

Yellow Frog

Manual Version 1.1



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PC REQUIREMENTS

Windows XP or 2000 operating system

1152x864 32bit color display recommended

USB interface (driver supplied)

USB Driver requires 100 KB

Disk Space required is 3000 KB

YELLOW FROG POWER METER MEASUREMENT

The Yellow Frog power meter is a wide range (800 to 2200 MHz), .5 db accurate, battery powered RF power meter with LCD display. It can be used “stand alone” or in conjunction with a PC. When connected to a PC using its built in USB port, the Yellow Frog displays both dBm and Watts on the PC screen, this output can be saved to a disk file for use with programs such as Microsoft Excel. The PC software required to interface to the Yellow Frog is supplied with the unit. While the Yellow Frog is connected via the USB interface, it is fully powered by the PC (through the USB cable).

Yellow Frog continually measures the RF at its input and reports the results on its built in LCD display. Either dBm, Watts or both can be displayed. When displaying both, dBm and Watts are alternated every 4 seconds. LED's on the Yellow Frog display panel indicate the quantity being displayed (dBm or Watts). At the same time, the Yellow Frog outputs the data measured via the built in USB interface 4 times per second.

As supplied, the Yellow Frog is ready to be turned and measure RF power. For the best accuracy over frequency, the Yellow Frog must be “told” what frequency is being measured. To do this the Yellow Frog must be connected to a PC via the USB port. Once settings are made, the Yellow Frog “remembers” them so that the PC is only required whenever some parameter needs to be changed OR if it is desired to save measurement data to a disk file. The PC is also used to set the Yellow Frog display mode (dBm, Watts or both). As supplied from the factory, the Yellow Frog is set to the middle frequency (1500 MHz in most cases) and to display both dBm and Watts.

YELLOW FROG PC SOFTWARE

When the Yellow Frog is first connected to a PC via the USB interface, a driver must be loaded (see appendix A). After the driver is loaded, the PC software can be run if it too has been installed (see appendix A). With the Yellow Frog connected to the PC, locate the icon in Figure 1 and double click it. The PC will display the screen in Figure 2.



Figure 1

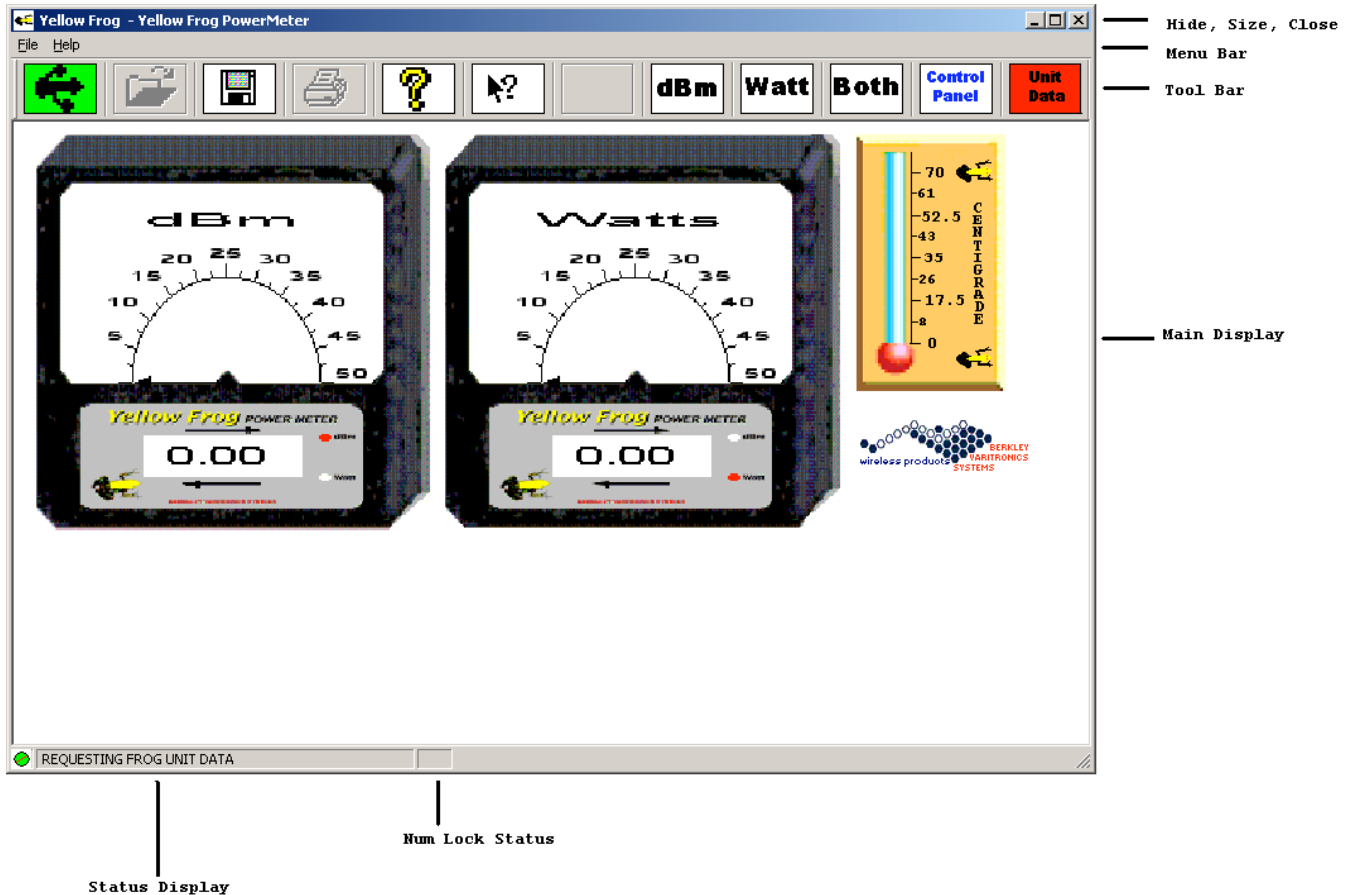


Figure 2

Note that the status bar indicates that the PC is requesting Unit Data from the Yellow Frog. This data is required in order for the PC software to properly communicate with the Yellow Frog. Wait until the Toolbar “Unit Data” indicator turns green, as shown in Figure 3.

MAIN YELLOW FROG SCREEN

The display contains 4 components:

dBm meter – indicates the current Yellow Frog measured RF power in dBm in a voltmeter display and in text below the meter.

Watt meter – indicates the current Yellow Frog measured RF power in Watts in a voltmeter display and in text below the meter.

Yellow Frog internal temperature in degrees Centigrade. If the Yellow Frog gets too hot, a warning is displayed.

Hopping Frogs are displayed below the meters and “hop” each time data is received from the Yellow Frog.

