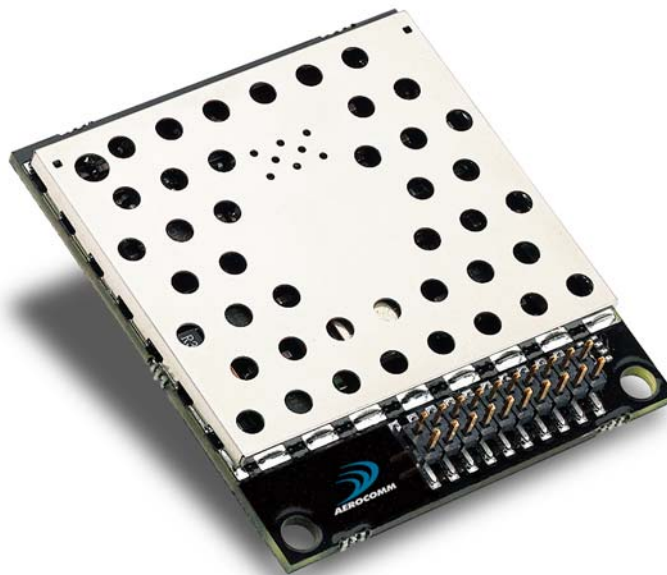




AC4490 Diagnostics Suite

Specifications Subject to Change

**User's Manual
Version 1.0**



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DOCUMENT INFORMATION

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AC4490 Diagnostics Software

DOCUMENT INFORMATION

<u>Revision</u>	<u>Description</u>
Version 1.0	4/22/04 – Initial Release

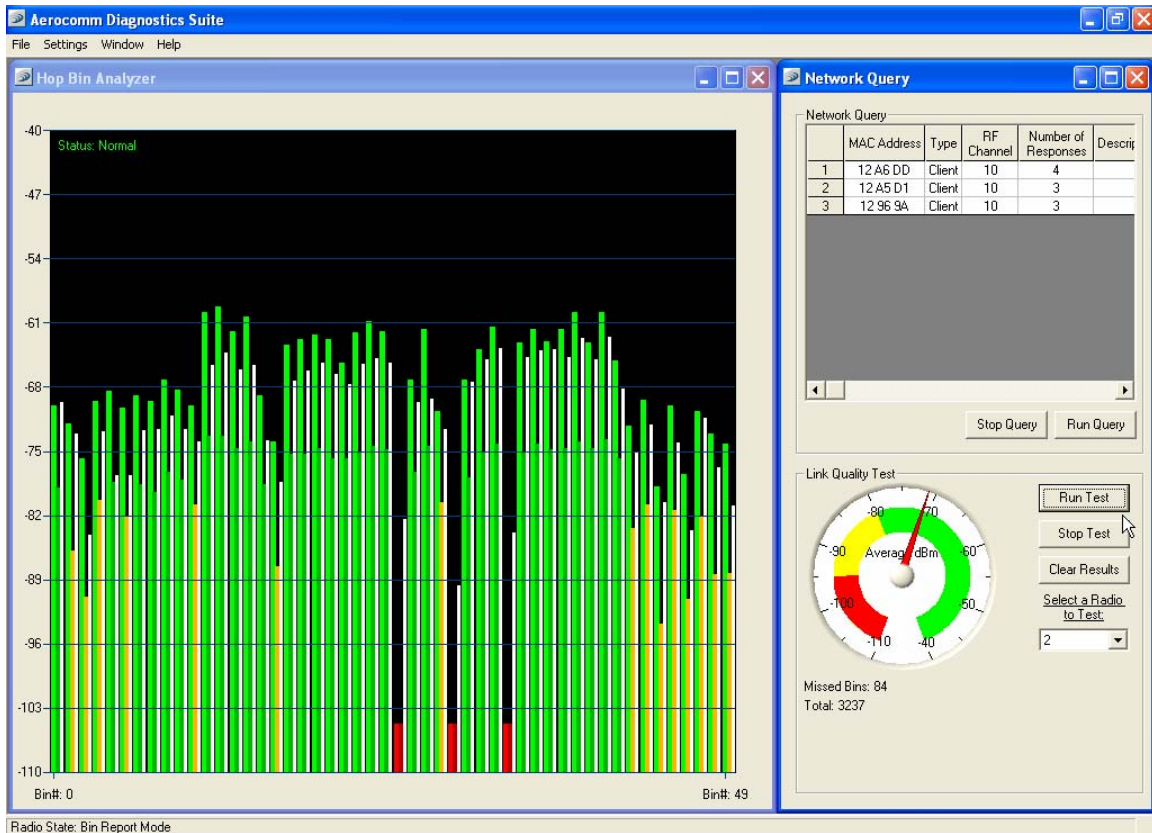
AC4490 Diagnostics Software

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1. Overview

The AC4490 Diagnostics Suite is a software utility that allows an engineer, field technician, or installation team to determine the signal