DATA SHEET

RIVI VELOCITY RV55

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

OVERVIEW

Wi-Fi capacity requirements in homes, home-offices, business and venues are rising due to the increase in the number of Wi-Fi connected devices. An increase in bandwidth requirements for applications and an ever-growing assortment of IoT devices puts further strain on already stretched Wi-Fi networks.

The RIVI RV55 access point (AP) with the latest Wi-Fi 6 (802.11 ax) technology delivers the ideal combination of increased capacity, improved coverage and affordability in busy environments. The RV55 is our mid- range dual-band, dual-concurrent AP that supports four spatial streams (2x2:2 in 2.4GHz/5GHz). The RV55 supports peak data rates of up to 1774 Mbps and efficiently manages up to 512 client connections.

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

The RV55 has built-in IoT radios with onboard BLE and Zigbee capabilities. In addition, the RV55 is a converged access point that allows customers to seamlessly integrate any new wireless technologies with the pluggable IoT module.

The RV55 is packed with patented technologies in addition to Wi-Fi 6 features such as

OFDMA, MU-MIMO and TWT. The RV55 is ideal for medium-density deployments.

The RV55 Wi-Fi 6 AP incorporates patented technologies the RIVI Wi-Fi portfolio.

- BeamFlex®+ Antennas: Extended coverage and optimised throughput with patented multidirectional antennas and radio patterns.
- ChannelFly®: Improved throughput dynamically changing the channels to use the least congested channel.

Whether you're deploying ten or ten thousand APs, the RV55 is easy to manage through RIVI's appliance and virtual management options.

DATA SHEET

RIVI VELOCITY RV55

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

ACCESS POINT ANTENNA PATTERN

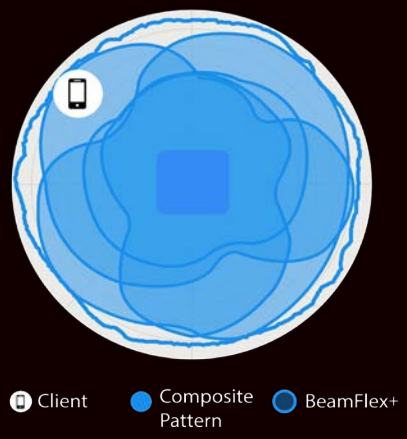
BeamFlex+ adaptive antennas allow the RV55 AP to dynamically choose among a host of antenna patterns in real-time to establish the best possible connection with every device.

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

Stunning Wi-Fi Performance
Patented technologies for performance optimisation and interference mitigation delivers extended coverage and superior user experience.

Serve more devices
Connect more devices simultaneously with four MUMIMO spatial streams and concurrent dual-band 2.4/5GHz radios while enhancing device performance.

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 expand to any future wireless technologies through the USB port.

Automate optimal throughput
ChannelFly® dynamic channel technology uses machine learning to automatically find the least congested channels. You always get the highest throughput the band can support.

Better mesh networking
Reduce expensive cabling, and complex mesh configurations by checking a box with SmartMesh wireless meshing technology to dynamically create self-forming, self-healing mesh networks.

Figure 2. RV55 2.4GHz Azimuth Antenna Patterns

Figure 3. RV55 5GHz Azimuth Antenna Patterns

Figure 4. RV55 2.4GHz Elevation Antenna Patterns

Figure 5. RV55 5GHz Elevation Antenna Patterns

DATA SHEET

RIVI VELOCITY RV55

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

WI-FI	
Wi-Fi Standards	• IEEE 802.11a/b/g/n/ac/ax
Supported Rates	• 802.11ax: 4 to 1774 Mbps • 802.11ac: 6.5 to 867Mbps (MCS0 to MCS9, NSS = 1 to 2 for VHT20/40/80) • 802.11n: 6.5 Mbps to 300Mbps (MCS0 to MCS15) • 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 SU-MIMO • 2x2 MU-MIMO
Spatial Streams	• 2 streams SU/MU MIMO 5GHz • 2 streams SU/MU MIMO 2.4GHz
Radio Chains and Streams	• 2x2:2 (5GHz) • 2x2:2 (2.4GHz)
Channelization	• 20, 40, 80MHz
Security	• WPA-PSK, WPA-TKIP, WPA2 AES, WPA3-Personal, WPA3-Enterprise, 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 up to 64 unique antenna patterns per band
Antenna Gain (max)	• Up to 3dBi
Peak Transmit Power (Tx port/chain + Combining gain)	• 2.4GHz: 26 dBm • 5GHz: 25 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
-97	-78	-94	-75	-97	-78	-94	-75
HE20				HE40			
MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11
-97	-78	-73	-67	-94	-75	-70	-64

