DATA SHEET

NEWBRIDGE AP622-H

Outdoor Wi-Fi 6 (802.11ax) 2x2:2 Wireless Access Point

Wi-Fi as-a-Services – Industry 1st

- Zero CAPEX Subscription Model
- Unlock client resources.

KEY FEATURES

Radio Technology

- 802.11ax – 5 GHz 2x2:2 (2,401[1] Mbps)
- 802.11ax – 2.4 GHz 2x2:2 (574[2] Mbps)

Maximum combined data rate of 2.976[3] Gbps for high performance even with high bandwidth, low latency application.

Wired Connectivity

- 1 x 100/1,000Mbps auto-sensing uplink speed Ethernet POE port
- 1 x RJ45 Console port

Management, Controller. Reporting and AI Machine learning.

- NB 9X80 Series On-Premises Controller
- NB Cloud Managed Controller – Standard or Premium
- NB Internet Access Management Gateway
- Simplified Deployments and Provisioning
- Advanced Reporting and Network Insight

Security

- Support WPA3 and Enhanced Open
- Support Client Isolation
- Privacy VLAN Isolate From Potential Hackers

Newbridge Wi-Fi 6 outdoor access point equipped with Qualcomm's latest chipset and feature AX technology.

INTRODUCTION

The NEWBRIDGE AP622-H specific designed for enterprise-class outdoor access point to delivers secure Wi-Fi connectivity across all industries, especially best fit for hospitality, hostels, public hotspot, education and enterprises that's required robust connectivity, higher numbers of client devices access and signal coverage.

AP 622-H built-in MU-MIMO 2x2:2 spatial stream, both 2.4 GHz and 5GHz has a two-antenna configuration -- with two transmitters and four receivers -- and can support two concurrent spatial streams on each radio frequency.

MU-MIMO allows for an AP to serve multiple users at the same time and on the same frequency (in the case of DL MU-MIMO), or for multiple users to transmit to a single AP at the same time and on the same frequency (in the case of UL MU-MIMO). MU-MIMO works because APs generally have more antennas compared to clients (e.g., cell phones or laptops). Hence it allows the AP to utilize its additional antennas to transmit to or receive from multiple clients simultaneously. Both DL and UL MU-MIMO require complex signal processing, especially on the AP side, which is generally feasible due to its higher capabilities.

A Wi-Fi Alliance whitepaper, Wi-Fi CERTIFIED 6: A New Era in Wireless Connectivity, September 2019, succinctly describes MU-MIMO technology, and DL MU-MIMO in particular, as follows:

Multi-user multiple input, multiple output (multi-user MIMO) allows more downlink data to be transferred at one time, enabling access points (APs) to concurrently handle more devices.

Downlink multi-user MIMO allows higher throughput in environments with devices containing a limited number of antennas by multiplexing their transmissions in the spatial domain. Introduced in 802.11ac to support up to four users simultaneously, Wi-Fi 6 extends multi-user MIMO and doubles the number of devices that can be supported efficiently to eight users. Together with downlink OFDMA, which operates in the frequency domain, this feature permits a Wi-Fi 6 AP to schedule downlink multi-user transmissions across spatial streams or frequencies.

Similarly, UL MU-MIMO allows multiple clients to transmit their data simultaneously to an AP, typically with large payloads of data and applications with high speed requirements. Typical use cases include live video streaming such as Facebook Live, content sharing on social media, video conferencing (e.g., Zoom or Microsoft Teams), large file uploads, and online gaming.

The transmitting device like Access Point and the receiving client(s) like PC/Notebook/Smartphone can send and receive multiple streams using multiple antennas. use its separate spatial streams to talk to multiple endpoints or users concurrently. By dynamically divvying up available bandwidth among a group of clients, a wireless access point can achieve more efficient connectivity, resulting in greater network capacity.

Orthogonal frequency-division multiple access (OFDMA) can split bandwidth across several clients within a single channel access, bringing finer granularity to scheduling decisions in a dense network.

Joining MU-MIMO as a core multi-user feature that defines Wi-Fi 6. OFDMA simultaneously serves multiple users during one transmission by splitting the available bandwidth into multiple groups of subcarriers called resource units (RU).

The numbering of MU-MIMO furthers derive in 1x1, 2x2, 3x3, 4x4 etc.. These numbers represent simultaneous spatial streams it can support. The high number of antennas in wireless AP, the faster access speed and higher numbers of clients access simultaneously. It's explained as AP capacity.

With a maximum concurrent data rate of 2,401 Mbps in the 5 GHz band and 574 Mbps in the 2.4 GHz band, the AP644-C delivers high-performance Gigabit Wi-Fi in the industry.

