BANTAM INSTRUMENTS

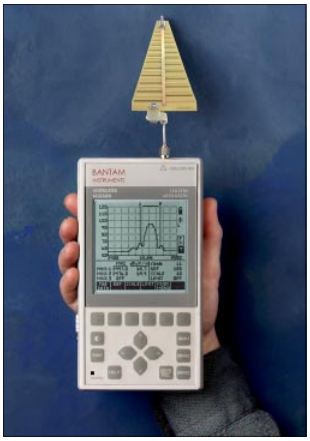
WIRELESS WIZARD

Covers ALL 2.4 and 5 GHz Wi-Fi Channels plus the Public Safety Band

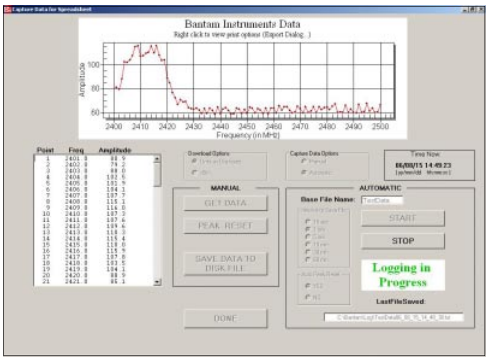
THE TOTAL SOLUTION FOR WIRELESS MEASUREMENTS
EVERYTHING IS IN ONE LIGHTWEIGHT CASE
NO ADDITIONAL ACCESSORIES REQUIRED

True Spectrum Analysis, including all Accessories, at an Amazingly Low Cost

Omni-Directional Broadband Antennas for Both Bands



Directional Broadband Antenna Covers all 2.4 and 5 GHz Bands



Automated Data Logging Provides Data Capture over Hours or even Days

Fully Programmable Serial Interface for Remote Monitoring Applications

PC Software Downloads Graphical as well as Tabular Data

A Complete System for Wireless Measurements

With the increasing use of wireless networking, careful evaluation of the WLAN environment is necessary to assure reliable operation and sustained high data transfer rates. Evaluation of interfering signals, access point placement and frequency selection, plus on-going monitoring and optimization of the site is necessary to assure a robust site implementation. The Wireless Wizard is designed to accomplish this for all the 2.4 GHz and 5 GHz Wi-Fi bands with an amazing low price and ease of use.

EVERYTHING YOU NEED IS INCLUDED

The Wireless Wizard is a complete site analysis tool. Everything is included, there are no additional accessories to purchase.

- Full range true spectrum analyzer
- Omni directional antennas for 2.4 and 5 GHz
- Directional Antenna covers ALL Wi-Fi Bands
- PC Software for data collection and logging
- 12 VDC Cigarette Lighter Adapter
- Worldwide Voltage Compatibility

Everything you need is housed in a rugged foam padded carrying case with the complete system weighing less than six pounds (13 kg). The Spectrum Analyzer itself weighs only 1.2 lbs (0.6 kg) allowing extreme portability when exploring wireless sites.

The spectrum analyzer is battery powered using high capacity NiMH batteries which supply several hours of operation. An internal "sleep" function places the spectrum analyzer in a low power drain mode when front panel buttons have not been pushed for several minutes, giving all-day measurement capability.

TRUE SPECTRUM ANALYSIS

The Wireless Wizard is a true spectrum analyzer not a set of Wi-Fi cards configured to do spectrum analysis. This means that no interfering signals are missed. Whether the signal is Wi-Fi or non Wi-Fi, it will be detected by the Wireless Wizard, no frequencies are skipped.

UNPRECIDENTED EASE OF MEASUREMENTS

The Wireless Wizard frequency menu is split into convenient Wi-Fi bands. As an example, the 2.4 to 2.5 GHz band can be selected. Then the type of antenna is selected, either directional or omni-directional. The unit then applies the correct antenna factors associated with the antenna so true field strength measurements in dBµV/m can be made. In addition, measurements can be made in dBµV or dBm.

