



## iHA INTERFACE USER GUIDE

THE INTERMODULATION TEST SYSTEM FOR HANDHELD USE



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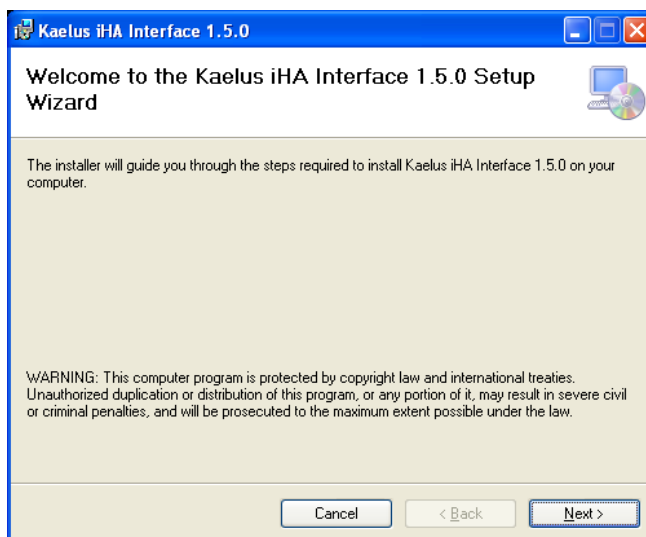
### 1 INTRODUCTION

The iHA Interface provides user friendly controls and report generation for iHA units. The iHA Interface retrieves power and PIM measurements from the iHA unit and provides pass / fail criteria to be set up for measured parameters. Reports can be generated and browsed in the interface and saved in PDF format.

## 2 INSTALLING THE INTERFACE SOFTWARE

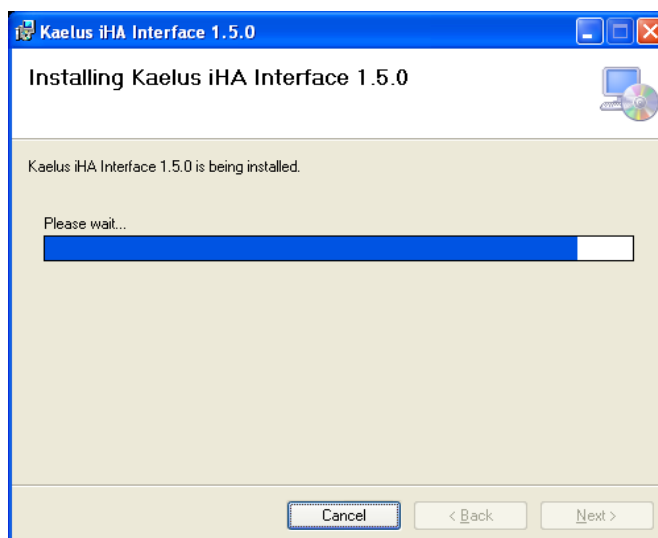
To install the iHA Interface:

1. Please run the installer file (.msi) which can be found on the same CD as this manual. The installation should begin (see fig. 1).



**Figure 1 – iHA Interface Installation**

2. Follow all prompts until installation is complete (see fig. 2).



**Figure 2 – iHA Interface is being installed**

3. Click the “Finish” or “Close” buttons on all open windows to complete the installation.
4. Go to Start, Programs, Kaelus, Kaelus iHA Interface to run the installed application.

### 2.1 SYSTEM REQUIREMENTS

The iHA Interface has been designed to run under Microsoft Windows XP with .NET v3.5 or later installed. The iHA Interface is best viewed at 1024 by 768 pixels (screen resolution).

## 3 USING THE IHA INTERFACE

The iHA Interface (see fig. 3) displays all measured data retrieved from the iHA unit.

### NOTE:

Before running the iHA Interface software please ensure that the iHA's output port is connected to a test point (see iHA documentation for further information).



Figure 3 – iHA Interface

### 3.1 STARTING THE APPLICATION

Start the application by going to the Start Menu, Programs, Kaelus, and then clicking on "Kaelus iHA Interface"

Enter "Operators name", "Sites name", "Sectors name" and "Feeders' name" as applications starts up. These names are used when generating reports. All of these fields can be changed later inside the "Report..." menu.

## 3.2 CONNECTING TO THE IHA

### 3.2.1 Auto-connect feature

To change the Auto-connect feature, go to the File menu and click “Auto-connect” (see fig. 4).



Figure 4 – Auto-connect feature

By default, auto connect will be set off. If the Auto-Connect feature is selected, it will try to connect to the unit as soon as the application is started. If there is no unit on the selected serial port, you will receive an error message (see fig. 6).

You can still use the Connect / Disconnect button to allow manual control of the unit. If disabled, you can connect to the unit by using the “Connect” button (see fig. 5).

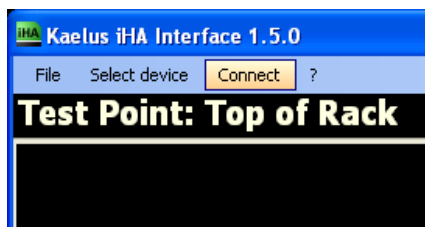


Figure 5 – Manual Connection

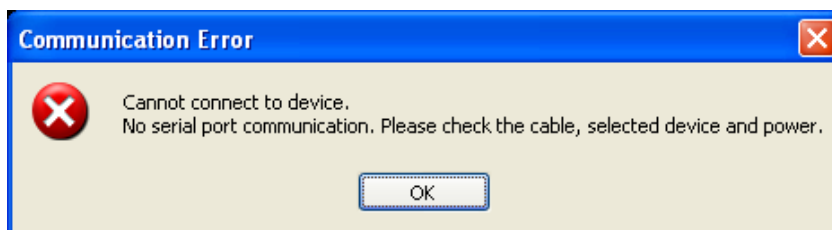


Figure 6 – Manual Connection

### 3.2.2 Selecting the Port

COM ports will be listed under “Select device” in the menu. In the case of multiple COM ports found, you can select to the desired port by clicking the COM Port Name in the “Select device” menu (see fig. 7)