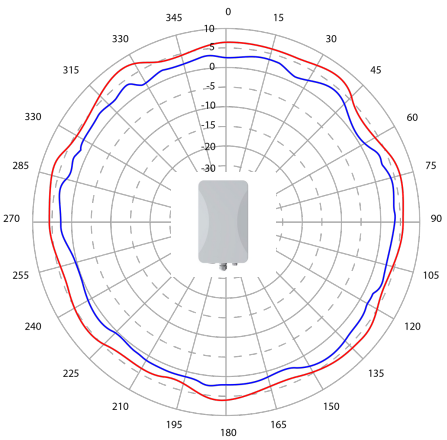
AP622-H designed and built using Qualcomm Technologies. The analyses highlight the significant performance advantage in various scenarios where Qualcomm Technologies' MU-MIMO throughput can reach as high as 2.5x the competitor's chipset's throughput. According to Qualcomm Technologies, Inc. (QTI) San Jose, January 2022, published documentation: "The Benefits of MU-MIMO for Wi-Fi 6 "

Client roaming can be navigated through the rejection of weak signal access and reconnection trigger for clients. Rejection of weak signal access can effectively prevent the access of clients with weak signals further guiding the client to associate to a stronger RF signal.

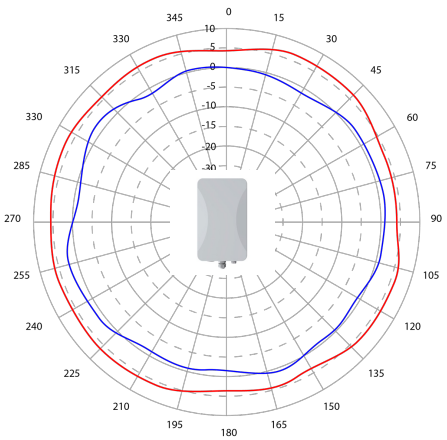
ACCESS POINT ANTENNA PATTERN

Horizontal planes (top view)

2.45 GHz Wi-Fi



5.5 GHz Wi-Fi

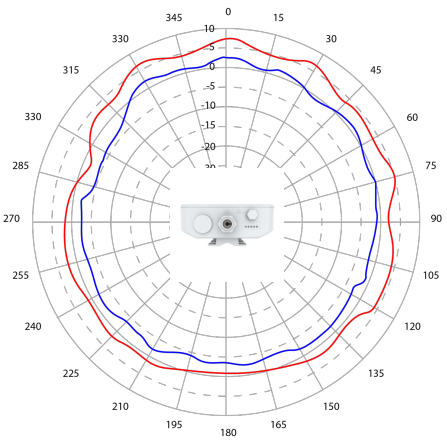


Average Azimuth Average Downtilt

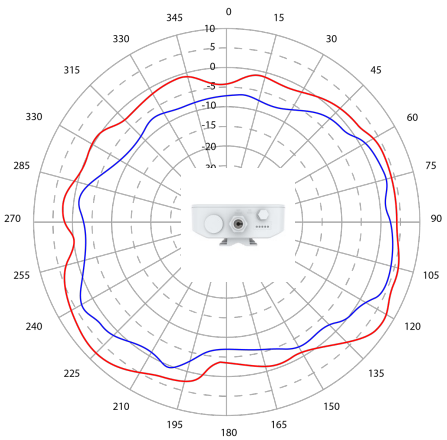
Vertical (elevation) planes (side view, AP facing down)

Showing side view with AP rotated 0 and 90 degrees

2.45 GHz Wi-Fi



5.5 GHz Wi-Fi



Average Elevation 0 Average Elevation 90

NEWBRIDGE AP622-H

Indoor Wi-Fi 6 (802.11ax) Access Points

2.4GHz - RF PERFORMANCE TABLE			
BAND, rate	Maximum Transmit Power (dBm) Per transmit chain	Maximum Transmit Power (dBm) 2 chains	Receiver sensitivity (dBm) Per receive chain
2.4GHz, 802.11b			
1Mbps			
11Mbps			
2.4GHz, 802.11g			
6Mbps			
54Mbps			
2.4GHz, 802.11n HT20			
MCS0			
MCS7			
2.4GHz, 802.11n HT40			
MCS0			
MCS7			
2.4GHz, 802.11ax HE20			
MCS0			
MCS11			
2.4GHz, 802.11ax HE40			
MCS0			
MCS11			

5GHz - RF PERFORMANCE TABLE			
BAND, rate	Maximum Transmit Power (dBm) Per transmit chain	Maximum Transmit Power (dBm) 2 chains	Receiver sensitivity (dBm) Per receive chain
5GHz, 802.11a			
6Mbps			
54Mbps			
5GHz, 802.11n/ac/VHT20			
MCS0			
MCS9			
5GHz, 802.11n/ac/VHT40			
MCS0			
MCS9			
5GHz, 802.11n/ac/VHT80			
MCS0			
MCS9			
5GHz, 802.11ax HE20			
MCS0			
MCS11			
5GHz, 802.11ax HE40			
MCS0			
MCS11			
5GHz, 802.11ax HE80			
MCS0			
MCS11			
5GHz, 802.11ax HE160			
MCS0			
MCS11			

[1] Use of WiFi 6 (802.11ax) and its features, including OFDMA, HE160, and 1024-QAM, require clients to support the corresponding features. The 160 MHz bandwidth is only available on the 5 GHz band. It may be unavailable in some regions/countries due to regulatory restrictions. The double channel width refers to 160 MHz compared to 80 MHz for general WiFi6 APs.

