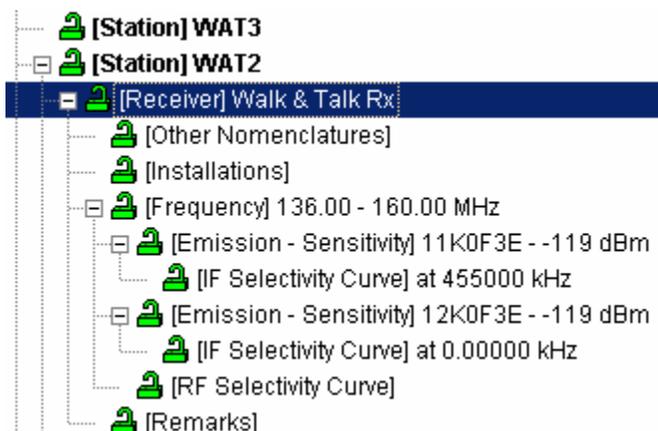


The **Pick Existing Receiver** window is displayed.



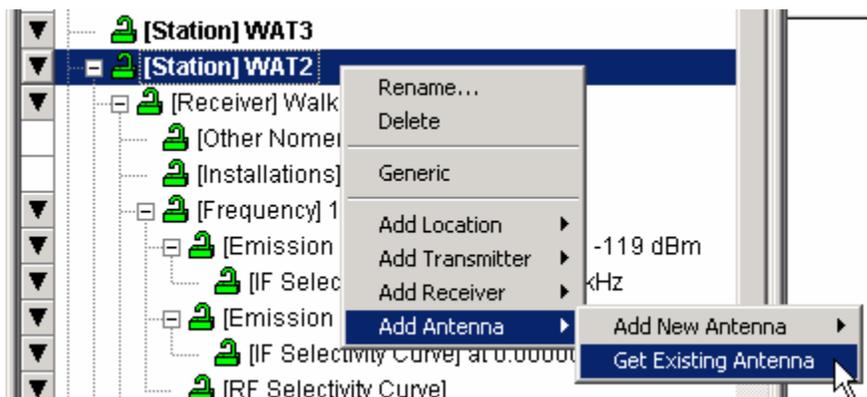
**Step 2.** Highlight Walk & Talk Rx and then click OK to add the Walk & Talk Rx to Station WAT2.

**Step 3.** Open all the nodes for the receiver of the WAT2 station by clicking the + beside each node. You will see that all of the receiver data was inserted for the station. Just as the Transmitter, it is shared with Station WAT1.



### 5.6.6 Getting Existing Antenna Data

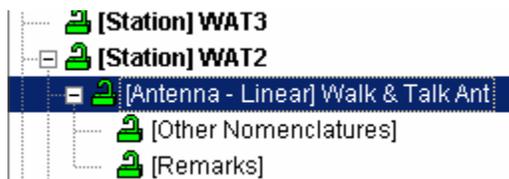
**Step 1.** We are going to add an antenna to station WAT2 by selecting an existing antenna from the list of antennas that are already in the database. Right-click on [Station] WAT2 and select Add Antenna | Get Existing Antenna.



The Pick Existing Antenna window will be displayed.



- Step 2.** Highlight **Walk & Talk Ant** and then **click OK**, to add the **Walk & Talk Ant** to **Station WAT2**. The added antenna will appear on the tree view under **Station WAT2** and just like the Transmitter and Receiver, it is shared with **Station WAT1**.

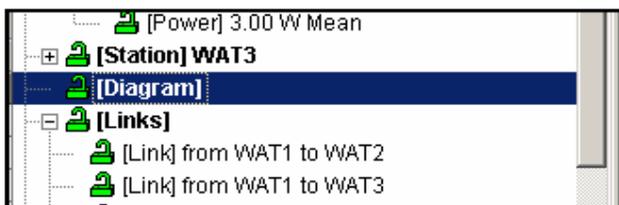


Recall that **WAT3** is a Generic station. We do not enter equipment for it.

## 5.7 Entering Data For Links

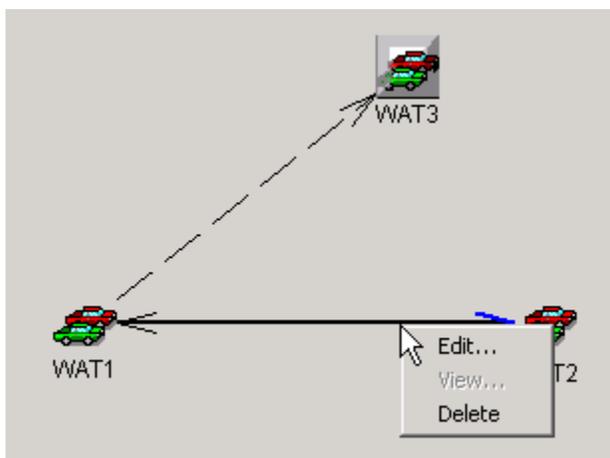
Data can be entered by accessing the diagram and using the graphical links to select which link to edit. The following steps will illustrate this.

- Step 1.** Click on the **[Diagram]** node in the tree view. The Diagram is displayed showing the links that had been defined earlier.



There are two ways to display the **Link Information** window.

- Step 2.** The first way is to right-click on the link line near the receiving end and then click Edit in the popup menu that is displayed. **Right-click on the link line near the WAT2 station and select Edit** (as shown below).

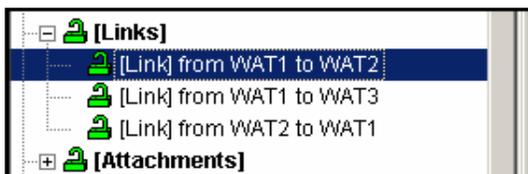


You must right-click on the line near the receiving end, but not too close to the Station, otherwise the program will think you are clicking on the Station. Notice how the arrow head turns blue indicating which link has been selected.

The **Link Information** window will be displayed.

**Step 3.** Click **Close** to close the **Link Information** window.

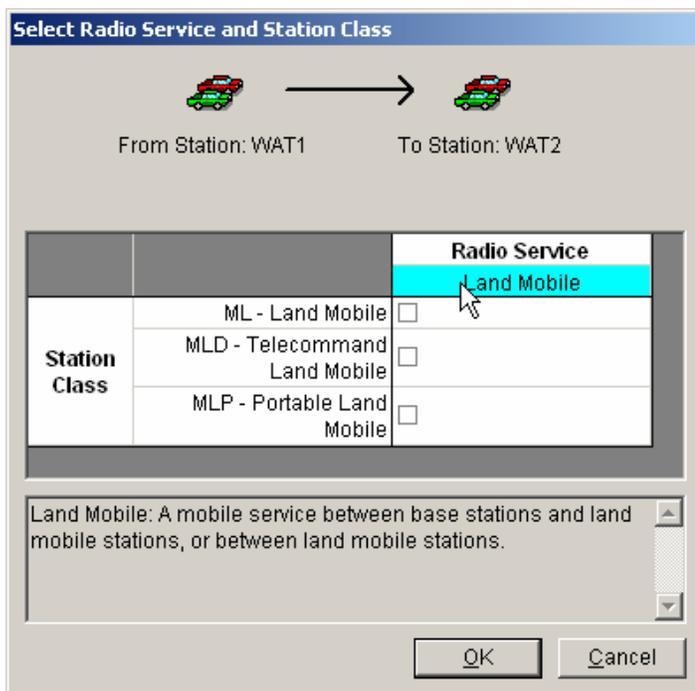
**Step 4.** The second way to display the **Link Information** window is to click on the individual link shown in the tree view. Click on **[Link] from WAT1 to WAT2**. Again, the **Link Information** window will be displayed.



Step 5. Click the **Select Radio Service/Station Class** button.

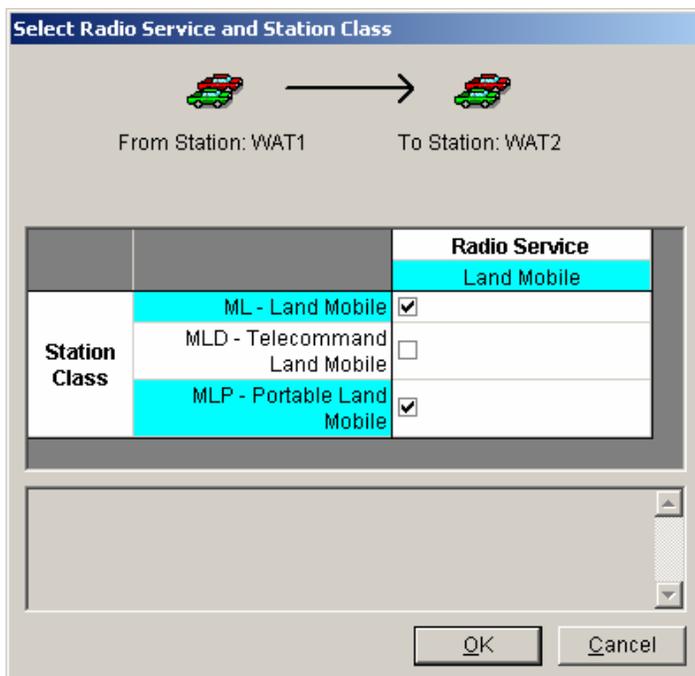


The **Select Radio Service/Station Class** window is displayed.

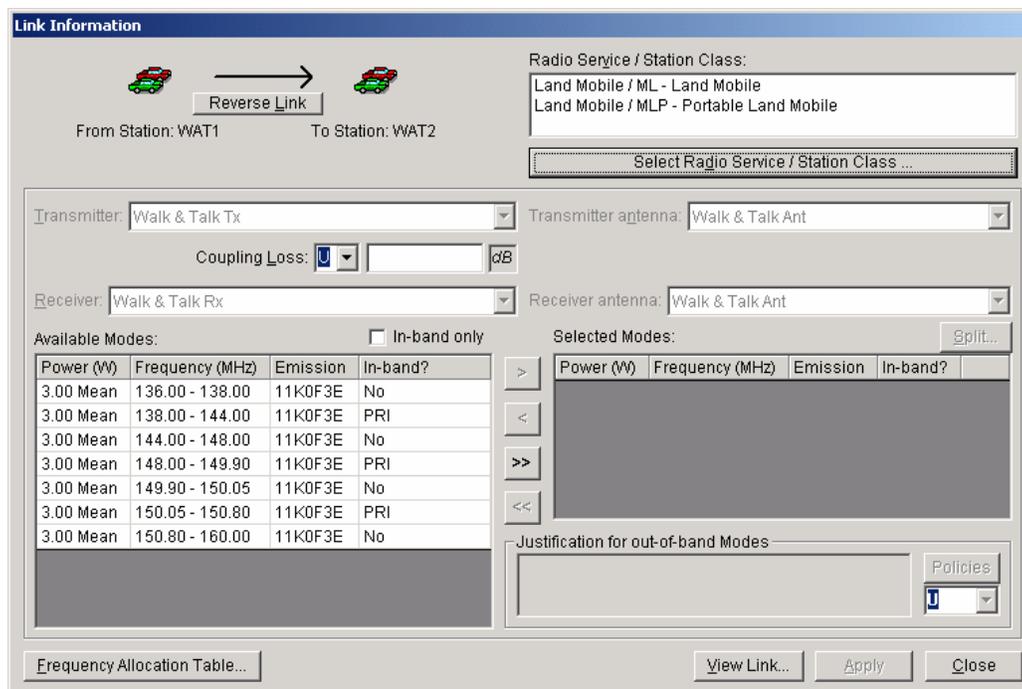


**HINT:** As you hover the mouse cursor over the Station Class or Radio Service, a description of each appears in the box below.

Step 6. Select Station Classes **ML** and **MLP** (i.e., click the respective check boxes) as shown below and then click **OK**.



The **Link Information** window reappears with the Radio Service and Station Classes shown.



If there is more than one transmitter, choose a specific Transmitter using the button. Currently, we have identified only one transmitter for Station **WAT1**, therefore the pick list is grayed out.



If there is more than one transmitter antenna, choose a specific Transmitting Antenna using the button. Currently, we have identified only one Transmitting Antenna for Station **WAT1**.



Enter the transmitter to transmitter antenna coupling loss (e.g., cable insertion loss). The security classification is entered using the button. Since we haven't entered this data before we could enter it now if we had the information.



**NOTE:** Coupling Loss (as well as SPD) is required for certain Satellite links.

If there is more than one receiver, choose a specific Receiver using the button. Currently, we have identified only one receiver for Station **WAT2**.



If there is more than one receiver antenna, choose a specific Receiving Antenna at Station **WAT2** using the button.

Receiver antenna: Walk & Talk Ant

**Step 7.** From the list of **Available Modes** on the left side, select the modes that you want to certify. **Select the 3 modes** which have a **PRI** in the **In-band?** column. You can **hold down the Ctrl key** and **click each one** as shown below.

**Link Information**

Reverse Link  
From Station: WAT1 To Station: WAT2

Radio Service / Station Class:  
Land Mobile / ML - Land Mobile  
Land Mobile / MLP - Portable Land Mobile

Select Radio Service / Station Class ...

Transmitter: Walk & Talk Tx Transmitter antenna: Walk & Talk Ant  
Coupling Loss: U dB

Receiver: Walk & Talk Rx Receiver antenna: Walk & Talk Ant

Available Modes:  In-band only

Power (W)	Frequency (MHz)	Emission	In-band?
3.00 Mean	136.00 - 138.00	11K0F3E	No
3.00 Mean	138.00 - 144.00	11K0F3E	PRI
3.00 Mean	144.00 - 148.00	11K0F3E	No
3.00 Mean	148.00 - 149.90	11K0F3E	PRI
3.00 Mean	149.90 - 150.05	11K0F3E	No
3.00 Mean	150.05 - 150.80	11K0F3E	PRI
3.00 Mean	150.80 - 160.00	11K0F3E	No

Selected Modes: Split...

Power (W)	Frequency (MHz)	Emission	In-band?
-----------	-----------------	----------	----------

Justification for out-of-band Modes: Policies U

Frequency Allocation Table... View Link... Apply Close

**HINT:** You can also put a check in the  **In-band only** box and only the in-band frequencies will appear. Then they can be moved as a group using the  button or individually by using the  button. If you choose a frequency band that is not in-band, you will have to give a

justification for using the band.

**Step 8.** Click the  button to transfer the **Available Modes** to the list of **Selected Modes**.

Available Modes:  In-band only

Power (W)	Frequency (MHz)	Emission	In-band?
3.00 Mean	136.00 - 138.00	11K0F3E	No
3.00 Mean	144.00 - 148.00	11K0F3E	No
3.00 Mean	149.90 - 150.05	11K0F3E	No
3.00 Mean	150.80 - 160.00	11K0F3E	No

Selected Modes:

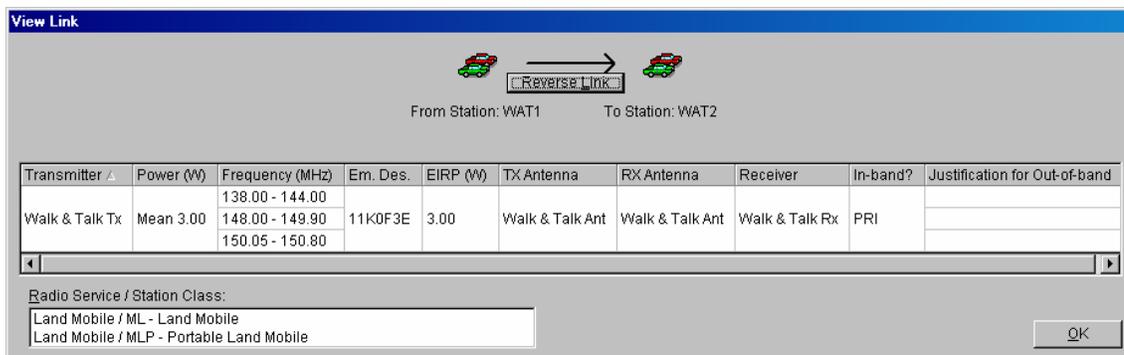
Power (W)	Frequency (MHz)	Emission	In-band?
3.00 Mean	138.00 - 144.00	11K0F3E	PRI
3.00 Mean	148.00 - 149.90	11K0F3E	PRI
3.00 Mean	150.05 - 150.80	11K0F3E	PRI

**Step 9.** Click **Apply** to save your choices. A notification window is displayed.



**Step 10.** Click **OK**.

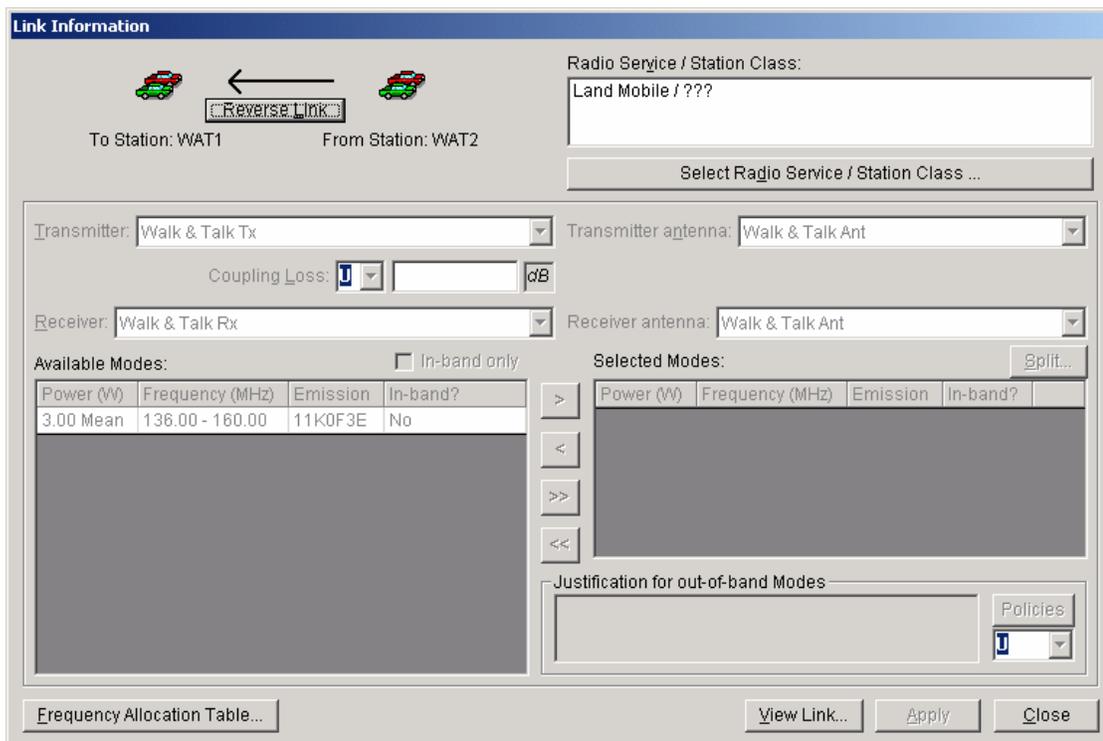
**Step 11.** Click the **View Link** button to see the link information that you have saved.



**HINT:** The **View Link** screen will display all the modes for the link shown at the top of the window.

**Step 12.** Click **OK** after viewing the data.

**Step 13.** Click the **Reverse Link** button **Reverse Link** to display the reverse link (i.e., Station **WAT2** to Station **WAT1**). The reverse link information will be displayed.

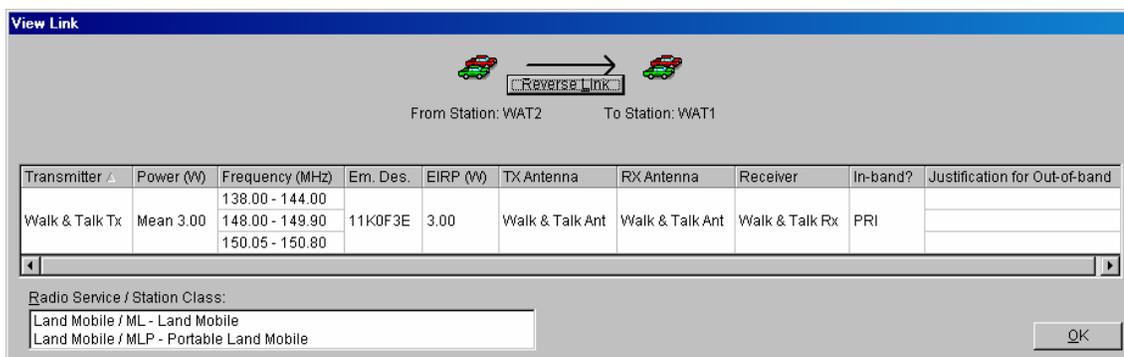


- Step 14.** Enter information for this link as we did the previous link. Click the **Select Radio Service/Station Class** button. The **Select Radio Service/Station Class** window is displayed.
- Step 15.** On the **Select Radio Service/Station Class** window, select station class **ML** and **MLP** by clicking the associated check boxes and clicking **OK**. The **Link Information** window is redisplayed with the selected Station Classes. Click the **In-band only** check box **on** and **off** to see all bands / in-band only modes.
- Step 16.** Since we only have one transmitter, receiver, transmitter antenna, and receiver antenna we cannot choose another but we can enter the **Coupling Loss** and its classification, and select the modes to be certified. For now we will select each mode that has a **PRI** in the **In-band?** column, as shown below.

Available Modes:  In-band only

Power (W)	Frequency (MHz)	Emission	In-band?
3.00 Mean	136.00 - 138.00	11K0F3E	No
3.00 Mean	138.00 - 144.00	11K0F3E	PRI
3.00 Mean	144.00 - 148.00	11K0F3E	No
3.00 Mean	148.00 - 149.90	11K0F3E	PRI
3.00 Mean	149.90 - 150.05	11K0F3E	No
3.00 Mean	150.05 - 150.80	11K0F3E	PRI
3.00 Mean	150.80 - 160.00	11K0F3E	No

- Step 17.** Click the  button to transfer the **Available Modes** to the list of **Selected Modes**.
- Step 18.** Click **Apply** to save your choices, and then click **OK** on the **Notification** window that pops up.
- Step 19.** Click the **View Link** button to see the link information that you have saved.



 →   
  
 From Station: WAT2      To Station: WAT1

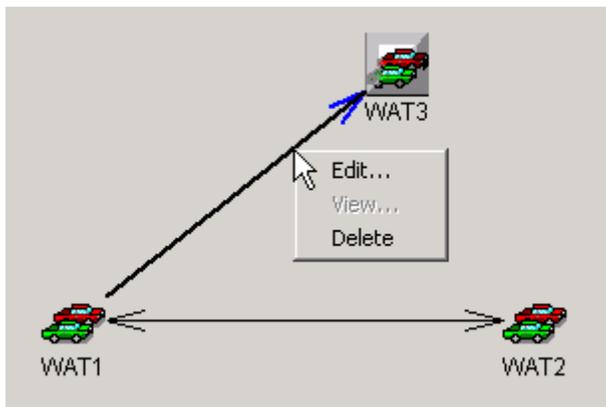
Transmitter	Power (W)	Frequency (MHz)	Em. Des.	EIRP (W)	TX Antenna	RX Antenna	Receiver	In-band?	Justification for Out-of-band
Walk & Talk Tx	Mean 3.00	138.00 - 144.00	11K0F3E	3.00	Walk & Talk Ant	Walk & Talk Ant	Walk & Talk Rx	PRI	
		148.00 - 149.90							
		150.05 - 150.80							

Radio Service / Station Class:  
 Land Mobile / ML - Land Mobile  
 Land Mobile / MLP - Portable Land Mobile

- Step 20.** Click **OK** to close the **View Link** window, and then click **Close** on the **Link Information** window to return to the Tree View.
- Step 21.** Now we are going to use the graphical view to add data for the link from **WAT1** to **WAT3**. In the Tree View, click **Diagram**.

**NOTE:** If the frequency list obscures the diagram, uncheck the **Show frequency list** box.

**Step 22.** Right-click on the link line between WAT1 and WAT3 near the receiving end and then click Edit.

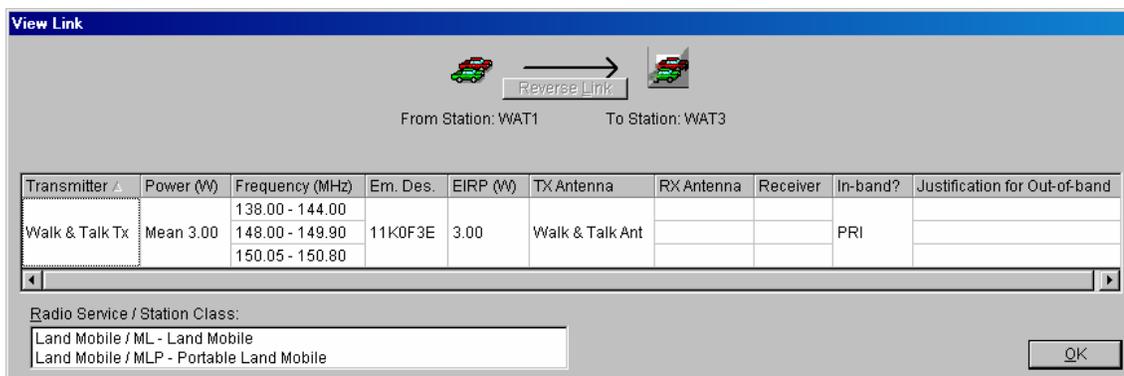


The familiar **Link Information** window will be displayed.

**Step 23.** Enter the following data for this link and click Apply.

- Radio Service / Station Class -- ML and MLP.
- Coupling Loss -- Leave Blank.
- Modes -- 3.00 Mean      138.00 - 144.00 11K0F3E PRI  
                                   3.00 Mean      148.00 - 149.90 11K0F3E PRI  
                                   3.00 Mean      150.05 - 150.80 11K0F3E PRI

The information should look like the following when you view the link.



**Step 24.** Click OK to close the View Link window, and then click Close on the Link Information window to return to the Tree View.

We have now finished entering data for the three links.

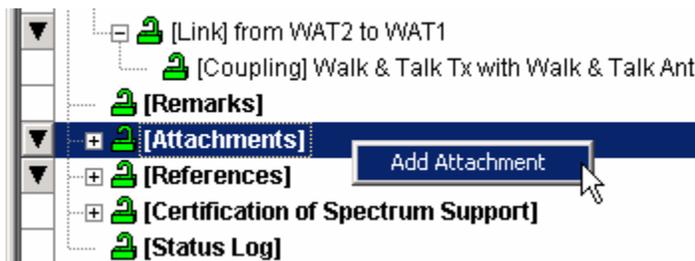
**HINT:** Notice that the dashed lines between the links have become solid lines. This indicates that data has been entered for the links.

## 5.8 ADDING ATTACHMENTS

Any kind of file can be attached to a certification application. The file could be a graphics file, a text file, or a spreadsheet file. The following steps will illustrate how to attach files.

**NOTE:** Once a file is attached, it can no longer be edited.

**Step 1.** Right-click on the [Attachments] node and then click Add Attachment.



The **Add Attachment** data grid is displayed.