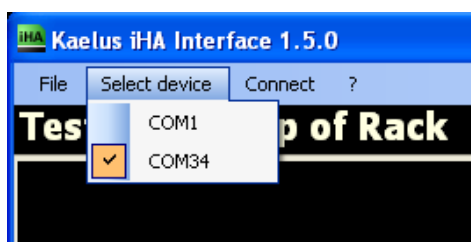


Figure 7 – Selecting a device

- Connection status:

### **Disconnected:**



### **Connected:**



## 3.3 COMMUNICATION ERRORS

If there is a loss of connection between PC and iHA ie: USB data cable disconnected or iHA switched off, a “Communication Error” message will be displayed and the iHA Interface will go into disconnected mode (see fig. 6 on previous page).

## 3.4 DISCONNECTING THE IHA

The iHA can be disconnected by simply exiting the application or through the “Disconnect” menu.

After disconnection, the unit will go back to its ‘Off’ state. You can then disconnect the iHA Interface cable and use the unit as normal.

## 3.5 RF POWER ON/OFF CONTROL

The power on / off button (shown the bottom left of the user interface) controls the RF power and starts / stops the RF measurements.

### 3.5.1 Turn RF Power On



When the iHA is connected, but is not transmitting, the on / off button will turn green and display the text “POWER OFF – Press to Turn On”.

### 3.5.2 Turn RF Power Off



When the iHA is connected and is transmitting RF, the on / off button will turn red and display the text “POWER ON – Press to Turn Off”.



### 3.6 MAKING A MEASUREMENT

On turning the RF power on, you will be prompted to wait for the powers to settle. The unit starts to measure the two tones power, and will wait until they have settled to the appropriate value. These values will be displayed on the status bar as they are measured.

Once the powers have settled, PIM will be measured. While PIM is being measured, you will be able to read the value in the centre of the screen or on the status bar. Peak PIM will also be displayed (see fig 8).

The bar graph shows upper, lower and threshold value. Values under threshold will display green rectangles. The rectangles will be yellow above threshold value.

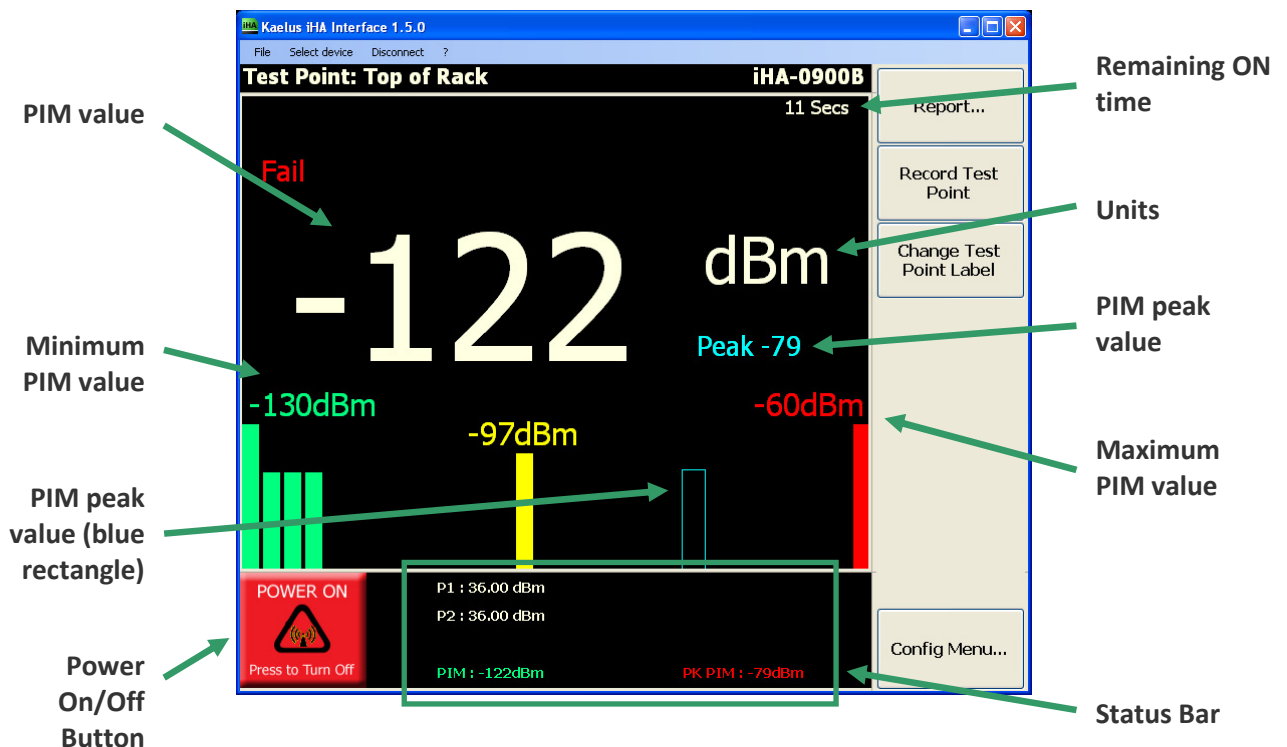


Figure 8 – PIM measurement screen

### 3.6.1 Record Test Point

The iHA Interface allows the user to record snapshots of recorded data. In order to record a test point, click on the “Record Test Point” button while undertaking a measurement (see fig. 9). For more information on Reporting, see section 4.