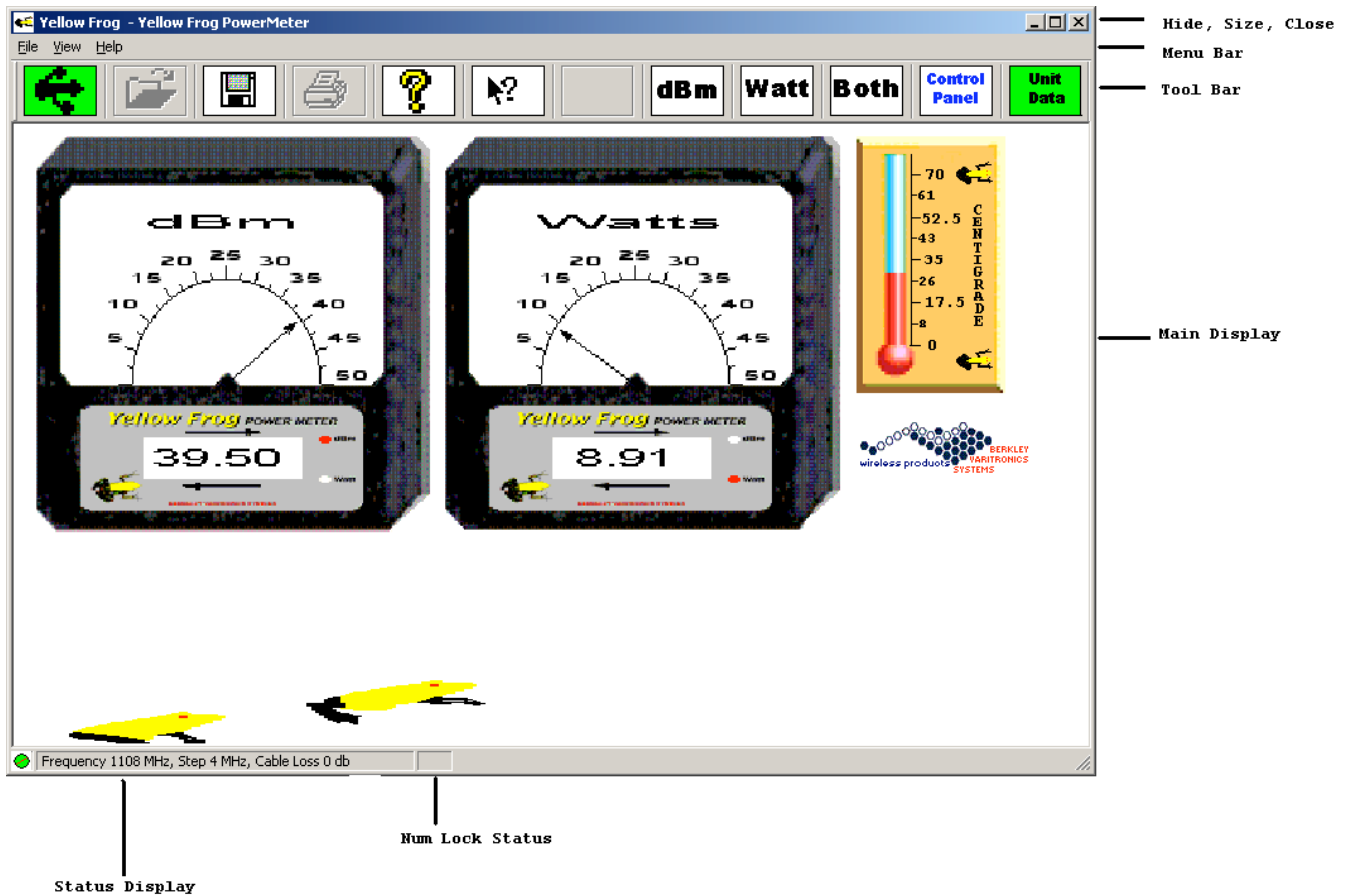
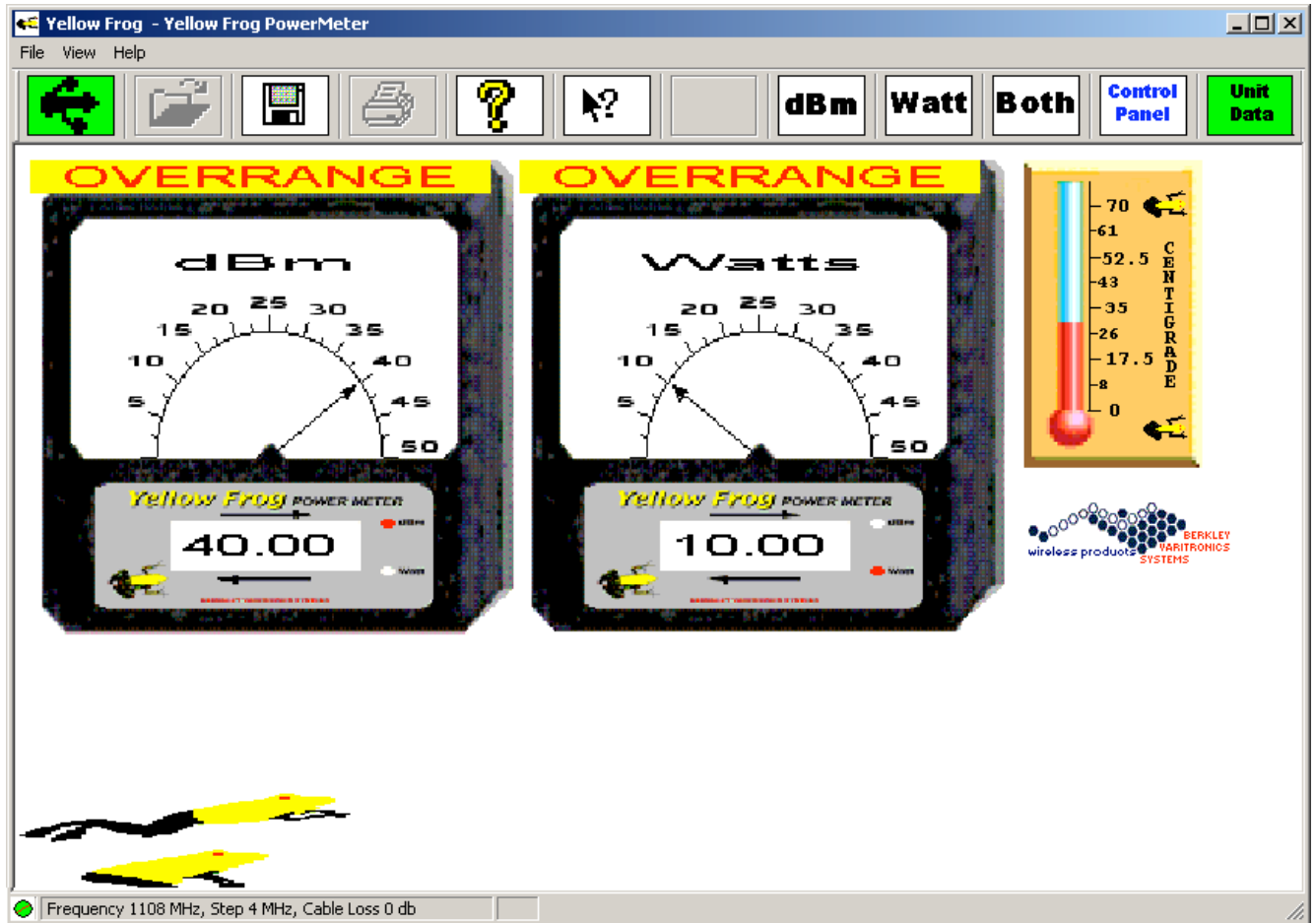