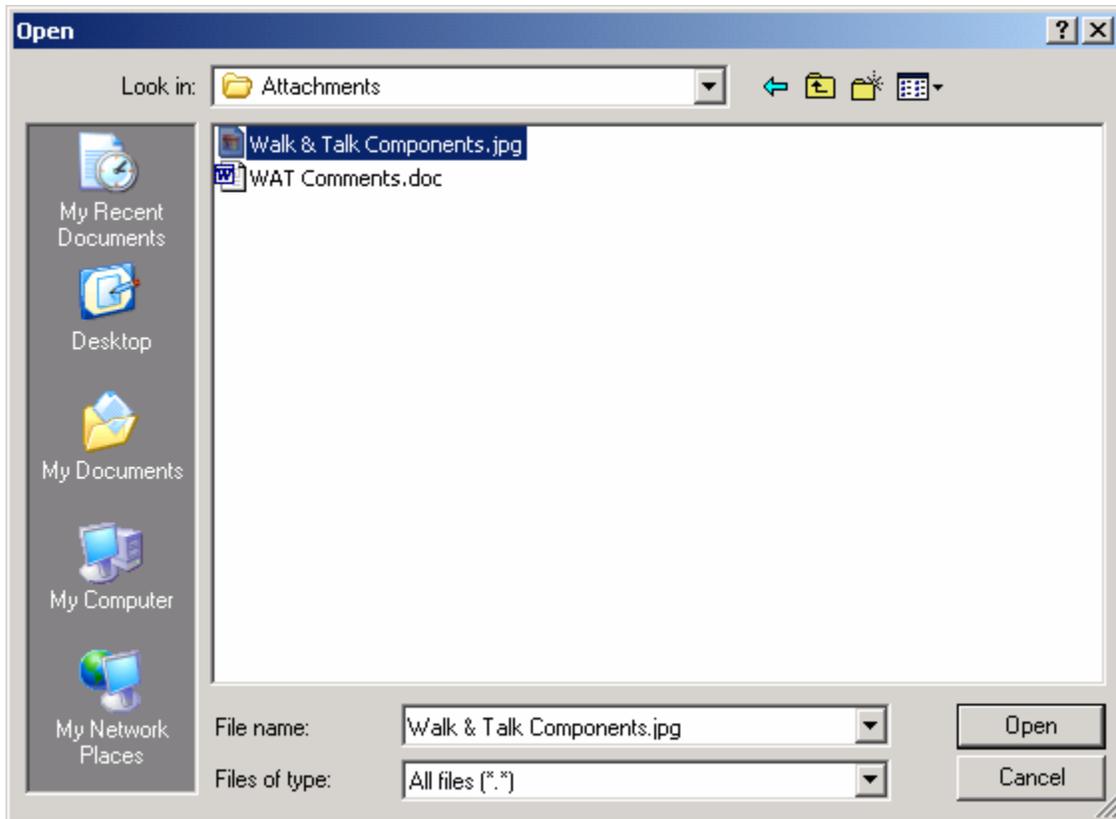
Data Item	Class	Value	Units
<b>Attachment</b>	U		
SPS Docket Number			
Date of Attachment			date

**Step 2.** Click in the Attachment Field and click the Browse button .

Data Item	Class	Value	Units
<b>Attachment</b>	U		
SPS Docket Number			
Date of Attachment			date

The **Open** window will be displayed for you to select the file that you want to attach. You will find the attachment file on your training CD.

**Step 3.** Go to {CD-ROM Drive Letter}/Training Material/Attachments folder.



**HINT:** Make sure **All files (\*.\*)** is selected in the **Files of type** box.

**Step 4.** **Click** on **Walk & Talk Components.jpg** and then **click Open**. The file will now be listed as an attachment to your certification application.

Data Item	Class		Value	Units
<b>Attachment</b>	U	 <a href="#">Walk &amp; Talk Components.jpg</a>		
SPS Docket Number				
Date of Attachment				date

**Step 5.** **Enter** the following data and **click** the **Save** button.

Field	Value
<b>Date of Attachment</b>	<b>02/06/2007</b>

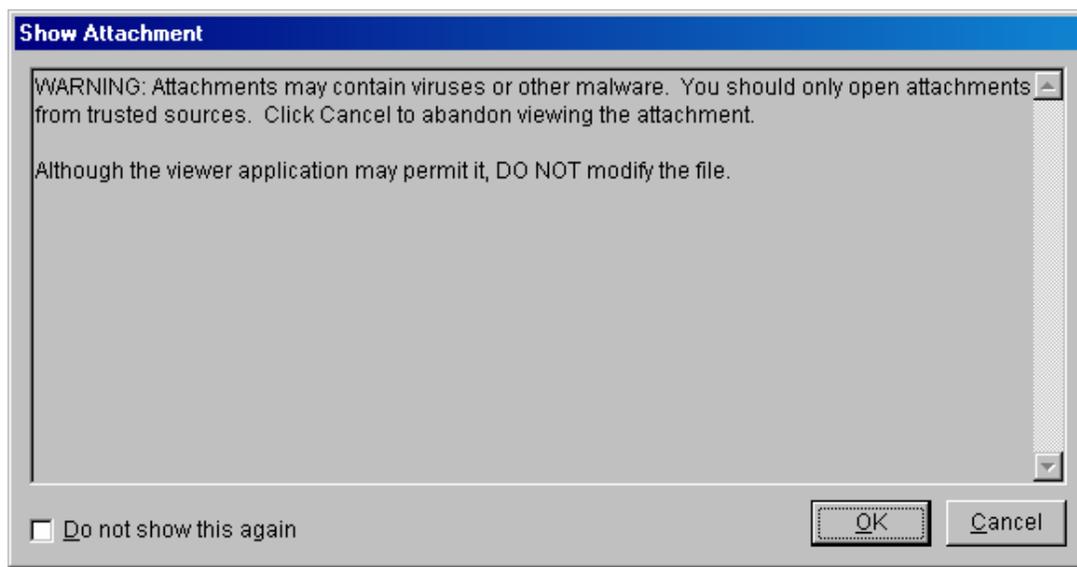
**HINT:** The **Date of Attachment** is not today's date, but instead the date the attachment document was authored.

**HINT:** If the attached document is classified, be sure to set the classification for the **Attachment** data field.

**Step 6.** To view the file, **click** on the **filename** that you just added in the **Value** box to give it focus, and then **click** on the **icon to the left of the file name** . The icon should be active (shown with a dotted line around it).

Data Item	Class	Value	Units
Attachment	U	 Walk & Talk Components.jpg	...
SPS Application Number			
Date of the Attachment		2/6/2007	date

The **Show Attachment** window will be displayed.



**HINT:** This window may be disabled by checking the  **Do not show this again** box, or by setting the correct preferences.

**Step 7.** **Click OK** to open the file.

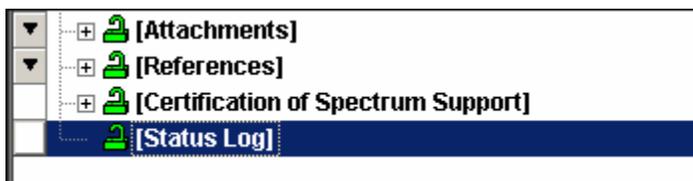
**Step 8.** **Close** the viewing window.

**Step 9.** We want to add the other file that was on our training CD as an attachment. Using what you have learned in Steps 1-7 above, **add the file WAT Comments.doc** as an attachment.

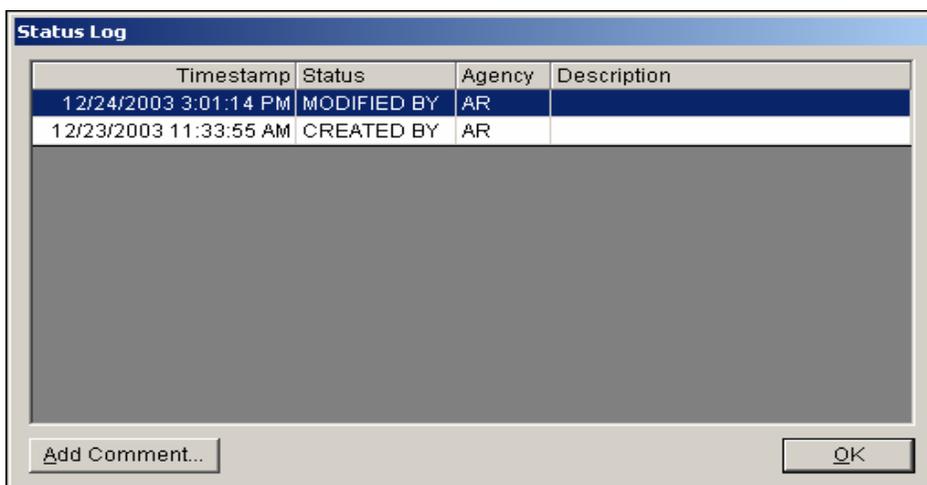
## 5.9 Viewing The Status Log

A status log is created and updated while a certification application is being processed. The next few steps will show how to view the log and to add status to the log.

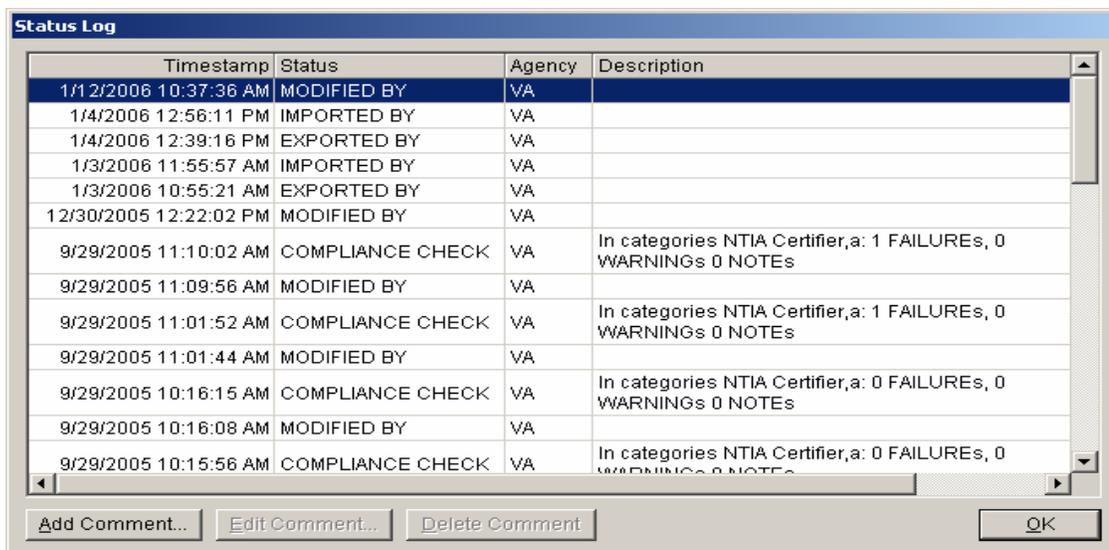
**Step 1.** From the tree view, **click** on the **[Status Log]** node.



The **Status Log** window is displayed.

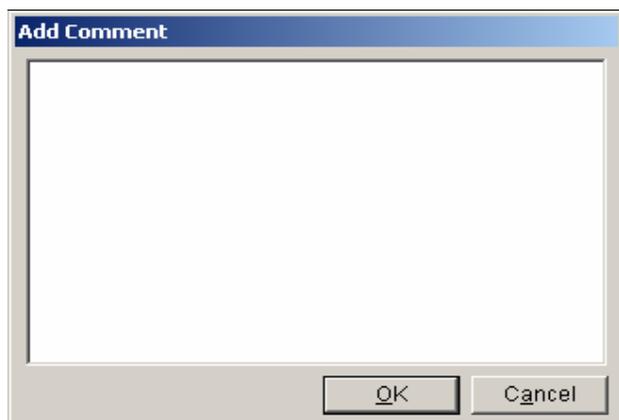


The following is an example log with more entries.

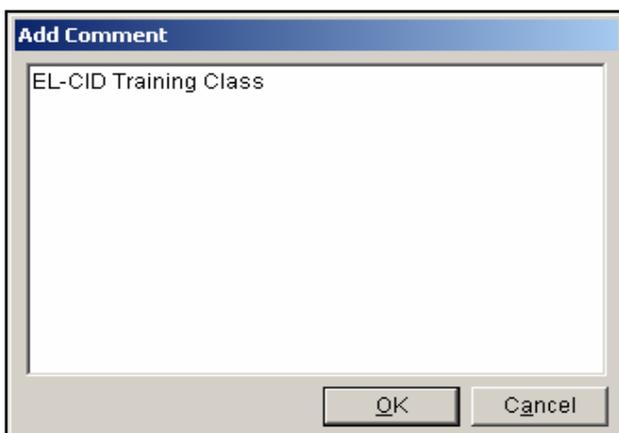


**Step 2.** Click the **Add Comment** button to add your own status entry.

The **Add Comment** window is displayed.

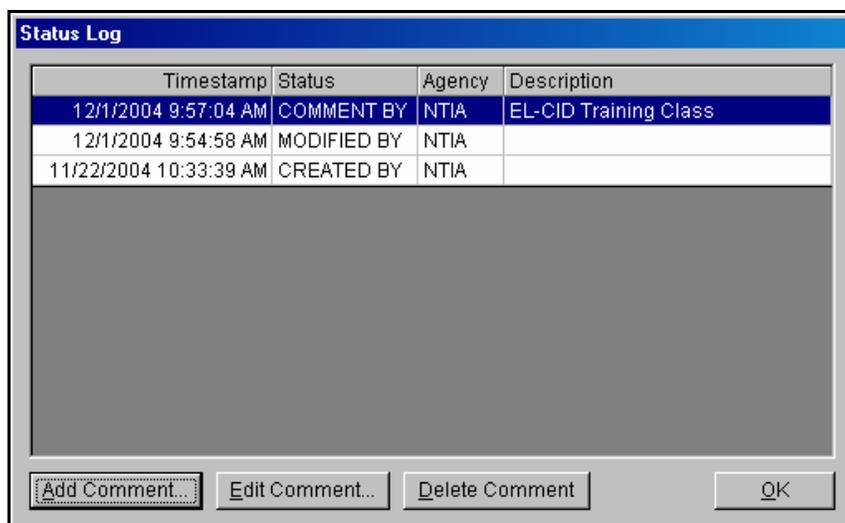


**Step 3.** In the window type **EL-CID Training Class** and then click **OK**.



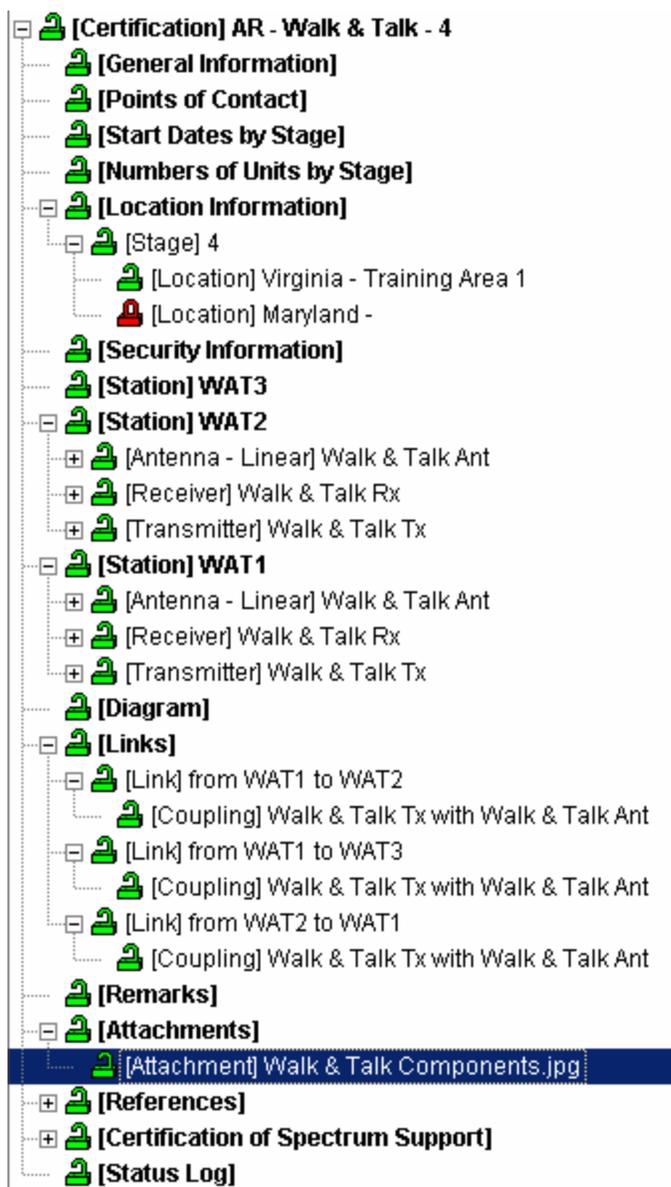
You will notice that your comment was added with the Status Code of **COMMENT BY**. Also notice that the latest status is displayed at the top of the log in chronological order.

**HINT:** This comment may be edited (using the **Edit** and **Delete** buttons until the record is exported).



Step 4. Click **OK** to close the **Status Log** window.

The following shows what the Tree View looks like so far.



## 6.0 RUNNING COMPLIANCE CHECKS

To be approved, a Certification application must meet standards set by the NTIA (and DoD and other national and international agencies). Most of these standards are published in the [NTIA Manual of Regulations & Procedures for Federal Radio Frequency Management](#) -- the so-called Red Book. You can obtain a copy of the NTIA Manual on the Internet at

<http://www.ntia.doc.gov/osmhome/redbook/redbook.html>

EL-CID contains a powerful and flexible Compliance Check engine, which checks your records for compliance with many of these standards. The Compliance Checks are implemented as a series of SQL queries against the record. If a query returns any results, then the record is non-Compliant. There are 3 levels of non-Compliance:

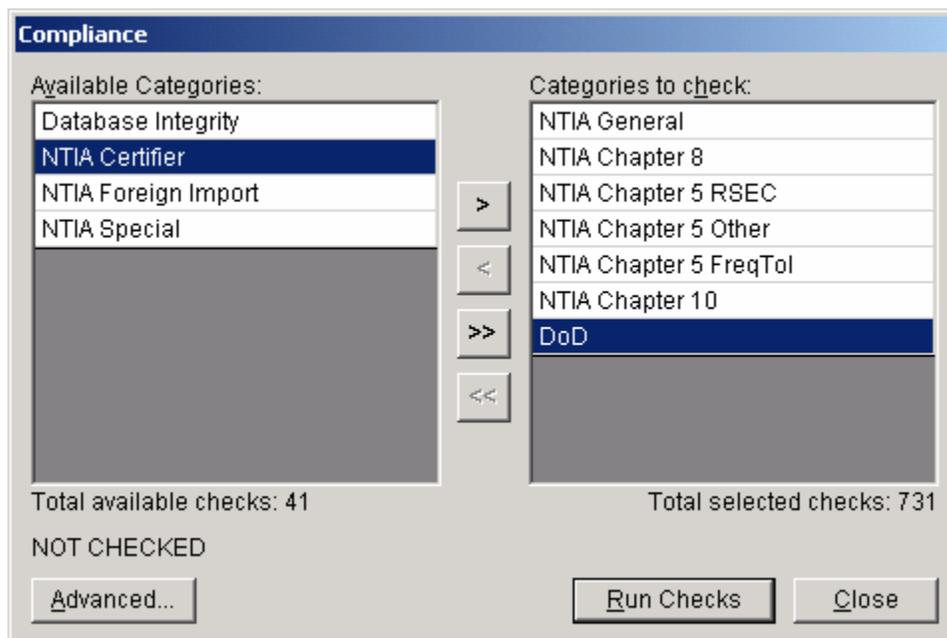
- FAILURE**      The record is not compliant and must be fixed, or a waiver must be obtained.
- WARNING**    The record may not be compliant or there may be some other inconsistency or error in the data.
- NOTE**        These are messages to help you build more complete or more accurate data, but do not indicate a compliance failure.

From time to time, NTIA will update the Compliance Checks in EL-CID and distribute them to EL-CID users as export files, which you should import following the steps in Appendix C.

To run Compliance Checks against the Walk & Talk record we have built, proceed as follows.

**Step 1.** Click on the **Compliance Checks** button  located on the tool bar.

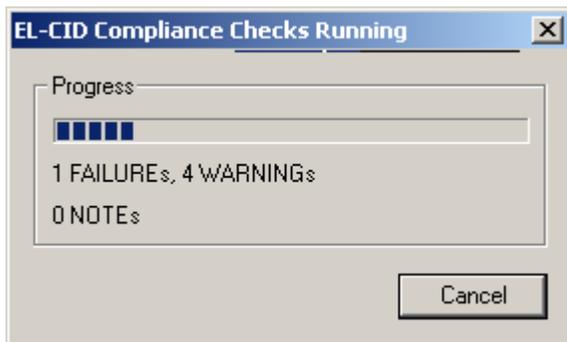
The **Compliance** window is displayed.



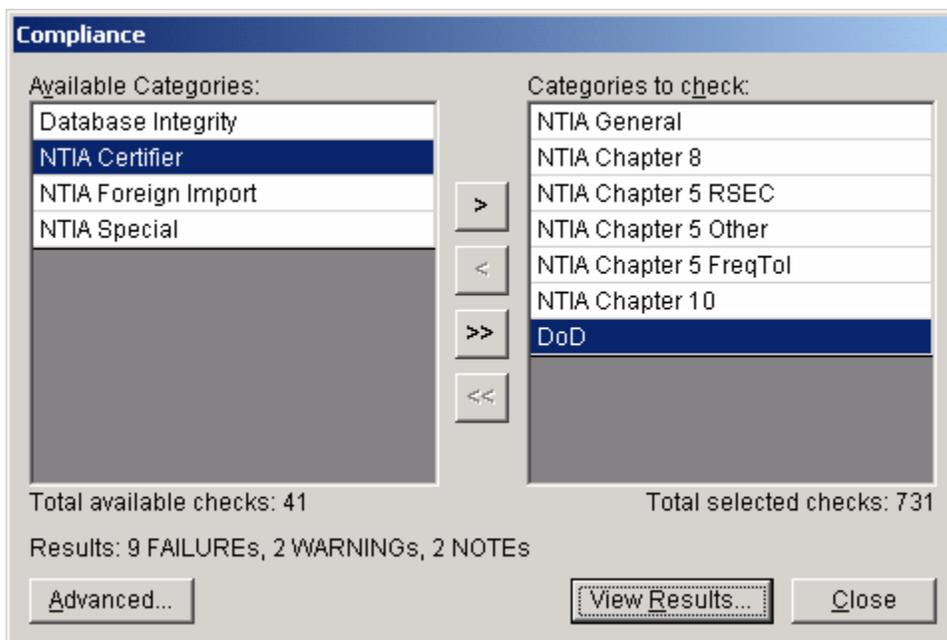
Items from the **Available Categories** list can be added to the **Categories to check** list by using the arrow buttons in the middle of the screen. We will select the categories shown above.

You can view all the checks by clicking the **Advanced** button.

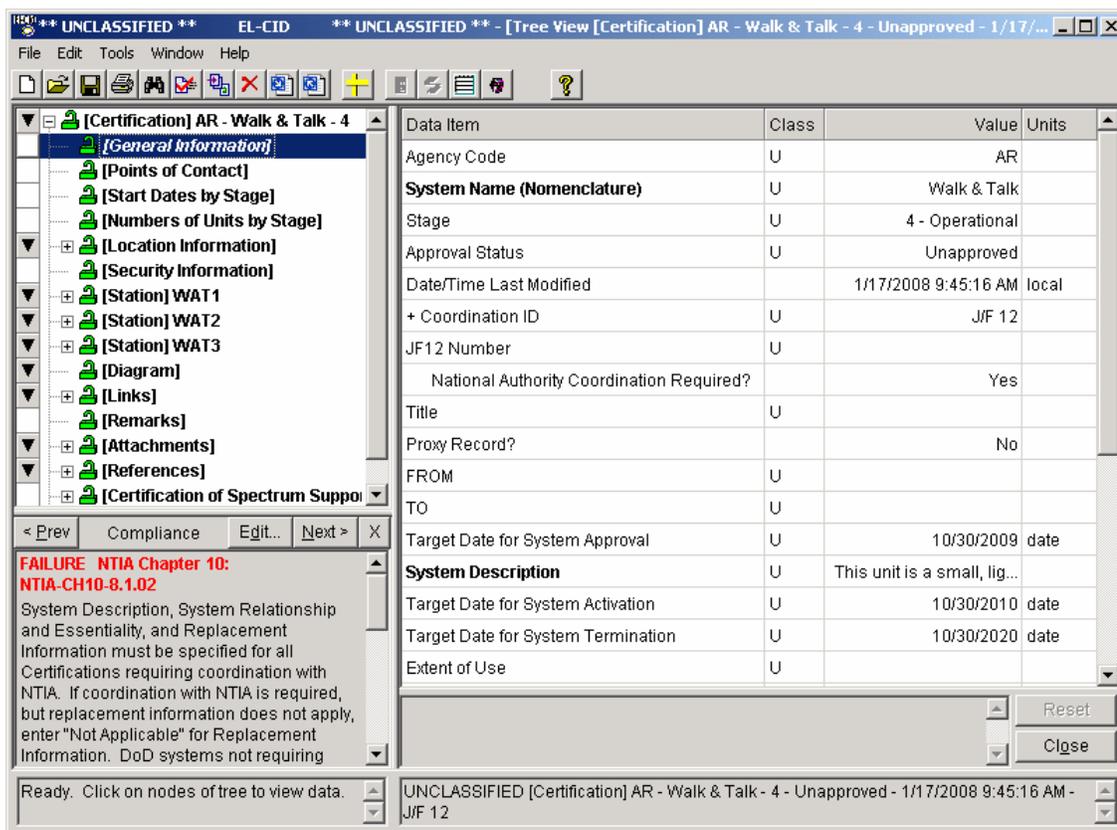
**Step 2.** Click the **Run Checks** button. The following **EL-CID Compliance Checks Running** window is displayed.



When the compliance checks have run, the **Compliance** window is shown with the summary of the number of failures, warning, and notes.



**Step 3.** To see the results, **click** the **View Results** button. The screen containing the first error will be displayed and the relevant compliance message will be shown at the bottom left of the screen.