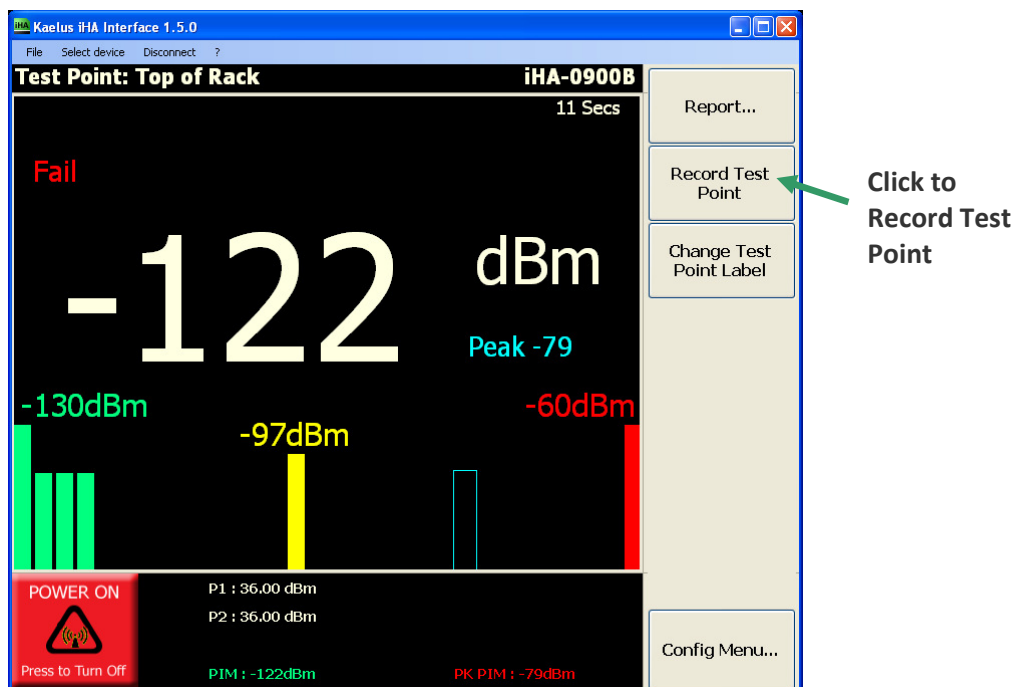


Figure 9 – Recording a test point

### 3.6.2 Error Messages

If the “Record Test Point” button is pressed when the Power is off, the error message (fig. 10a) will be displayed. Please turn the power on and wait for all values to be updated before trying again.

If the RF is on, but the powers are still settling and PIM measurement hasn’t started, (fig. 10b) will be shown. In this case, please wait until PIM has been updated before trying again.

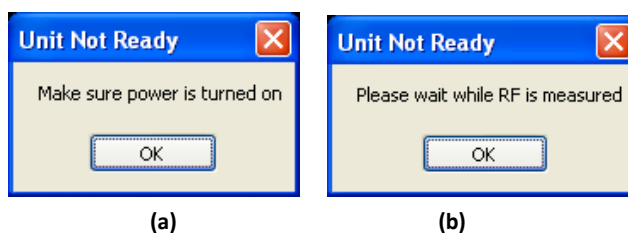


Figure 10 – Error Messages

### 3.7 CHANGING DBC/DBM UNITS

In main screen, units are switched between dBc and dBm when you click on the dBm (see fig. 11).

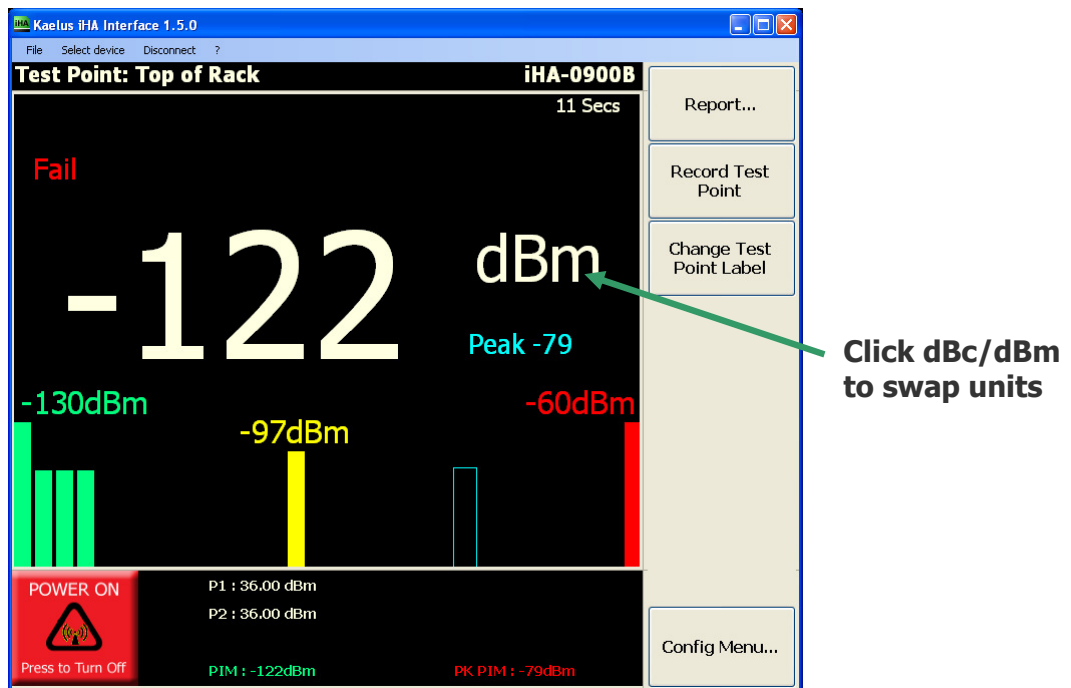


Figure 11 – Units selection

When the application has just started, before that any measurements are made, each tones power is assumed to be 36dBm (33dBm for A Series units) for the dBc/dBm conversion.