[2] Use of WiFi 6 (802.11ax) and its features, including OFDMA, HE40, and 1024-QAM, require clients to support the corresponding features.

[3] Maximum wireless signal rates are the physical rates derived from IEEE Standard 802.11 specifications. Actual wireless data throughput and wireless coverage are not guaranteed and will vary as a result of 1) environmental factors, including building materials, physical objects, and obstacles, 2) network conditions, including local interference, volume and density of traffic, product location, network complexity, and network overhead, and 3) client limitations, including rated performance, location, connection, quality, and client condition

NEWBRIDGE AP622-H

Indoor Wi-Fi 6 (802.11ax) Access Points

Wi-Fi Radio Specifications	
Wireless Standards	• IEEE 802.11a/b/g/n/ac /ax
Supported Rates	• 802.11ax: 4 to 2,401 Mbps • 802.11ac: 6.5 to 574 Mbps • 802.11n: 6.5 to 600 Mbps • 802.11a/g: 6 to 54 Mbps • 802.11b: 1 to 11 Mbps
Supported Channels	• 2.4GHz: 1-13 • 5GHz : 36-64, 100-144, 149-165
MIMO	• 2x2 MU-MIMO (Backward compatible to SU-MIMO for older devices)
Spatial Streams	• 2SS for MU-MIMO on both radios
Channelization	• 20, 40, 80, 160 / (80+80)MHz
Modulation Techniques	• OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
Security	• WPA-PSK, WPA-TKIP, WPA2 AES,WPA3, 802.11i, Dynamic PSK

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz : 574[2] Mbps • 5GHz : 2,401[1] Mbps
Maximum Stations Capacity	• Support up to 256[4] associated client devices per radio or 512 associated client per AP concurrently
BSSID	• Up to 32 per AP

[4] Each AP622-AP provides connectivity for a maximum of 256 associated clients per radio (512 in total). In real-world scenarios, the maximum recommended client density is dependent on environmental conditions.

RF	
Antenna Type	• omni antenna for 2.4 GHz • omni antenna for 5 GHz
Antenna Elements	• 2 elements for 2.4 GHz band and 2 elements for 5 GHz band
Antenna Gain (max)	• Up to 6 dBi
Transmit Power (EIRP), Subject to local authority approval	• 2.4 GHz at 23 dBm • 5 GHz at 23 dBm
Frequency Bands	• 20, 40, 80, 160/80+80MHz
Receiver Sensitivity, min.	• -95 dBm
Frequency Bands	• ISM (2.4-2.484GHz) • U-NII-1 (5.15-5.25GHz) • U-NII-2A (5.25-5.35GHz) • U-NII-2C (5.47-5.725GHz) • U-NII-3 (5.725-5.85GHz)

PHYSICAL	
Ethernet Interface	• 1 x 10/100/1000 Mbps auto-negotiation Power Over Ethernet (PoE+) port, RJ45 • 1 x 10/100/1000 Mbps auto-negotiation Ethernet port, RJ45
Power Supply	• IEEE 802.3af (48V)
Dimensions	• Height (H): 186 mm, Width (W): 186 mm, Depth (D) 35.8 mm
DC Jack	• Yes (12VDC: 12V—1.5A)
Power Consumption	• < 14W
Weight	• 0.860 kg
Operating Temperature	• Working Temperature: -20°C to 45°C • Storage Temperature: 0°C to 70°C
Operating Humidity	• Working Humidity : 5% to 95% • Storage Humidity : Max. 90%
Lighting Level	• Common mode: 6KV • Differential mode 2KV
Water-proof	• IP67

NETWORKING	
Operating Mode	• Controller-managed • Standalone
IP	• IPv4, IPv6, dual-stack
VLAN	• VLAN Pooling • Port-based
802.1x	• Authenticator & Supplicant
Roaming	• Yes

ORDER INFORMATION	
NB-AP622-H	• Newbridge AP622-H Wi-Fi 6 • Ceiling Mount Wireless Access Point, 2x2:2 (2.4GHz) and 2x2:2 (5GHz)
NB-AP622WP-SU-1Y	• Newbridge AP622-H Hardware and Software Support -1Y
VC-AP622WP-RPL-1Y	• VCARE AP622-H NBD AHR, HW & SW SUPPORT, 1Y

CE markings to indicate that a product complies with European Union (EU) regulations and directives regarding health, safety and environmental protections. CE marking also have implications for obtaining full RoHS Compliance.

POWERED BY QUALCOMM

CE RoHS compliant

Contact Us at www.newbridge-tech.com/contact-us

Release: 2304122115