**HINT:** The **Compliance Result** panel may be enlarged by dragging the divider upwards.

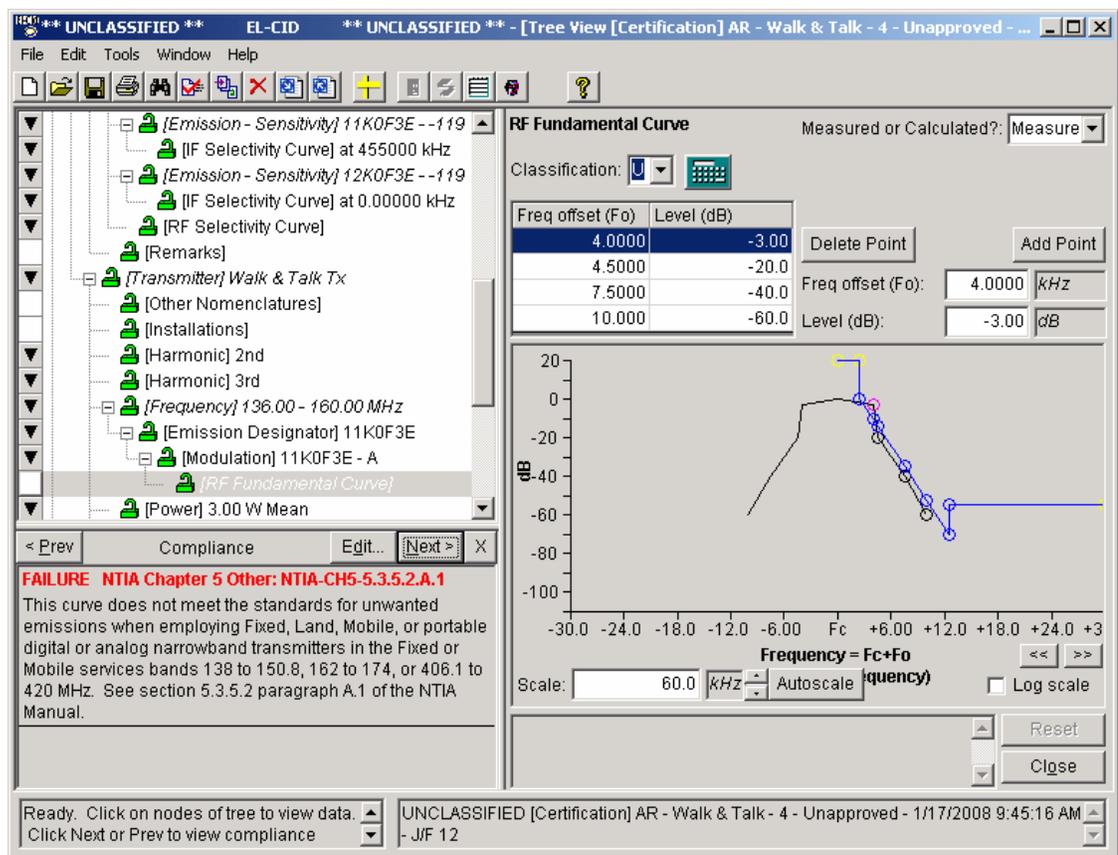
Notice that we did not fill out the fields for **System Relationship and Essentiality** or **Replacement Information**. These are required fields in this case.

Normally you would correct these errors and re-run the compliance checks to verify that all errors have been corrected. However, we are not going to correct these results at this time.

**NOTE:** The messages do not disappear immediately upon correcting the error.

**Step 4.** To see the remaining compliance messages **click** the **Next** button. As you can see, the messages indicate the type of message (e.g., Failure, Warning, or Note), the reason for the message, and the reference document(s).

Notice how the **RF Fundamental Curve** fails the NTIA standard curve (shown in blue) in the picture below. To pass, the curve must be everywhere underneath the standard curve.



**HINT:** A common mistake is to have entered full bandwidths, rather than frequency offsets, when entering the curve. If this is the case, correct the curve by dividing the bandwidths in half.

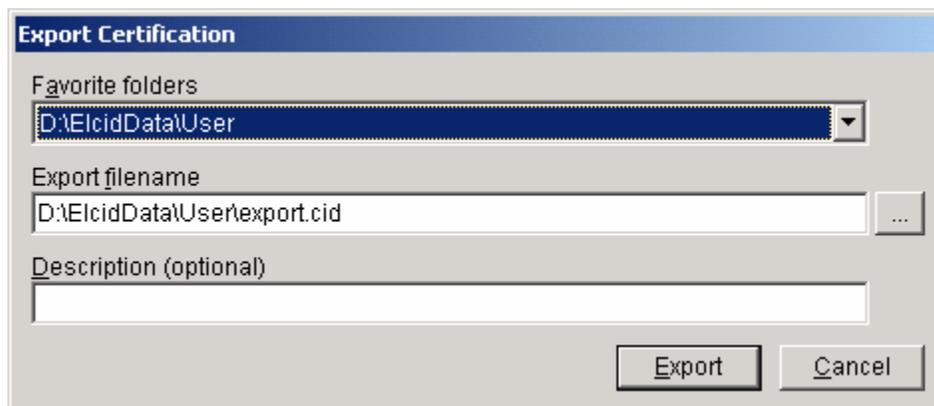
**Step 5.** Click on the  button in the lower left hand window (the **Compliance Results** window) to close it.

## 7.0 EXPORTING CERTIFICATION RECORDS

Once a certification is corrected, you will want to export the certification so it can be forwarded to the next higher organization that will review it. The next few steps will illustrate the exporting process.

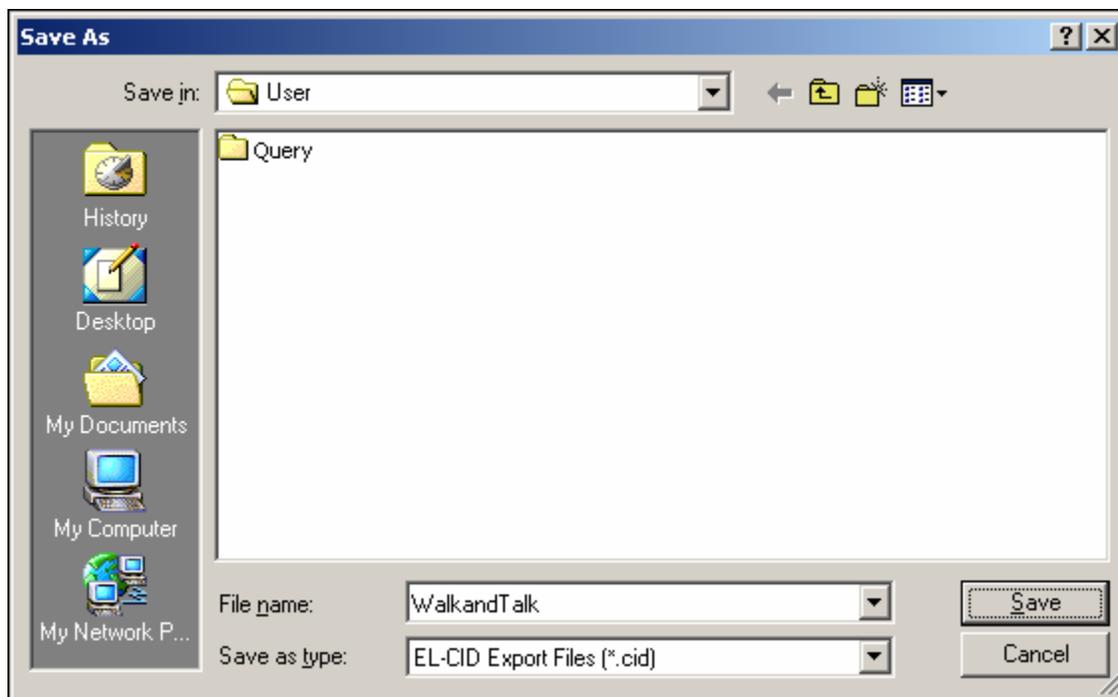
**Step 1.** Click the **Export** button  on the tool bar.

The **Export Certification** window is displayed. **Navigate** to your **D:** drive and **select** the folder **D:\ElcidData\User**.



Notice that a default file name of export.cid is entered for you, but you can specify a different filename.

**Step 2.** Click the **Browse** button  and **enter WalkandTalk** as the filename, as shown below.



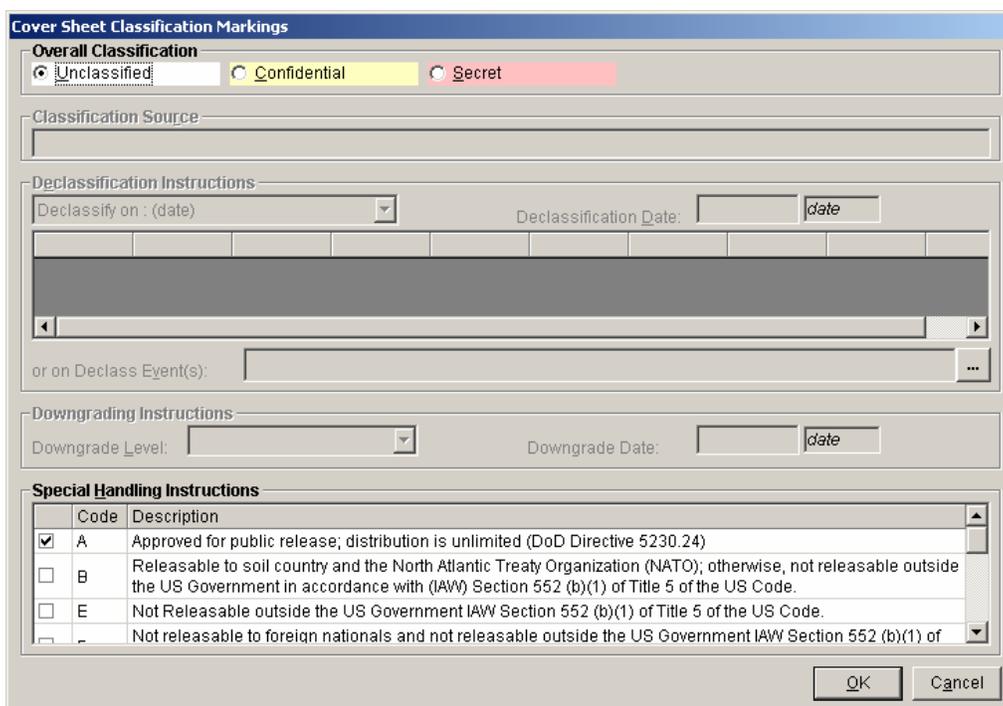
**Step 3. Click Save.** The **Export Certification** window is displayed again showing the path and filename that you selected.



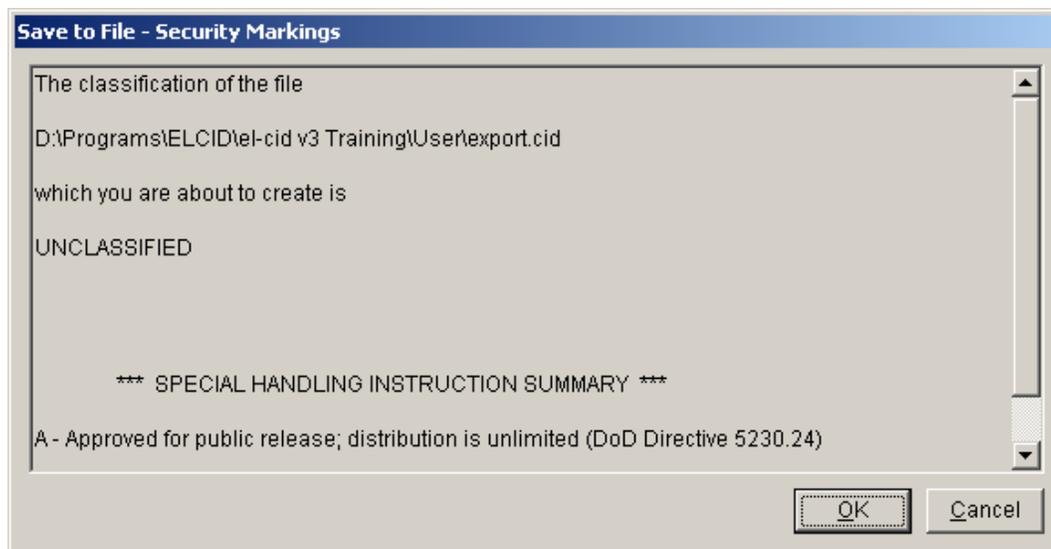
**Step 4. Type EL-CID Training** into the **Description** box.



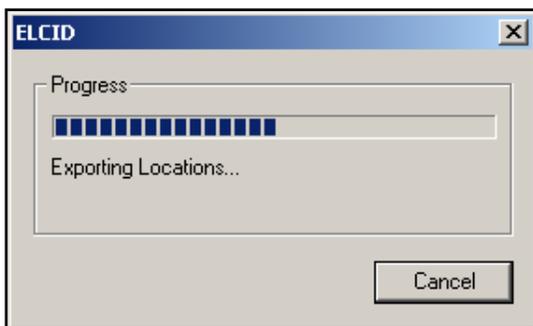
**Step 5. Click Export.** The **Cover Sheet Classification Markings** window is displayed.



**Step 6.** Click **OK**. The **Save to File – Security Markings** window is displayed.



**Step 7.** Click **OK**. A **Progress** window is displayed. When it closes, the file has been saved and the Tree View will reappear.



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## 8.0 PRINTING A CERTIFICATION RECORD

If you want to print a copy of the certification record for filing, the next few steps will illustrate how this is done.

**Step 1.** Click the **Print** button  on the tool bar.

The **Print Options** window is displayed.



**Step 2.** Check the **DD 1494** check box and then you will see that additional options become active for the DD 1494 output.

**Step 3.** Check the **Transmitter Page(s)** check box and then click **OK**.



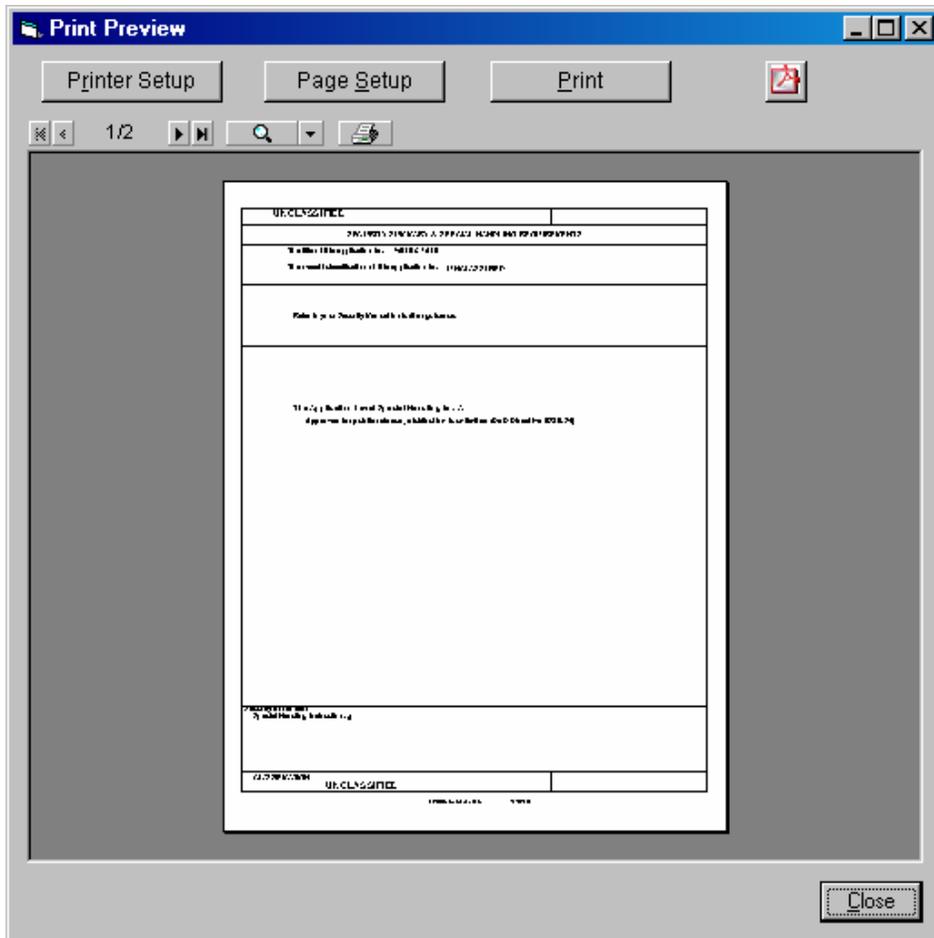
The image shows a 'Print Options' dialog box with a list of checkboxes. The 'Transmitter Page(s)' checkbox is checked and highlighted with a dashed border. Other options include 'Entire Application', 'DoD General Information Page', 'Foreign Coordination Page', 'Receiver Page(s)', 'Antenna Page(s)', 'NTIA Page', 'Full Record Print', 'Include Compliance Check Results', 'Summary Print', 'Map', 'Certification of Spectrum Support', 'Status Log', 'Line Diagram', and 'Include Frequency List'. At the bottom right are 'OK' and 'Cancel' buttons.

**Print Options**

- D**D 1494
  - Entire Application
  - DoD General Information Page
  - Foreign Coordination Page
  - T**ransmitter Page(s)
  - Receiver Page(s)
  - Antenna Page(s)
  - NTIA Page
- Full Record Print
  - Include Compliance Check Results
- Summary Print
- Map
- Certification of Spectrum Support
- Status Log
- Line Diagram
  - Include Frequency List

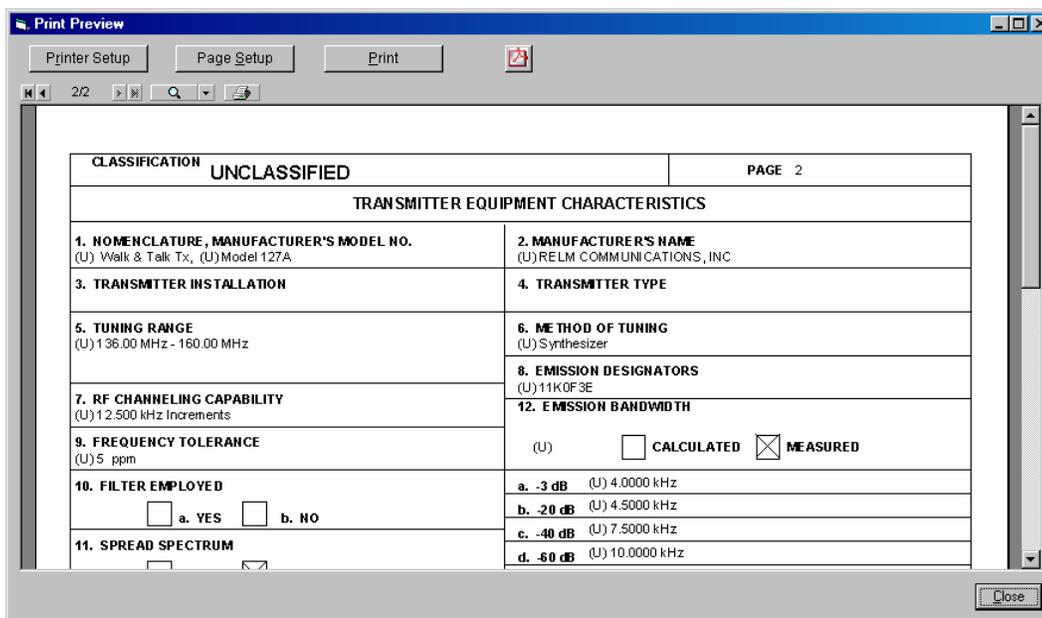
OK Cancel

The **Print Preview** window is displayed showing the cover page.



**HINT:** It will be helpful to maximize the window.

**Step 4.** Click  to go to the next page. Use the **magnifying glass** icon  to zoom in on the **Transmitter Equipment Characteristics** page.



**HINT:** Hold down the **Ctrl** key and click with the left mouse button to zoom in. Hold down the **Ctrl** key and right-click to zoom out. Hold down the **Alt** key and right-click to page forward. Hold down the **Alt** key and click the left mouse button to page backwards.

**Step 5.** Click the **Close** button.

**Step 6.** Click the **Print** button again, and then select the **Full Record Print** check box and the **OK** button.

**Step 7.** Review the various pages of the output. If you want to actually print the document you would click the **Print** button (but don't actually print the document.)

**HINT:** You can use the PDF button  to send the printout to a Portable Document Format file.

**Step 8.** Click **Close**.

**Step 9.** Click the **Print** button again, and then select the **Summary Print** check box and the **OK** button.

**Step 10.** Review the various pages of the output.

**Step 11.** Click **Close**.

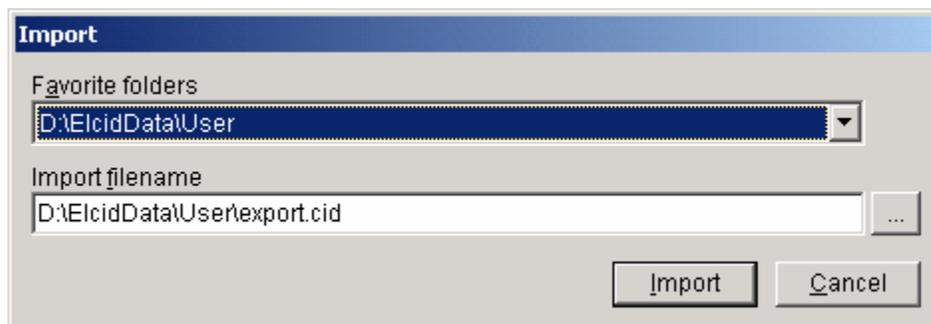
**Step 12.** Click **File | Close** on the main menu or use the  button to close the current certification application.

## 9.0 IMPORTING A CERTIFICATION APPLICATION

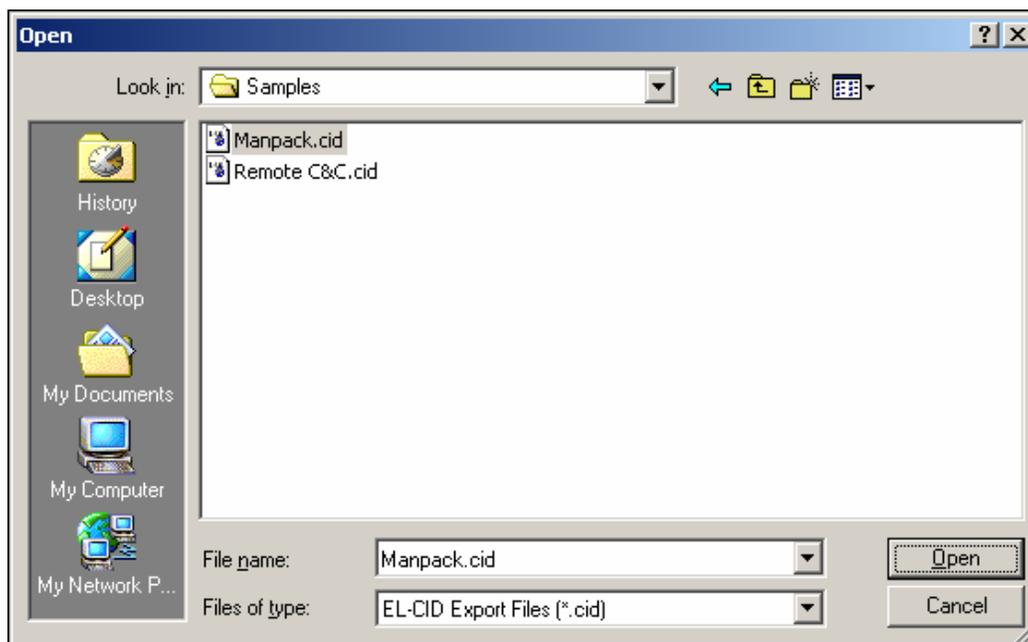
You may need to import a certification application that was prepared by someone else. The following steps will illustrate how to perform this import.

**Step 1.** Click the **Import** button  on the tool bar.

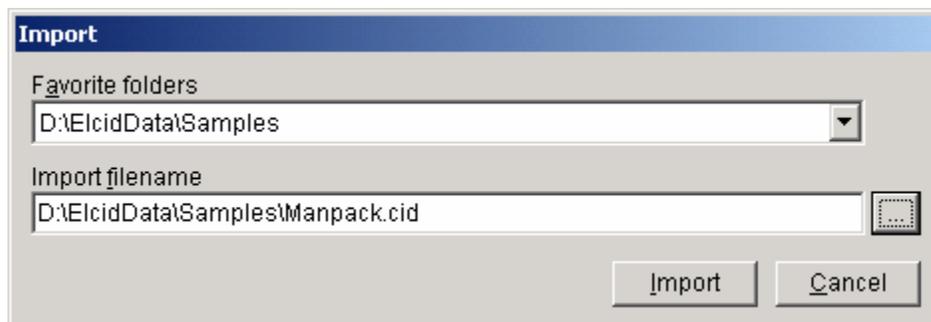
The **Import** window is displayed.



**Step 2.** Click the **browse** button to select the file to import. **Navigate** to the **Samples** folder in the EL-CID data folder. (For training, this will be the **D:\ElcidData**.) Highlight the filename **Manpack.cid** and then **click Open**.



The **Import** window displays the selection.



**Step 3. Click Import.** The **File Description** window is displayed.



**Step 4. Click OK.** The **Import Record List - Certification** window is displayed.



Notice the locations that are marked **Skip**. This is because identical **Location** records already exist in the database. There is no point in importing such records and creating duplicates. Instead, when the **Manpack** certification is imported, it will be associated with the existing **Location** records already in the database.

Depending upon the **Comparison Results**, it is possible to override some of these actions. For example, to override adding a Certification record, click on **Add** in the **Action** column in the Certification row. In the list that drops down, select **Skip**. If a record is marked **Skip** because there is a **NEWER** record in the database, you can override it to **Add**. Notice that you cannot override **Skip** if there is an **IDENTICAL** record in the database. Also, you cannot override an equipment or Location from **Add** to **Skip** if the Certification containing the equipment is **Add**, because doing so would modify the Certification record.

**Step 5. Click Apply.** The **Progress** window is briefly displayed and then the **Import Record List - Certification** window reappears. The rows marked **Add** have changed to **ADDED** and the rows marked **Skip** have changed to **SKIPPED**. At this point, the records have been imported into the database.

**Step 6.** Click **OK** to close the window.

**Step 7.** Repeat the steps above to import the file named **NTIA Landmobile System.cid**, which you will find in the **Training Material\Samples** folder on your **Training CD**. We'll need this record in the next chapter.

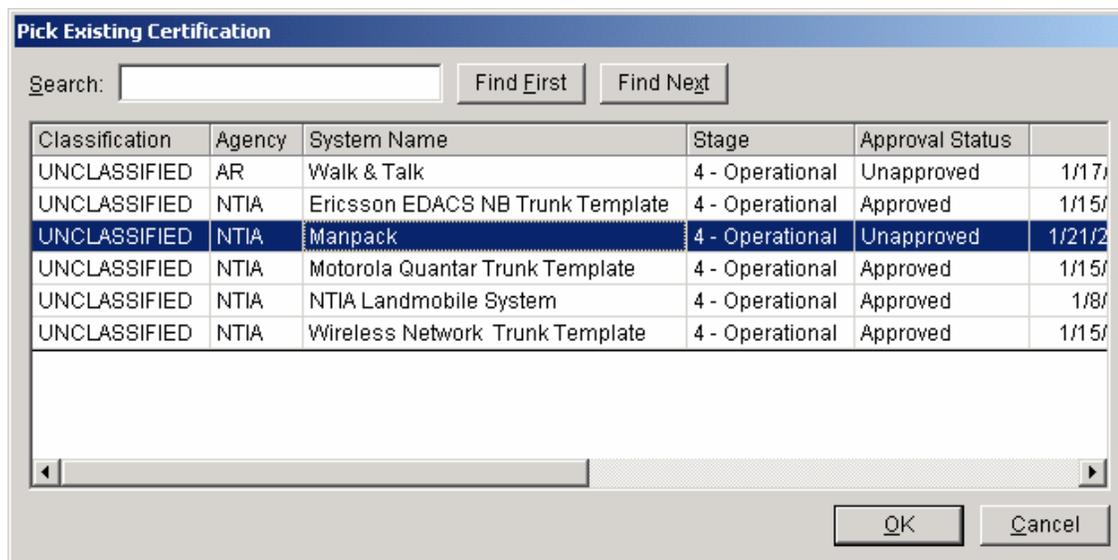
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## 10.0 OPENING AND EDITING AN UNAPPROVED CERTIFICATION RECORD

Once you have saved or imported a certification application that has not been approved you can open it and then edit it. The following steps show how you can do this.

