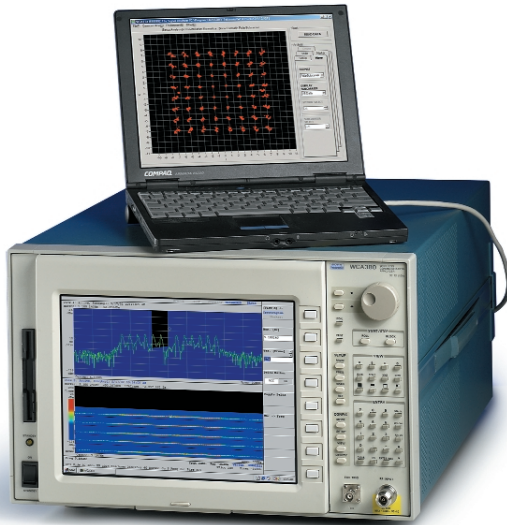


WCA11A Signal Analysis Software for IEEE 802.11a



Automatic Control for the WCA380 and Off-line Analysis of 5 GHz Wireless LAN Signals

WCA11A Signal Analysis Software enhances the WCA380 Wireless Communications Analyzer to provide the complete evaluation of RF signals in IEEE 802.11a 5 GHz high-speed wireless LAN systems. The software runs on an external PC connected to the WCA380 over a wireline Ethernet link. The WCA11A automatically configures the WCA380 to acquire transmission data and transfers the results to the PC. Data is analyzed off-line, where results can be easily organized, displayed and documented.

The WCA380 performs real-time acquisition of signals with bandwidths of up to 30 MHz. When set to 30 MHz span, the analyzer can capture up to a 12,500 symbol length (50 milliseconds) of an IEEE 802.11a transmission signal. The Spectrum Mask function can be used to automatically trigger an acquisition when predefined limits are exceeded. Intermittent channel effects such as multi-path and transient noise can then be captured with the real-time trigger to ensure accurate analysis of the affected bursts.

► Features & Benefits

Automatically Controls the WCA380 to Evaluate Transmission Characteristics of IEEE 802.11a RF Signals Precisely as Defined in the Standard, Ensuring Conformance

Simple, Familiar Configuration – Uses Standard External PC to Control the Analyzer and to Acquire, Store and Analyze Data Offline in a Standard Windows Environment, Eliminating Tedious Setups and Uncertainties

Frequency Domain Triggering Can Be Set to Capture Transient Events and Intermittent Signal Fluctuations, No Matter when They Occur

Powerful Spectrum Mask Testing Automatically Detects Out-of-Limit Conditions and Captures Signals to Help Identify and Troubleshoot the Causes

PC Connected Via Ethernet Link – Multiple Users Can Share the WCA380 on a Local Network

► Applications

Debugging and Troubleshooting Product Designs

Qualification Testing to Ensure that Products Conform with Standards

Documentation of Test Results to Demonstrate Conformance

COMPUTING

COMMUNICATIONS

VIDEO

WCA11A Signal Analysis Software for IEEE 802.11a

Conforms with the Standards and More

The combination of WCA11A software and the WCA380 provides the measurements needed to ensure technical conformance with IEEE 802.11a. Measurements that have been defined in the standards are performed in full accordance with requirements. Additional tests beyond those defined in the standards, such as spurious response and crest factor, give further insight and assurance. Instrument setups, data acquisition conditions and analysis parameters are automatically configured, eliminating set up uncertainties.

