Sapphire Eye 2200

Product Overview

A UNIQUE WI-FI SENSOR AND HIGH-PERFORMANCE CLIENT

Sapphire Eyes are robust Wi-Fi sensors and high-performance clients developed and patented by 7SIGNAL. They are uniquely designed to measure connectivity and the quality of end-user experiences on Wi-Fi networks. It complements your existing wireless access point management software by providing proactive Wi-Fi network assurance.

The 802.11ac Wave 2 Sapphire Eye 2200 utilizes 8 MIMO Yagi gain antennas (four at 2.4GHz and four at 5GHz). The antennas provide signal amplification and enable connecting to 4 to 6 access points at -65dBm or better. This ensures accurate active measurements from a single location.

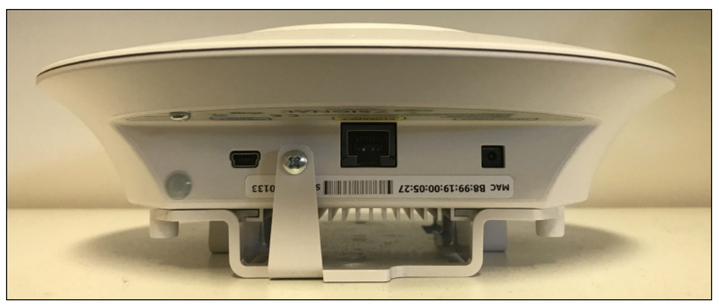
Sapphire Eyes are self-contained, compact units utilizing Power over Ethernet (PoE), which allows for active Ethernet testing also. All wireless and wired communications use TLS encryption.

WHY 7SIGNAL?

- ☑ Get system-wide WLAN visibility and quickly determine if issues are wired, wireless or client device related.
- ☑ 24x7 Wi-Fi network benchmarking and service level compliance alerting.
- ☑ Easily monitor Wi-Fi network performance in remote locations.
- ☑ Performance testing is continuous and discrete.
- ☑ Identify the difference between what your WLAN is capable of, and what clients truly experience.

HOW IT'S DIFFERENT

Unlike your Wireless LAN vendor, 7SIGNAL provides visibility of the Wi-Fi experience from the end-user's point of view. 7SIGNAL software "lives on the edge", on client devices, where the wireless experience matters most.



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A Comprehensive Wi-Fi Performance Sensor

Eye units capture and analyze the entire RF environment. In addition, Eye 2100 as well measures Ethernet connection separately from Wi-Fi. Its full range of capabilities are listed below.

Synthetic Tests (L1-L7)

- Automated, continuous process, Wi-Fi & Ethernet interfaces
- FTP, PING, HTTP, DHCP, SIP, VOIP
- Association, authentication, DHCP testing
- Throughput, packet loss, latency, jitter, MOS
- 60 performance indicators, separately for each AP/SSID/Sonar pair

RF analysis (L1-L2)

- Automated, continuous process
- 40 different performance indicators for each AP, channel, antenna
- Access point settings, capabilities, signal levels, channels, noise levels

Troubleshooting

- Passive and actives tests. Remote, manual process for troubleshooting purposes
- Full array of tests may be scheduled manually to each Eye
- Eyes may be assigned to perform the additional tests without interrupting automated monitoring process

Traffic analysis (L2)

- Passive test, automated process
- 500 performance indicators for each client, SSID, AP, band, antenna
- Radio frame header analysis for traffic flow between clients and access points
- Data rates, retry rates, air congestion, roaming, frame size, device vendor
- Statistics for all 802.11 frame types, reason codes and status codes

Spectrum analysis (L1)

- Automated, continuous process
- High resolution 2.4 and 5 GHz spectrum analysis
- Chart types include waterfall, line and 3D
- Historical spectrum data saved for 3 months

Full packet capture (L1-L2)

- Remote, manual process for troubleshooting purposes
- Easy export to packet level analyzer, like Wireshark.
- Performed without interruption to automated monitoring process

Technical Information

Wi-Fi Standard	802.11a/b/g/n/ac (Wave 2) 4x4:4
Physical Layer	DSSS, OFDM
Modulation	BPSK, QPSK, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Sensitivity (typical)	802.11bg -93dBm @ 6Mbps 802.11gn HT20 -93dBm @ MCS0 802.11gn HT40 -92dBm @ MCS0 802.11a -94dBm @ 6Mbps 802.11n/ac HT20 -94dBm @ MCS0 802.11n/ac HT40 -91dBm @ MCS0 802.11n/ac HT80 -89dBm @ MCS0
Integrated Antenna	2.4 GHz / 5 GHz wideband Yagi antennas 8 Antennas (4 at 2.4GHz, 4 at 5GHz)
Radio Chipset	Qualcomm-Atheros QCA9984
RF Output Power	2.4 GHz – Up to 20 dBm per antenna 5 GHz – Up to 21 dBm per antenna *Regional restrictions may apply
Frequency Bands	5.180 GHz – 5.825GHz, 2.4 GHz – 2.490GHz (US, Canada & ETSI)
Channels: 802.11a/n/ac	ETSI: 19 channels (Channels:36,40,44,48,52,56,60,64,100,104,108,112,116,120, 124,128,132,136, 140) US: 24 channels (Channels: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165) Japan: 5.17, 5.19, 5.21, 5.23GHz (Channels: 34, 38,42,46) band J52: 5.18, 5.20, 5.22, 5.24, 5.26, 5.28, 5.30, 5.32GHz (Channels: 36, 40, 44, 48, 52, 56, 60, 64)
Channels: 802.11b/g/n	ETSI: 13 (ch.1-13) US/Canada: 11 (ch. 1-11) France: 4 (10-13) Japan: 14 (1-14) 11b Japan: 13 (1-13) 11g
Security	64-bit, 128-bit, 152-bit WEP, 128-bit AES, TKIP
Authentication	802.1X, EAP-PEAP, EAP-TLS , EAP-TTLS WPA & WPA2-PSK
Processor and Memory	800 MHz dual core ARM 1GB FLASH 512MB SDRAM
Radio features	Spatial Multiplexing, Cyclic-Delay Diversity(CDD), low-density parity check (LDPC), Maximal Ratio Combining (MRC), Space Time Block Code (STBC), Dynamic Frequency Selection
Spectrum Analyzer	2.4 and 5 GHz spectrum analysis with Qualcomm-Atheros on-chip Spectrum Analyzer

Technical Information (continued)

External Connectors	RJ-45 Network Connector (10/100/1000M) DC power adapter, mini-USB Console port
Power	Power over Ethernet (PoE/PoE+) IEEE802.3af/at (48V) 12V DC, 1A, external power supply sold separately
Mechanical	Ceiling mount with T-bar clips included Wall mounting kit sold separately
Environmental	Operating temperature: 32F ~ +122F (0C ~ +50C) Storage temperature: -40F ~ +185F (-40C ~ +85C) Environment: IP44, indoor usage
Dimensions	Height: 2.7 in. (68.5mm) Max diameter: 8.7 in. (221mm)
Weight	1.4 lb 22.4 oz .625 kg