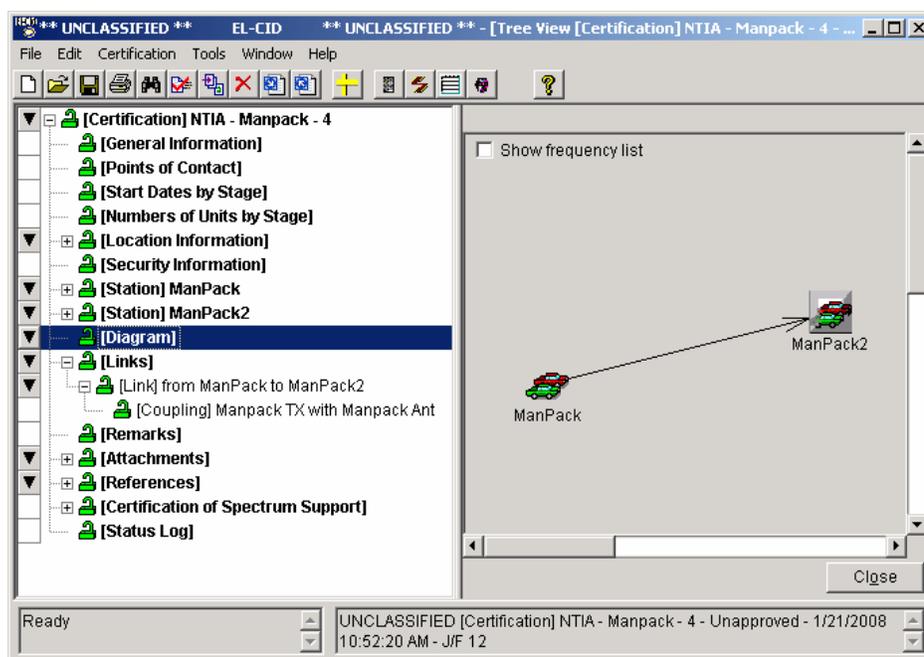
**Step 1.** Click the **Open** button  to open a certification.

The **Pick Existing Certification** window is displayed.

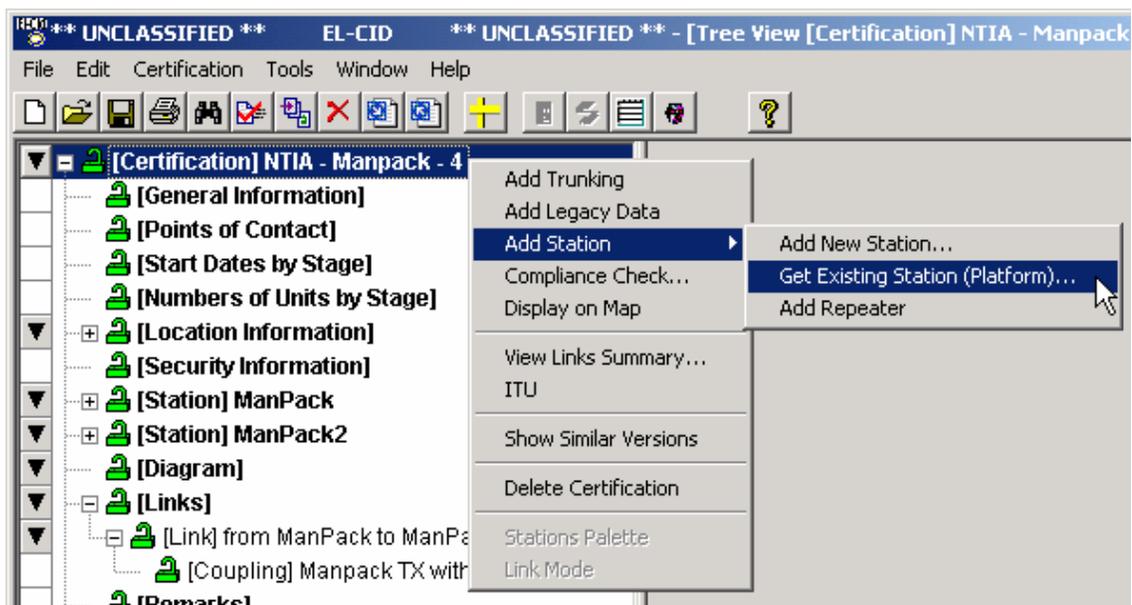


**Step 2.** Highlight the **Manpack** system and then **click OK**. The Certification's tree view is displayed.

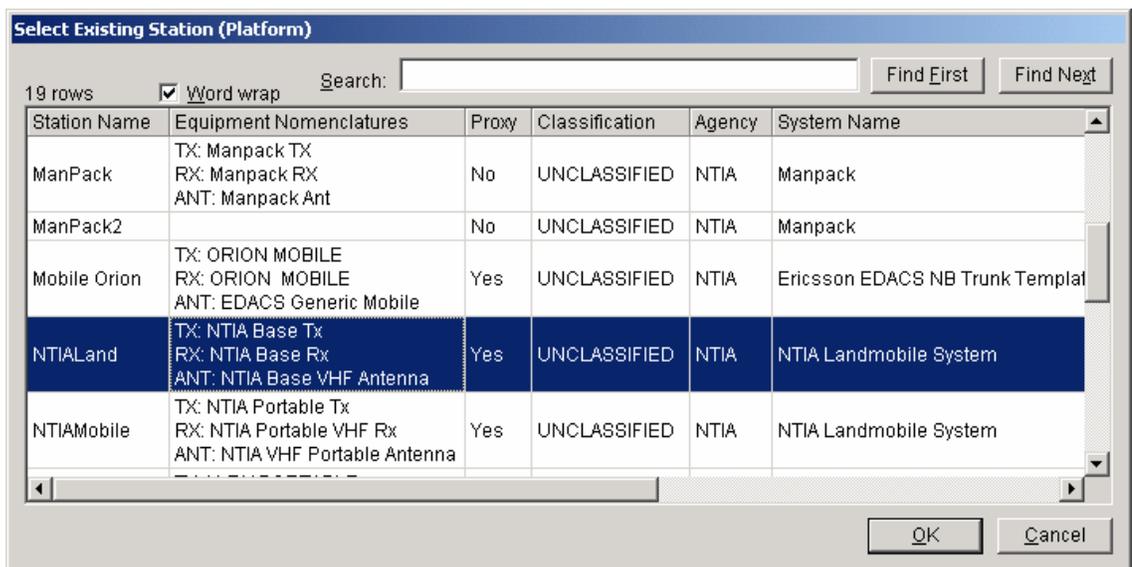
**Step 3.** Click **[Diagram]**. The **Diagram** node is displayed.



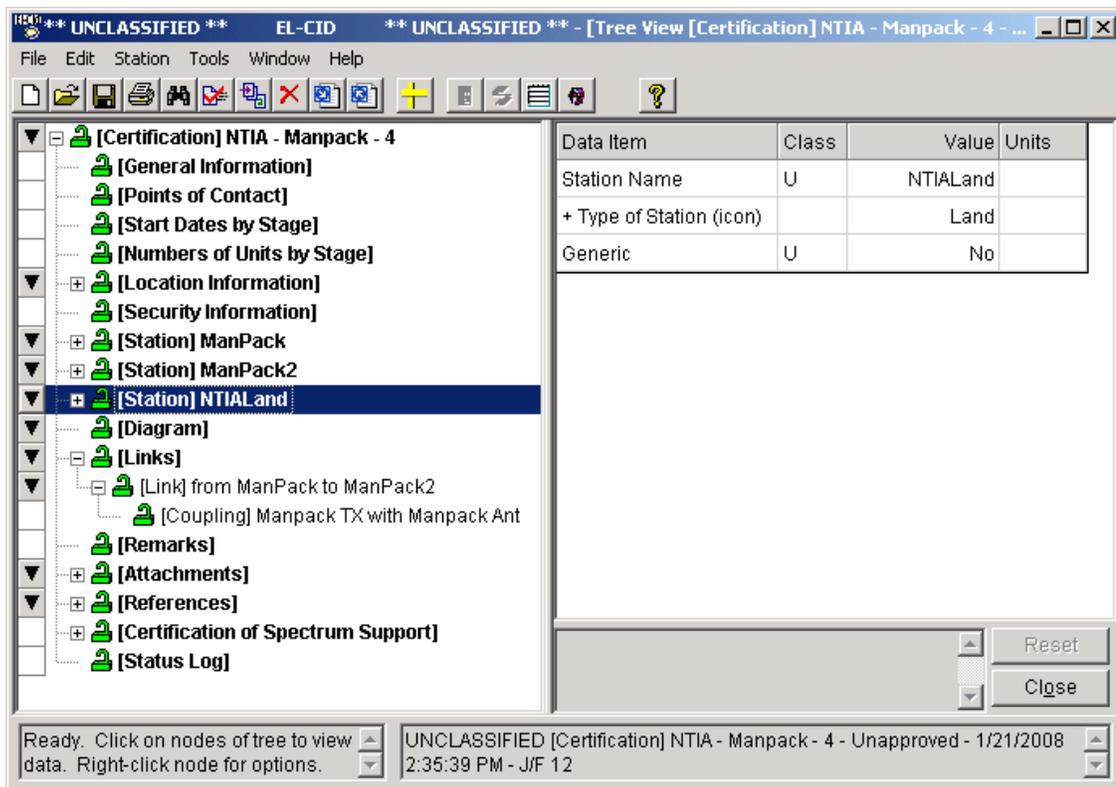
**Step 4.** To add an existing Station to a Certification, including its equipments and locations, **right-click** on the **[Certification] NTIA – Manpack – 4** node and select **Add Station | Get Existing Station (Platform)** in the menu that pops up.



The **Select Existing Station (Platform)** window appears.

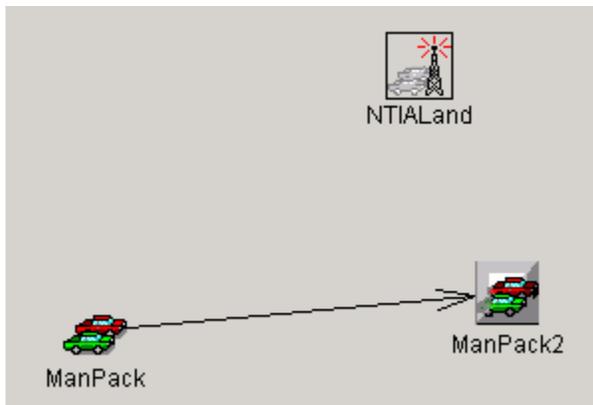


**Step 5.** Select the row with **NTIALand** in the **Station Name** column and **click OK**. The Tree View window reappears with the NTIALand station added to the Certification record.



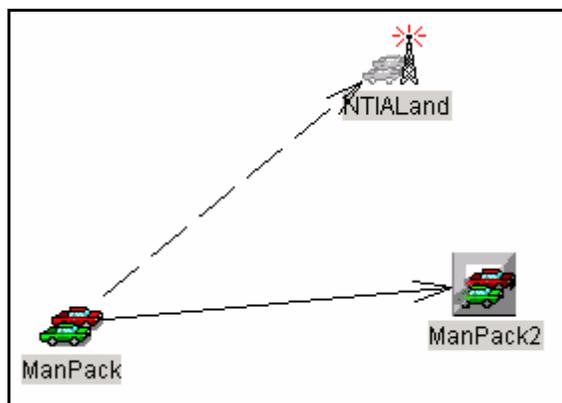
**Step 6.** Expand the **NTIALand** node to see that all the equipments from the NTIALand station were copied as well.

**Step 7.** Click on the **Diagram** node and drag the **NTIALand** node so that your diagram looks something like this.



**Step 8.** Click the **Create New Links** button  to switch to Link mode.

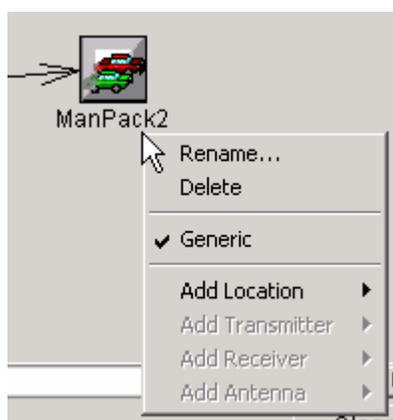
**Step 9.** Click on the **ManPack** icon, and then click on the **NTIALand** icon. A link from the **ManPack** Station to the **NTIALand** Station will be drawn, as shown below.



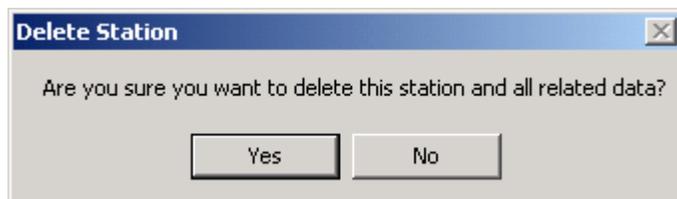
**Step 10.** Click on the **NTIALand** icon, and then click on the **ManPack** icon. A link from the **NTIALand** Station to the **ManPack** Station will be drawn (i.e., the link will be drawn with arrows at both ends of the link).

**Step 11.** Click the **Create New Links** button again to turn the link mode off.

**Step 12.** To delete the ManPack2 Station and its associated link information, right-click on the **ManPack2** Station and select **Delete**.

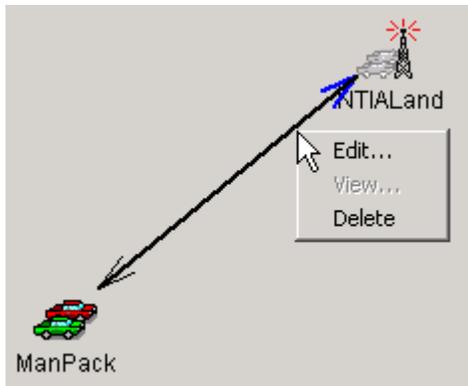


The **Delete Station** window appears.

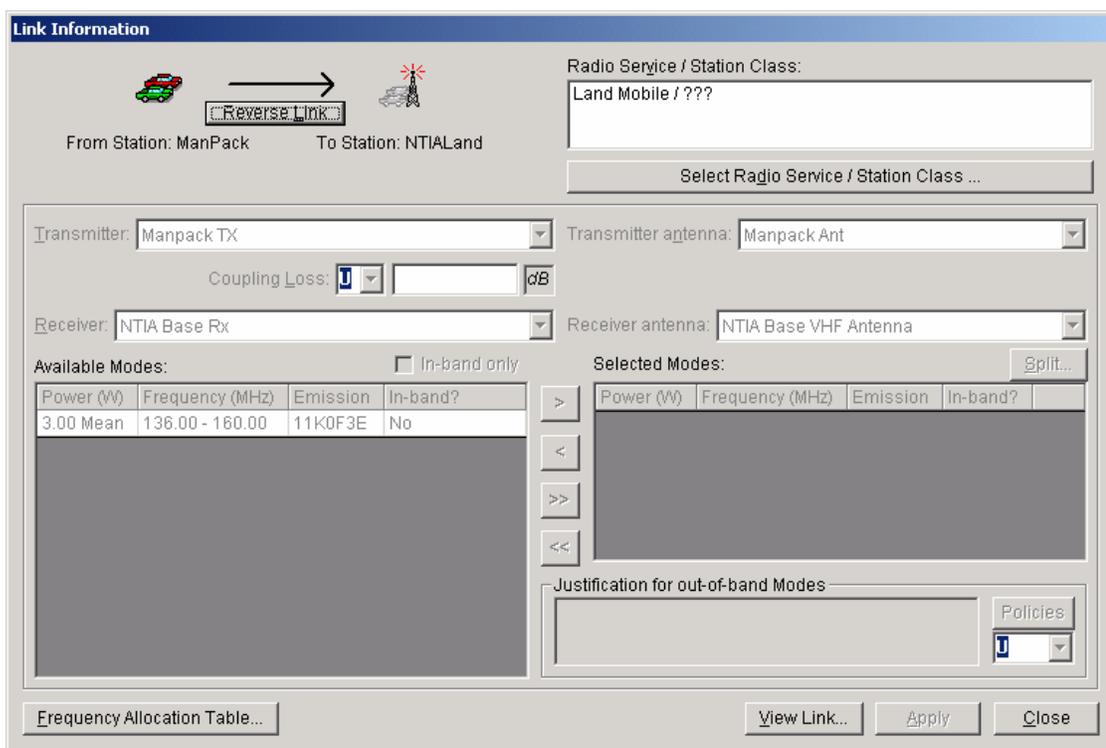


**Step 13.** Click **Yes**.

**Step 14.** Right-click on the link line near the **NTIALand** end of the line and **select Edit**.



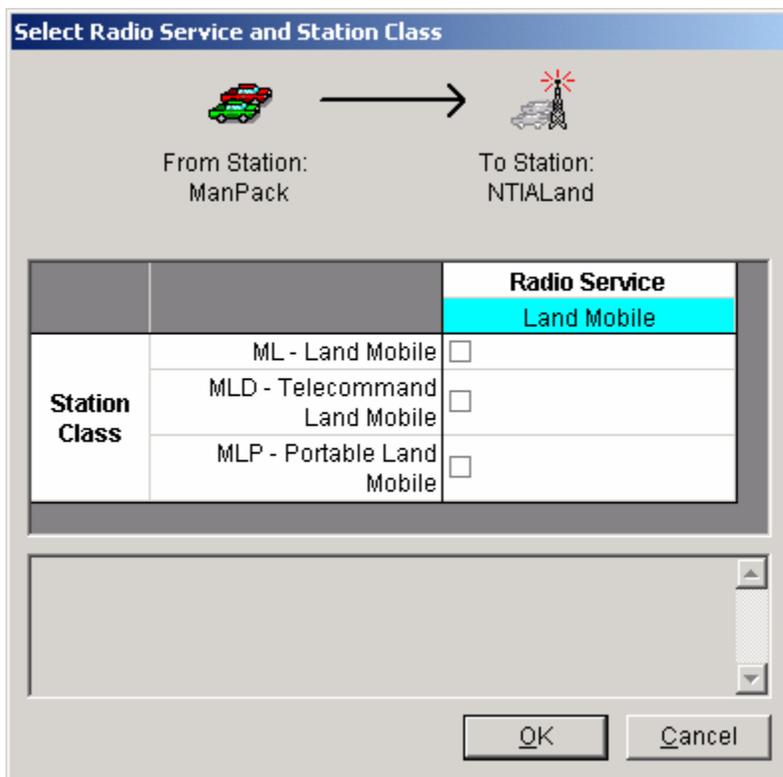
The Link Information window is displayed.



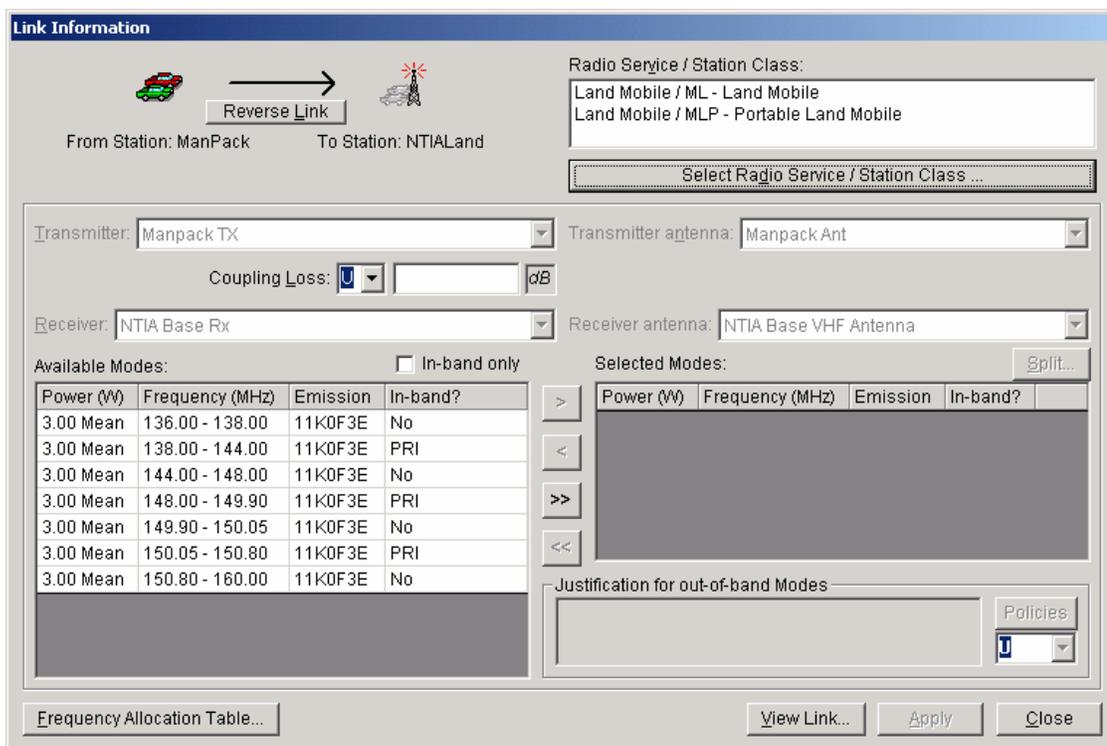
**Step 15.** Click the **Select Radio Service / Station Class** button.



The **Select Radio Service and Station Class** window is displayed.



**Step 16.** Select station class **ML** and **MLP** by checking the respective check boxes, and then click **OK**. The **Link Information** window will be redisplayed.



Since we only have one transmitter, receiver, and only one antenna at each station, all the pick lists are disabled. If you had more than one to choose from you could select from the lists by using the down arrow button beside each field.

Notice that you could change the classification and coupling loss fields.

**Step 17.** Select from the available modes the modes that you want to certify. Hold down the **Ctrl key** and then **click the 3 rows of available modes that have a PRI in the In-band? column.**

Available Modes:  In-band only

Power (W)	Frequency (MHz)	Emission	In-band?
3.00 Mean	136.00 - 138.00	11K0F3E	No
3.00 Mean	138.00 - 144.00	11K0F3E	PRI
3.00 Mean	144.00 - 148.00	11K0F3E	No
3.00 Mean	148.00 - 149.90	11K0F3E	PRI
3.00 Mean	149.90 - 150.05	11K0F3E	No
3.00 Mean	150.05 - 150.80	11K0F3E	PRI
3.00 Mean	150.80 - 160.00	11K0F3E	No

**Step 18.** **Click the right arrow button** to transfer the highlighted mode to the **Selected Modes** list.

Selected Modes:

Power (W)	Frequency (MHz)	Emission	In-band?
3.00 Mean	150.05 - 150.80	11K0F3E	PRI
3.00 Mean	148.00 - 149.90	11K0F3E	PRI
3.00 Mean	138.00 - 144.00	11K0F3E	PRI

**Step 19.** **Click Apply** to save your choices, and then **click OK** to acknowledge that the changes have been saved.

**Step 20.** **Click the View Link** button to see the link information that you have saved.

View Link


  
 From Station: ManPack      To Station: NTIALand

Transmitter	Power (W)	Frequency (MHz)	Em. Des.	EIRP (W)	TX Antenna	RX Antenna	Receiver	In-band?	Justification for Out-of-band
Manpack TX	Mean 3.00	138.00 - 144.00 148.00 - 149.90 150.05 - 150.80	11K0F3E	3.00	Manpack Ant	NTIA Base VHF Antenna	NTIA Base Rx	PRI	

Radio Service / Station Class:  
 Land Mobile / ML - Land Mobile  
 Land Mobile / ML - Land Mobile

**Step 21.** **Click OK** to close the window.

**Step 22.** **Click the Reverse Link** button  to edit the reverse link data.

The reverse link information will appear.

**Link Information**

Reverse Link

To Station: ManPack      From Station: NTIALand

Radio Service / Station Class:  
Land Mobile / ???

Select Radio Service / Station Class ...