### 3.8 TEST POINT LABELS

Each test point can have its own unique label. To select, add delete or rename a test point label, click “Change Test Point Label” (see fig. 12).

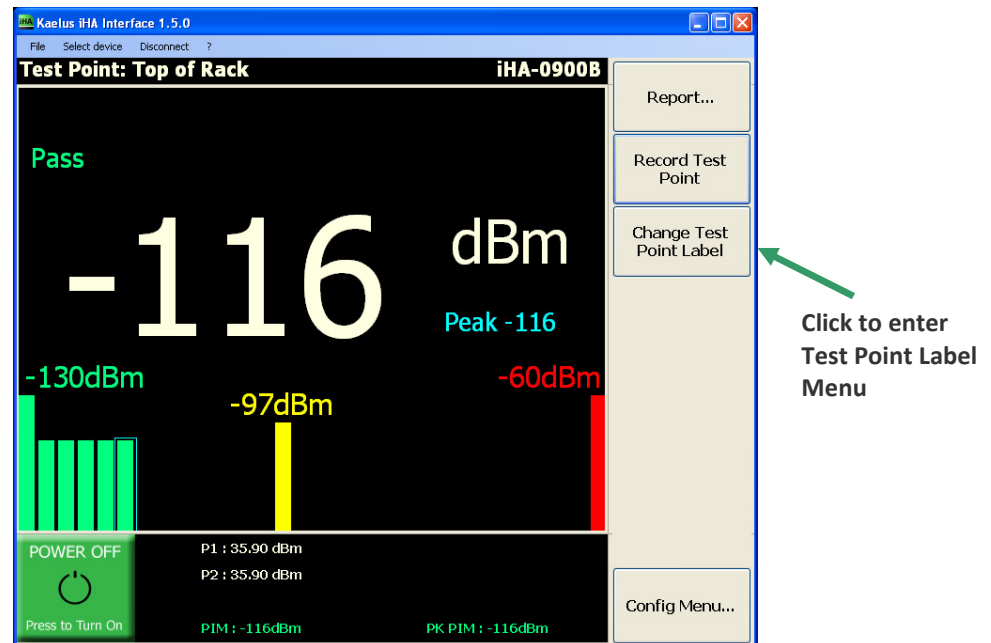


Figure 12 – Go to Test Point labels menu

Once in the Change Test Point Label menu, you will be able to change test point labels (see fig. 13).

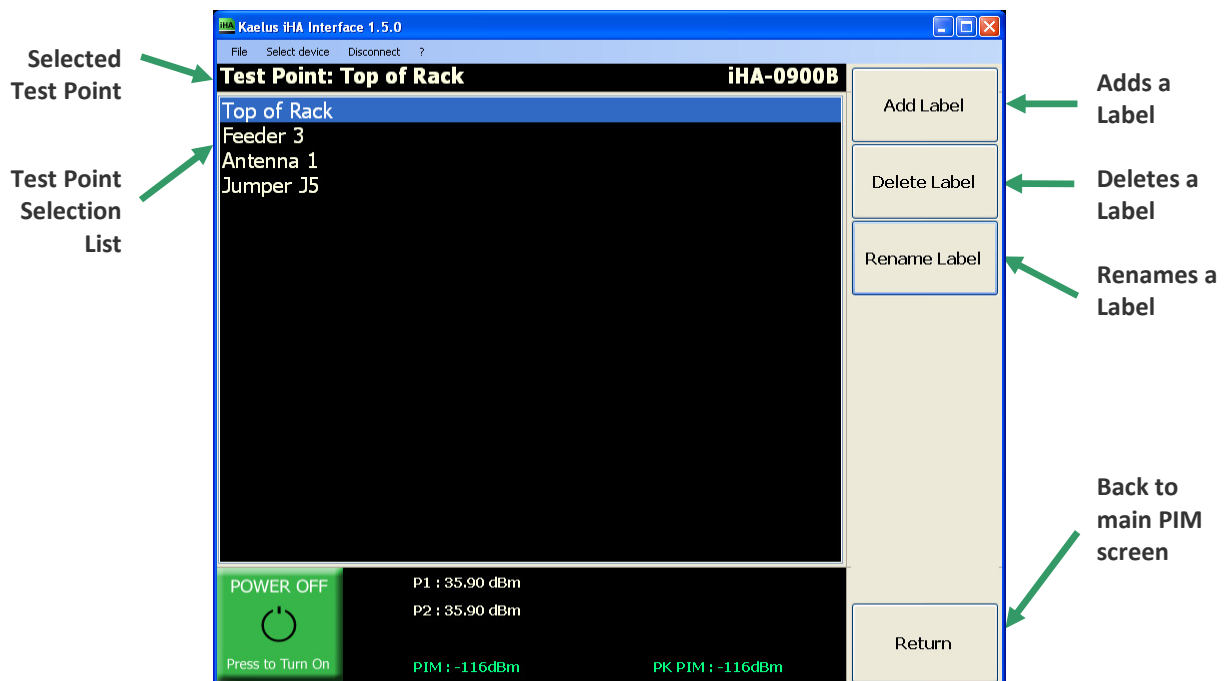


Figure 13 – Test Point Label Menu

### 3.8.1 Selecting a Label

To select a Label, click on Label name in the list. The “Test Point:” name should change to display the appropriate name. To make a measurement using this label, just click on “Return” to go back to the main PIM display screen (see fig. 13).

### 3.8.2 Add a Label

To add a new label, click on the “Add Label” button (see fig 13). This will bring up a new dialog box (see fig. 14) in which you can type in the new label name. To accept the changes and return to the Test Point Label Menu, click “OK”. To return without adding a label, click the “Cancel” button.