quality between any two transceivers in a network. The signal strength between the two transceivers is displayed graphically and can be used to determine the best location for equipment to be installed. There are two main windows that display the results of signal strength – **Hop Bin Analyzer** and **Network Query**.



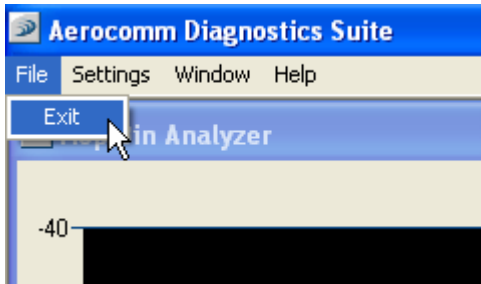
2. Software Installation

Run setup.exe and follow the instructions.

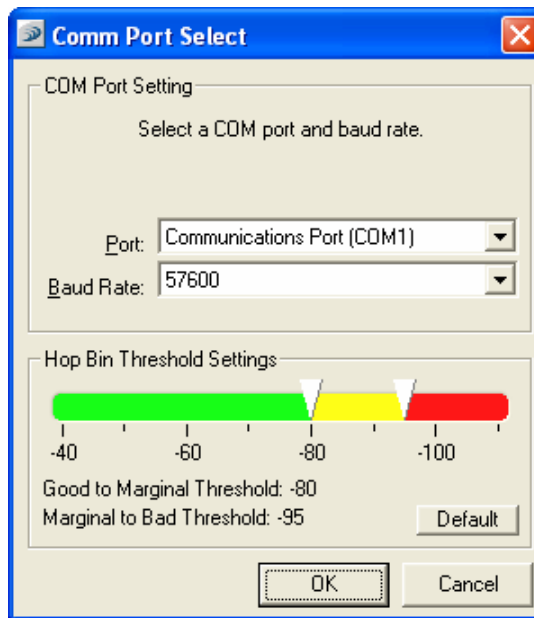
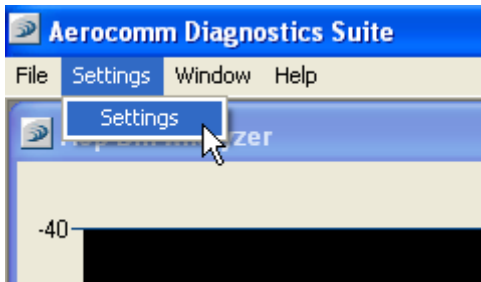
3. Software Configuration

Below, are the descriptions for each of the menu items:

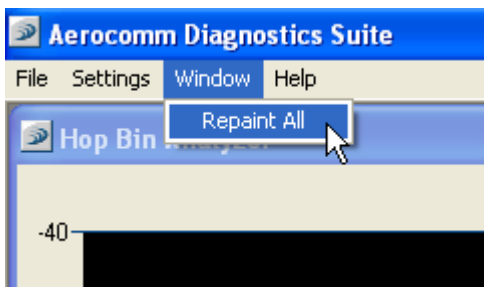
File|Exit: Exits the program.