Figure 3

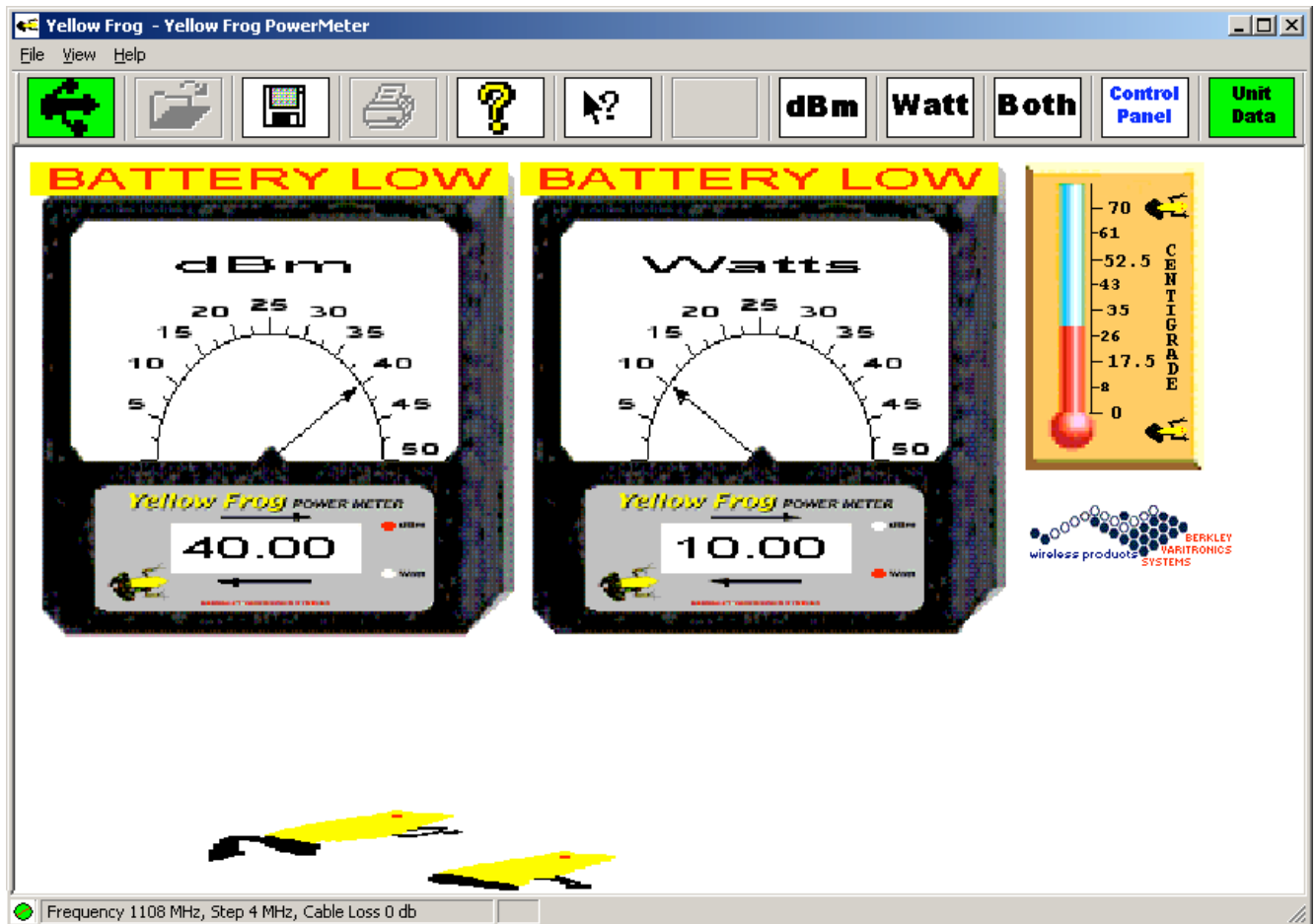
The Tool bar contains buttons and indicators used to control the Yellow Frog. The screen between the tool bar and status bar displays the real time data received from the Yellow Frog. The Watt meter scale can be changed by double left clicking on it while the mouse pointer is on the Watt meter. The frogs above the status bar and the “spinner” in the status bar change whenever data is received by the PC.

MAIN SCREEN WITH INPUT OVERLOAD



The following screen is displayed if the RF power being measured by Yellow Frog is too high. The Yellow Frog LCD displays “----” in this condition. Do not run the Yellow Frog for prolonged periods of time in this condition.

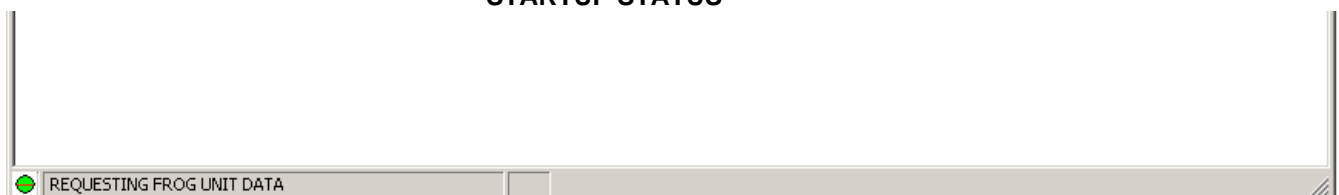
MAIN SCREEN WITH FROG BATTERY LOW



If the Yellow Frog's internal battery is low, the PC displays the following screen. The Yellow Frog LCD also shows "lo bat". Since the Yellow Frog is powered by the PC USB, this condition is a warning, but does not cause a degradation of the data received. When the Yellow Frog is detached from the USB, however, the batteries should be changed.

STATUS BAR

STARTUP STATUS



- Current operation or data is displayed in this status bar pane
- Icon "spins" while receiving data from the Frog

This status bar is displayed whenever Unit Data is requested by the PC.

RUNNING STATUS



- └─ Num Lock key status (in this case, unlocked)
- └─ When running, this status pane shows the Frog frequency, frequency calibration step and the current cable loss setting
- └─ Icon "spins" while receiving data from the Frog

This status bar indicates a normal power measurement. The current frequency and cable loss factor are displayed.

SAVING DATA TO DISK STATUS



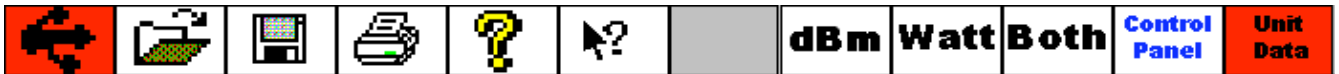
- └─ Num Lock key status (in this case, locked)
- └─ When saving data to disk, the current file size is shown here
- └─ Icon "spins" while receiving data from the Frog

The above status is displayed whenever Yellow Frog data is being saved to a disk file.

TOOL BARS

The Tool Bar portion of the PC screen contains the buttons used to control the Yellow Frog when connected to the PC USB port. The leftmost button shows the USB connection status and is green when the PC and Yellow Frog are communicating and is red otherwise. The rightmost button is green when the PC has the Yellow Frog unit data, it is red otherwise.