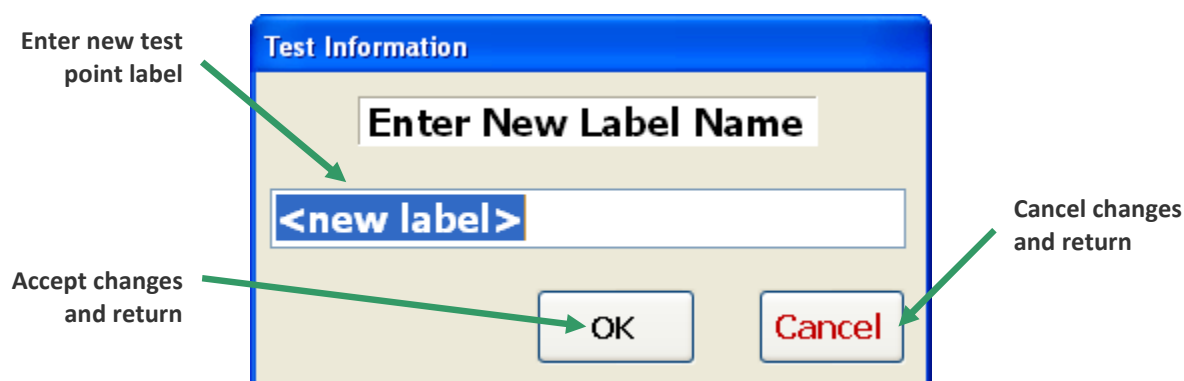


Figure 14 – Add or Rename a label

### 3.8.3 Deleting a Label

To delete a label, select the label from the list and then click “Delete Label” (see fig. 13).

### 3.8.4 Renaming a Label

To rename an existing label, select the label from the list and then click “Rename Label” button (see fig. 13). Type the new label name and click “OK” to make the change, or “Cancel” to return without renaming (see fig. 14).

### 3.8.5 Return to main screen

Click the “Return” button to go back to the main screen (see fig. 13).

### 3.9 CONFIGURATION MENU

The configuration menu allows the user to change application and unit settings such as thresholds and timers. To enter the configuration menu, click the “Config Menu...” button (see fig. 15). To exit the Configuration Menu, click on the “Return” button (see fig. 16).

