DATA SHEET

RIVI PINNACLE RV75

Indoor Wi-Fi 6 (802.11ax) Access Point for Ultra-Dense Environments

OVERVIEW

The RIVI RV75 is based on the latest Wi-Fi 6 standard and bridges the performance gap from 'gigabit' Wi-Fi to 'multi-gigabit' Wi-Fi in support of the insatiable demand for better and faster Wi-Fi. The RV75 is the first Wi-Fi 6 AP to be certified by Wi-Fi Alliance as Wi-Fi CERTIFIED 6. As part of the Wi-Fi Alliance testbed, the RV75 validates other devices for Wi-Fi CERTIFIED 6 interoperability.

The RIVI RV75 is our high-end dual-band, dual-concurrent Wi-Fi 6 AP that supports 8 spatial streams (4x4:4 in 5GHz, 4x4:4 in 2.4GHz). The RV75, with OFDMA, TWT and MU-MIMO capabilities, efficiently manages up to 1024 client connections with increased capacity, improved coverage and performance in ultra-high dense environments. Furthermore, multi-gigabit Ethernet ensures the backhaul is not a bottleneck for full use of available Wi-Fi capacity.

Also, wireless requirements within homes and businesses are expanding beyond Wi-Fi with BLE, Zigbee and many other non-Wi-Fi wireless technologies. Homes need a unified platform to eliminate network silos. The RIVI AP portfolio is equipped to solve these challenges through wireless convergence.

The RV75 has built-in IoT radios with onboard BLE and Zigbee capabilities. In addition, the RV75 is a converged access point that allows customers to seamlessly integrate any new wireless technologies with our USB port.

The RV75 addresses the increasing client demands in high traffic indoor spaces. It is the perfect choice for data-intensive streaming multimedia applications like 4K video transmissions, while supporting latency sensitive voice and data applications with stringent quality-of-service requirements. The RV75 is also easy to manage through RIVI physical and virtual cloud management options.

The RV75 when paired with the RIVI Ultra-High-Density Technology Suite in the RIVI Wi-Fi portfolio, dramatically improves network performance through a combination of patented wireless innovations and learning algorithms that includes:

- Airtime Decongestion: Increases average network throughput in heavily congested environments.
- Transient Client management: Reduces interference traffic from unconnected Wi-Fi devices.
- BeamFlex®+ Antennas: Extended coverage and optimised throughput with patented multidirectional antennas and radio patterns.

Whether you are deploying ten or ten thousand APs, the RV75 is also easy to manage through RIVI physical and virtual management options.

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ACCESS POINT ANTENNA PATTERN

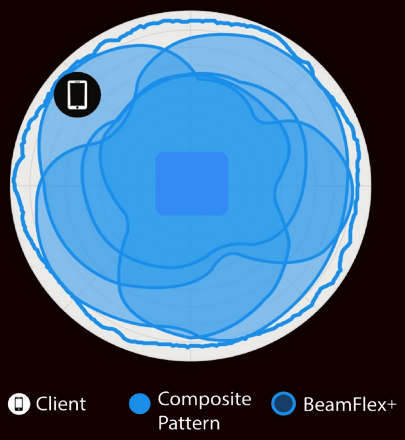
BeamFlex+ adaptive antennas allow the RV75 AP to dynamically choose among a host of antenna patterns in real-time to establish the best possible connection with every device.

This leads to:

- Better Wi-Fi coverage
- Reduced RF interference

Traditional omni-directional antennas, found in generic access points, oversaturate the environment by needlessly radiating RF signals in all directions. In contrast, the RIVI BeamFlex+ adaptive antenna directs the radio signals per-device on a packet by-packet basis to optimise Wi-Fi coverage and capacity in real-time to support high device density environments. BeamFlex+ operates without the need for device feedback and hence can benefit even devices using legacy standards.

Figure 1. Example of BeamFlex+ pattern



BENEFITS

Connect more devices simultaneously
Improve device performance, by enabling more simultaneous device connections with built-in 8 spatial streams (4x4:4 in 5GHz, 4x4:4 in 2.4GHz), MU-MIMO and OFDMA technology.

High density performance
Provides exceptional end-user experience with the RIVI Ultra-High-Density Technology Suite.

