Panoramic Wi-Fi Gateway / Technicolor CGM4981

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| **Router Specifications** | **Data** | **Notes** |
| **Internet Service Provider (ISP)** | Cox |  |
| **Device Name** | Panoramic Wi-Fi Gateway / Technicolor CGM4981 |  |
| **DOCSIS Technology** | DOCSIS 3.1 Tri-Band Wi-Fi 6 (802.11ax) Panoramic WiFi Gateway | Backward compatible with DOCSIS 3.0 |
| **Latest Firmware Version** | Not Publicly Released | Requires device access and active Cox account |
| **Known CVEs** | None found | No known CVEs in NVD or Cox documentation |
| **Wi-Fi Coverage** | Extensive coverage suitable for large homes | Rated up to ~3,000 sq. ft. |
| **Maximum Throughput** | Up to 2.5 Gbps | Via 2.5 Gbps Ethernet port (LAN or WAN) |
| **Wi-Fi Standard** | Wi-Fi 6E (IEEE 802.11ax) | Tri-band: 2.4 GHz, 5 GHz, and 6 GHz |
| **Antenna Configuration** | 4×4 MU-MIMO per band (3 bands) | 12 internal Wi-Fi antennas total |
| **Processor & RAM** | Broadcom BCM3390 SoC with 1.5 GHz dual-core ARM CPU, 1–2 GB RAM (est.) | Based on similar XB8 architecture |
| **Supported WiFi Encryption** | WPA3 (with WPA2 backward compatibility) | Default mode may be WPA2/WPA3 mixed |
| **Supported TLS** | TLS 1.2 and likely TLS 1.3 | Used for admin portal and Cox cloud management |
| **Firewall** | Stateful packet inspection (SPI), DoS protection, NAT, IPv6 support | Includes support for port forwarding, DMZ, and Cox Advanced Security |
| **Cable** | 1× RF coax (F-connector), DOCSIS 3.1 with 32x8 bonding + 2x2 OFDM/OFDMA | Supports high-split (204 MHz upstream), full DOCSIS 3.1 spectrum |
| **Speed** | Up to 2 Gbps down / 100 Mbps up (Cox 2 Gig service) | Also supports 1 Gbps (Gigablast) and lower tiers |
| **Price** | $13/month | Rental fee only |
| **Lease or Purchase?** | Lease only | Not available for retail purchase |

### **Security Assessment (50%)**

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| **Reference ID** | **Security Criteria** | **Measurement Criteria** | **Scoring Scale (0-10 or Yes/No)** |
| *CL.OOB-006* | Default Credentials | Are default credentials required to be changed upon initial setup? | (Yes = 10, No = 0) |
| *CL.SBOM-010* | Firmware Update Frequency | Number of security updates per year | (≥4 = 10, 2–3 = 5, ≤1 = 0) |
| *NVD.NIST.GOV* | Known Vulnerabilities (CVE) | Publicly disclosed vulnerabilities in past 2 years | (0 = 10, 1–2 = 7, 3–5 = 5, >5 = 0) |
| *CL.NETA-002 / IMDA.4.5.2.4.1* | Encryption Support | WPA3 Support | (WPA3 = 10, WPA2 = 5, No WPA3 = 0) |
| *CL.OOB-008 / CL.NETS-005* | Remote Access | Are Telnet, SSH, UPnP, FTP disabled by default? | (Yes = 10, No = 0) |
| *CL.NETS-001* | Admin Interface | Does the router enforce HTTPS for admin access? | (Yes = 10, No = 0) |
| *IMDA.4.3.15.1* | Firewall | Is the firewall enabled by default? | (Yes = 10, No = 0) |
| N/A | Network Isolation | Can the guest network be isolated from the main network? | (Yes = 10, No = 0) |
| *IMDA.4.3.g / IMDA.4.3.a* | Automatic Security Updates | Does the router support automatic security updates? | (Yes = 10, No = 0) |

Usability (17%)

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| *IMDA.GEN.OPS.10* | Setup Time | Is the device self-installable by an end user in under 20 minutes assuming the default configuration and mode of operation? | (≤20 min = 10, >20 min = 0) |
| *IMDA.GEN.OPS.4* | Lifespan | Is the life expectancy of the router at least 7 years? | (≤7 years = 0, >7 years = 10) |
| *IMDA. GEN.OPS.11* | Drivers | Are additional drivers other than networking drivers required for full and proper use of the device? | (Yes = 0, No = 10) |
| *IMDA. GEN.OPS.19* | Website Support | Is there a web site where firmware updates and documentation are available? | (Yes = 10, No = 0) |

Performance (25%)

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| *PERF.1* | Wi-Fi Speed | Maximum download & upload speeds | Mbps (≥80% of ISP speed = 10, ≤40% = 0) | ISP claims 1 Gbps speed, but reviews show 700 Mbps actual - Score: 7/10 |
| *PERF.2* | Signal Strength | Check user-reported Wi-Fi range & RSSI at distances | dBm (-30 = 10, -80 = 0) | Forum users report weak Wi-Fi beyond 20ft - Score: 5/10 |
| *PERF.3* | Latency & Jitter | What are the ping times in ms? | ms (≤10ms = 10, ≥100ms = 0) |  |
| *PERF.4* | Multi-Device Handling | Can it handle multiple devices without slowdown? | (Smooth = 10, Lag= 0) | Tech reviews show low latency & strong multi-device performance - Score: 9/10 |

Cost & Value (10%)

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| *Router Rental Fee* | What is the monthly cost vs. purchase option? | (Free = 10, $15+/mo = 0) |
| *Buyout Option* | Can users purchase the router outright? | (Yes = 10, No = 0) |
| *Hidden Fees* | Are there additional costs? (e.g. services fees) | (Yes = 0, No = 10) |

Final Evaluation:

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| Category | Raw Score | Max Score | Normalized Score (%) | Weight | Weighted Contribution |
| Security | 80 | 90 | 88.89% | 50% | 44.44 |
| Usability | 30 | 40 | 75.00% | 17% | 12.75 |
| Performance | 21 | 40 | 52.50% | 25% | 13.13 |
| Cost & Value | 20 | 30 | 66.67% | 8% | 5.33 |
|  |  |  |  |  | **Total Score: 75.65 / 100** |

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References

* CL – CableLabs Gateway Device Security Best Common Practices: Provides baseline security controls for gateway devices.
* IMDA – IMDA Security Requirements for Residential Gateways: Regulatory security and performance requirements by the Infocomm Media Development Authority (Singapore).
* NVD.NIST.GOV – National Vulnerability Database: Official source for publicly disclosed cybersecurity vulnerabilities ([https://nvd.nist.gov](https://nvd.nist.gov/)).
* FCC Equipment Authorization Database: Used to verify hardware and antenna configuration details of the CGM4981 (<https://fccid.io/G954981X).>
* Broadcom SoC Datasheets: Technical specs for the BCM3390 system-on-chip used in DOCSIS 3.1 gateways.
* Technicolor Gateway Product Documentation: Manufacturer specifications and firmware capability details.
* Cox Support Pages: Configuration, security feature documentation, and user guidance [(https://www.cox.com/residential/support.html).]((https:/www.cox.com/residential/support.html).)
* SmallNetBuilder: Independent test reviews and throughput benchmarks for wireless routers (https://www.smallnetbuilder.com).
* Xfinity XB8 Documentation: Used as a technical reference due to identical hardware to CGM4981.
* CableLabs DOCSIS 3.1 Specifications: Defines technical requirements for cable modem and gateway throughput and channel bonding (https://www.cablelabs.com).