Settings|Comm Port: User must select the COM Port that is attached to the Server radio and the baud rate of the Server radio.



Window|Repaint All: Refreshes all windows with new data.



4. Hop Bin Analyzer Window

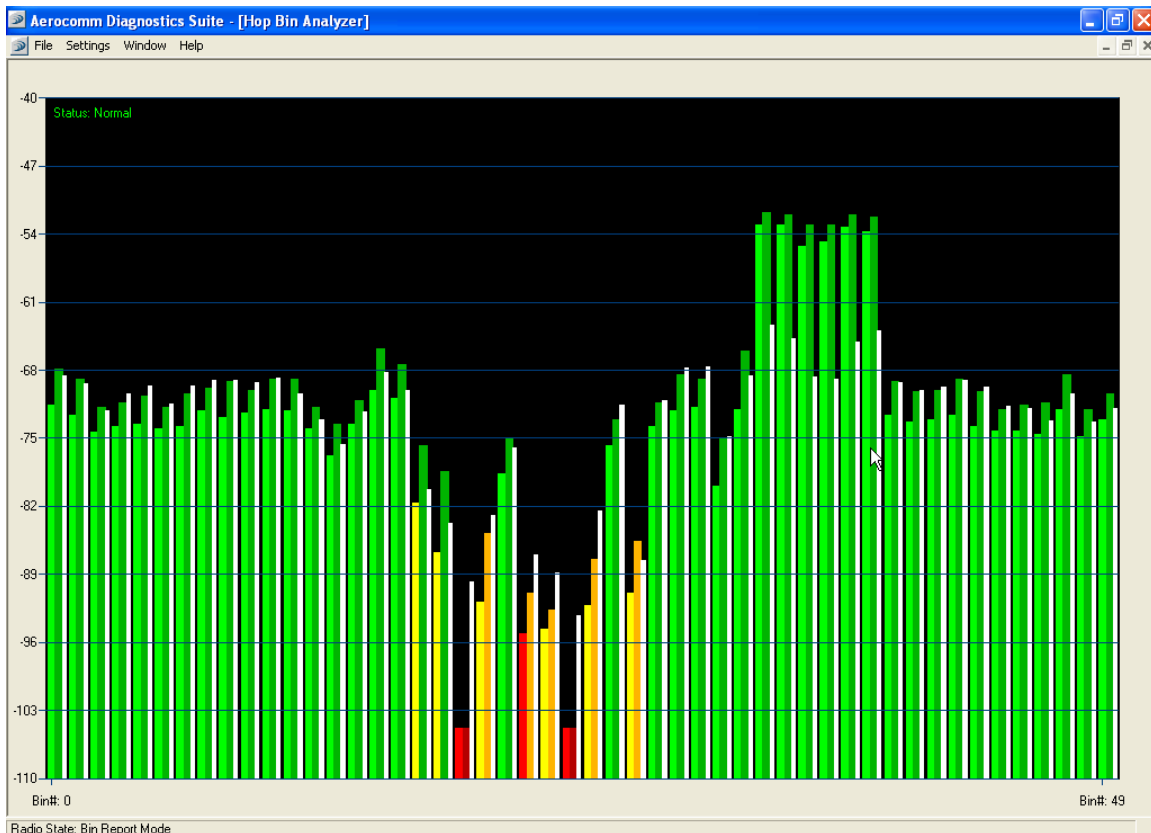
AeroComm's AC4490 is a frequency hopping spread spectrum (FHSS) radio. Spread spectrum radios spread their signal over a range of frequencies by transmitting small bursts, or packets, of data on one frequency and then "hopping" to another frequency to transmit another packet of data. Each frequency in the spectrum is called a hop bin.

The Hop Bin Analyzer window shows the signal strength between two radios for each hop bin. Depending on the strength of signal, the bar representing that hop bin will have the color green, yellow, or red to indicate good, marginal, or bad signal strength, respectively.

Meter shows average of white bar (i.e. avg. of all bins); White shows avg. of light green over a one second period.