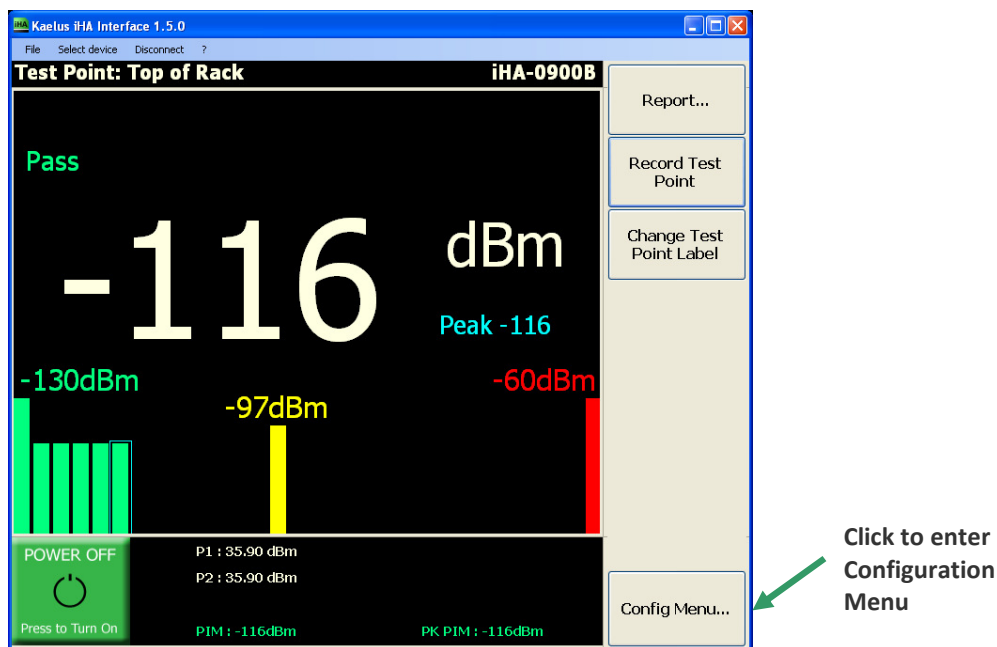


Figure 15 – Go to Configuration menu

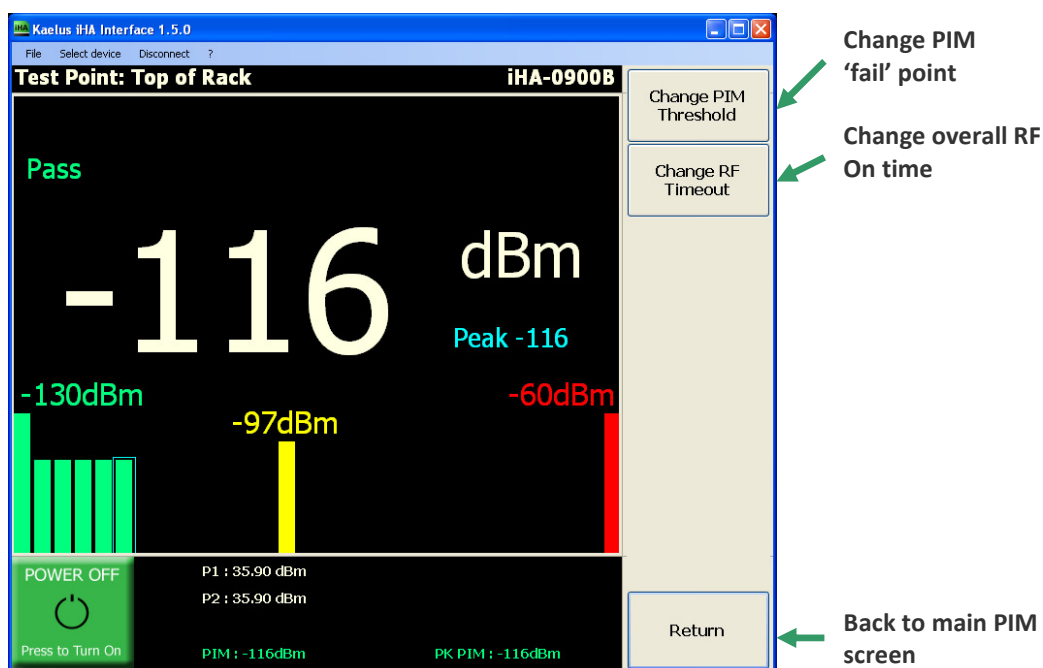


Figure 16 – Configuration menu

## 3.9.1 Modifying PIM Threshold

The PIM threshold allows the user to set a pass / fail threshold for each test point measurement. If a threshold is entered outside the limits of the unit a message will be displayed and the threshold will be set to the limit. Units will be the same as selected on the main PIM screen (see fig. 17).

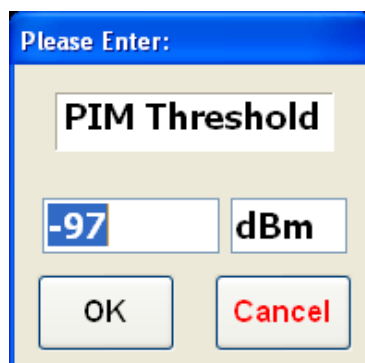


Figure 17 – PIM Threshold

*Note: Any positive value will be interpreted as negative.*

## 3.9.2 Modifying RF Timeout

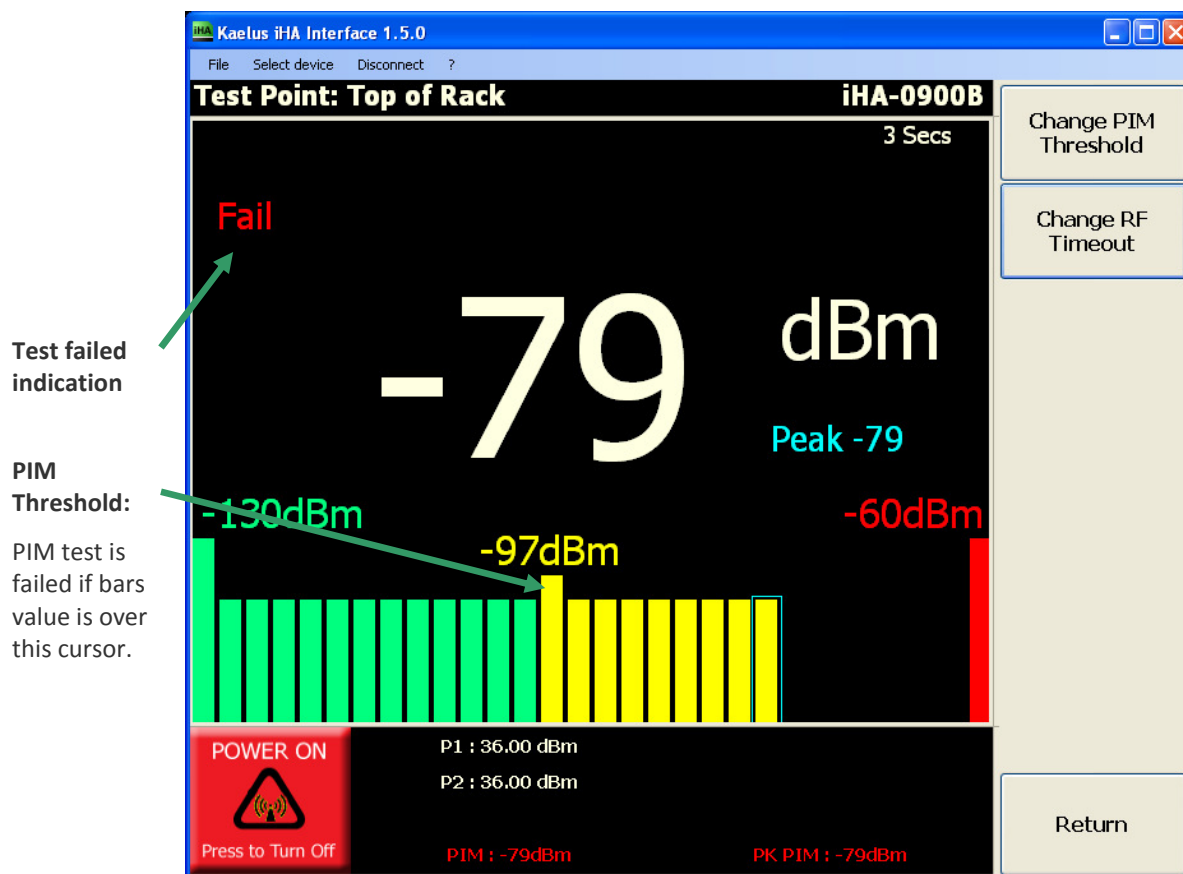
The RF timeout allows the user to set the maximum RF time in seconds before automatically turning off (see fig. 18). Valid range for the RF timeout is from 10 to 30 seconds. The timer is displayed in the upper right corner of the user interface.



Figure 18 – RF Timeout

### 3.10 PASS AND FAIL CRITERIA

Pass (green) and fail (red) is shown individually for PIM and Peak PIM at the bottom of the user interface (see fig. 19). The Pass / Fail in the upper left corner of the user interface is an overall pass / fail indication.



**Status bar:** The failed tests will be coloured in red and passed tests in green.

**Figure 19 – iHA user interface showing a fail condition on PIM and Peak PIM**

The PIM fail threshold can be specified as described in the Configuration Menu Section (see section 3.9).

