

SAPPHIRE EYE™ 2200



A UNIQUE WI-FI SENSOR AND HIGH-PERFORMANCE CLIENT



Sapphire Eye™ is a Wi-Fi sensor and high-performance client developed and patented by 7SIGNAL® to measure connectivity and the quality of end-user experiences on wireless 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 antennas (four at 2.4GHz and four at 5GHz). The antennas provide signal amplification and enable connecting with 4 to 6 access points at -65dBm or better. This ensures accurate active measurements from a single location.

Sapphire Eye is a self-contained, silent, compact unit utilizing Power over Ethernet (PoE), which also allows for active Ethernet testing. All wireless and wired communications use TLS encryption and data is sent to the cloud where it is analyzed and displayed for users.

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.



A Comprehensive Wi-Fi Performance Sensor

Sapphire Eye 2200 sensors capture and analyze the entire RF environment and Ethernet connections 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 active 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

Schedule a demo, today!

Technical Information

Wi-Fi Standard	802.11 a/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

Technical Information (continued)

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
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

