Sapphire Eye® 2200 from 7SIGNAL® is a revolutionary, patented Wi-Fi sensor and software client designed to enhance wireless connections and improve the digital experience of end users and devices. The discreet Sapphire Eye 2200 hardware and 7SIGNAL’s Software as a Service (SaaS) platform allow for the measurement and analysis of wireless network performance through the cloud, empowering engineers to provide fast solutions to connectivity issues.

**How It Works**

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 visibility with 4 to 6 access points at -65dBm or better. This ensures accurate active measurements from a single remote location. Data collected by the sensor is sent to the cloud for analysis by the 7SIGNAL platform and translated into actionable insights to resolve connectivity issues and ensure high-quality Wi-Fi performance.

**The Key Difference**

Unlike your IT infrastructure monitoring vendors, 7SIGNAL provides visibility of the Wi-Fi experience from the end-user’s point of view. 7SIGNAL monitors the edge of the network (Layers 1-7) where the wireless experience matters most.

**At a Glance**

- Gain enterprise-wide WLAN visibility, validation and control
- Easily perform remote troubleshooting
- SLA compliance on over 600 KPIs
- Configurable root cause alarms
- Reduce mean time to resolution
- Identify digital experience performance gaps
- Continuous monitoring and testing for WLAN, LAN, and WAN

**Schedule a demo today!**
A COMPREHENSIVE WI-FI PERFORMANCE SENSOR

Sapphire Eye® 2200 sensors capture and analyze the entire RF environment and Ethernet connections. Its full range of capabilities are listed below.

### SYNTHETIC TESTS (L1-L7)
- 24x7 Wi-Fi & Ethernet interfaces
- Beacon, association, authentication, captive portal, DHCP
- FTP, PING, HTTP, SIP, VOIP
- Throughput, packet loss, latency, jitter, MOS
- KPIs for each AP, SSID and Sonar

### RF ANALYSIS (L1-L2)
- Full spectrum analysis
- KPIs for each AP and channel
- Access point settings, capabilities, signal levels, channels, noise levels

### TROUBLESHOOTING
- Historical data for passive and active tests (90 days)
- Remote over-the-air (OTA) packet capture
- Actionable data from alarms point to root cause quickly
- Manual test execution from remote locations
- Out of band troubleshooting with zero impact to the Wi-Fi environment

### TRAFFIC ANALYSIS (L2)
- Automated passive tests
- Remote over-the-air (OTA) packet capture
- KPIs for each client, SSID, AP, and band
- 802.11 frame analysis for traffic flow between clients and access points
- Statistics for all 802.11 frame types, reason codes and status codes

### SPECTRUM ANALYSIS (L1)
- Automated passive tests
- High resolution 2.4 and 5 GHz spectrum analysis
- Chart types include waterfall, line and 3D
- Historical spectrum data saved for 2 weeks

### FULL PACKET CAPTURE (L1-L2)
- Radiotap headers included
- Easy export to packet level analyzer, like Wireshark.

Schedule a demo today!
## TECHNICAL INFORMATION

### WI-FI STANDARD
802.11 a/b/g/n/ac (Wave 2) 4x4:4

### PHYSICAL层出
DSSS, OFDM, HT, VHT

### MODULATION
BPSK, QPSK, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM

### SENSITIVITY (TYPICAL)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Sensitivity @ Typical Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.11bg</td>
<td>-93dBm @ 6Mbps</td>
</tr>
<tr>
<td>802.11gn HT20</td>
<td>-93dBm @ MCS0</td>
</tr>
<tr>
<td>802.11gn HT40</td>
<td>-92dBm @ MCS0</td>
</tr>
<tr>
<td>802.11n/ac HT20</td>
<td>-94dBm @ MCS0</td>
</tr>
<tr>
<td>802.11n/ac HT40</td>
<td>-91dBm @ MCS0</td>
</tr>
<tr>
<td>802.11n/ac HT80</td>
<td>-89dBm @ MCS0</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Bands</th>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETSI</td>
<td>19 channels (ch. 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140)</td>
</tr>
<tr>
<td>Japan</td>
<td>5.17, 5.19, 5.21, 5.23GHz (ch. 34, 38,42,46) band J52: 5.18, 5.20, 5.22, 5.24, 5.26, 5.28, 5.30, 5.32GHz (ch. 36, 40, 44, 48, 52, 56, 60, 64)</td>
</tr>
</tbody>
</table>

### CHANNELS: 802.11B/G/N

<table>
<thead>
<tr>
<th>Bands</th>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETSI</td>
<td>13 (ch.1-13)</td>
</tr>
<tr>
<td>US/Canada</td>
<td>11 (ch. 1-11)</td>
</tr>
<tr>
<td>France</td>
<td>4 (10-13)</td>
</tr>
<tr>
<td>Japan</td>
<td>14 (1-14) 11b</td>
</tr>
<tr>
<td>Japan</td>
<td>13 (1-13) 11g</td>
</tr>
</tbody>
</table>

### SECURITY
64-bit, 128-bit, 152-bit WEP, 128-bit AES, TKIP

### AUTHENTICATION
802.1X, PEAP, EAP-TLS, EAP-TTLS, EAP-FAST, WPA1-PSK, WPA2-PSK, Captive Portal

### 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

### EXTERNAL CONNECTORS
Gigabit Ethernet 10/100/1,000
DC power adapter, mini-USB Console port
### TECHNICAL INFORMATION (CONTINUED)

<table>
<thead>
<tr>
<th><strong>POWER</strong></th>
<th>Power over Ethernet (PoE/PoE+) IEEE802.3af/at (48V) 12V DC, 1A, external power supply sold separately</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MECHANICAL</strong></td>
<td>Ceiling mount with T-bar clips included Wall mounting kit sold separately</td>
</tr>
<tr>
<td><strong>ENVIRONMENTAL</strong></td>
<td>Operating temperature: 32F ~ +122F (0C ~ +50C) Storage temperature: -40F ~ +185F (-40C ~ +85C) Environment: IP44, indoor usage</td>
</tr>
<tr>
<td><strong>DIMENSIONS</strong></td>
<td>Height: 2.7 in. (68.5mm) Max diameter: 8.7 in. (221mm)</td>
</tr>
<tr>
<td><strong>WEIGHT</strong></td>
<td>1.4 lb 22.4 oz .625 kg</td>
</tr>
</tbody>
</table>

### PRODUCT IMAGES

![Product Images](image1.jpg) ![Product Images](image2.jpg) ![Product Images](image3.jpg)

### SOFTWARE

Use the Sapphire Eye dashboard to view Wi-Fi experience data from every corner of your global network.