5GHZ RECEIVE SENSITIVITY (dBm)

VHT20				VHT40				VHT80			
MCS0	MCS7	MCS8	MCS9	MCS0	MCS7	MCS8	MCS9	MCS0	MCS7	MCS8	MCS9
-97	-78	-75	-72	-94	-75	-72	-69	-91	-72	-69	-66
HE20				HE40				HE80			
MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11
-97	-78	-72	-67	-94	-75	-69	-64	-91	-72	-66	-61

2.4GHZ TX POWER TARGET (PER CHAIN)

Rate	Pout (dBm)
MCS0 HT20	22
MCS7 HT20	18
MCS8 VHT20	17
MCS9 VHT40	16
MCS11 HE40	14

5GHZ TX POWER TARGET (PER CHAIN)

Rate	Pout (dBm)
MCS0, VHT20	22
MCS7, VHT40, VHT80	17.5
MCS9, VHT40, VHT80	16
MCS11, HE20, HE40, HE80	13

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz: 574 Mbps • 5GHz: 1200 Mbps
Client Capacity	• Up to 512 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

RIVI VELOCITY RV55

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

NETWORKING	
Controller Platform Support	• Unleashed
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 Capable	• Integrated BLE and ZigBee (1 radio, switchable)

PHYSICAL INTERFACES	
Ethernet	• 2 x 1GbE Ethernet ports • Power over Ethernet (802.3af/at) with Category 5/5e/6 cable • LLDP
USB	• 1 USB 2.0 port, Type A

PHYSICAL CHARACTERISTICS	
Physical Size	• 17.60cm (L), 19.02cm (W), 4.78cm (H) • 6.93in (L) x 7.49in (W) x 1.88in (H)
Weight	• 0.562 kg • 1.24 lbs
Mounting	• Wall, acoustic ceiling, desk • Secure bracket (sold separately)
Physical Security	• Hidden latching mechanism • Kensington lock • Bracket (902-0120-0000)
Operating Temperature	• 0°C (32°F) - 50°C (122°F)
Operating Humidity	• Up to 95%, non-condensing

SOFTWARE AND SERVICES	
Location Based Services	• SPoT
Network Analytics	• SmartCell Insight (SCI), Ruckus Analytics
Security and Policy	• Cloudpath

POWER[2]		
Power Supply	**Operating Characteristics**	**Max Power Consumption**
802.3af PoE	• 2.4GHz radio: 2x2, 19dBm per chain • 5GHz radio: 2x,2 18dBm per chain • 2nd Ethernet port, onboard IoT & USB disabled	PoE: 12.71W
802.3at PoE+	Full Functionality	PoE+ : 18.71W
DC Input 12VDC	Full Functionality	16.58W

CERTIFICATIONS AND COMPLIANCE	
Wi-Fi Alliance[3]	• Wi-Fi CERTIFIED™ a, b, g, n, ac • Wi-Fi CERTIFIED 6™ • WPA3™-Enterprise, Personal • Wi-Fi Enhanced Open™ • Wi-Fi Agile Multiband™ • Passpoint® • Vantage • WMM®
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	
901-RIV-RV55-XX01	• **RV55** dual-band (5GHz and 2.4GHz concurrent) 802.11ax wireless access point, 2x2:2 + 2x2:2 streams, adaptive antennas, dual ports, onboard BLE and Zigbee, PoE support. Not plenum rated. Includes adjustable acoustic drop ceiling bracket. Does not include power adaptor.
901-RIV-RV55-XX00	• **RV55** dual-band (5GHz and 2.4GHz concurrent) 802.11ax wireless access point, 2x2:2 + 2x2:2 streams, adaptive antennas, dual ports, onboard BLE and Zigbee, PoE support. Plenum rated. Includes adjustable acoustic drop ceiling bracket. Does not include power adaptor.

[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.