NO USB CONNECTION OR UNIT DATA

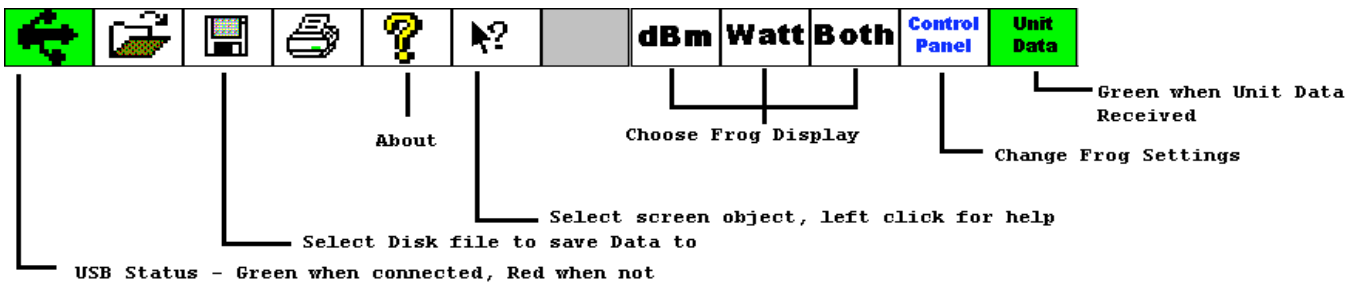


USB CONNECTED, NO UNIT DATA



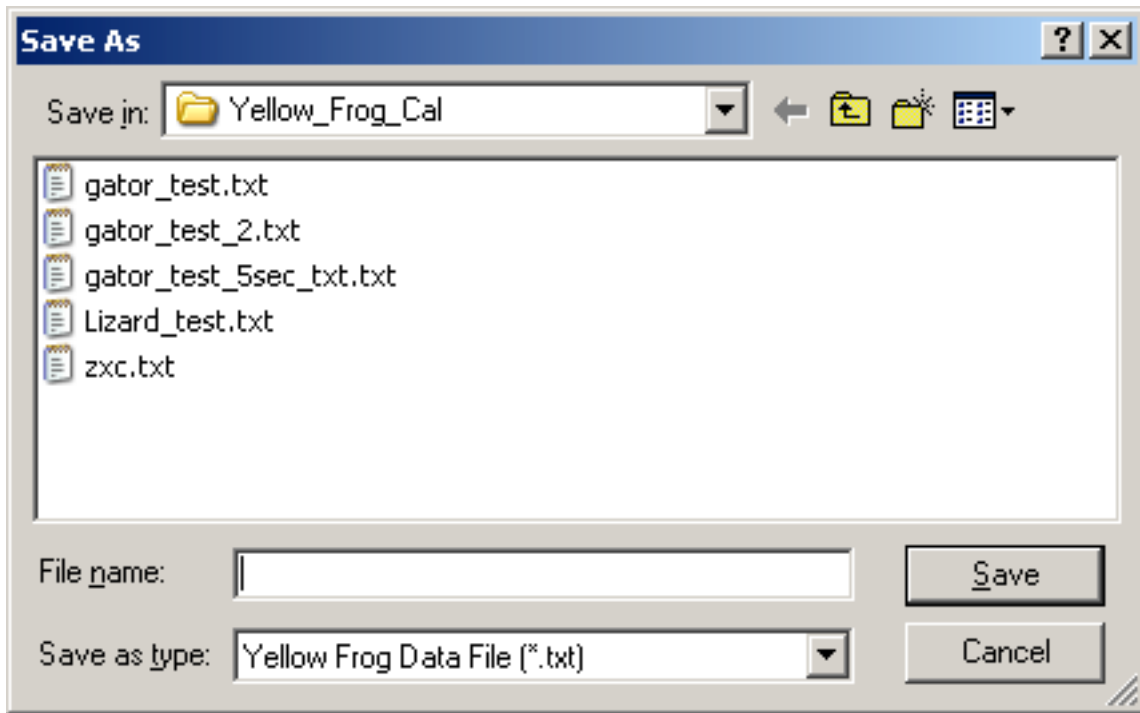
If the “Unit Data” button remains red for more than 20 seconds after the application is started, Click it to request Yellow Frog Unit Data. Once this button is green, clicking it has no effect.

USB CONNECTED, UNIT DATA RECEIVED



The FILE OPEN, PRINT and middle gray buttons have no function at this time.

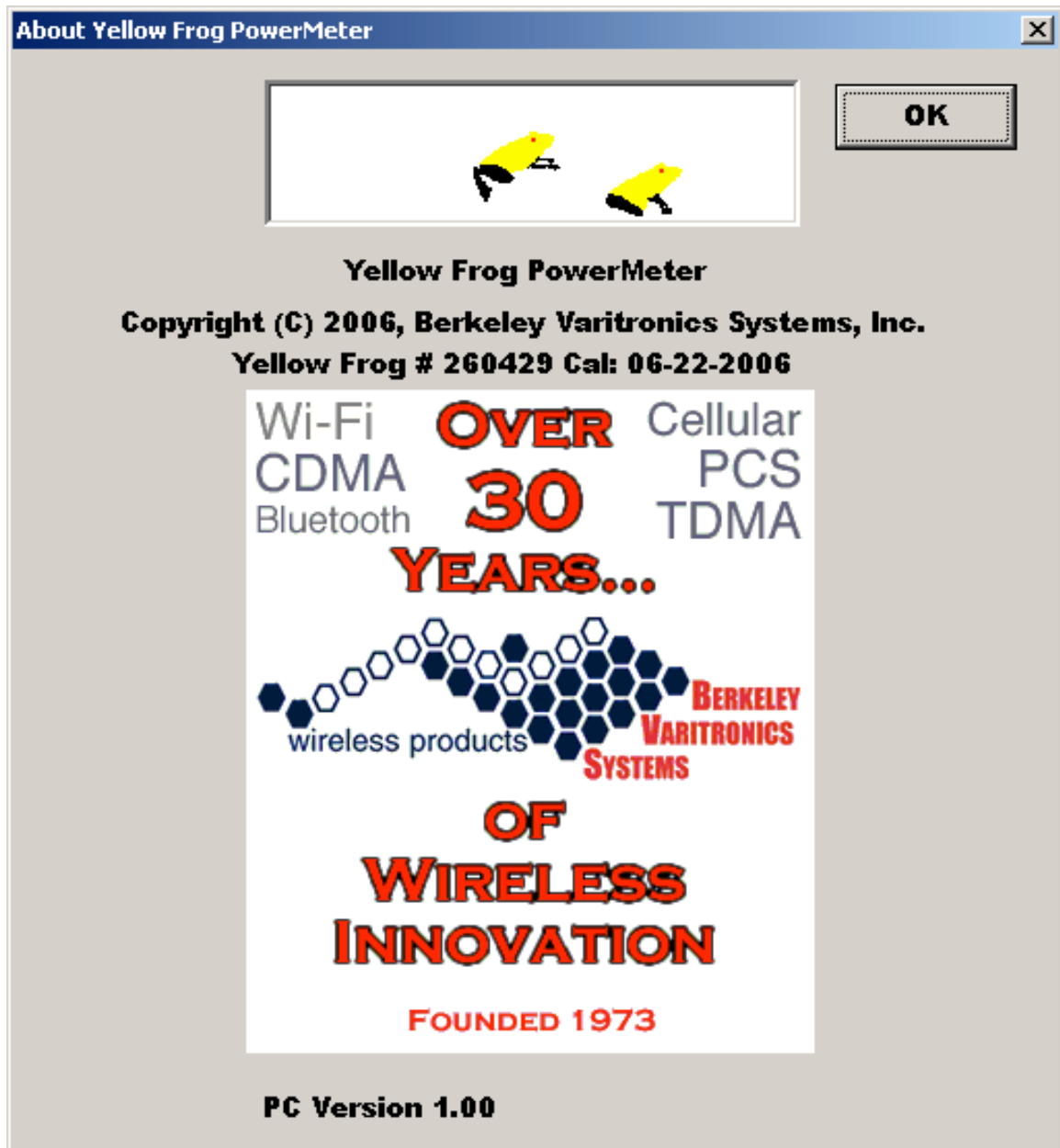
To start saving data to a disk file, click the “Select Disk file” tool bar button and the following dialog is displayed:



Create a file name and enter it to start saving data. The application will continue to save data until you close the application. To view the data in the file created, open the file with Microsoft Excel.



Click this tool bar button for information about the PC application as follows:





Place the mouse pointer on a component of the screen and left click. Help for that component is displayed.

dBm

Click this button to cause Yellow Frog to display dBm only.