WCA11A Measurements Include:

- ▶ Power/Constellation display of sub carriers
- ▶ Power/Constellation display of total signal
- ▶ Power versus time
- ▶ Burst power
- ▶ Burst period, burst interval
- ▶ Adjacent channel leakage power
- ▶ Out of band leakage power
- ▶ Modulation on sub carriers.
- ▶ EVM of sub carriers
- ▶ Time (symbol) versus modulation accuracy (EVM)
- ▶ Carrier frequency
- ▶ Carrier leakage
- ▶ Spectrum mask
- ▶ Occupied bandwidth
- ▶ Spectrum frequency flatness
- ▶ Spurious responses (100 kHz to 8 GHz)
- ▶ Crest factor, CCDF and Peak-to-Average ratio

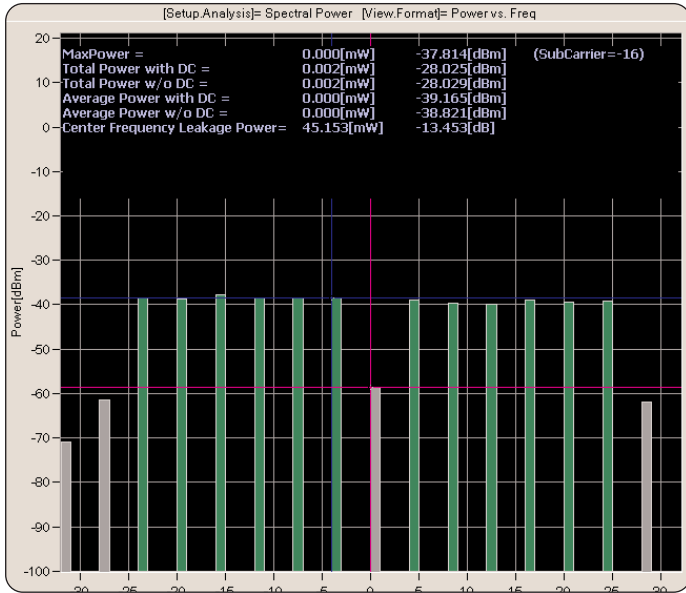
Share Resources in a Local Network

Because the connection to an external PC is a standard Ethernet link, shared access to the WCA380 can be granted to multiple stations in a lab or test facility via an Ethernet LAN. Once an acquisition is completed by one station, the WCA380 is free to be used by another, to capture signals directly from its own PC. With the WCA11A software, analysis and documentation are done off-line using data that has been downloaded and stored in each PC.

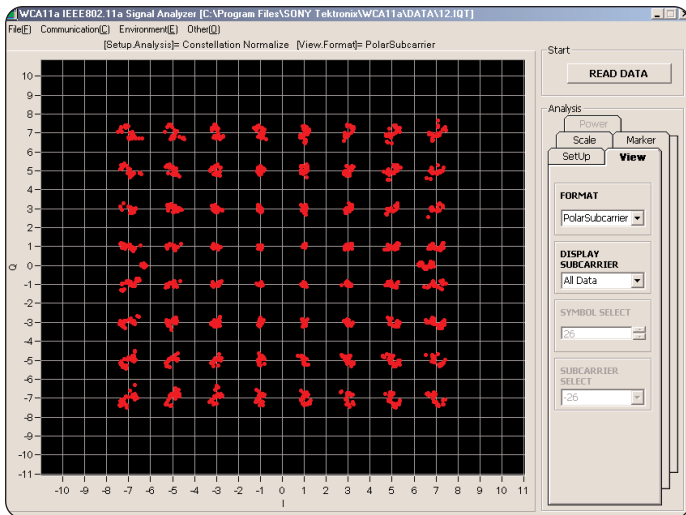
The WCA11A Software Can Be Run on Any Standard PC with a Minimum of:

- ▶ OS: Windows 98SE, Windows 2000
- ▶ CPU: Intel Pentium 866 MHz
- ▶ Memory: 512 MB
- ▶ Display: 1280x1024
- ▶ Ethernet LAN port