Dark green – Client to Server

Light green – Server to Client

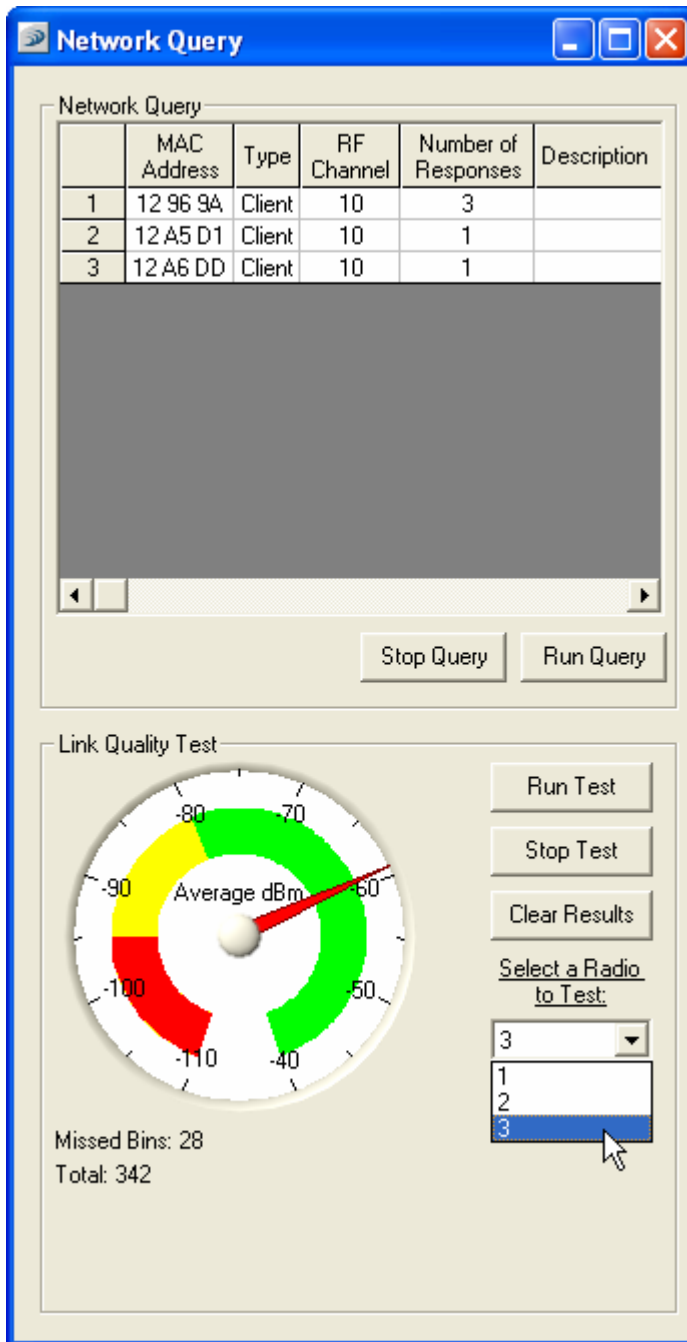


5. Network Query Window

The Network Query window allows a user to scan a region to find all AC4490 radios that are within range of the Server radio. The Server will send out a request and all AC4490 radios that receive the request will register with the Server and be displayed in the Network Query window. The user can then select a specific radio from the list of radios that registered with the Server and

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perform a Link Quality Test. The Link Quality Test is shown in the lower half of the Network Query window. The result of this test is displayed on a simple analog-style meter. The meter needle will move to the green, yellow, or red area to indicate good, marginal, or bad link quality, respectively.