Converged Access Point
Allows customers to eliminate siloed networks and unify WiFi and non-WiFi wireless technologies into one single network by using built-in BLE and Zigbee, and also expanding to any future wireless technologies through the USB port.

Multigigabit access speeds
Optimised multi-gigabit Wi-Fi performance delivered using the built-in 2.5GbE port to connect to multigigabit switches.

Enhanced Security
The latest Wi-Fi security standard with WPA3 and receive enhanced protection from man-in-the-middle attacks in the most secure way.

Figure 2. RV75 2.4GHz AzimuthAntenna Patterns

Figure 3. RV75 5GHz AzimuthAntenna Patterns

Figure 4. RV75 2.4GHz Elevation Antenna Patterns

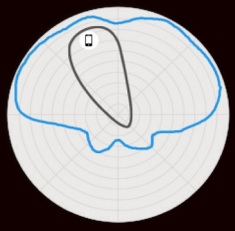
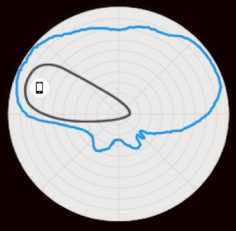


Figure 5. RV75 5GHz Elevation Antenna Patterns



DATA SHEET

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WI-FI	
Wi-Fi Standards	• IEEE 802/11a/b/g/n/ac/ax
Supported Rates	• 802.11ax: 4 to 2400 Mbps • 802.11ac: 6.5 to 1732 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	• 4x4 SU-MIMO • 4x4 MU-MIMO
Spatial Streams	• 4 for both SU-MIMO & MU-MIMO
Radio Chains and Streams	• 4x4:4
Channelization	• 20, 40, 80, 160/80+80MHz
Security	• WPA-PSK, WPA-TKIP, WPA2 AES, WPA3, 802.11i, Dynamic PSK, OWE • WIPS/WIDS
Other Wi-Fi Features	• WMM, Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v • Hotspot • Hotspot 2.0 • Captive Portal • WISPr

RF	
Antenna Type	• BeamFlex+ adaptive antennas with polarization diversity • Adaptive antenna that provides 4,000+ unique antenna patterns per band
Antenna Gain (max)	• Up to 3dBi
Peak Transmit Power (Tx port/ chain + Combining gain)	• 2.4GHz: 26dBm • 5GHz: 28 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)

2.4GHZ RECEIVE SENSITIVITY (dBm)							
HT20		HT40		VHT20		VHT40	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS7	MCS0	MCS7
-96	-78	-93	-75	-96	-78	-93	-75
HE20				HE40			
MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11
-96	-78	-73	-67	-93	-75	-70	-64

5GHZ RECEIVE SENSITIVITY (dBm)											
VHT20				VHT40				VHT80			
MCS0	MCS7	MCS8	MCS9	MCS0	MCS7	MCS8	MCS9	MCS0	MCS7	MCS8	MCS9
-98	-80	-77	-	-95	-77	-	-72	-92	-74	-	-69
HE20				HE40				HE80			
MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11
-98	-80	-75	-70	-95	-77	-72	-67	-92	-74	-69	-64

2.4GHZ TX POWER TARGET (PER CHAIN)	
Rate	Pout (dBm)
MCS0 HT20	20
MCS7 HT20	16
MCS8 VHT20	15
MCS9 VHT40	14
MCS11 HE40	12

5GHZ TX POWER TARGET (PER CHAIN)	
Rate	Pout (dBm)
MCS0, VHT20	22
MCS7, VHT40, VHT80	19
MCS9, VHT40, VHT80	17
MCS11, HE20, HE40, HE80	15

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz: 1148 Mbps • 5GHz: 2400 Mbps
Client Capacity	• Up to 1024 clients per AP
SSID	• Up to 31 per AP

RADIO MANAGEMENT	
Antenna Optimization	• BeamFlex+ • Polarization Diversity with Maximal Ratio Combining (PD-MRC)
Wi-Fi Channel Management	• ChannelFly • Background Scan Based
Client Density Management	• Adaptive Band Balancing • Client Load Balancing • Airtime Fairness • Airtime-based WLAN Prioritization
SmartCast Quality of Service	• QoS-based scheduling • Directed Multicast • L2/L3/L4 ACLs
Mobility	• SmartRoam
Diagnostic Tools	• Spectrum Analysis • SpeedFlex