Watt

Click this button to cause Yellow Frog to display Watts only.

Both

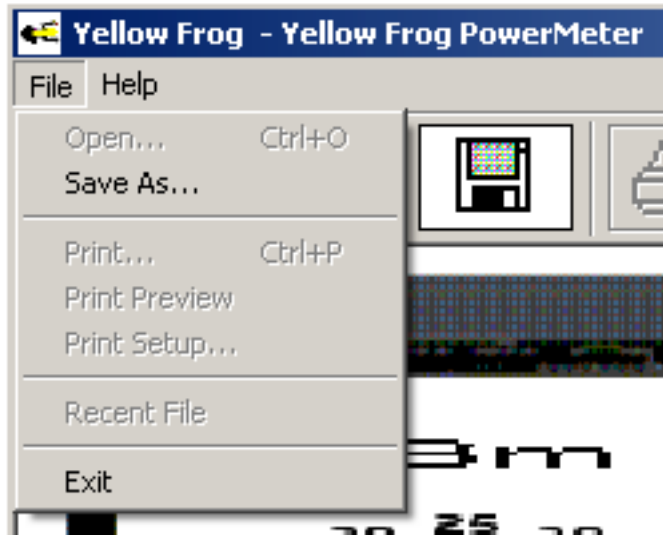
Click to cause Yellow Frog to alternate between dBm and Watts at a 4 second rate.

MENU BAR



Clicking the “Help Topics” menu selection brings up Yellow Frog Help Topics.

Clicking the “About Yellow Frog...” displays the About Yellow Frog dialog box, the same as clicking the tool bar About button.



Save As... selection is the same as the toolbar button “Select Disk File” button. Exit selection closes the application, if saving data, the save data file is closed.

TASK BAR ICON AND MENU

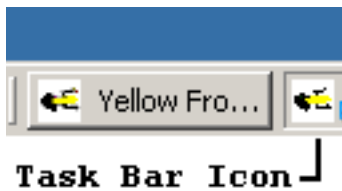


Figure 4

When the application is started, an additional icon is placed in the system task bar as shown in Figure 4. When the mouse pointer is placed on this icon and the right button clicked, the menu in Figure 5 is displayed.

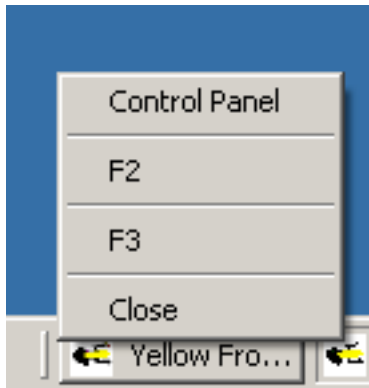


Figure 5

The task bar menu as shown in Figure 5 has 4 functions. To select a function, move the mouse pointer to the desired selection (it will become highlighted) and left click. The current track bar menu function are:

Control Panel – displays the Yellow Frog control panel.


F2 - TBD

F3 – TBD

Close – Closes the Yellow Frog application, any open files are closed.

YELLOW FROG PC CONTROL PANEL

Yellow Frog Control Panel



OK

Cancel

RF Frequency (MHz)
1500

File Save Rate
(Every 1.0 to 3600.0 seconds)
1

Modulation

☒ CW
☐ CDMA
☐ GSM

Cable Loss (db) or other correction
0

Unit Data

Serial #	260429
Cal Date	06-22-0006
Range (MHz)	0800 to 2200
Step (MHz)	4.0
Power Resolution	.5 dBm
Firmware	V 1.00

Use the Control Panel to adjust the Yellow Frog for best performance. The Yellow Frog Unit Data is also displayed in this dialog.

CONTROL PANEL UNIT DATA

Serial #	The Yellow Frog serial number.
Cal Date	The day of this units calibration.
Range	Frequency Range of this Yellow Frog.
Step	The calibration frequency resolution of this Yellow Frog.
Power Resolution	The dBm resolution of this Yellow Frog.
Firmware	Firmware version of this Yellow Frog.

Information displayed by the unit data section of the control panel is required when contacting BVS.

CONTROL PANEL SETTINGS

RF Frequency: set as close as possible to the RF frequency being measured by the Yellow Frog. This setting is saved by the Yellow Frog.

Cable Loss (db): enter the db value of cable loss so that the Yellow Frog can adjust its readings. Enter 0 if no cable loss (default).

CW, GSM, CDMA: choose the radio button for the appropriate RF modulation. The Yellow Frog will save this setting and adjust its readings.

Other: TBD

Modulation Factor: TBD

File Save Rate: enter file save rate required for the ASCII output file. The default is 1 reading per second. Enter the required value in seconds up to 3600 (1 hour).

OK: Click the OK button to save the settings displayed to the Yellow Frog. The settings take effect as soon as received by the Yellow Frog. It is **NOT RECOMMENDED** that settings be changed **WHILE** saving data to a disk file. Make changes before starting to record.

CANCEL: Click the CANCEL button to return to the main display **WITHOUT** changing the Yellow Frog's current settings.