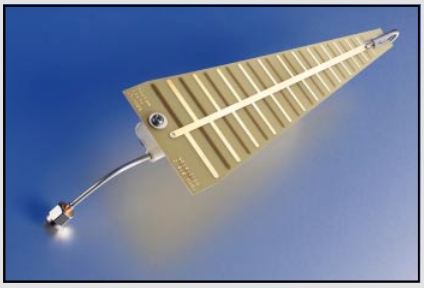
Directional Log Periodic Antenna Covers All Wireless Bands

Bantam Instruments' proprietary Log Periodic Antenna covers all 802.11 channels from 2.4 to 6.0 GHz. With a 3 dB beam width of approximately 70 degrees and a front to back directivity of 20 dB, this antenna is ideal for locating all types of interference. Locating the interference around Wi-Fi installations allows the interfering signals to be eliminated or for access points to be relocated so as to mitigate the interfering signal.

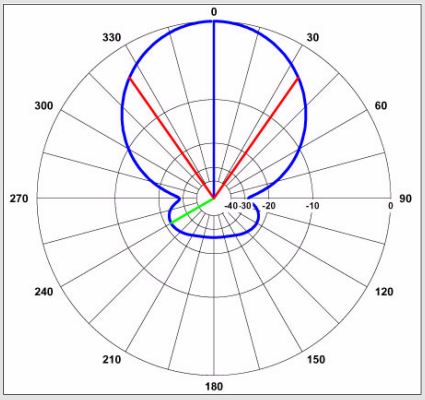
The Log Periodic Antenna is small in size, less than 6 inches (15 cm) long, so it is straightforward to walk around and rotate the antenna to locate sources of interference. The Wireless Wizard has an adjustable limit line which makes locating the direction of interference straightforward. Aim the antenna towards the expected direction of interference and take a reading. Set the limit line to the peak level of interference, reset the peak hold, rotate either clockwise or counterclockwise and take another reading and compare the peak with the limit line level. Just a couple of measurements and the direction of interference is known.

The polar graph at the right shows the response of the antenna. The red lines indicate the beam width 3 dB points. The green line indicates the worst case front to back ratio, a difference being approximately 20 dB.

The Log Periodic Antenna has an Antenna Factor of 33 in the 2.4 to 2.5 GHz range and 41 in the 4.94 to 6.0 GHz range. This results in a sensitivity noise floor of 55 dBµV/m in the 2.4 GHz band and 66 dBµV/m in the 5 GHz band.



Log-Periodic Directional Antenna and Polar Plot of Sensitivity.



Once a band is selected, a channel cursor can be used to identify the Wi-Fi channels. In the case of the 2.4 to 2.5 GHz frequency range there are 14 channels. When the channel cursor is positioned to a channel, the "zoom-in" key can be pressed and the measurement is narrowed to just the selected channel. The Wireless Wizard uses a proprietary signal capture algorithm which quickly captures the Wi-Fi signal.

Measurements are usually made in the peak-hold detection mode. The press of the reset button allows the peak accumulation to restart. Normal and quasi-peak detection modes may also be selected.

FULLY SELF-CONTAINED

The back-lighted LCD display is built into the spectrum analyzer, no external display device is required. Also, an internal memory can store 20 setups as well as 16 measurement traces. Measurement setups can easily be recalled, measurements taken, and the data later downloaded into a PC for analysis or report writing.

OMNI-DIRECTIONAL MONOPOLE ANTENNAS

Two monopole antennas are included with the Wireless Wizard, 1.8 to 2.9 GHz and 4.94 to 6.0 GHz. This means that the entire frequency range of the spectrum analyzer is covered. Measurements are made in field strength units of dBµV/m. The antennas are similar to those used in Wi-Fi installations, so the measurements are relative to the wireless installation.

Three frequency markers are available to indicate frequency ranges or identify frequencies of interest. Marker functions include SEEK where the marker automatically moves either right or left to the highest signal. Marker frequencies are displayed as well as the associated trace amplitude.