Transmitter: NTIA Base Tx      Transmitter antenna: NTIA Base VHF Antenna

Coupling Loss:  dB

Receiver: Manpack RX      Receiver antenna: Manpack Ant

Available Modes:  In-band only

Power (W)	Frequency (MHz)	Emission	In-band?
125 Mean	138.00 - 174.00	11K0F3E	No
35.0 Mean	138.00 - 174.00	11K0F3E	No
100 Mean	138.00 - 174.00	11K0F3E	No

Selected Modes:

Power (W)	Frequency (MHz)	Emission	In-band?
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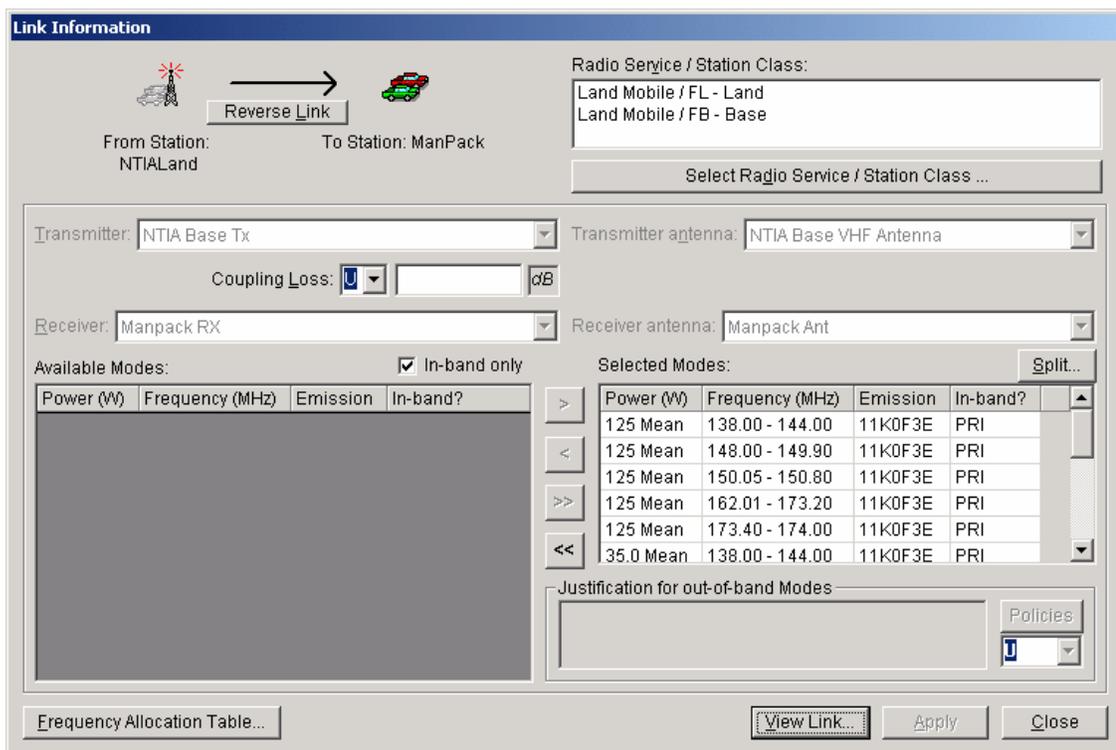
Justification for out-of-band Modes

**Step 23.** Click the **Select Radio Service / Station Class** button.

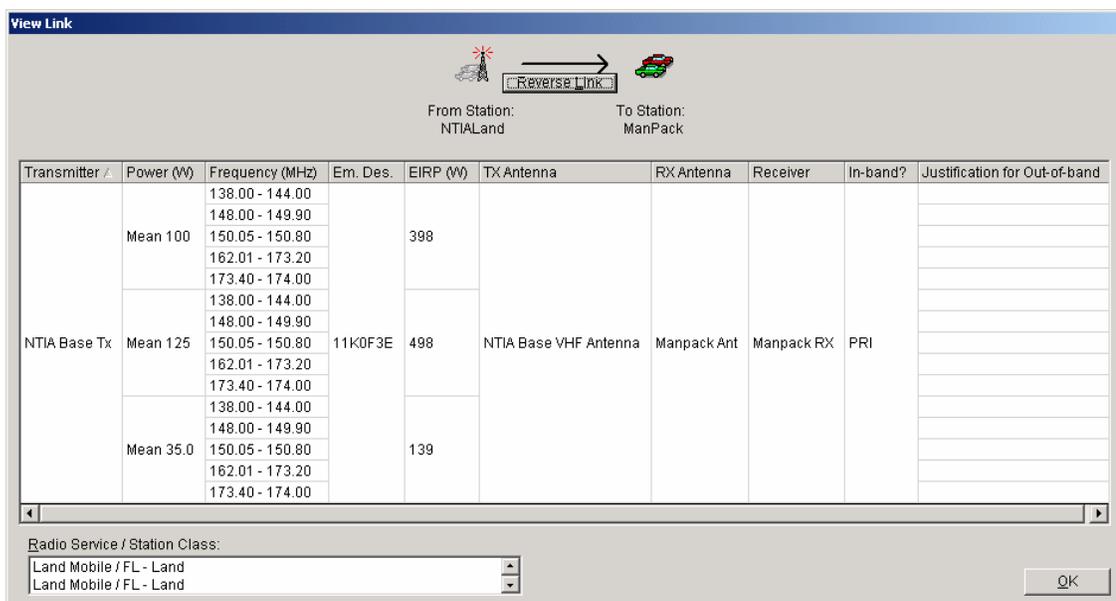
**Step 24.** On the **Select Radio Service and Station Class** window **select** station classes **FB** and **FL** and then **click OK**.

**Step 25.** On the **Link Information** window, **check** the **In-band only** check box  **In-band only**, then select all the available **In-band** modes by **clicking** the **select all button** .



**Step 26.** **Click Apply** to save your choices, and then **click OK** to acknowledge that the data has been saved.

**Step 27.** **Click** the **View Link** button to see the link information that you have saved.



**Step 28.** **Click OK** to close the **View Link** window.

**Step 29.** **Click Close** to close the **Link Information** window.

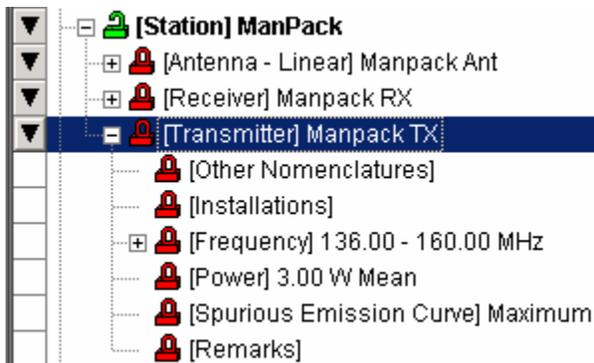
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## 11.0 CLONING RECORDS

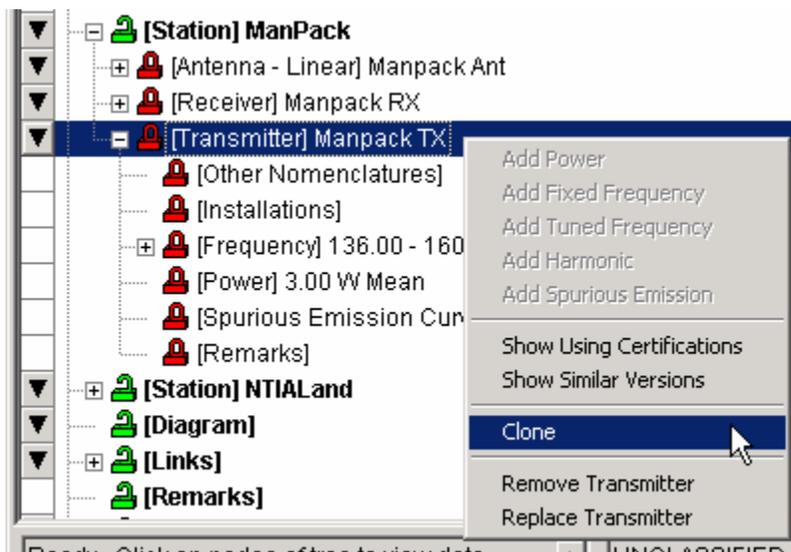
You can clone a Certification, Transmitter, Receiver, Antenna, or Location from the **Tree View**.

**HINT:** You can also clone a Certification, Transmitter, Receiver, Antenna, Location, or Compliance Check record from the **Query Results** window. See Section 13.

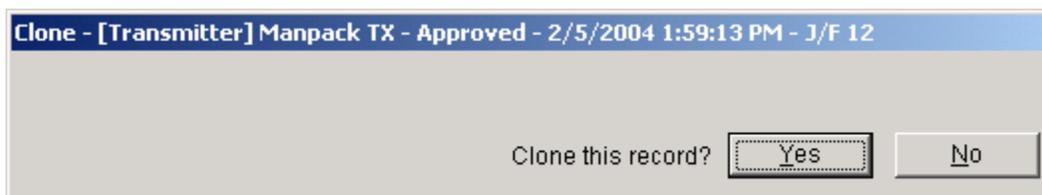
**Step 1.** Expand the **[Station] ManPack** node. Click on the **[Transmitter] Manpack TX** node to expand it as well. Note that the transmitter node is red padlocked (Approved). We want to create a new model of this transmitter with a dual power selector. Because it is locked, we will clone this transmitter and make the changes to the cloned record.



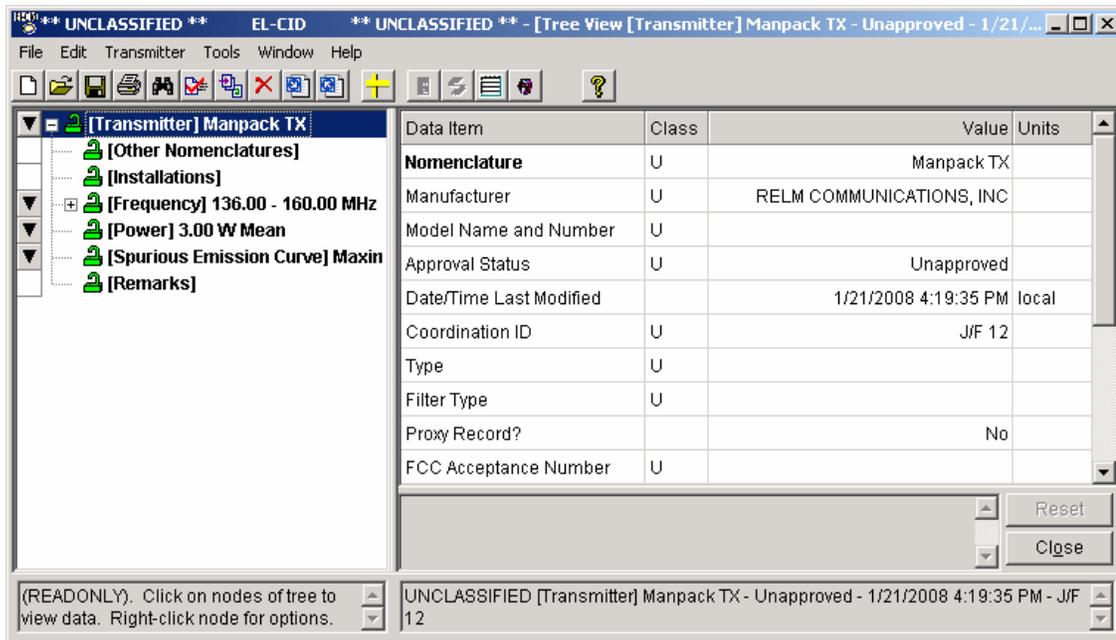
**Step 2.** Right-click on the **[Transmitter] Manpack TX** node and select **Clone**.



The **Clone** window is displayed.



Step 3. Click Yes to clone the record. The cloned transmitter is displayed.



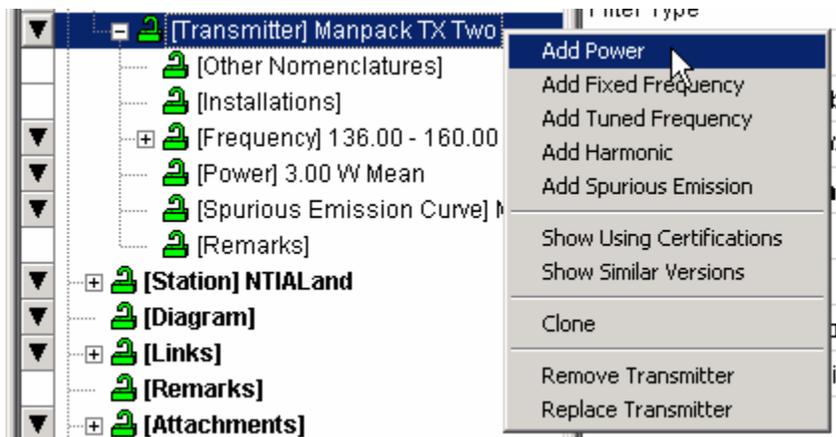
**HINT:** When you clone a record you are adding it to the database and not to the active certification. Notice that the Red locks have turned to Green locks. When you close this window you will return to the active application.

Step 4. Click on the Nomenclature field, and change the name to Manpack TX Two.

Data Item	Class	Value	Units
Nomenclature	U	Manpack TX Two	
Manufacturer	U	RELM COMMUNICATIONS, INC	

**HINT:** Click on the [Transmitter] Manpack TX node to save the change and note that the node name will change to Manpack TX Two.

**Step 5.** Now we are going to edit the new transmitter. **Save** the transmitter. **Right-click** on **[Transmitter] Manpack TX Two** and **select Add Power**.



The **Power** data grid is displayed.

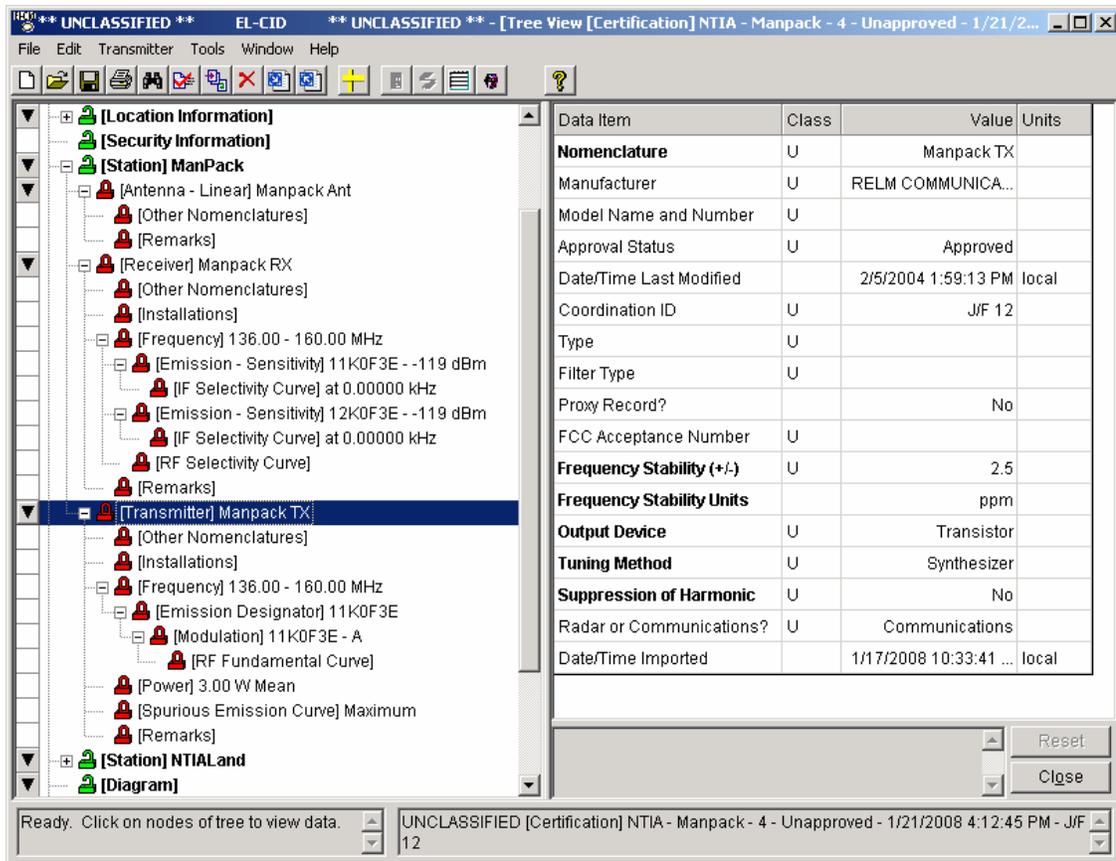
Data Item	Class	Value	Units
<b>Power Type</b>			
Power Lower Limit	U		W
<b>Power Upper Limit</b>	U		W

**Step 6.** **Enter** the following data.

Field	Value
<b>Power Type</b>	<b>Mean</b>
<b>Power Upper Limit</b>	<b>50W</b>

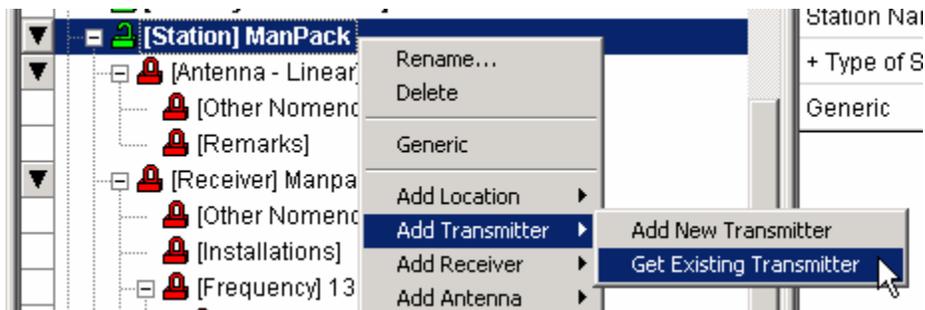
**Step 7.** **Save** the data.

Step 8. Click the **Close** button. The **Original Certification** window is displayed.

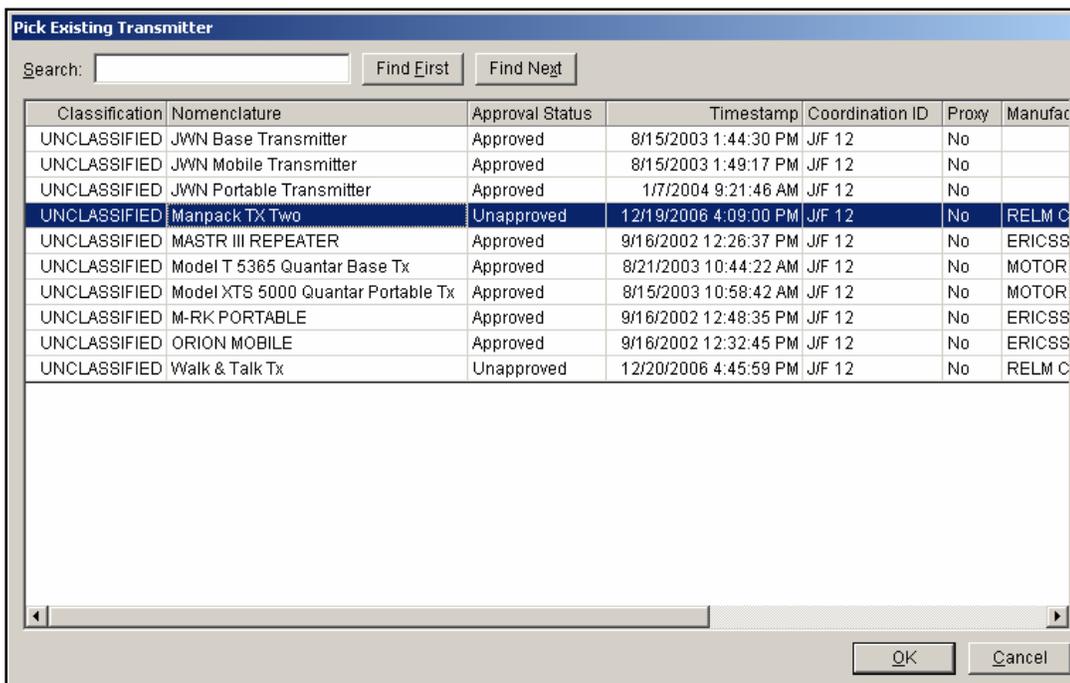


Now that we have a new transmitter record which was cloned (or copied) from an existing transmitter, we are going to add this new transmitter to the ManPack Station.

Step 9. Right-click on the **[Station] ManPack** node and select **Add Transmitter | Get Existing Transmitter**.



The **Pick Existing Transmitter** window is displayed. Notice how the original **ManPack TX** Transmitter does not appear in the list because it is already associated with the **ManPack Station**.



**Step 10.** Highlight **Manpack TX Two** and then **click OK**.

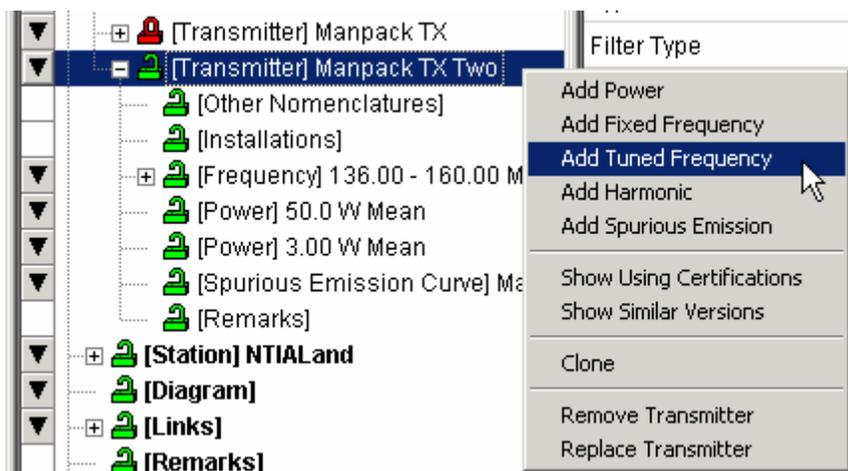
The **Manpack TX Two** transmitter is added to your certification for the Station **ManPack**.



**Step 11.** **Save** the data.

Next we will use the Copy and Paste capability of EL-CID.

**Step 12.** Right-click on the [Transmitter] ManPack TX Two node and select Add Tuned Frequency



The Frequency data grid will be displayed.

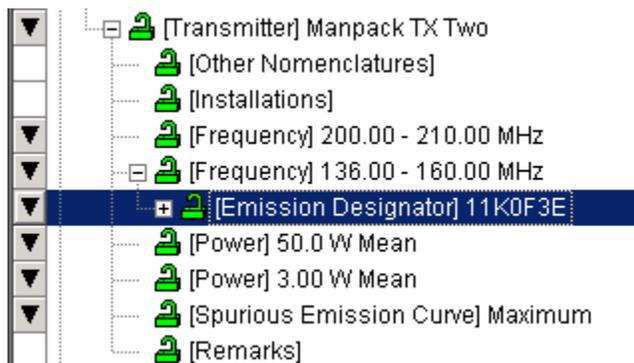
Data Item	Class	Value	Units
+ Fixed Frequency?		No	
<b>Lowest Tuned Frequency</b>	U		MHz
<b>Highest Tuned Frequency</b>	U		MHz
<b>Tuning Increment</b>	U		kHz
<b># of Frequencies Required for Operation</b>	U		
<b>Minimum Required Frequency Separation</b>	U		MHz
Frequency Blocking Indicator	U	No	
Lowest Usable Channel	U		MHz

**Step 13.** Enter the following data.

Field	Value
<b>Lowest Tuned Frequency</b>	<b>200 MHz</b>
<b>Highest Tuned Frequency</b>	<b>210 MHz</b>
<b>Tuning Increment</b>	<b>5 kHz</b>
<b># of Frequencies Required for Operation</b>	<b>3</b>
<b>Minimum Required Frequency Separation</b>	<b>1 kHz</b>

**Step 14.** Save the data.

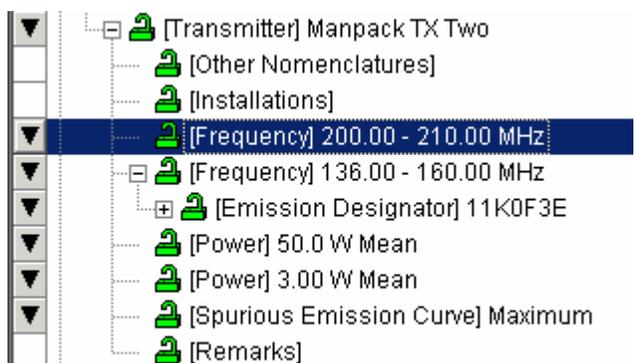
**Step 15.** If not already done, **expand** the **[Frequency] 136.00 – 160.00 MHz** node underneath node **[Transmitter] Manpack TX Two**. **Click** the **[Emission Designator] 11K0F3E** node to highlight it.



**Step 16.** **Hold down** the **CTRL** key and hit the **C** key

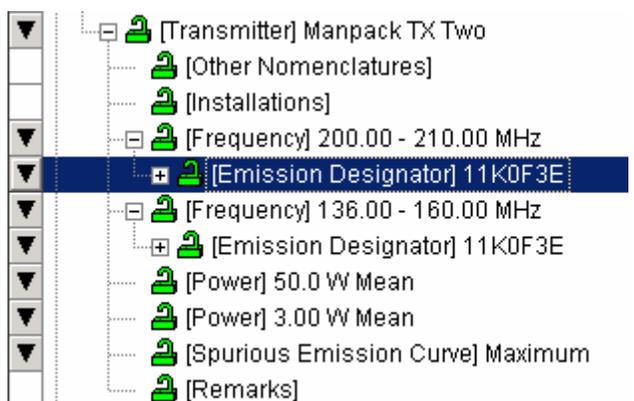
*HINT:* There will be no feedback on the screen.

**Step 17.** **Click** on the **[Frequency] 200.00 – 210.00 MHz** node we created a moment ago.



**Step 18.** **Hold down** the **CTRL** key and hit the **V** key.

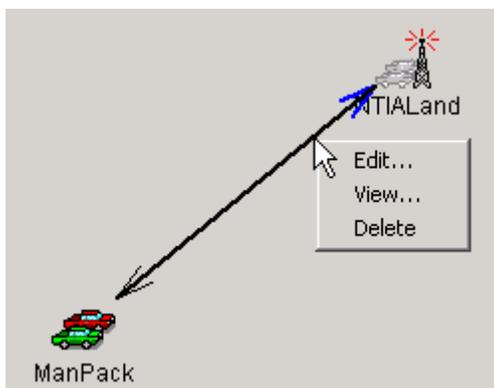
The emission designator 11K0F3E will be copied to the 200 MHz frequency node.



*HINT:* Expand the emission node to see that the modulation was also copied.

This concludes the Copy and Paste *introduction*.

**Step 19.** Click on the Diagram node. Highlight the link from Manpack to NTIALand. Right-click and select Edit



**Step 20.** Click the  button on the transmitter and notice that two transmitters are now shown for this link.

**Link Information**

From Station: ManPack To Station: NTIALand

Reverse Link

Radio Service / Station Class:  
Land Mobile / ML - Land Mobile  
Land Mobile / MLP - Portable Land Mobile

Select Radio Service / Station Class ...

Transmitter: Manpack TX Two  
 Manpack TX  
 Manpack TX Two

Transmitter antenna: Manpack Ant

Receiver: NTIA Base Rx  
 Receiver antenna: NTIA Base VHF Antenna

Available Modes:  In-band only

Power (W)	Frequency (MHz)	Emission	In-band?
3.00 Mean	136.00 - 138.00	11K0F3E	No
3.00 Mean	138.00 - 144.00	11K0F3E	PRI
3.00 Mean	144.00 - 148.00	11K0F3E	No
3.00 Mean	148.00 - 149.90	11K0F3E	PRI
3.00 Mean	149.90 - 150.05	11K0F3E	No
3.00 Mean	150.05 - 150.80	11K0F3E	PRI
3.00 Mean	150.80 - 160.00	11K0F3E	No
3.00 Mean	200.00 - 210.00	11K0F3E	No
50.0 Mean	136.00 - 138.00	11K0F3E	No
50.0 Mean	138.00 - 144.00	11K0F3E	PRI

Selected Modes:

Power (W)	Frequency (MHz)	Emission	In-band?

Justification for out-of-band Modes

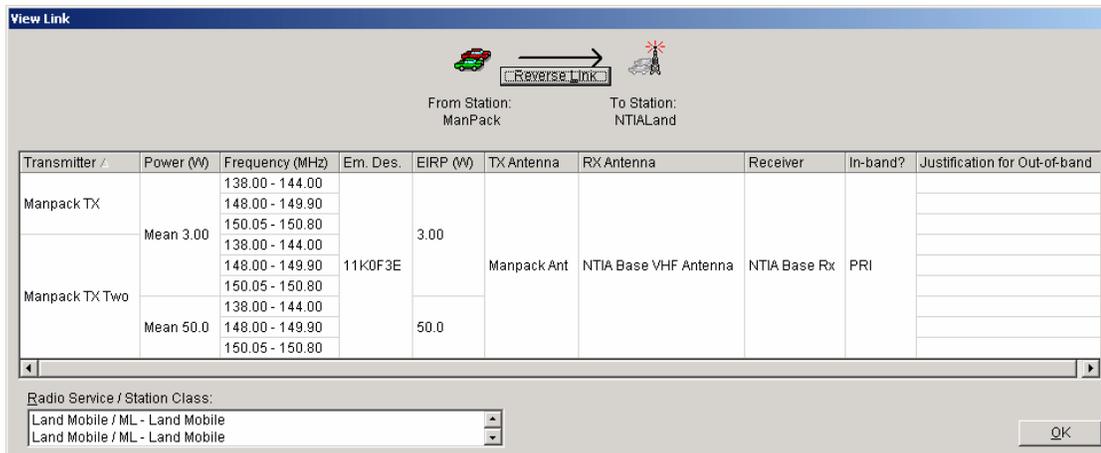
Frequency Allocation Table... View Link... Apply Close

Choose the ManPack TX Two transmitter. Complete this link, select the 6 available modes with the word PRI in the In-band? column. Move them to the Selected Modes list.