ASCII FILE FORMAT

Example of the ASCII output file generated by the Yellow Frog PC application.

```
Frog 000072 Data File
Date: 5-1-2006
HOURS MINUTES SECONDS dBm Watts Temperature Pad
13 37 55 37.5 5.62 36.4 35
13 37 59 37.5 5.62 35.9 35
13 38 04 37.0 5.01 35.9 35
13 38 09 37.0 5.01 36.4 35
13 38 14 37.5 5.62 35.9 35
13 38 19 37.5 5.62 35.9 35
13 38 24 37.5 5.62 36.4 35
13 38 28 37.5 5.62 35.9 35
13 38 33 37.5 5.62 35.9 35
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```

File components:

Line 1: Contains the serial # of the Yellow Frog used to measure the data.

Line 2: The date of the recording.

Line 3: Header indicating the parameter recorded in the column below.

Line 4 through end of file: Contains the ASCII values of the Yellow Frog data.

The parameters from line 3 until the end of the file are separated by the ASCII TAB character (0x09).

YELLOW FROG LCD SCREEN – POWER ON

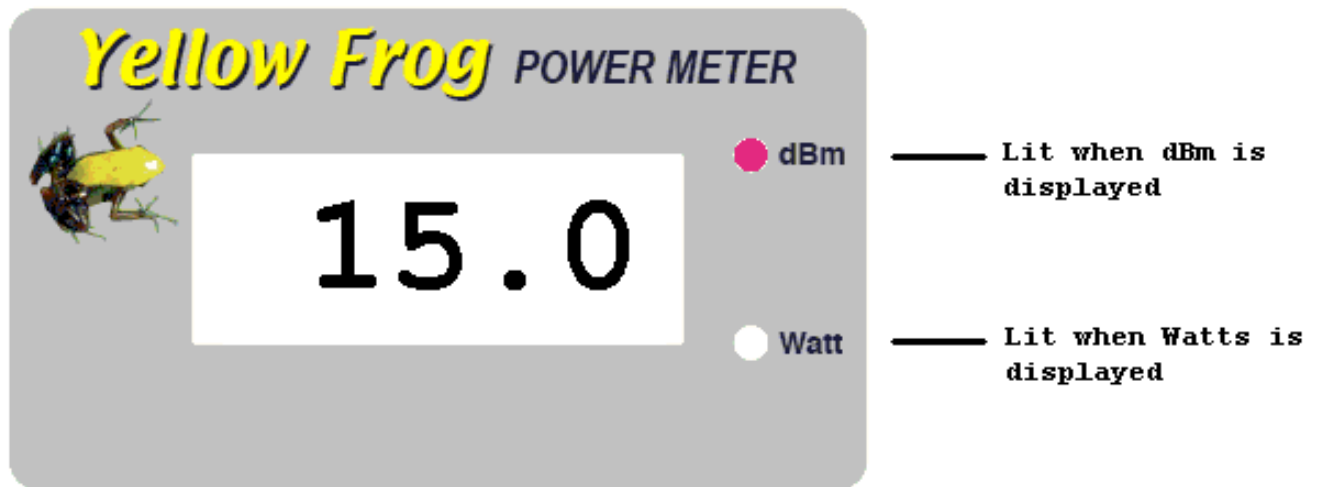


Figure 6

Whenever the Yellow Frog is turned on (either by the power switch or when connected to the PC USB), the device displays for 4 seconds a power up code as shown in Figure 6.

The first two digits to the left of the decimal point is the current Frequency that had been set using the PC control panel (in hundreds of MHz, in this example, 1500 MHz). The digit to the right of the decimal point indicates the modulation mode set with the PC control panel. The modulation codes are:

- 0 – CW
- 1 – GSM
- 2 – CDMA

After the 4 second power up display, the Yellow Frog continually measures and displays dBm, Watts or both dBm and Watts (alternated at a 4 second rate). The display mode is set using the PC software. Additionally, the Yellow Frog sends the measurement results to the PC 4 times per second.

YELLOW FROG WATT DISPLAY

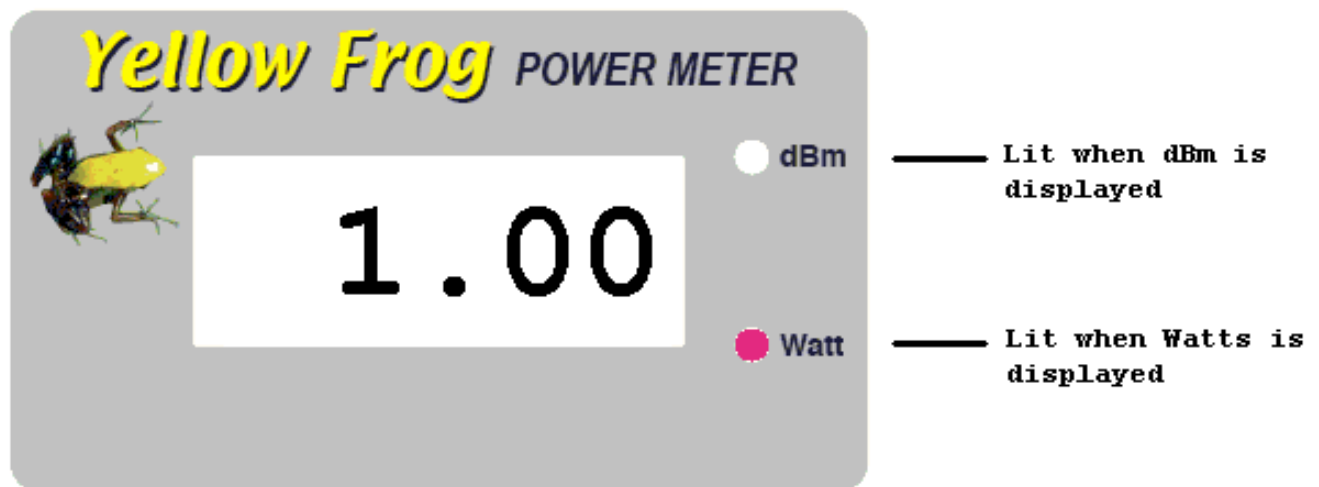


Figure 7

Figure 7 is an example Yellow Frog Watt display screen.

YELLOW FROG dBm DISPLAY

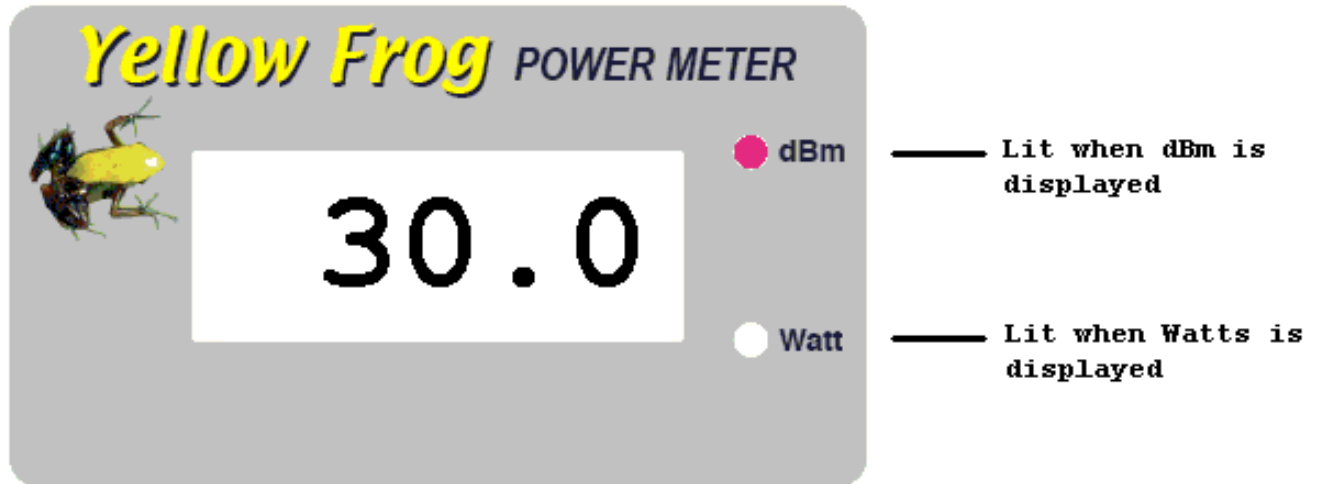


Figure 8

Figure 8 is an example Yellow Frog dBm display.

YELLOW FROG LOW BATTERY

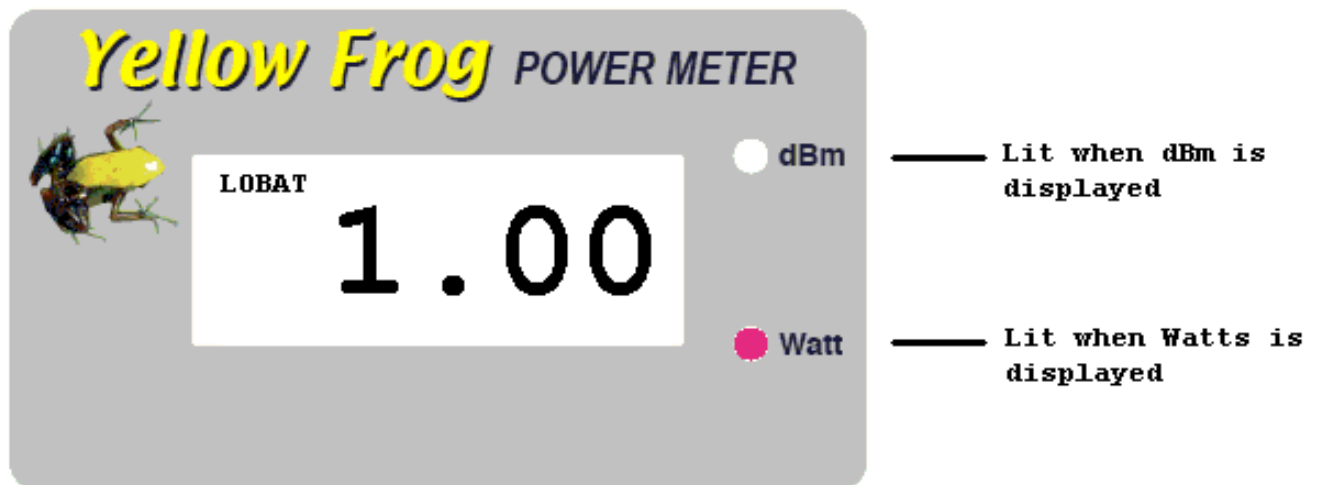


Figure 9

Figure 9 is an example display when the Yellow Frog internal battery is low.

YELLOW FROG INPUT OVER RANGE

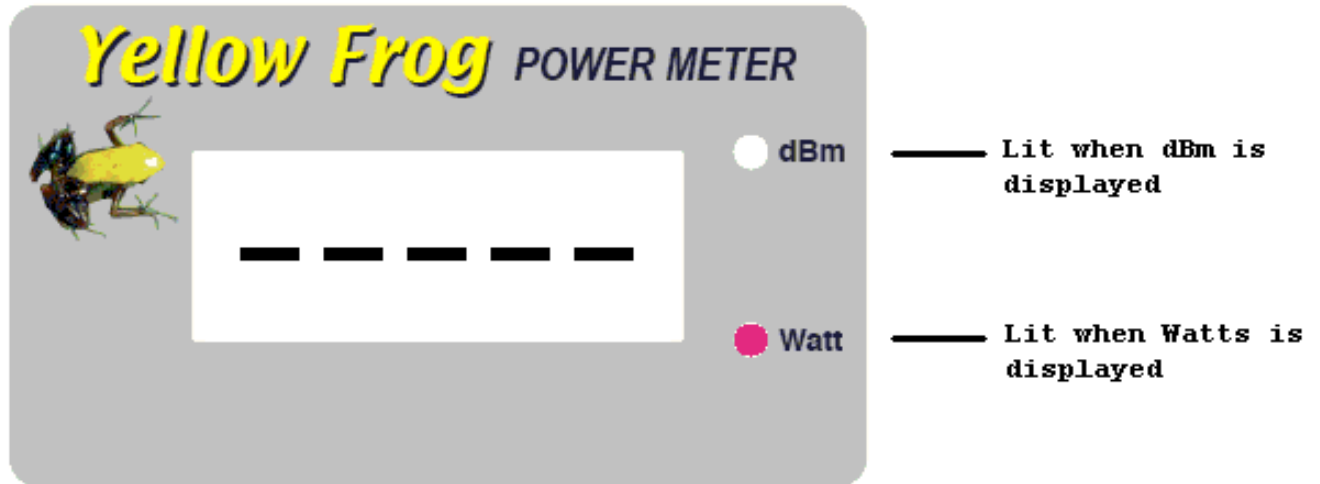


Figure 10

Figure 10 is displayed by Yellow Frog when the RF input is too high. The Yellow Frog should be removed from the RF signal.

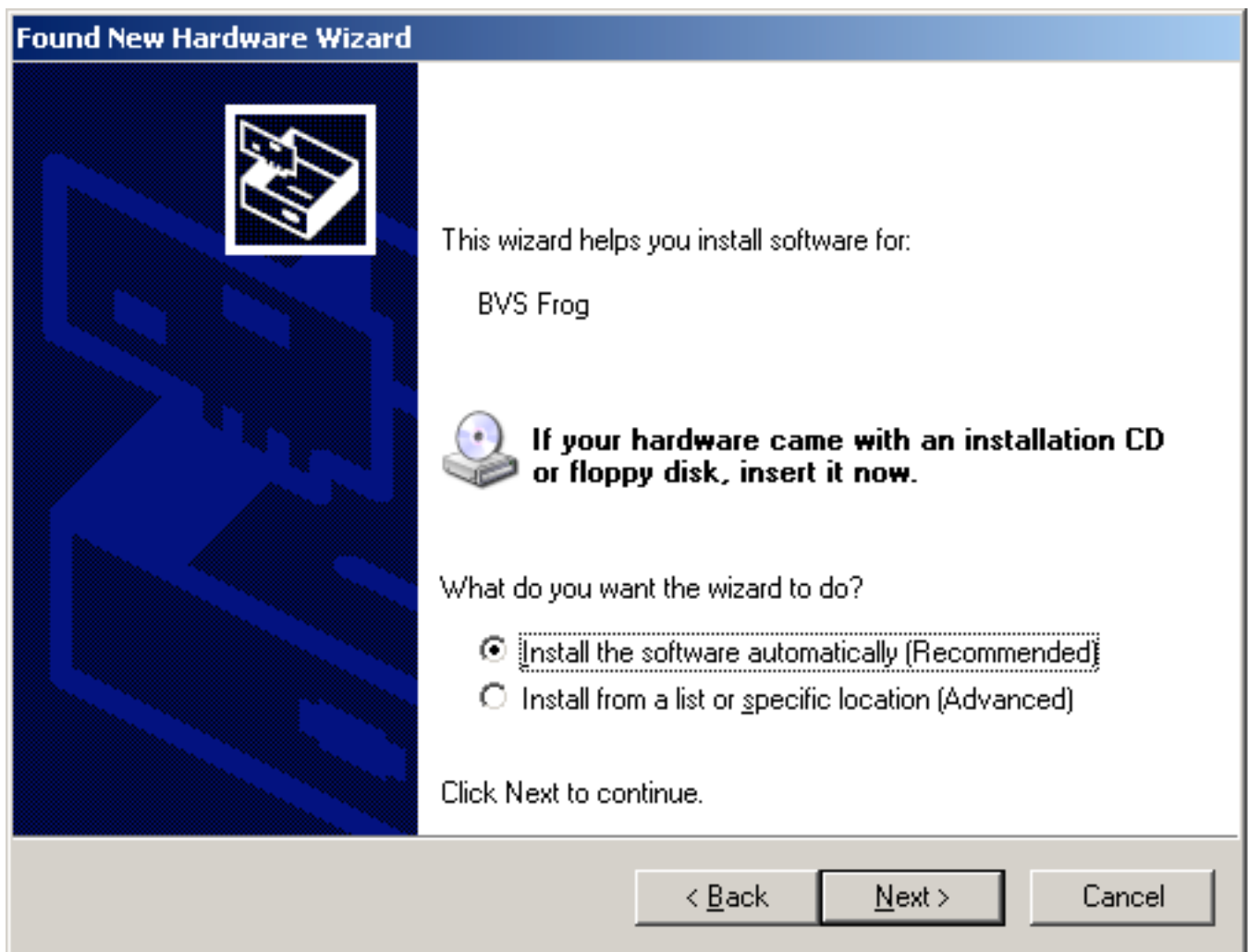
USB DRIVER INSTALLATION

The first time the Yellow Frog is plugged into a PC with the USB cable, Windows displays the following dialog:



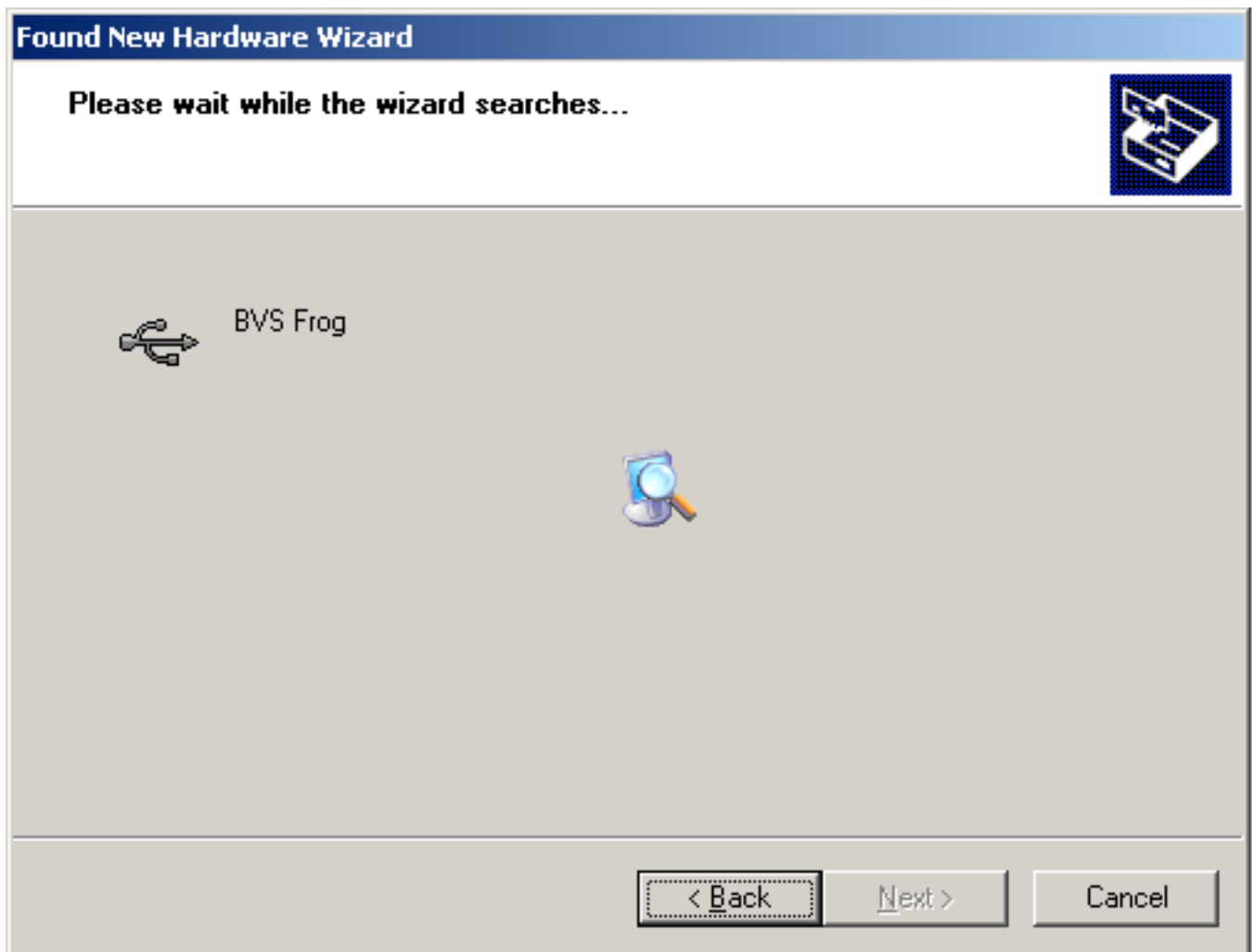
Click the “No, not this time” radio button then click “Next >”.

The next dialog displayed is:

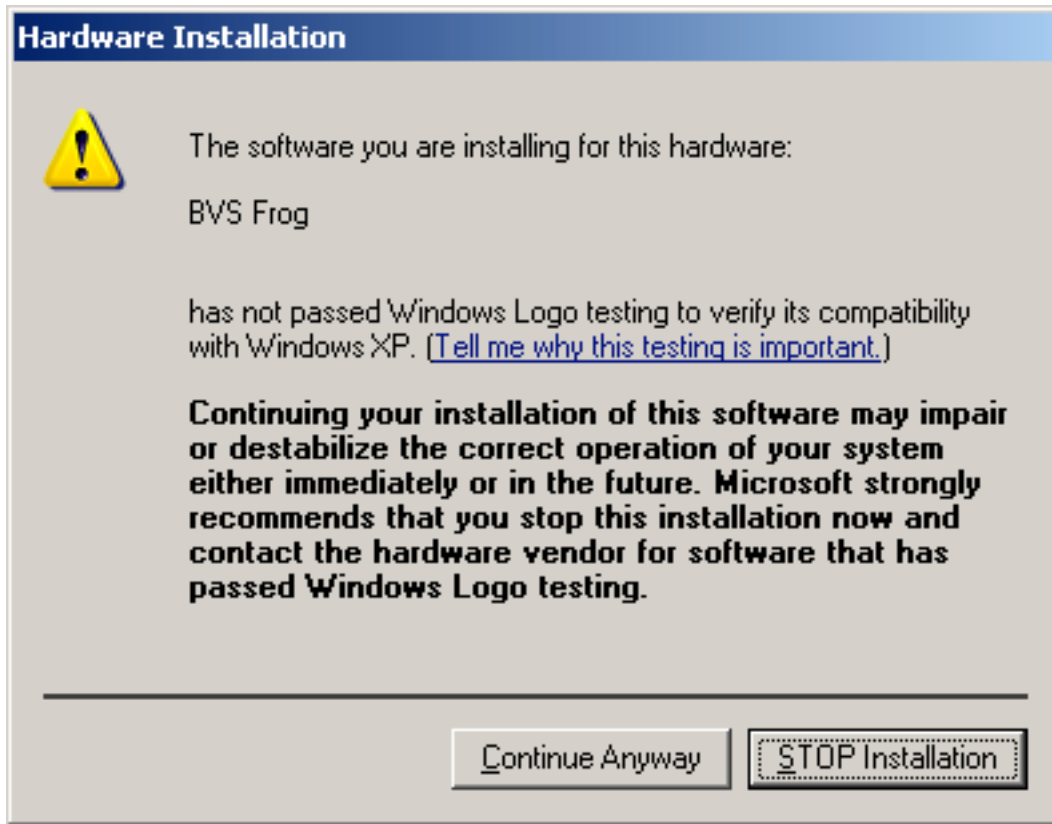


Click the “Install the software automatically (Recommended)” radio button, then “Next >”.