Measurements can be displayed in dBm, dBµV, or dBµV/m. Field strength measurements in dBµV/m are unique to the Wireless Wizard as the antenna factors for the supplied antennas are stored within the unit.

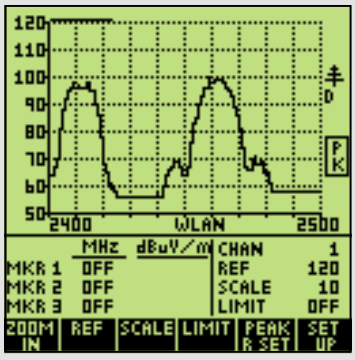
PC ENHANCEMENT SOFTWARE FOR VERSATILE DATA COLLECTION

The PC Enhancement Program supplied with the Wireless Wizard downloads data to a PC operating under a WINDOWS[1] environment. Data can be downloaded in four modes. One mode downloads the screen image as a bitmap (BMP) file as shown on the bottom-left. This file can be used in reports and shows the location of frequency markers, limit lines, type of antenna used, and the detection method. Everything you need to know about how the measurement was made.

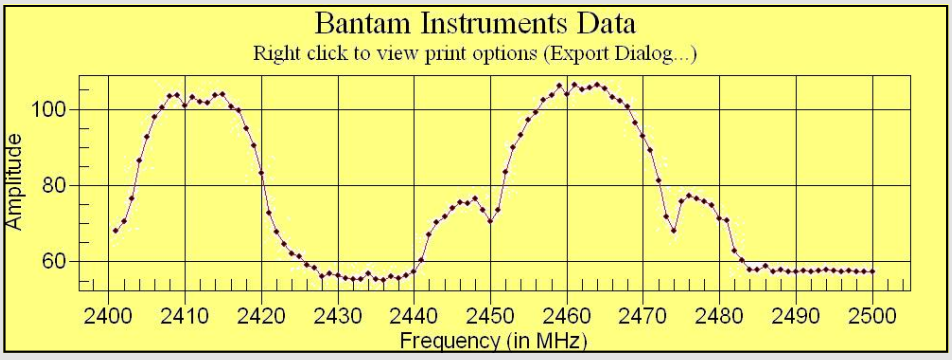
A second mode downloads the tabular measurement data in a comma delimited format which is compatible with spreadsheet programs such as EXCEL[1]. The data is downloaded as 100 frequency / amplitude pairs. The data can be recalculated or formatted in Excel or other programs as desired.

Another mode graphs the tabular data and allows it to be stored as a JPG or BMP file, as shown on the bottom-right. This approach is ideal for report generation as the graphing method can be selected and the axis can be labeled to identify the measurement parameters. Graphing modes such as connected dots, bar graph, waterfall, etc. can be selected.

The fourth mode automatically collects data at intervals which can be set from 15 seconds to 60 minutes and then stores the data onto the hard drive. The data is stamped with the date and time that the data was collected. This mode implements automated data logging over several hours or days and can be without the presence of an operator. With today's high capacity disk drives, the storage period is almost unlimited.



Screen image as bitmap file



The same data automatically graphed by the program as JPG or BMP

[1]WINDOWS and EXCEL are Registered Trademarks of Microsoft Corporation

WIRELESS WIZARD PERFORMANCE SPECIFICATIONS

FREQUENCY

Frequency Ranges:	1.8 to 2.9 GHz 4.94 to 6.0 GHz
Span:	0 MHz to Entire Range
Frequency Markers:	3
Marker Resolution (Frequency):	1% of span ±2 ppm
Marker Resolution (Amplitude):	0.1 dB
Marker Readout Accuracy:	1% of span ±2 ppm
Resolution Bandwidth, 3dB:	120 kHz, 1 MHz
Video Bandwidth:	30 kHz, 300 kHz
Channel Zoom:	Measurement of any Individual Channel