**HINT:** The link for each Transmitter, Receiver, and Antenna combination must be defined.

**Step 21.** Click Apply to save your choices, and then click OK to acknowledge that the data has been saved.

**Step 22.** Click the **View Link** button to see the link information (*two transmitters*) that you have saved.



**Step 23.** Click **OK** to close the **View Link** window.

**Step 24.** Click **Close** to close the **Link Information** window.

**Step 25.** Click **Close** to close the current certification application.

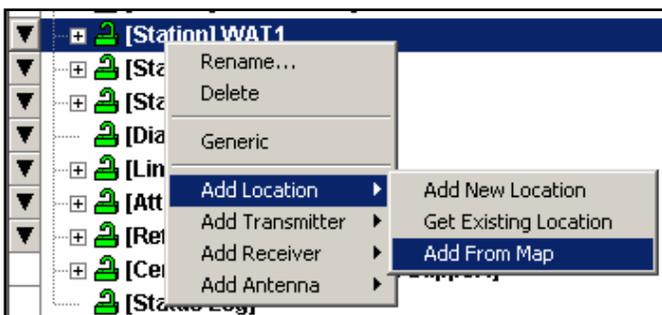
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## 12.0 ADDING LOCATIONS FROM THE MAP

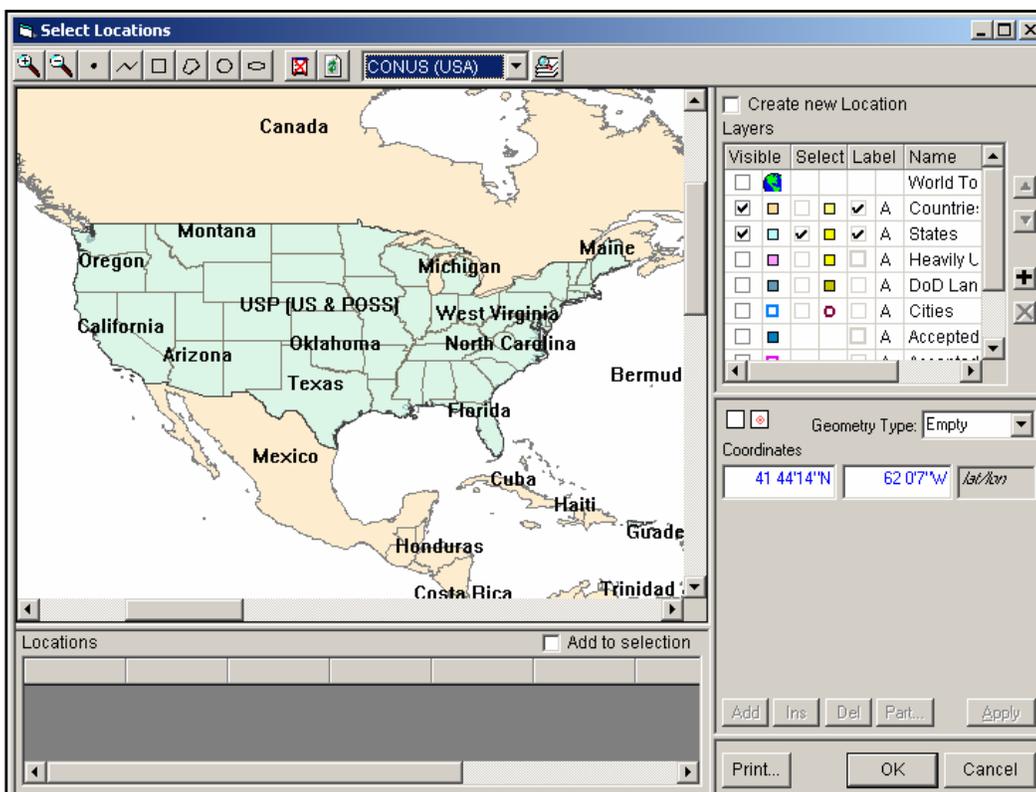
If you want to add a location to your certification record but do not know the detailed information, you may be able to find the location by using the Map to find the desired location. If it is a city already in the database, follow the steps below to select the city and add its location data to your certification.

**Step 1.** Open the **Walk & Talk** certification. We are going to add Annapolis, Maryland to the certification.

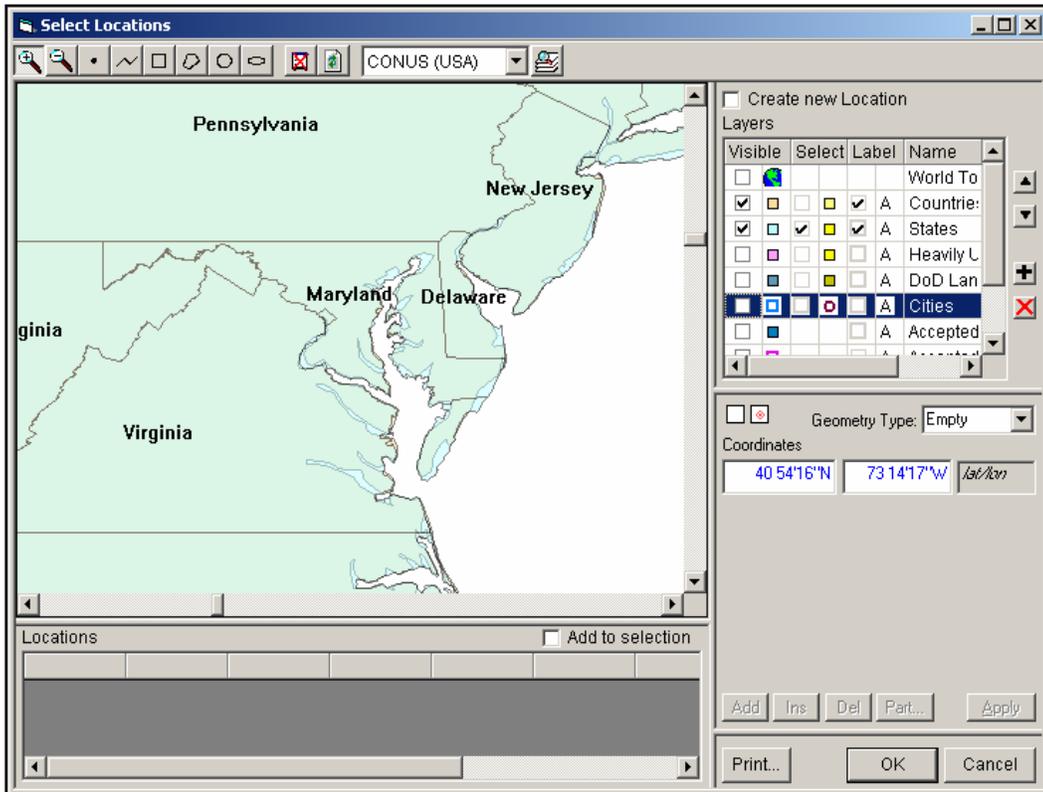
**Step 2.** Right-click [Station] WAT1 and select **Add Location | Add From Map**.



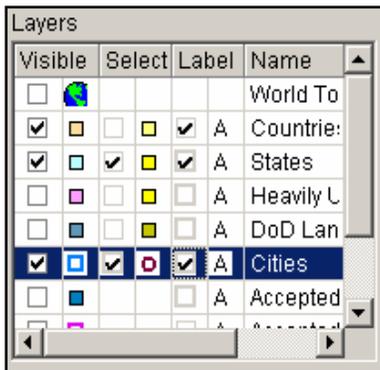
The **Select Locations** window is displayed.



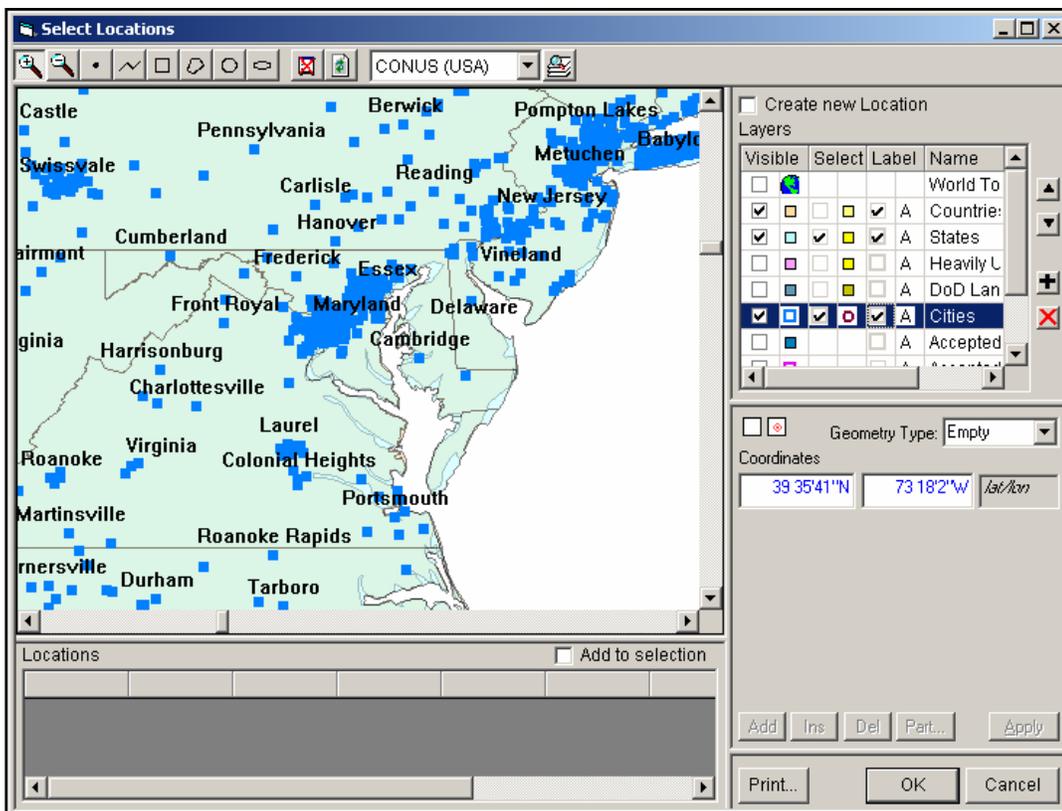
**Step 3.** Click on the **Magnify** button  and then place the mouse over the letter “y” in Maryland and **click** several times. You will zoom in on the Maryland area.



**Step 4.** Highlight the **Cities** Name in the **Layers** window. Click the check boxes for **Visible**, **Select**, and **Label**.

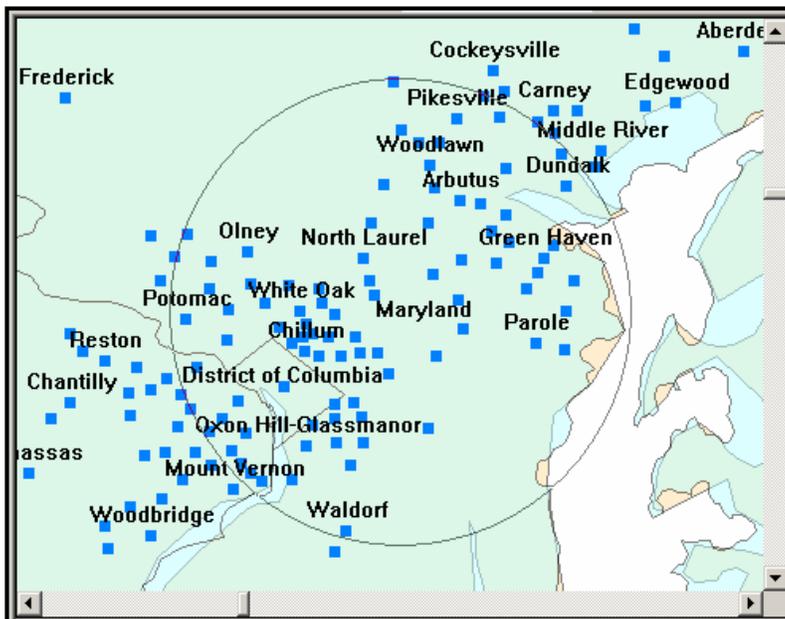


The **Select Locations** window will be displayed as shown below.

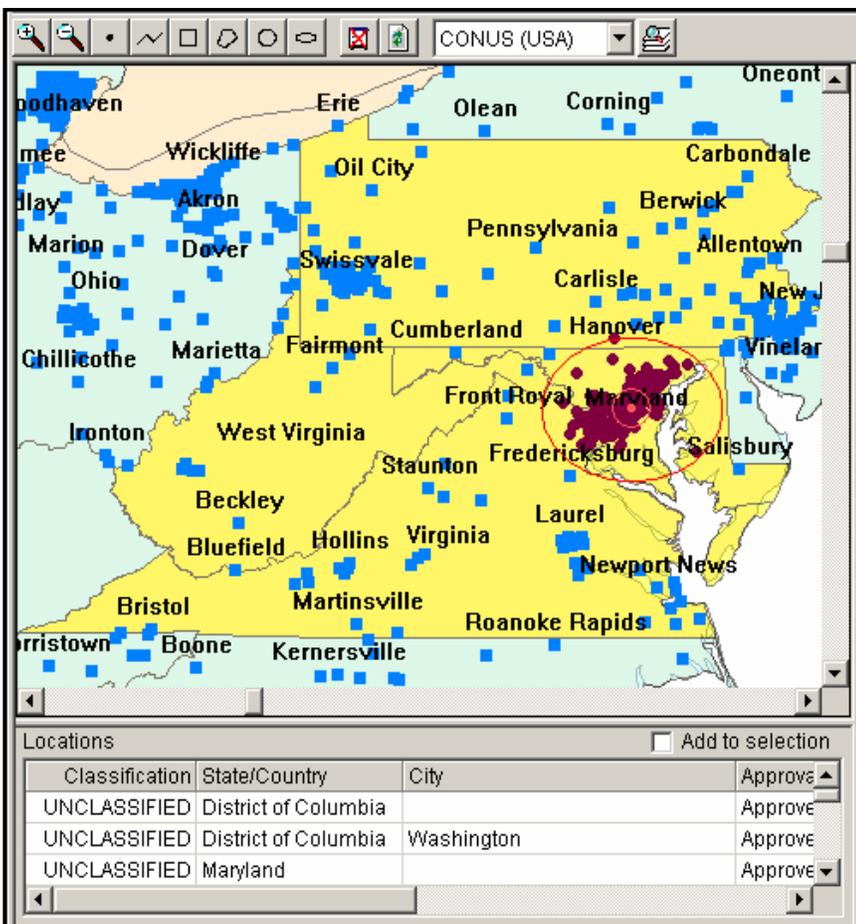


**Step 5.** Zoom in on the word **Maryland** several times.

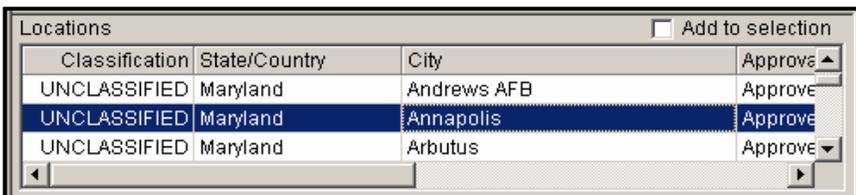
**Step 6.** Click the **Circle**  button. Place the cursor over the “a” in Maryland and drag the mouse while holding down the left mouse button to create a small circle. Release the mouse button. Make sure the circle is big enough to encircle the Annapolis, MD area.



The **Select Locations** window displays the selections



**Step 7.** Highlight **Maryland | Annapolis** in the location box and then **click OK**.



The Annapolis, MD location information is added to the WAT1 record.

Data Item	Class	Value	Units
<b>Approval Status</b>	U	Approved	
<b>State, Country, or Location Name Part 1</b>	U	Maryland	
City or Location Name Part 2	U	Annapolis	
<b>Date/Time Last Modified</b>		5/23/2003 10:08:12 AM	local
<b>+ Location Type</b>	U	Single Point	
Geographic Coordinates	U	385818N0763010W	lat/lon
Map Layer		Cities	
Date/Time Imported		5/23/2003 11:27:47 AM	local

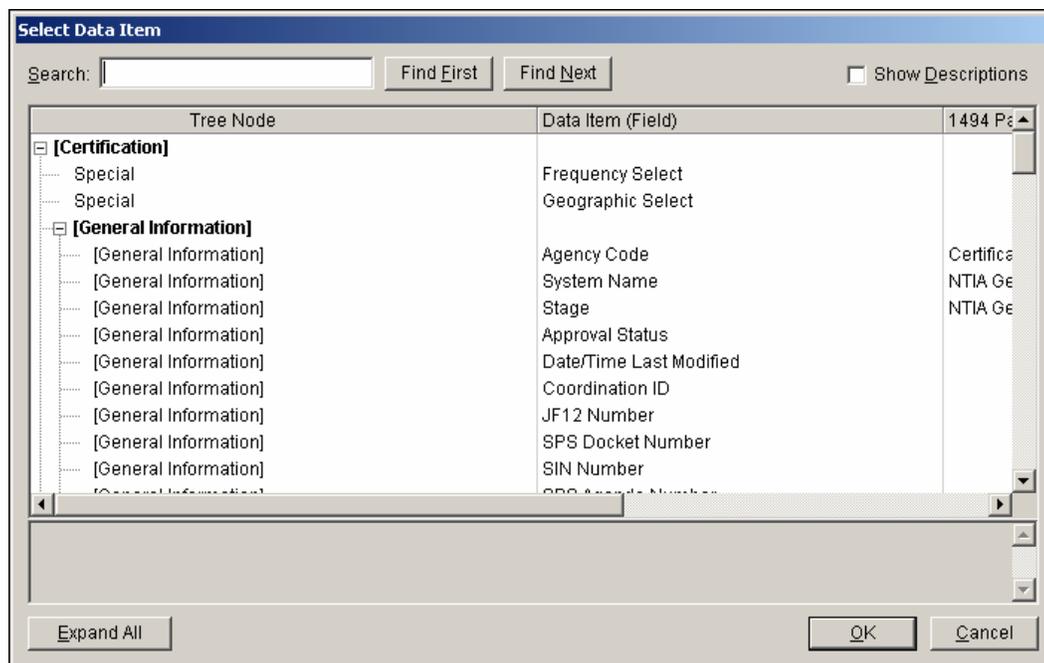
**Step 8.** Click the **Close** button.

## 13.0 PERFORMING QUERIES

You can select records (Certifications, equipments, Locations, Policies, Transmitters, Compliance Checks, and etc.) from the database using any of the database fields.

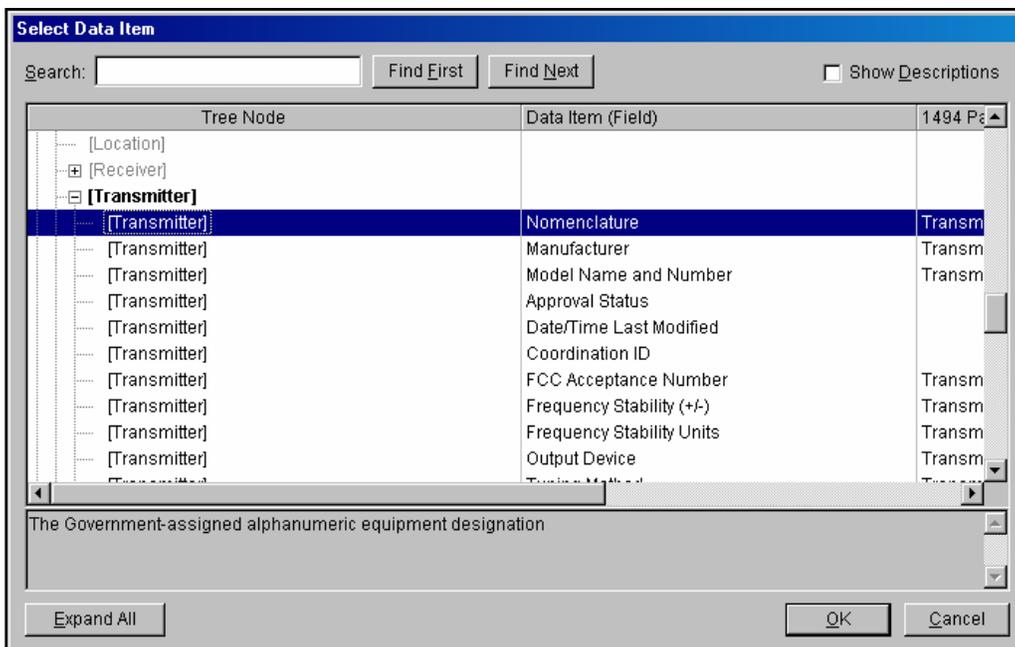
**Step 1.** Click the **query** button  on the tool bar.

The **Build Query** window appears and (assuming that you have not disabled it in the Preferences) the **Select Data Item** window automatically appears.



**HINT:** If the **Select Data Item** window does not automatically appear, click the Browse button  at the end of the **Field** box.

Step 2. Highlight Transmitter Nomenclature and click OK.



Step 3. Select \$\$Contains using the dropdown list button for the Operator box.

Step 4. Type manpack in the Expression box.

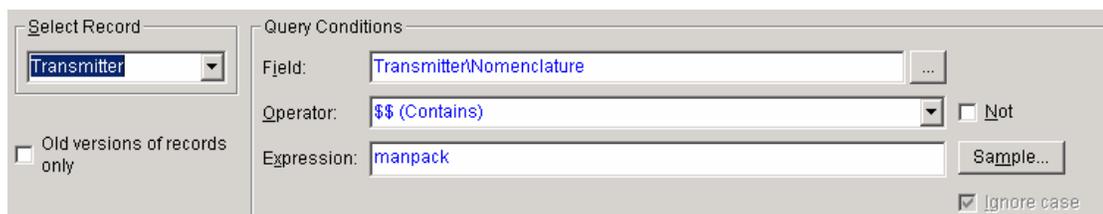
**HINT:** You can use the  button to get a listing of the entries in this field from the database.

**HINT:** Upper- or lowercase does not matter for this particular field. You can tell this because the **Ignore case** check box is grayed out.

Step 5. Select Transmitter using the dropdown list button for the Select Record box.

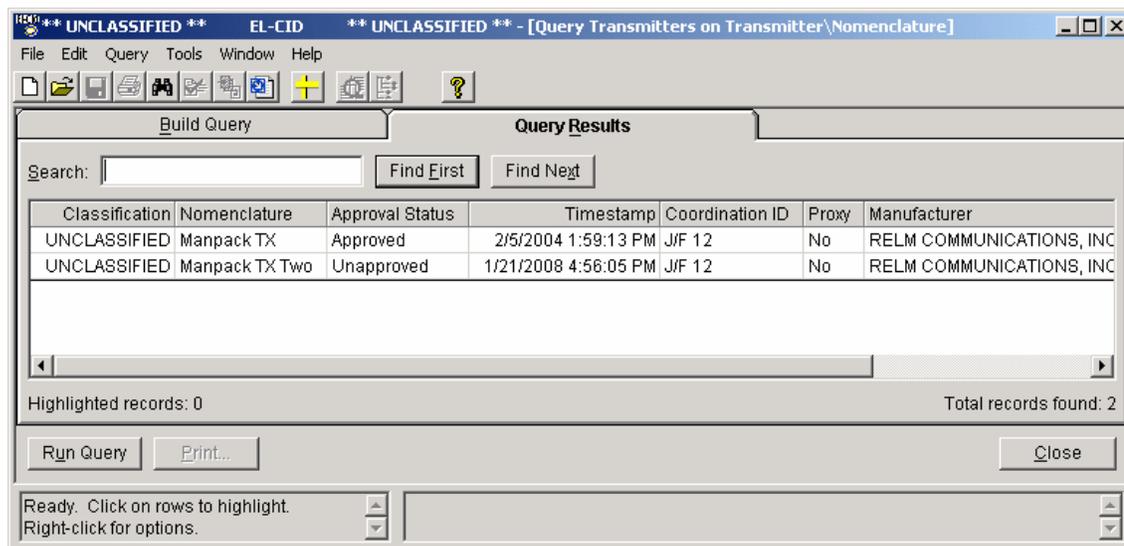


The **Build Query** window should resemble the following:

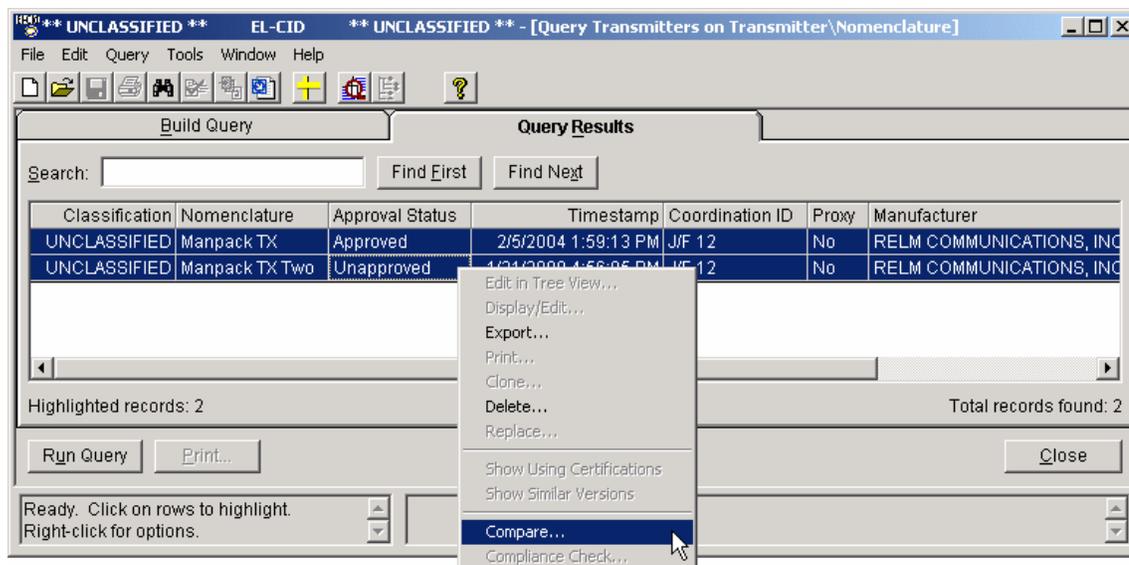


**Step 6.** Click the **Run Query** button, or click the **Query Results** tab to execute the query.

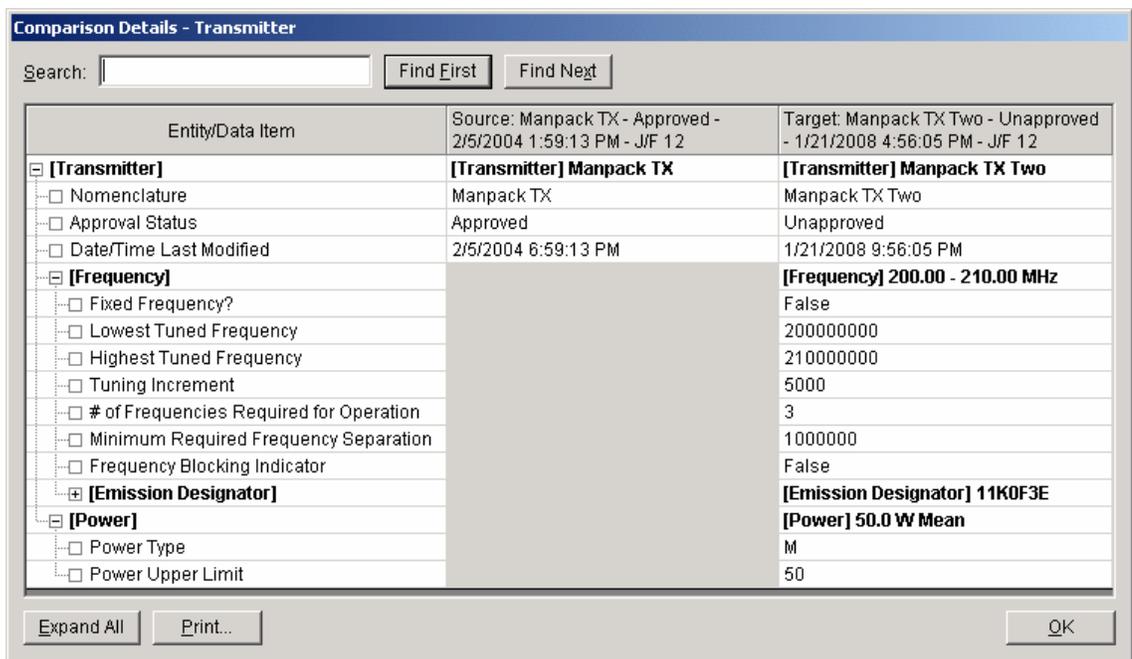
Two records are found.