The next dialog displayed is:



Which is followed by a dialog with a progress bar. Wait until the following dialog is displayed:



Click "Continue Anyway".

Click "Finish" when this dialog is displayed.



The USB Driver for Yellow Frog is now ready to use with the PC software.

YELLOW FROG APPLICATION ID NUMBER

An ID Number has been added to the PC display for each YellowFrog Application that is running. This ID is also displayed in the track bar menu. In cases where more than 1 Frog application is running on the same PC, use this number to identify the Frog that the track bar menu is controlling.

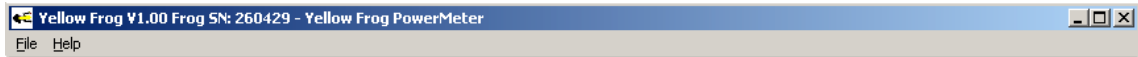


Figure 11

Figure 11 shows the latest application Tile bar. Note the number “260429” to the right of the icon and text “Yellow Frog”. This is the Yellow Frog Serial # which is also displayed in the Track Bar menu (Figure 12).



Figure 12

The latest Application places the Yellow Frog Serial number in the top position of the track bar menu as shown in Figure 12. Use this number to match the screen that the track bar menu references.

Clicking this selection has no effect on the Frog.

.....

Once data is being saved to a disk file, the file can be closed by clicking the “Select Disk file” toolbar button. The file is also closed when the application is closed. To view the file in Microsoft Excel, just open it with Excel after the Yellow Frog application is closed.