### 3.11 PEAK PIM MEASUREMENT

The Peak PIM is displayed in light blue on the main PIM screen, as well as in the status bar as “PK PIM”. This measurement is a peak hold indicating the peak PIM value. To reset this value turn “Power Off”, wait a few seconds and then “Power On” using the button in the bottom left corner of the user interface.



## 4 VIEWING THE REPORT

To enter report mode, click “Report...” button when you are in PIM display screen (see fig. 20).

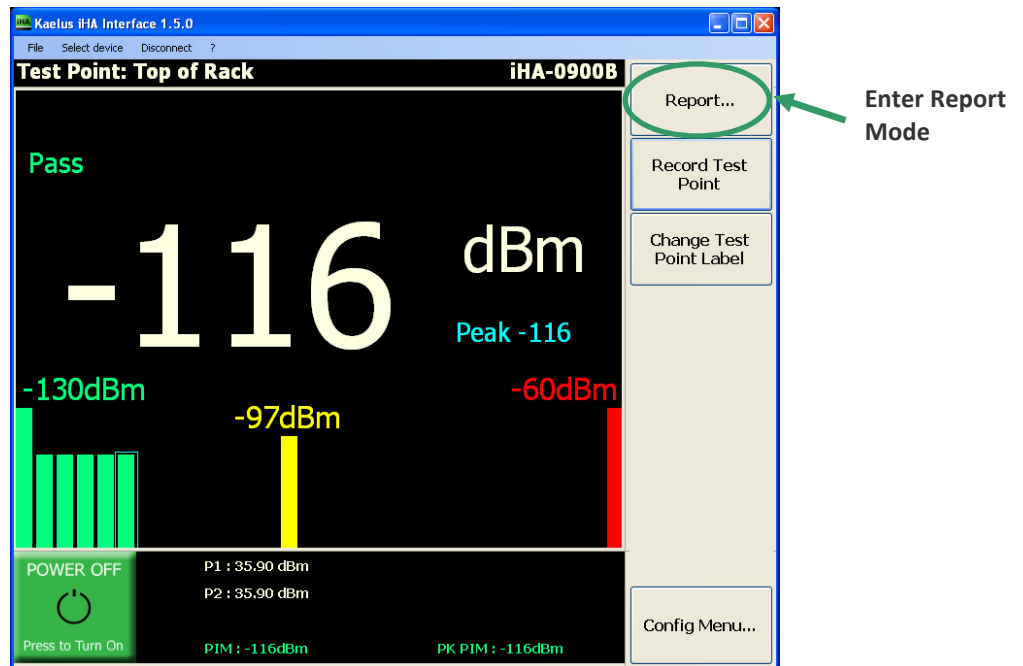


Figure 20 - Enter Report mode.

In the Report mode the user can enter operator name, site name and general site specific remarks (see fig. 21). The default file name for the reports is a combination of the Site name, Operator name and a sequential report number. See section 4.2 for saving reports.

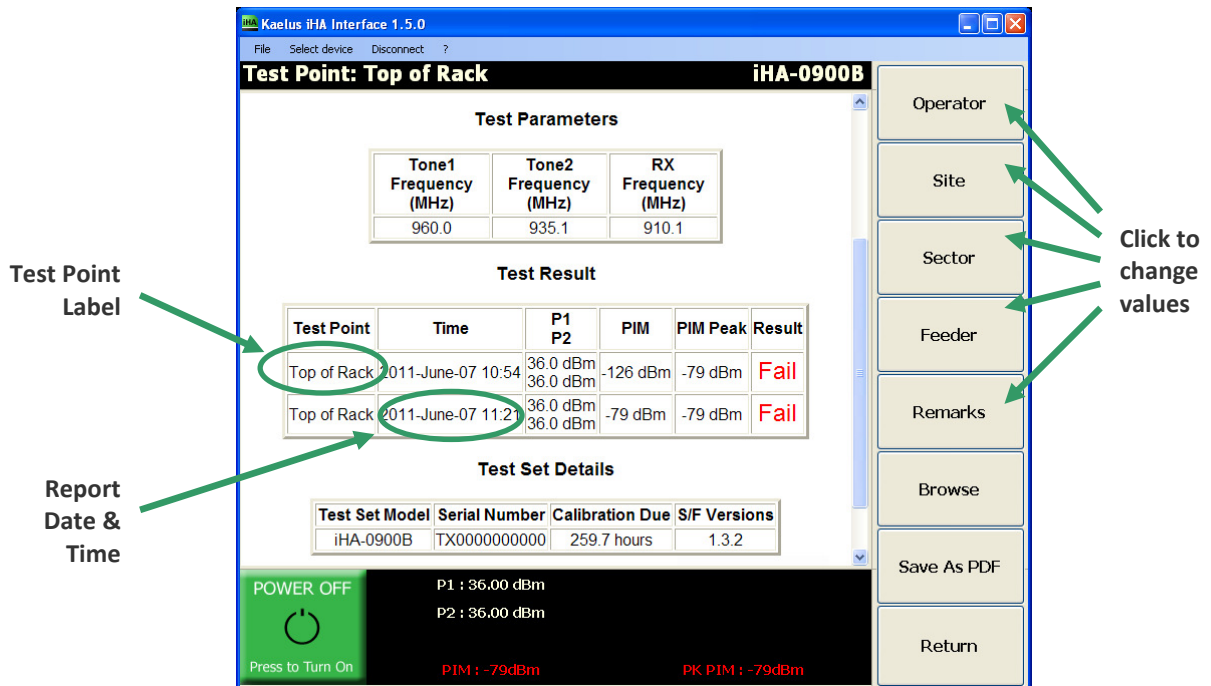


Figure 21 – Report mode

## 4.1 REPORT DATE AND TIME

Each test point measurement includes the current system date and time. If the date or time is incorrect the user must correct the time or date on their PC.