**Step 7.** Highlight the two rows, **right-click** and **select Compare**.



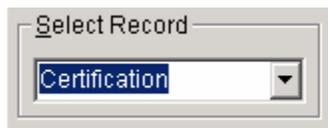
The **Comparison Details** window will be displayed showing the differences in the two records.



**Step 8.** Click **OK** to close the **Comparison Details** window.

**Step 9.** Click on the **Query Builder** tab to return to the query conditions window.

**Step 10.** In the previous query, we selected **Transmitter** records whose nomenclature contains **manpack**. This time, we'll select **Certification** records having any transmitter whose nomenclature contains **manpack**. Select **Certification** using the dropdown list button  for the **Select Record** box.



Your query should now resemble this.



**Step 11.** Run the query. You'll get one **Certification** record in the **Query Results**.

**Step 12.** This time, let's query for **Transmitters** belonging to a **Certification** record whose **System Name** is **Manpack**. **Return** to the **Query Builder** screen and **make your query look like this**.

**Step 13.** When you **run the query**, you should get results like this.

Classification	Nomenclature	Approval Status	Timestamp	Coordination ID	Proxy	Manufacturer
UNCLASSIFIED	Manpack TX	Approved	2/5/2004 1:59:13 PM J/F 12		No	RELM COMMUNICATIONS, INC
UNCLASSIFIED	Manpack TX Two	Unapproved	1/21/2008 4:56:05 PM J/F 12		No	RELM COMMUNICATIONS, INC
UNCLASSIFIED	NTIA Base Tx	Approved	1/8/2008 2:18:00 PM J/F 12		No	MOTOROLA CORP

**Step 14.** **Close** the Query window.

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## STUDENT INFORMATION SHEET

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Date: \_\_\_\_\_ Training Location: \_\_\_\_\_

Name: \_\_\_\_\_ Grade/Rank: \_\_\_\_\_  
(Last) (First) (MI)

Organization: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

E-mail NIPRNET: \_\_\_\_\_

E-mail SIPRNET: \_\_\_\_\_

Telephone:

Voice: CML: \_\_\_\_\_ DSN: \_\_\_\_\_

Fax: CML: \_\_\_\_\_ DSN: \_\_\_\_\_

Secure: CML: \_\_\_\_\_ DSN: \_\_\_\_\_

Access to: SIPRNET  STU-III/STE

Area Hotel: \_\_\_\_\_

Room Number: \_\_\_\_\_



## STUDENT CRITIQUE SHEET

Dates of Training: From: \_\_\_\_\_ To: \_\_\_\_\_

Training Location: \_\_\_\_\_

Name & Grade: \_\_\_\_\_

Job Title: \_\_\_\_\_

Unit/Organization: \_\_\_\_\_

### Course Material

- Information Received:  Great Help       Some Help       No Help
- Technical Value:       About Right       Too Hard       Too Easy
- Course Is:       Too Long       Too Short       Long Enough
- Course Material:       Outstanding       Adequate       Not Adequate

### Course Presentation

- Lessons:       Well Presented       Adequate       Poor
- Instructor's Presentation:       Easy to Follow       Difficult to Follow
- Instructor's Presentation:       Easy to Understand       Difficult to Understand
- Instructors:       Time to Ask Questions       No Time to Ask Questions
- Practice:       Too Much       About Right       Not Enough

### Value of Training Aids

- Training Aids:       Very Good       Good       Fair       Poor

### Opinion

- Opinion Overall:       Very Good       Good       Fair       Poor

Remarks/Recommendations: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## APPENDIX A - QUICK REFERENCE GUIDE

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## APPENDIX B – INSTALLING EL-CID

**Please Note:** Users must have read and write privileges to the ElcidData directory and ALL its subdirectories.

**NOTE:** The following instructions are tailored for installing EL-CID on the course training machines. More complete instructions for installing EL-CID are available on the Training CD.

**NOTE:** Do not work ahead of the Instructor when performing the procedures below. In particular, do not go beyond Step 4 until instructed to!

- Step 1.** **Login** using the **Admin** username and password on the PC.
- Step 2.** **Insert** the CD labeled “Equipment Location – Certification Information Database” into your CD drive. The **Welcome** window will appear. (If the **Welcome** window does not appear, use Windows Explorer to find your CD drive. Then then double click the file **Setup.exe**.)
- Step 3.** **Click** the **Next >** button. The **Information** window will appear.
- Step 4.** **Click** the **Next >** button. The **Choose Program Folder** window will appear. The **Destination Folder** should default to **C:\Program Files\EL-CID**. If it does not, use the Browse button  to select this directory.
- HINT:** Notice the difference between the window title in the step above – **Choose Program Folder** – and the window in the next step – **Choose Data Folder**.
- Step 5.** **Click** the **Next >** button. The **Choose Data Folder** window will appear. The **Destination Folder** should default to **C:\ElcidData**. **STOP!** Click the Browse button to display the **Choose Folder** window. **Erase the drive letter C: and replace it with D:** as we will be installing to **D:\ElcidData**. (**Do NOT select the D: drive from the drive letter combo box!**)
- Step 6.** **Click** the **OK** button. A window will appear stating that directory does not exist and asking if the program should create it. **Click** the **Yes** button. You will return to the **Choose Data Folder** window and the correct directory should be selected.
- Step 7.** **Click** the **Next>** button. The **Select Program Folder** window will appear with the folder **ELCID** selected. (**HINT:** Although the window calls this the “Program Folder”, it is actually where the menu entries on the Windows Start menu will be created and should not be confused with the Program Folder in Step 4 above.)
- Step 8.** **Click** the **Next >** button. The **Start Copying Files** window will appear. Confirm that the correct **Destination Folders** are selected.
- Step 9.** **Click** the **Next >** button. Progress bars will be displayed during the install. When the install is complete you will be prompted to make sure the system date, time and time zone are correct.
- Step 10.** **Click OK**. The **Setup Complete** window will appear.
- Step 11.** Make sure the **Yes, I want to launch ELCID now** check box is **NOT** checked. Then **click** the **Finish** button. You have completed installing the ELCID program.
- Step 12.** **Log out** of the Admin account.
- Step 13.** After installing the EL-CID software, you would normally install data updates. You will do this in Section 4.



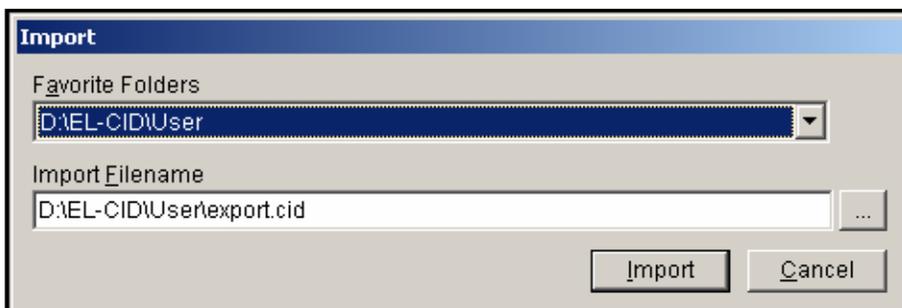
## APPENDIX C - IMPORTING UPDATED COMPLIANCE CHECKS

The following steps will illustrate how to perform the import of the updated Compliance Checks in *the purge and replace* mode. The updates are in two parts -- Compliance Checks, and Snippets.

**Step 1.** If needed, **start the EL-CID program**. See Section 1 for instructions.

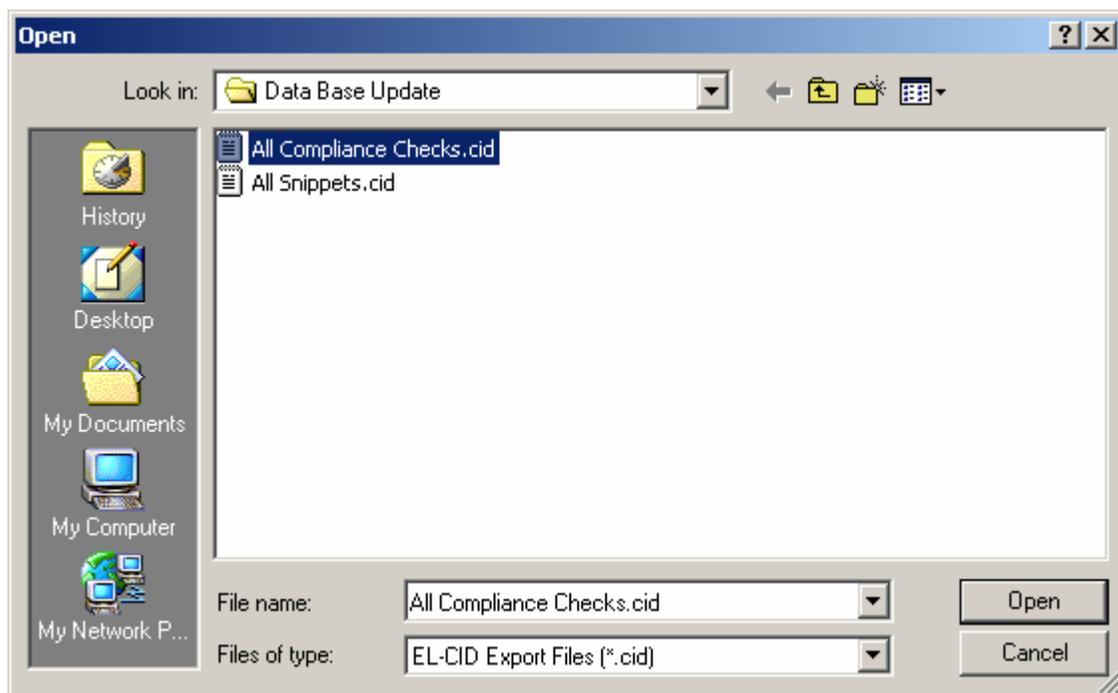
**Step 2.** Click the **Import** button .

The **Import** window is displayed.

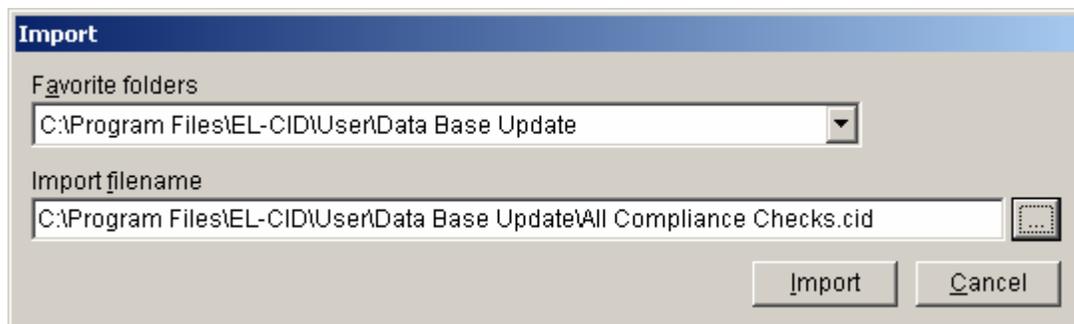


(This illustration shows the training CD located on the D: drive. Outside of this class, you must navigate to the folder in which you downloaded the EL-CID software.)

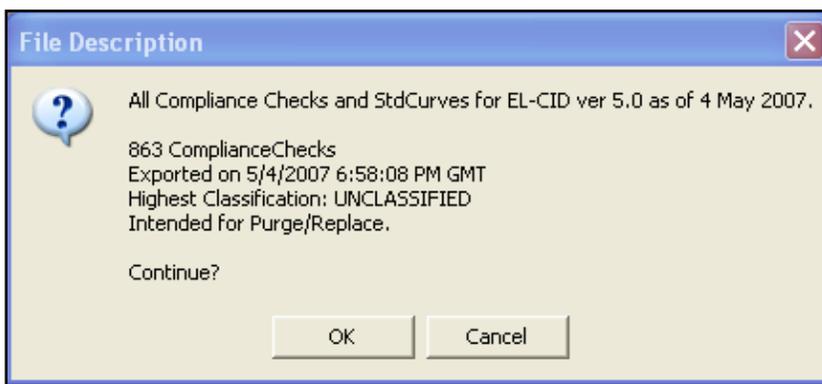
**Step 3.** Click the **browse** button to select the file to import. The folder we are using is on the EL-CID Training CD. Go to **E:\Data Base Update**. Highlight the filename **All Compliance Checks.cid** and then **click Open**.



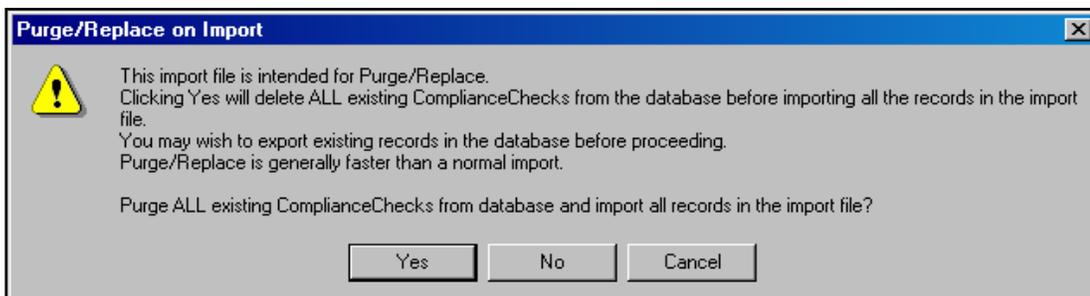
The **Import** window displays the selection.



**Step 4.** Click **Import**. The **File Description** window is displayed.



**Step 5.** Click **OK**. The **Purge/Replace on Import** window is displayed.



**Step 6.** Click **Yes**. The **Progress** window is briefly displayed and then disappears.

**Step 7.** Repeat the process, but this time choose **All Snippets.cid** from the import location.

## APPENDIX D - FREQUENTLY ASKED QUESTIONS

### D.1 What do the non-compliance messages mean when running compliance checks?

There are three levels of non-Compliance:

**Failure** – The record is not compliant and must be fixed, or a waiver must be obtained.

**Warning** – The record may not be compliant or there may be some other inconsistency or error in the data.

**Note** – These are messages to help you build more complete or more accurate data, but do not indicate a compliance failure.

### D.2 I have failed compliance checks; what do I do?

Determine the cause of the failure. If the failure cannot be rectified, attach a document to the application to explain to NTIA why you should be granted a waiver from the standard.

### D.3 I think that a compliance check is incorrect.

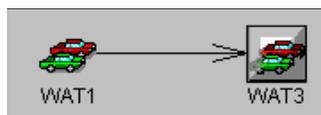
Send an email to the EL-CID Help Desk. Give the compliance check number and include a description of the problem. If possible, send the unclassified certification to the Help Desk. The Help Desk will notify NTIA that a potential problem exists. The Help Desk will further coordinate with NTIA to determine if the compliance check is accurate. If the compliance check is found to be inaccurate, a new one will be issued. If the user must submit the application before resolution of the issue, indicate to NTIA that a compliance check is in question and under review (you can do this by using an attachment document). The user will be notified of the action taken.

### D.4 I just have one radio, how do I draw a link?

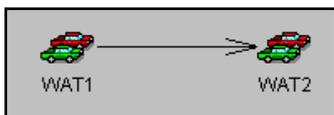
The link information that is gathered on the link node is most beneficial to NTIA. The link information gives the relationship between the transmitter, the transmitting antenna, transmitter power, and emission code. The applicable frequency bands are also listed.

The link can be drawn in three different ways.

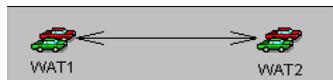
1. Terminate the link with a generic icon. This allows the link to be drawn and the transmitter information to be entered with no receiver information. This represents that you are probably communicating with similar equipment in the same frequency range.



2. Drag an identical icon to the screen and put the radio receiver characteristics on the second icon. This will allow you to give the receiver and receiver antenna data in the link.

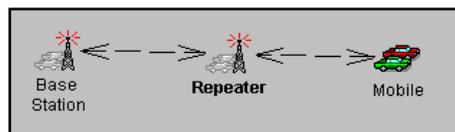


3. Drag an identical icon to the screen and put the full radio characteristics on the second icon. This will allow you to draw a link in the opposite direction. This represents that the radio will communicate with identical models of this radio.

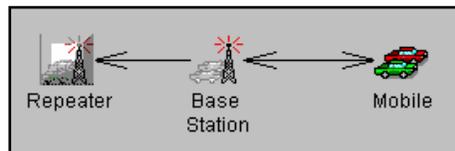


## D.5 I don't understand how repeaters are represented on the trunking diagram.

The typical trunking system consists of a base station communicating through a repeater to the mobile.



Since the repeater is usually the same radio equipment as the base station we have decided to ease the burden of repeating the transmitter information by calling it a generic station. Including the repeater icon is important, since the requirement exists to give the geographical location for each repeater; therefore we make a place holder of the repeater stations in order that they may be assigned geographic locations.



## D.6 I have a change that I would like to be made to the EL-CID model.

In the documents directory under the EL-CID directory, you will find an EL-CID PCR (Program Change Request) Form. Fill this form out and email it to the EL-CID Help Desk. The Help Desk will coordinate the change with NTIA to determine if it is appropriate for use in EL-CID. If it is appropriate, the change will be included on the development schedule.

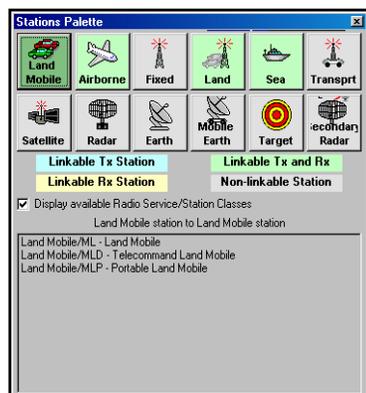
## D.7 The frequency allocation table does not list the operating frequencies of my transmitter as being valid.

This situation can be caused by several reasons:

1. The frequency allocation table frequencies are linked to the service station and radio class. Check to see if you have the correct icon on the diagram. The radio class is set on the link information page.
2. Changes may have been made to the frequency allocation table and not updated in the EL-CID Model. If you see the frequency band for which you are interested and it is marked as being not in-band, you may still choose the band and give a reason for wanting to use the frequency band.

## D.8 Why can't I draw links between some of the station icons?

The station icons represent Radio Service/Station Classes and according to NTIA rules only certain Radio Service/Station Classes may communicate with each other. The station icons are color coded to show which icons can be linked together. The radio service and station classes are listed in the expanded station palette.



## D.9 What frequency range do I use for the transmitter, the operating range or the range I want to use?

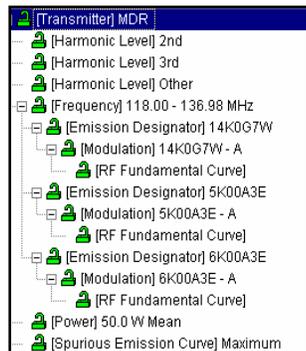
You should enter the operating range of the transmitting equipment. EL-CID will scan the frequency allocation table using the station class and radio service and display on the link information window the applicable frequency ranges that are available to use.

## D.10 I have a range of power values; what do I do?

Enter the maximum power value.

## D.11 May I have multiple emission codes for a single transmitter?

Yes, you may. You may also have multiple power values, and harmonic levels.



## D.12 When is NTIA going to require the use of EL-CID?

Certifications using EL-CID can be submitted to NTIA immediately. NTIA has already received several submissions from agencies. NTIA currently plans during the calendar year 2008 to require the use of the EL-CID format for submission of certifications to NTIA.

## D.13 How can I get any data that NTIA has in EL-CID format?

EL-CID files are FOR U.S. GOVERNMENT USE ONLY. The National Telecommunications and Information Administration (NTIA), U.S. Department of Commerce, authorizes only Government frequency assignment personnel (including Spectrum Planning Subcommittee representatives) and approved supporting contractors to have access to and utilize the EL-CID files pursuant to the following limitations.

The EL-CID files are authorized for U.S. Government Use Only. Reproduction of the EL-CID files is prohibited without the prior written approval of NTIA. The EL-CID files shall not be sold or otherwise made available for commercial purposes. If an authorized user needs additional copies of the EL-CID files, requests should be directed to:

Department of Commerce  
NTIA  
ATTN: C. Scammon, Room 4600  
1401 Constitution Avenue, N.W.  
Washington, DC 20230

Or

email: [cscammon@ntia.doc.gov](mailto:cscammon@ntia.doc.gov)

Government frequency assignment personnel (including Spectrum Planning Subcommittee representatives) are authorized to distribute the EL-CID files to supporting contractors only with the prior approval of the controlling U.S. Government Contracting Officer and only for the stated purposes of the contract. All copies of the EL-CID files must be returned to the Contracting Officer or NTIA at the conclusion of the work or the contract. Any other use of the EL-CID files by the supporting contractor is prohibited. The EL-CID files are intended for domestic U.S. Government use only. The EL-CID files shall not be made available to foreign governments or used in any contract with a foreign government without prior written approval by NTIA. An authorized user shall immediately notify NTIA or the controlling U.S. Government Contracting Officer of any violation of these limitations on the use of the EL-CID files.

## D.14 How can I represent an antenna that has multiple gains or multiple frequencies?

EL-CID only allows one gain and one frequency range in an antenna record. You can create several antenna records with a different name showing the explicit data (i.e. myantenna 136-160, myantenna 180-200, myantenna 3db, myantenna 5db).

## D.15 Why is it possible to put location data on a station node?

For satellite and trunking systems, NTIA requires that you provide location data for each station.

## D.16 Do I have to draw the line diagram first?

No. You may create equipment records first (file|new|transmitter, receiver, antenna). You can export these equipment records and send them to someone else. When you create the new certification, you can draw the line diagram, right click on the tree view station node and (add ....| get existing ...) from the data base.

## **D.17 What receiver IF data do I put in the model?**

NTIA is interested in the most restrictive (narrowest) IF curve data. Only one set of IF data is needed for each emission-sensitivity node.

## **D.18 How do I assign multiple radio services to a station icon?**

EL-CID only allows one radio service to be assigned to a station icon, except for Space which allows multiple radio services to be assigned to the Space Station Icon. If you need to represent more than one radio service for your station, drag the appropriate station icon to the diagram and indicate that it is the same transmitter (through the station name (i.e. my transmitter/1, my transmitter/2). You can then add the appropriate equipment data to the new station and update the link information. Additional information can be represented in the attachment node using additional text or diagrams.

## **D.19 How do I represent a shipboard mobile earth station?**

When you drag out the mobile earth station icon you have the choice of ship, air, or land based.

## **D.20 How do I represent an airborne radar station?**

When you drag out the radar station icon you have the choice of ship, air, or land based.

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## APPENDIX E – SAMPLE SATELLITE SYSTEM

**NOTE:** Perform these exercises while logged in as **AR – Department of the Army**. Otherwise, you'll get different compliance results at the end.

**Step 1.** Draw a diagram and enter the following data to create a sample satellite system.

This example is a description of a system that has two way communications between an earth station (named "Earth" and a satellite (named "Satellite"). Each station transmits and receives through a different antenna. This is a developmental system (stage 3) called "Sample Satellite".