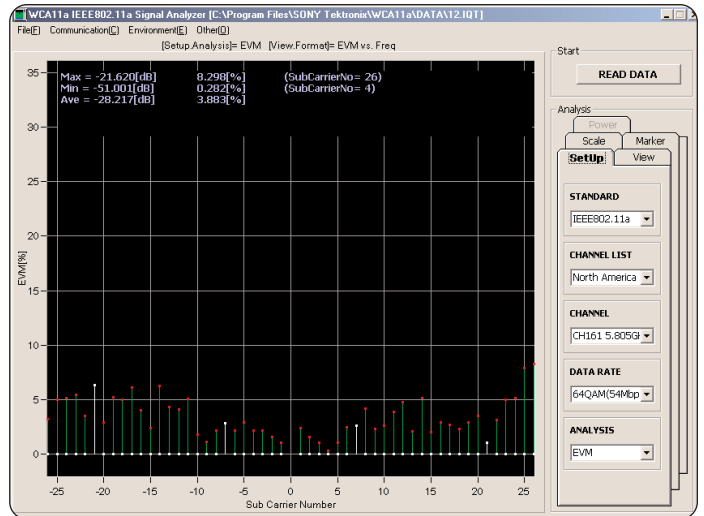
Examples of WCA11A Measurements



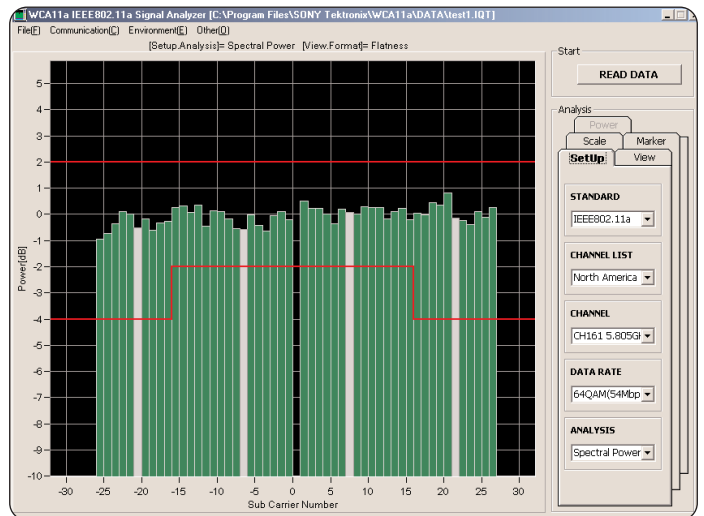
▶ **Figure 1.** Power (vertical axis) vs. Sub Carrier Number (-32 to +32) during training sequence. Marker measurement indicates sub carrier power to 0 carrier power (20.2 dB).



▶ **Figure 2.** Constellation display of a selected sub carrier (64QAM, including pilot).



▶ **Figure 3.** EVM (vertical axis) vs. Sub Carrier Number. EVM is displayed using OFDM symbols (selected symbols displayed in circle).



▶ **Figure 4.** Carrier flatness with 802.11a mask overlay. Pilot carriers are in gray.

▶ Ordering Information

WCA11A Signal Analysis Software for IEEE 802.11a

Included Accessories – Operators manual.

WCA11A Signal Analysis Software for IEEE 802.11a

Contact Tektronix:

ASEAN / Australasia / Pakistan (65) 6356 3900

Austria +43 2236 8092 262

Belgium +32 (2) 715 89 70

Brazil & South America 55 (11) 3741-8360

Canada 1 (800) 661-5625

Central Europe & Greece +43 2236 8092 301

Denmark +45 44 850 700

Finland +358 (9) 4783 400

France & North Africa +33 (0) 1 69 86 80 34

Germany +49 (221) 94 77 400

Hong Kong (852) 2585-6688

India (91) 80-2275577

Italy +39 (02) 25086 1

Japan 81 (3) 3448-3111

Mexico, Central America & Caribbean 52 (55) 56666-333

The Netherlands +31 (0) 23 569 5555

Norway +47 22 07 07 00

People's Republic of China 86 (10) 6235 1230

Poland +48 (0) 22 521 53 40

Republic of Korea 82 (2) 528-5299

Russia, CIS & The Baltics +358 (9) 4783 400

South Africa +27 11 254 8360

Spain +34 (91) 372 6055

Sweden +46 8 477 6503/4

Taiwan 886 (2) 2722-9622

United Kingdom & Eire +44 (0) 1344 392400

USA 1 (800) 426-2200

USA (Export Sales) 1 (503) 627-1916

For other areas contact Tektronix, Inc. at: 1 (503) 627-7111

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www.tektronix.com



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