PRESET WLAN BANDS:	CHANNELS IDENTIFIED:
2.40 to 2.50 GHz	1 through 14
4.94 to 4.99 GHz	1 through 18
5.15 to 5.25 GHz	34, 36, 38, 40, 42, 44, 46, 48
5.25 to 5.35 GHz	52, 56, 60, 64
5.49 to 5.71 GHz	100, 104, 108, 112, 116 120, 124, 128, 132, 136
5.725 to 5.825 GHz	149, 153, 157, 161

AMPLITUDE

Measurement Range at Input, typical:	-25 dBm to –85 dBm
Maximum Safe Input Level:	+23 dBm, 50 VDC
Sensitivity, 2.4 to 2.5 GHz:	
With Omni-Directional Antenna:	59 dBµV/m, typical
With Log Periodic Antenna:	55 dBµV/m, typical
Sensitivity, 4.94 to 6.0 GHz:	
With Omni-Directional Antenna:	70 dBµV/m, typical
With Log Periodic Antenna:	66 dBµV/m, typical
Scale:	1, 2, 5, 10, 20 dB/div
Measurement Units:	dBm, dBµV, dBµV/m
Amplitude Accuracy:	±2.5 dB, -30 to –70 dBm
Input-related 2nd Order Response:	
1.8 to 2.9 GHz Range:	>70 dBc, typical
4.94 to 6.0 GHz Range:	>20 dBc, typical[1]
Detection Modes:	Normal, Quasi-Peak, and Peak Hold
Input Connector:	SMA Female

GENERAL

Internal Save/Recall Memory:	20 Setups and 16 Traces
Dimensions, mm:	193H x 102W x 33D
Dimensions, inches:	7.6H x 4.0W x 1.3D
Weight:	1.2 lbs (0.55 kg)
Safety and Electromagnetic Compatibility:	CE Mark Compliance

[1]Built-in signal identification feature easily identifies valid response

ACCESSORIES INCLUDED

1.8 to 2.9 GHz OMNI-DIRECTIONAL ANTENNA

Construction:	1/4 Wavelength
Antenna Factor, 2.4 to 2.5 GHz	36, typical
Connector:	SMA Male

4.94 to 5.0 GHz OMNI-DIRECTIONAL ANTENNA

Construction:	1/2 Wavelength
Antenna Factor:	45, typical
Connector:	SMA Male

2.4 to 6.0 GHz DIRECTIONAL ANTENNA

Construction:	Log Periodic
Antenna Factor, 2.4 to 2.5 GHz:	33, typical
Antenna Factor, 4.94 to 6.0 GHz:	41, typical
Directivity, Front to Back:	20 dB, typical
Connector:	SMA Male

PC ENHANCEMENT SOFTWARE

Software Media:	MINI CD ROM
Windows Compatibility:	Windows 98, ME, XP
RS-232 Data Download Modes:	Screen Display as Bitmap Excel Compatible Data Graphical Data as JPG Automatic Data Logging

LINE VOLTAGE POWER UNIT / BATTERY CHARGER

Line Input:	100 to 240 VAC, 50 / 60 Hz 1.0 A max

12 VDC VEHICLE CIGARETTE LIGHTER ADAPTER

Voltage Input:	11 to 14 VDC

ORDERING INFORMATION

Wireless Wizard Spectrum Analyzer System $2950

Includes:
- Wireless Wizard Spectrum Analyzer
- Built-in LCD Display with Backlight
- 1.8 to 2.9 GHz Omni-Directional Antenna
- 4.94 to 6.0 GHz Omni-Directional Antenna
- 2.4 to 6.0 GHz Directional Log Periodic Antenna
- Line Powered Battery Charger / Power Unit
- 12 VDC Vehicle Power Adapter Cable
- Serial Interface Cable
- PC Enhancement Software with Data Logging
- Transit Case
- Operating Manual
- One Year Warranty

Option 001, Warranty Extension to 3 years $200

Domestic US Orders: VISA and MasterCard
NET 30 upon approval of credit

International Orders: VISA and MasterCard
Bank Wire Transfer

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