## 4.2 SAVING REPORTS

Reports are automatically saved in the programs installation directory in the “iHA Reports” folder with the default filename “Site name\_Operator name\_Sequential Report Number.rpt”. The reports can also be saved as a PDF at any time. To save a report in PDF format, press the “Save As PDF” Button (see fig. 22).

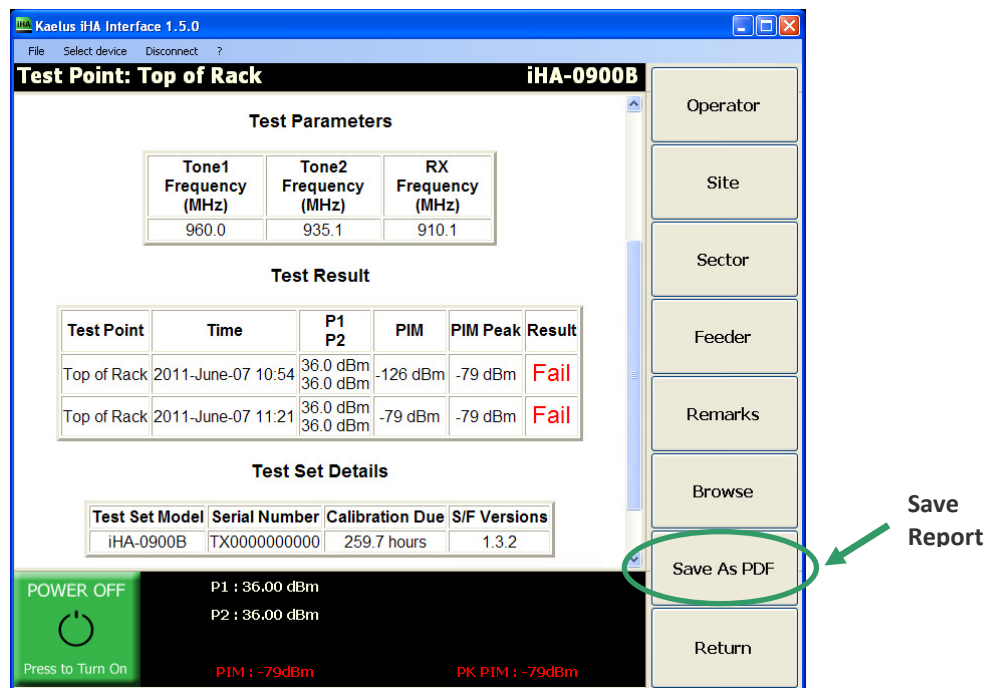


Figure 22 – Save report

## 4.3 VIEWING A PREVIOUS REPORT

To view a report, open the previously saved PDF file, or run the iHA software and select the report using the “Browse” button in the “Report” menu (see fig. 23).

NOTE - All reports are saved under current user’s document:

“My Documents\Kaelus\iHA Interface\Reports”

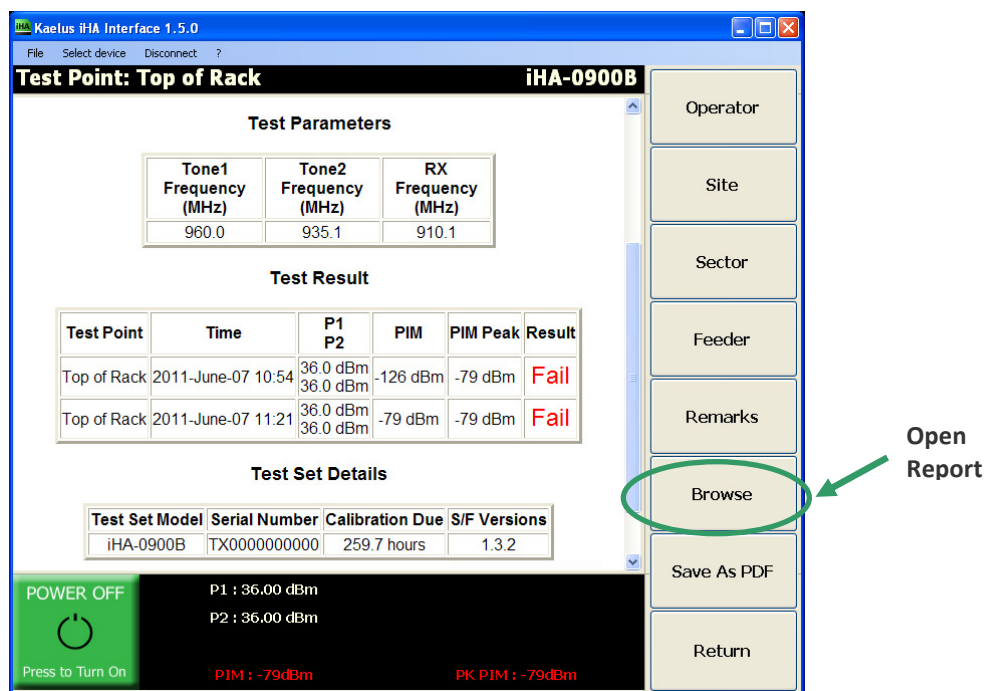


Figure 23 – Opening a Report to View

## 4.4 ADDING TO A PREVIOUS REPORT

In the “Report” menu select “Browse”, load the relevant report (see fig. 23). Return back to main screen of interface and proceed with measuring a test point.

The test point will be added to the report after the existing ones.

## 4.5 START A NEW REPORT AFTER VIEWING A PREVIOUS REPORT

By default, from an open report all the new measurements will be added to this report. If you want to start a new report, you have to Save the report opened as “Save As PDF” first (same report will be saved) to go to next report number available and reset report display. If you don’t want to save it, you can restart the application.