DATA SHEET

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NETWORKING	
Controller Platform Support	• Unleashed and Cloud
Mesh	• SmartMesh™ wireless meshing technology. Self-healing Mesh
IP	• IPv4, IPv6, dual-stack
VLAN	• 802.1Q (1 per BSSID or dynamic per user based on RADIUS) • VLAN Pooling • Port-based
802.1x	• Authenticator & Supplicant
Tunnel	• L2TP, GRE, Soft-GRE
Policy Management Tools	• Application Recognition and Control • Access Control Lists • Device Fingerprinting • Rate Limiting
IoT Capbale	• Yes

PHYSICAL INTERFACES	
Ethernet	• One 2.5Gbps Ethernet port and one 1Gbps Ethernet port • Power over Ethernet (802.3af/at/bt) with Category 5/5e/6 cable • LLDP
USB	• 1 USB 2.0 port, Type A

PHYSICAL CHARACTERISTICS	
Physical Size	• 235 mm (W) x 206 mm (L) x 62 mm (H) • 9.3 in (W) x 8.1 in (L) x 2.4 in (H)
Weight	1.01kg (2.23Lbs)
Mounting	• Wall, acoustic ceiling, desk • Secure bracket (sold separately)
Physical Security	• Hidden latching mechanism • T-bar Torx • Bracket (902-0120-0000) Torx screw & padlock (sold separately)
Operating Temperature	• 0°C (32°F) - 50°C (122°F)
Operating Humidity	• Up to 95%, non-condensing

POWER[2]		
Power Supply	**Operating Characteristics**	**Max Power Consumption**
802.3af PoE	• 2.4GHz radio: 2x4, 19dBm per chain • 5GHz radio: 2x4, 20dBm per chain • 2nd Ethernet port, onboard IoT & USB disabled	PoE: 12.54W
802.3at PoE+	• Full Functionality • 2.4GHz radio: 4x4, 20 dBm per chain • 5GHz radio: 4x4, 22 dBm per chain • 2nd Ethernet Port, onboard IoT & USB Enabled (3W)	PoE+ : 22.34W DC Power: 22.69W

CERTIFICATIONS AND COMPLIANCE	
Wi-Fi Alliance[3]	• Wi-Fi CERTIFIED™ a, b, g, n, ac, ax • Passpoint®, Vantage
Standards Compliance[4]	• EN 60950-1 Safety • EN 60601-1-2 Medical • EN 61000-4-2/3/5 Immunity • EN 50121-1 Railway EMC • EN 50121-4 Railway Immunity • IEC 61373 Railway Shock & Vibration • UL 2043 Plenum • EN 62311 Human Safety/RF Exposure • WEEE & RoHS • ISTA 2A Transportation

ORDERING INFORMATION	
RIV-RV75-UNL	• **RV75** dual-band (5GHz and 2.4GHz concurrent) 802.11ax indoor wireless access point, 4x4:4 streams, adaptive antennas, dual ports, onboard BLE and Zigbee, PoE support. Unleashed managed. Includes adjustable acoustic drop ceiling bracket. One Ethernet port is 2.5GbE. Does not include power adapter (available separately).
RIV-RV75-CLD	• **RV75** dual-band (5GHz and 2.4GHz concurrent) 802.11ax indoor wireless access point, 4x4:4 streams, adaptive antennas, dual ports, onboard BLE and Zigbee, PoE support. Remote management (3 years hosted). Includes adjustable acoustic drop ceiling bracket. One Ethernet port is 2.5GbE. Does not include power adapter (available separately).

CLOUD/ REMOTE MANAGEMENT LICENCE RENEWALS	
CLD-1-YR-RENEW	• 1 year hosted remote management licence renewal, per AP
CLD-3-YR-RENEW	• 3 year hosted remote management licence renewal, per AP

[2] Max power varies by country setting, band, and MCS rate.

[3] For complete list of WFA certifications, please see Wi-Fi Alliance website.

[4] For current certification status, please see price list.