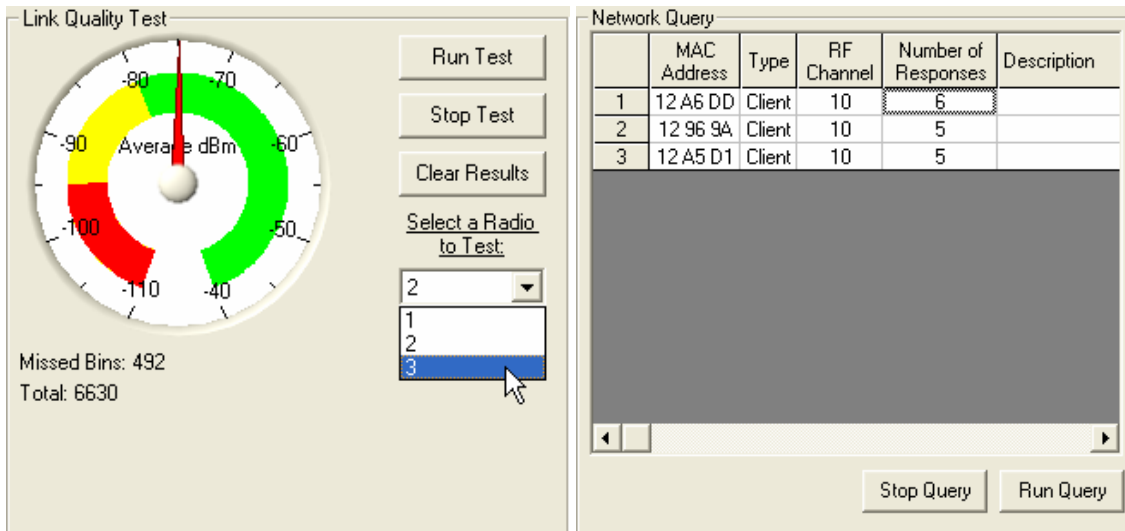
The screenshot displays the 'Network Query' window. At the top, there is a table with the following data:

	MAC Address	Type	RF Channel	Number of Responses	Description
1	12 96 9A	Client	10	3	
2	12 A5 D1	Client	10	1	
3	12 A6 DD	Client	10	1	

Below the table are 'Stop Query' and 'Run Query' buttons. The 'Link Quality Test' section features an analog-style meter labeled 'Average dBm' with a scale from -110 to -40. The meter is divided into three color-coded zones: red (below -90 dBm), yellow (between -90 and -80 dBm), and green (above -80 dBm). The needle is currently pointing into the green zone. To the right of the meter are buttons for 'Run Test', 'Stop Test', and 'Clear Results'. Below these buttons is a dropdown menu labeled 'Select a Radio to Test:' with a list containing items 1, 2, and 3. Item 3 is currently selected. Below the dropdown, the text 'Missed Bins: 28' and 'Total: 342' is displayed.

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The user can select a radio from the drop-down list in the Link Quality Test section of the window or by highlighting a specific radio from the Network Query section of the window.



Below, are the definitions and descriptions for each function of the Network Query Window:

Number: Sequential ID of radio that responded to the Server's query request.

MAC Address: Three byte hexadecimal address for the radio.

Type: Indicates type of radio that responded to the Server's query request – Server or Client.

RF Channel: Channel number of radio that responded to the Server's query request.

Number of Responses: Indicates number of query responses sent to the Server. This value will increment if the query is not stopped.

Description: Editable field that allows user to type a descriptive name for each radio.

Run Query Pushbutton: Starts network query. Server radio will send out a query request and wait for responses from radios that are in range. Registered radios will be displayed in the Network Query window. Server will continue to send out requests until the Stop Query pushbutton is pressed.

Stop Query Pushbutton: Stops the network query. Instructs Server radio to stop sending query requests.

Run Test Pushbutton: Starts Link Quality Test. The Hop Bin Analyzer will begin displaying the signal strength of each frequency (Hop Bin) on which the transceiver is transmitting. In addition, the meter needle will move to the area indicating the quality of the link as described above.

Stop Test Pushbutton: Stops the Link Quality Test.

Clear Results Pushbutton: Clears the Hop Bin Analyzer results that are shown under the Link Quality Test Meter.

Select a Radio to Test: Drop-down list box showing the radio IDs that responded to the Server's query request. The user can select a specific radio from this list and run the Link Quality Test.