General Information	
Field	Value
Target date for System Approval	6/30/2009
System Description	The sample satellite will provide a platform for scientific data collected by onboard experiments.
Target date for System Activation	6/30/2009
Target date for System Termination	6/30/2015
Number of Units	1
Estimated Initial Cost (\$)	260000
Information Transfer Requirement	Telemetry data GMSK/9.6 kbps ; Experiment data BPSK/38.4 kbps
System Relationship and Essentiality	System is designed to detect and characterize plasma bubbles in the atmosphere.
Replacement Information	Not Applicable

## Earth Station



Earth Station	
Field	Value
Minimum Point Angle	0.0 Degrees

Antenna – Aperture	
Field	Value
Nomenclature	Earth Antenna Receiving
Manufacturer	Direction Corp
Model Name and Number	DC-Aperture-1
Antenna Horizontal Beamwidth	4 Degrees
Antenna Vertical Beamwidth	4 Degrees
Antenna Lower Frequency Limit	2200 MHz
Antenna Upper Frequency Limit	2290 MHz
Polarization	Lefthand Circular
Antenna Main Beam Gain	26 dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Rel/Act	Actual dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Horiz	8 dB
1 <sup>st</sup> Sidelobe Level Plane Attenuation Vert	8 dB
1 <sup>st</sup> Sidelobe Plane Position Horizontal	32 Degrees
1 <sup>st</sup> Sidelobe Plane Position Vertical	32 Degrees
Vertical Scan Characteristics Type	Electronic Scan Sector
Vertical Scan Speed (degrees per ...)	2.0 per second
Vertical Scan Rate (scans per ...)	1.33 per minute
Antenna Vertical Scan Maximum Elevation	90 Degrees
Antenna Vertical Scan Minimum Elevation	0 Degrees

Antenna – Linear	
Field	Value
Nomenclature	Earth Antenna Transmitting
Manufacturer	Mirage System
Model Name and Number	MS-Linear-1
Antenna Horizontal Beamwidth	34 Degrees
Antenna Vertical Beamwidth	78 Degrees
Antenna Lower Frequency Limit	144 MHz
Antenna Upper Frequency Limit	170 MHz
Polarization	Linear
Antenna Main Beam Gain	3 dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Rel/Act	Actual dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Horizontal	6 dB
1 <sup>st</sup> Sidelobe Level Plane Attenuation Vertical	6 dB

Location	
Field	Value
State, Country, or Location Name Part 1	Colorado
City or Location Name Part 2	Colorado Springs-USAF Academy
Location Type	Single Point
Geographic Coordinates	390021N 1043534W
Map Layer	Cities

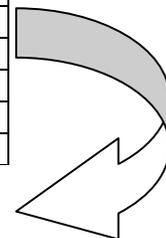
Earth Receiver	
Field	Value
Nomenclature	Earth Receiver
Manufacturer	Kenwood
Model Name and Number	K-Ground-Rx
Frequency Stability	15
Frequency Stability Units	ppm
Image Rejection Level	60 dB
Local Oscillator Tuned Indicator	Below
Tuning Method	Synthesizer

Earth Receiver Frequency	
Field	Value
Lowest Tuned Frequency	2200 MHz
Highest Tuned Frequency	2290 MHz
Tuning Increment	5.0 kHz

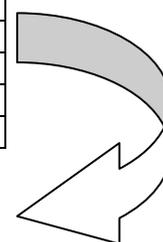
Earth Receiver Frequency Emission Sensitivity	
Field	Value
Emission Designator	80K0G2D
Performance Criteria	BER – Bit Error Rate
Performance Value	0.0001
Sensitivity	-124 dBm
Noise Figure	4.0 dB
Noise Temperature	438 K (use the calculator button)
Spurious Rejection Level	50 dB

Earth Receiver Frequency Emission Sensitivity IF Selectivity Curve	
Field	Value
Measured or Calculated	Measured
IF Frequency	70 MHz
3 dB Bandwidth / (Frequency Offset)	130 kHz / (65 kHz)*
20 dB Bandwidth / (Frequency Offset)	210 kHz / (105 kHz)*
60 dB Bandwidth / (Frequency Offset)	1380 kHz / (690 kHz)*

***\*Remember that the curve editor wants frequency offset as an input (frequency offset = ½ bandwidth)***



Earth Receiver Frequency RF Selectivity Curve	
Field	Value
Measured or Calculated	Measured
3 dB Bandwidth / (Frequency Offset)	5 MHz / (2.5 MHz)*
20 dB Bandwidth / (Frequency Offset)	20 MHz / (10 MHz)*
60 dB Bandwidth / (Frequency Offset)	30 MHz / (15 MHz)*



***\*Remember that the curve editor wants frequency offset as an input (frequency offset = ½ bandwidth)***

Earth Transmitter	
Field	Value
Nomenclature	Earth Transmitter
Manufacturer	Kenwood
Model Name and Number	K-Ground-Tx
Frequency Stability	3
Frequency Stability Units	ppm
Output Device	Transistor
Tuning Method	PLL Synthesizer
Suppression of Harmonic	Yes
Radar or Communications?	Communications

Earth Transmitter Harmonic	
Field	Value
2 <sup>nd</sup> Harmonic	-70 dB
3 <sup>rd</sup> Harmonic	-70 dB
Other Harmonic	-80 dB

Earth Transmitter Frequency	
Field	Value
Lowest Tuned Frequency	144 MHz
Highest Tuned Frequency	152 MHz
Tuning Increment	2.0 kHz
# of Frequencies Required for Operation	2
Minimum Required Frequency Separation	10 MHz

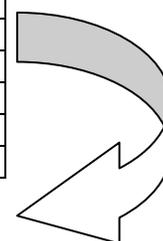
Earth Transmitter Frequency Emission Designator	
Field	Value
Necessary Bandwidth	30 kHz
Emission Designator	30K0F2D

Earth Transmitter Frequency Emission Designator Modulation	
Field	Value
Occupied Bandwidth	30 kHz
Measured or Calculated	Measured
Modulation Type	Digital Modulation
Digital Modulation Type	MSK – Minimum Shift Keying
Number of Digital States	2
Transmission Bit Rate	9600 bps

Digital Peak Deviation	4.8 kHz
Digital Deviation Ratio	0.500
Digital Maximum Modulation Frequency	9.6 kHz
Digital Pulse Format	Non-Return to Zero

Earth Transmitter Frequency Emission Designator Modulation RF Fundamental Curve	
Field	Value
Measured or Calculated	Measured
-3 dB Bandwidth / (Frequency Offset)	7 kHz / (3.5 kHz)*
-20 dB Bandwidth / (Frequency Offset)	32 kHz / (16 kHz)*
-40 dB Bandwidth / (Frequency Offset)	57 kHz / (28.5 kHz)*
-60 dB Bandwidth / (Frequency Offset)	90 kHz / (45 kHz)*

*\*Remember that the curve editor wants frequency offset as an input (frequency offset = 1/2 bandwidth)*



Earth Transmitter Power	
Field	Value
Power Type	Mean
Power Upper Limit	100 Watts

Earth Transmitter Spurious Emission Curve	
Field	Value
Maximum Spurious Emission Level	Checked -80 dB

## Satellite Station



Antenna – Linear	
Field	Value
Nomenclature	Satellite Antenna Transmitting
Manufacturer	OMNI Tronix
Model Name and Number	OT-Linear-1
Antenna Horizontal Beamwidth	8 Degrees
Antenna Vertical Beamwidth	8 Degrees
Antenna Lower Frequency Limit	2200 MHz
Antenna Upper Frequency Limit	2290 MHz
Polarization	Lefthand Circular
Antenna Main Beam Gain	28 dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Rel/Act	Actual dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Horizontal	6 dB
1 <sup>st</sup> Sidelobe Level Plane Attenuation Vertical	6 dB

<b>Antenna – Linear</b>	
<b>Field</b>	<b>Value</b>
Nomenclature	Satellite Antenna Receiving
Manufacturer	OMERA(FRANCE)
Model Name and Number	O-Linear-1
Antenna Horizontal Beamwidth	34 Degrees
Antenna Vertical Beamwidth	78 Degrees
Antenna Lower Frequency Limit	140 MHz
Antenna Upper Frequency Limit	160 MHz
Polarization	Vertical
Antenna Main Beam Gain	4.0 dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Rel/Act	Actual dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Horizontal	6 dB
1 <sup>st</sup> Sidelobe Level Plane Attenuation Vertical	6 dB

<b>Location</b>	
<b>Field</b>	<b>Value</b>
State, Country, or Location Name Part 1	Space
City or Location Name Part 2	Sample Satellite
Location Type	Non-geostationary Satellite
Altitude at Apogee	375 km
Altitude at Perigee	370 km
Equatorial Inclination	51.6 Degrees
Period of Orbit	5520 Seconds

<b>Satellite Receiver</b>	
<b>Field</b>	<b>Value</b>
Nomenclature	Satellite Receiver
Manufacturer	SUR-TEC INC
Model Name and Number	S-Satellite-Rx
Frequency Stability	5
Frequency Stability Units	ppm
Image Rejection Level	60 dB
Local Oscillator Tuned Indicator	Below
Tuning Method	Fixed Crystal

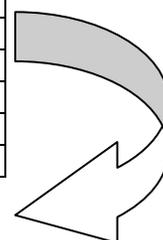
<b>Satellite Receiver Frequency</b>	
<b>Field</b>	<b>Value</b>
Lowest Tuned Frequency	144 MHz
Highest Tuned Frequency	150 MHz
Tuning Increment	1.0 kHz

<b>Satellite Receiver Frequency Emission Sensitivity</b>	
<b>Field</b>	<b>Value</b>
Emission Designator	30K0F2D
Performance Criteria	BER – Bit Error Rate
Performance Value	0.0001

Sensitivity	-130 dBm
Noise Figure	2 dB
Noise Temperature	230 K (do <u>not</u> use the calculator button)
Spurious Rejection Level	50 dB

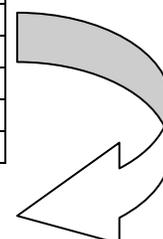
Satellite Receiver Frequency Emission Sensitivity IF Selectivity Curve	
Field	Value
Measured or Calculated	Measured
IF Frequency	455 kHz
3 dB Bandwidth / (Frequency Offset)	60 kHz / (30 kHz)*
20 dB Bandwidth / (Frequency Offset)	80 kHz / (40 kHz)*
60 dB Bandwidth / (Frequency Offset)	120 kHz / (60 kHz)*

***\*Remember that the curve editor wants frequency offset as an input (frequency offset = 1/2 bandwidth)***



Satellite Receiver Frequency RF Selectivity Curve	
Field	Value
Measured or Calculated	Measured
3 dB Bandwidth / (Frequency Offset)	30 MHz / (15 MHz)*
20 dB Bandwidth / (Frequency Offset)	40 MHz / (20 MHz)*
60 dB Bandwidth / (Frequency Offset)	60 MHz / (30 MHz)*

***\*Remember that the curve editor wants frequency offset as an input (frequency offset = 1/2 bandwidth)***



Satellite Transmitter	
Field	Value
Nomenclature	Satellite Transmitter
Manufacturer	SUR-TEC INC
Model Name and Number	ST-Satellite-1
Frequency Stability	10
Frequency Stability Units	ppm
Output Device	Transistor
Tuning Method	Fixed Crystal

Satellite Transmitter Harmonic	
Field	Value
2 <sup>nd</sup> Harmonic	-60 dB
3 <sup>rd</sup> Harmonic	-60 dB
Other Harmonic	-60 dB

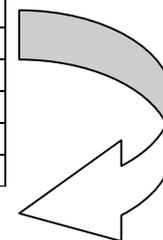
Satellite Transmitter Frequency	
Field	Value
Lowest Tuned Frequency	2200 MHz
Highest Tuned Frequency	2290 MHz
Tuning Increment	0.0 kHz
# of Frequencies Required for Operation	2
Minimum Required Frequency Separation	0.5 MHz

Satellite Transmitter Frequency Emission Designator	
Field	Value
Necessary Bandwidth	80 kHz
Emission Designator	80K0G2D

Satellite Transmitter Frequency Emission Designator Modulation	
Field	Value
Emission Designator	80K0G2D
Occupied Bandwidth	80 kHz
Measured or Calculated	Measured
Modulation Type	Digital Modulation
Digital Modulation Type	PSK – Phase Shift Keying
Number of Digital States	2
Transmission Bit Rate	38400 bps
Digital Peak Deviation	60.288 kHz
Digital Deviation Ratio	1.57
Digital Maximum Modulation Frequency	38.400 kHz
Digital Pulse Format	Non-Return to Zero

Satellite Transmitter Frequency Emission Designator Modulation RF Fundamental Curve	
Field	Value
Measured or Calculated	Measured
-3 dB Bandwidth / (Frequency Offset)	60 kHz / (30 kHz)*
-20 dB Bandwidth / (Frequency Offset)	90 kHz / (45 kHz)*
-40 dB Bandwidth / (Frequency Offset)	130 kHz / (65 kHz)*
-60 dB Bandwidth / (Frequency Offset)	188 kHz / (94 kHz)*

***\*Remember that the curve editor wants frequency offset as an input (frequency offset = 1/2 bandwidth)***



Satellite Transmitter Power	
Field	Value
Power Type	Mean
Power Upper Limit	0.5 Watts

Satellite Transmitter Spurious Emission Curve	
Field	Value
Maximum Spurious Emission Level	Checked -60 dB

Link Information: Earth to Satellite	
Field	Value
Radio Service/Station Class	Space Operation / TT – Earth Space Research / TH – Earth
Coupling Loss	0.0 dB
Selected Modes	Select the one PRI mode

Link Information: Satellite to Earth	
Field	Value
Radio Service/Station Class	Space Operation / ET – Space Space Research / EH – Space
Coupling Loss	0.0 dB
Spectral Power Density	-48.8 dBW/Hz
Selected Modes	Select the one PRI mode

**Step 2.** Run the compliance checks. A sample of compliance check results is below:

▼ [Antenna - Aperture] Earth Antenna Receiving

**FAILURE DoD: DoD-0004**

Horizontal Scan Characteristics Type is required for Aperture antennas in DoD systems at all stages.

**WARNING NTIA Chapter 10: NTIA-CH10-8.9.10-A-W**

Scan Characteristics (horizontal and vertical) should be specified for each Aperture antenna in a Stage 1 through 3 Certification.

▼ [Receiver] Earth Receiver

▼ [Receiver] Satellite Receiver

**WARNING NTIA General: NTIA-Gen-0087-W**

Receiver Conducted Undesired Emission is required at Stage 4 and should be specified at Stages 2 and 3.

▼ [Transmitter] Earth Transmitter

▼ [Transmitter] Satellite Transmitter

**NOTE NTIA Chapter 10: NTIA-CH10-8.7.23**

If this transmitter has been type accepted by the FCC, enter the FCC Acceptance Number.

▼ [Emission - Sensitivity] 30K0F2D --130 dBm

**WARNING NTIA General: NTIA-Gen-0083**

Calculated Noise Figure differs from the entered Noise Figure by more than 5%. Noise Figure[dB] = 10Log( ( Noise Temperature[K] / 290 ) + 1 )



 [Attachments]
**NOTE NTIA Chapter 10: NTIA-CH10-8.3.05**

Stage 2 and above space systems are generally required to submit notification to the Radiocommunication Bureau (BR). See Section 3.3 of the NTIA Manual. If not installed on your system, install the ITU software. In EL-CID Preferences, General tab, enter the path to the ITU program. Use the ITU program to prepare the notification and attach it to the EL-CID Certification. If this system is exempt from BR notification, set ITU Waiver to Yes in the General Information node.

**NOTE NTIA Chapter 10: NTIA-CH10-8.5**

For all stages, submit reports of any previous EMC studies, predictions, analyses, and prototype EMC testing that are relevant to the assessment of the system (right-click Attachments in Tree View) You may reference documents previously provided to the IRAC/SPS, including references to previous stages of this system (right-click References in Tree View).


 [Coupling] Satellite Transmitter with Satellite Antenna Transmitting
**WARNING NTIA Chapter 8: NTIA-CH8-8.2.36.1.a-04-1-W**

This Satellite (to Earth) link exceeds the Power Flux Density Limits of Table 8.2.36 (1525-1530, 1670-1710, 1761-1842, and 2200-2300 MHz). Click the [Coupling] node to display the Link Info screen, click Power Flux Density, and click Calculate to see the calculated PFD and limits. If this is a Satellite to Earth link at 2210 MHz, and you are failing by less than 16 dB, you may request a waiver from NTIA pursuant to SPS-12308/IRAC 31015/1.

- Step 3.** Follow the instructions on the above WARNING to see why the PFD is failing. (You can do “what if” analysis to see how varying the parameters will change the PFD result.)
- Step 4.** Import the **Sample Satellite.cid** file from the training CD (under Training Materials/Samples). Its System Name will be **Sample Satellite for Training** to distinguish it from the record you created.
- Step 5.** Use the Query Builder to query on Certifications with System Name containing “Sample Satellite”, and then compare the two records in the Query Results to compare your record with the one on the Training CD.

## APPENDIX F – SAMPLE RADAR SYSTEM

**Step 1.** Draw a diagram and enter the following data to create a sample radar system.

This example is a description of a land based radar system that has a station named “Radar” (select the Land option button) transmitting to a target named “Target”. This is a developmental system (stage 3) called “Sample Radar”.

General Information	
Field	Value
System Description	Radar to detect targets and weather.
Target date for System Activation	6/30/2009
Target date for System Termination	6/30/2100
Number of Units	1
Estimated Initial Cost (\$)	1250000
Information Transfer Requirement	Unmodulated and Linear FM pulses.
System Relationship and Essentiality	Improved dangerous weather detection.
Replacement Information	Replace existing system.

Location	
Field	Value
State, Country, or Location Name Part 1	USP (US & POSS)
City or Location Name Part 2	
Location Type	Polygon
Map Layer	Countries



### Radar Station

Antenna – Aperture	
Field	Value
Nomenclature	Radar Antenna
Manufacturer	ANDREW ANTENNA CORPORATION LTD
Model Name and Number	A-Aperture-1
Antenna Horizontal Beamwidth	1.45 Degrees
Antenna Vertical Beamwidth	4.8 Degrees
Antenna Lower Frequency Limit	1200 MHz
Antenna Upper Frequency Limit	1400 MHz
Polarization	Right and Left Hand Circular
Antenna Main Beam Gain	34 dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Rel/Act	Relative dBi
1 <sup>st</sup> Sidelobe Level Plane Attenuation Horizontal	21 dB
1 <sup>st</sup> Sidelobe Level Plane Attenuation Vertical	21 dB
1 <sup>st</sup> Sidelobe Plane Position Horizontal	3.5 Degrees
1 <sup>st</sup> Sidelobe Plane Position Vertical	3.5 Degrees
Horizontal Scan Characteristics Type	360 Degrees Rotating
Horizontal Scan Speed (degrees per ...)	70 per second
Horizontal Scan Rate (scans per ...)	12.5 per minute
Capable of Blanking	No
Vertical Scan Characteristics Type	Electronic Scan Sector

<b>Antenna – Aperture</b>	
<b>Field</b>	<b>Value</b>
Vertical Scan Speed (degrees per ...)	1.0 per second
Vertical Scan Rate (scans per ...)	8.0 per minute
Antenna Vert. Scan Maximum Elevation	5 Degrees
Antenna Vert. Scan Minimum Elevation	-3 Degrees
Antenna Horizontal Dimension	5 meters
Antenna Vertical Dimension	2.75 meters

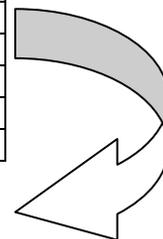
<b>Radar Receiver</b>	
<b>Field</b>	<b>Value</b>
Nomenclature	Radar Receiver
Manufacturer	RAYTHEON CO. OR RAYTHEON MANUFACTURING CO.
Model Name and Number	R-Radar-Rx
Frequency Stability	10
Frequency Stability Units	ppm
Image Rejection Level	60 dB
Local Oscillator Tuned Indicator	Above
Tuning Method	Crystal Controlled

<b>Radar Receiver Frequency</b>	
<b>Field</b>	<b>Value</b>
Lowest Tuned Frequency	1200 MHz
Highest Tuned Frequency	1400 MHz
Tuning Increment	5.0kHz

<b>Radar Receiver Frequency Emission Sensitivity</b>	
<b>Field</b>	<b>Value</b>
Emission Designator	4M20Q3N
Necessary Bandwidth	4.2 MHz
Performance Criteria	S/N – Signal to Noise Ratio (dB)
Performance Value	10
Sensitivity	-110 dBm
Noise Figure	2.90 dB
Noise Temperature	275 K (use the calculator button)
Spurious Rejection Level	65 dB

<b>Radar Receiver Frequency Emission Sensitivity IF Selectivity Curve</b>	
<b>Field</b>	<b>Value</b>
Measured or Calculated	Measured
IF Frequency	27.180 MHz
3 dB Bandwidth / (Frequency Offset)	6.4 kHz / (3.2 kHz)*
20 dB Bandwidth / (Frequency Offset)	9 kHz / (4.5 kHz)*
60 dB Bandwidth / (Frequency Offset)	18.2 kHz / (9.1 kHz)*

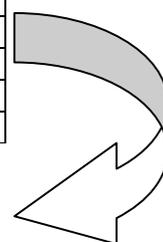
***\*Remember that the curve editor wants frequency offset as an input (frequency offset = ½ bandwidth)***



Radar Receiver Frequency Emission Sensitivity	
Field	Value
Emission Designator	7M30P0N
Necessary Bandwidth	7300 kHz
Performance Criteria	MDS – Minimum Discernable Signal (dB)
Performance Value	10
Sensitivity	-109 dBm
Noise Figure	3 dB
Noise Temperature	289 K (use the calculator button)
Spurious Rejection Level	65 dB

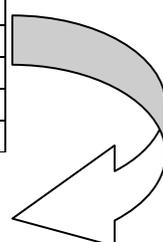
Radar Receiver Frequency Emission Sensitivity IF Selectivity Curve	
Field	Value
Measured or Calculated	Measured
IF Frequency	75 MHz
3 dB Bandwidth / (Frequency Offset)	5.8 MHz / (2.9 MHz)*
20 dB Bandwidth / (Frequency Offset)	8 MHz / (4 MHz)*
60 dB Bandwidth / (Frequency Offset)	21.8 MHz / (10.9 MHz)*

**\*Remember that the curve editor wants frequency offset as an input (frequency offset = 1/2 bandwidth)**



Radar Receiver Frequency RF Selectivity Curve	
Field	Value
Measured or Calculated	Measured
3 dB Bandwidth / (Frequency Offset)	568 MHz / (284 MHz)*
20 dB Bandwidth / (Frequency Offset)	904 MHz / (452 MHz)*
60 dB Bandwidth / (Frequency Offset)	2700 MHz / (1350 MHz)*

**\*Remember that the curve editor wants frequency offset as an input (frequency offset = 1/2 bandwidth)**



Radar Transmitter	
Field	Value
Nomenclature	Radar Transmitter
Manufacturer	RAYTHEON CO. OR RAYTHEON MANUFACTURING CO.
Model Name and Number	R-Radar-Tx
Frequency Stability	30
Frequency Stability Units	ppm
Output Device	Transistor
Tuning Method	Crystal Controlled
Suppression of Harmonic	Yes

Radar Transmitter Harmonic	
Field	Value
2nd Harmonic	-74 dB
3rd Harmonic	-80 dB
Other Harmonic	-80 dB

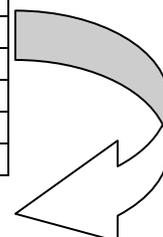
Radar Transmitter Frequency	
Field	Value
Lowest Tuned Frequency	1200 MHz
Highest Tuned Frequency	1390 MHz
Tuning Increment	0.0 kHz
Number of Frequencies Required for Operation	2
Minimum Required Frequency Separation	30 MHz

Radar Transmitter Frequency Emission Designator	
Field	Value
Necessary Bandwidth	4200 kHz
Emission Designator	4M20Q3N

Radar Transmitter Frequency Emission Designator Modulation	
Field	Value
Emission Designator	4M20Q3N
Occupied Bandwidth	4200 kHz
Measured or Calculated	Measured
Radar Type	FM Pulse Radar
Pulse Repetition Rate	1391 pps
Pulse Rise Time	0.000150 ms
Pulse Fall Time	0.000150 ms
Pulse Width	0.0256 ms
Pulse Duty Cycle	3.561 %
Pulse Compression Ratio	74
Radar Processing Gain	10 dB
Radar Pulse Frequency Deviation	2890 kHz
Number of Radar Subpulses	5

Radar Transmitter Frequency Emission Designator Modulation RF Fundamental Curve	
Field	Value
Measured or Calculated	Measured
-3 dB Bandwidth / (Frequency Offset)	2630 kHz / (1315 kHz)*
-20 dB Bandwidth / (Frequency Offset)	4200 kHz / (2100 kHz)*
-40 dB Bandwidth / (Frequency Offset)	9500 kHz / (4750 kHz)*
-60 dB Bandwidth / (Frequency Offset)	30000 kHz / (15000 kHz)*

**\*Remember that the curve editor wants frequency offset as an input (frequency offset = 1/2 bandwidth)**



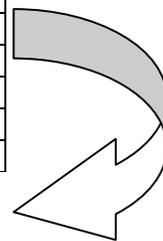
Radar Transmitter Frequency Emission Designator	
Field	Value
Necessary Bandwidth	7300 kHz
Emission Designator	7M30P0N

Radar Transmitter Frequency Emission Designator Modulation	
Field	Value
Emission Designator	7M30P0N
Occupied Bandwidth	7300 kHz

Measured or Calculated	Measured
Radar Type	Non-FM Pulse Radar
Pulse Repetition Rate	1391 pps
Pulse Rise Time	0.000150 ms
Pulse Fall Time	0.000150 ms
Pulse Width	0.00200 ms
Pulse Duty Cycle	0.2782 %

Radar Transmitter Frequency Emission Designator Modulation RF Fundamental Curve	
Field	Value
Measured or Calculated	Measured
-3 dB Bandwidth / (Frequency Offset)	3500 kHz / (1750 kHz)*
-20 dB Bandwidth / (Frequency Offset)	7300 kHz / (3650 kHz)*
-40 dB Bandwidth / (Frequency Offset)	11000 kHz / (5500 kHz)*
-60 dB Bandwidth / (Frequency Offset)	150000 kHz / (75000 kHz)*

*\*Remember that the curve editor wants frequency offset as an input (frequency offset = 1/2 bandwidth)*



Radar Transmitter Power	
Field	Value
Power Type	Peak Envelope
Power Upper Limit	45000 Watts

Radar Transmitter Spurious Emission Curve	
Field	Value
Maximum Spurious Emission Level	Checked -80 dB

Link Information: Radar to Target	
Field	Value
Radio Service/Station Class	Radiodetermination / LR - Land
Available Modes	Both in-band modes

**Step 2.** Run the compliance checks. A sample list of compliance check results is below:

▼ [Receiver] Radar Receiver

**WARNING NTIA General: NTIA-Gen-0087-W**

Receiver Conducted Undesired Emission is required at Stage 4 and should be specified at Stages 2 and 3.

▼ [IF Selectivity Curve] at 75000 kHz

**FAILURE NTIA Chapter 5 RSEC: NTIA-CH5-5.5.3.7-1**

Group C radar receivers must have IF Selectivity characteristics commensurate with or narrower than the corresponding transmitter bandwidth. The receiver IF Selectivity curve is wider than the corresponding transmitter's RF Fundamental curve. See section 5.5.3 paragraph 7 of the NTIA Manual.




 [Transmitter] Radar Transmitter
**NOTE NTIA Chapter 10: NTIA-CH10-8.7.23**

If this transmitter has been type accepted by the FCC, enter the FCC Acceptance Number.




 [RF Fundamental Curve]
**FAILURE NTIA Chapter 5 RSEC: NTIA-AnnexJ-Radar-Non-FM-Pulse**

The necessary bandwidth (-20 dB point) on this RF Fundamental curve of this non-FM pulse radar does not meet the formula as given in ANNEX J of the NTIA Manual.

**FAILURE NTIA Chapter 5 RSEC: NTIA-CH5-5.5.3.3.1-2**

This Group C non-FM pulsed radar transmitter does not meet the standard emission bandwidth curve as required in section 5.5.3 paragraphs 3.1 and 4.1 of the NTIA Manual. Note that  $P_{avg} = \text{Peak Power} * \text{Pulse Repetition Rate} * \text{Pulse Width}$  is used for  $P_t$  in the curve formula.




 [Attachments]
**NOTE NTIA Chapter 10: NTIA-CH10-8.5**

For all stages, submit reports of any previous EMC studies, predictions, analyses, and prototype EMC testing that are relevant to the assessment of the system (right-click Attachments in Tree View) You may reference documents previously provided to the IRAC/SPS, including references to previous stages of this system (right-click References in Tree View).

- Step 3.** Import the **Sample Radar.cid** file from the training CD (under Training Materials/Samples). Its System Name will be **Sample Radar for Training** to distinguish it from the record you created.
- Step 4.** Use the Query Builder to query on Certifications with System Name containing "Sample Radar", then compare the two records in the Query Results to compare your record with the one on the Training CD.