



AVENUE LINK

SMALL CELL BACKHAUL

SOLVE YOUR SMALL CELL BACKHAUL CHALLENGE WITH THE AVENUE LINK – AN INTEGRATED ZONING-FRIENDLY PACKET MICROWAVE SOLUTION OPTIMIZED FOR URBAN ENVIRONMENTS.

The Avenue® Link is an all-outdoor small cell backhaul solution that combines a high capacity packet microwave system, flat-mini antenna and system cover in a small, zoning-optimized form factor. The aesthetic design and physical specifications of the Avenue Link ensure compliance with strict city-zoning regulations and ensure that the unit blends perfectly into the urban landscape.

Engineered to provide the greatest flexibility for mobile operators, the Avenue Link can be deployed to any number of structures including street lamps, traffic light poles, or building sides. Installation is fast, simple and easily managed by a single installer without the use of heavy equipment, ensuring virtually no disruption to city operations.

The Avenue Link can deliver 500 Mbps per hop and up to 1 Gbps with the DragonWave Bandwidth Accelerator – the industry's only wire-speed bulk data compression technology.

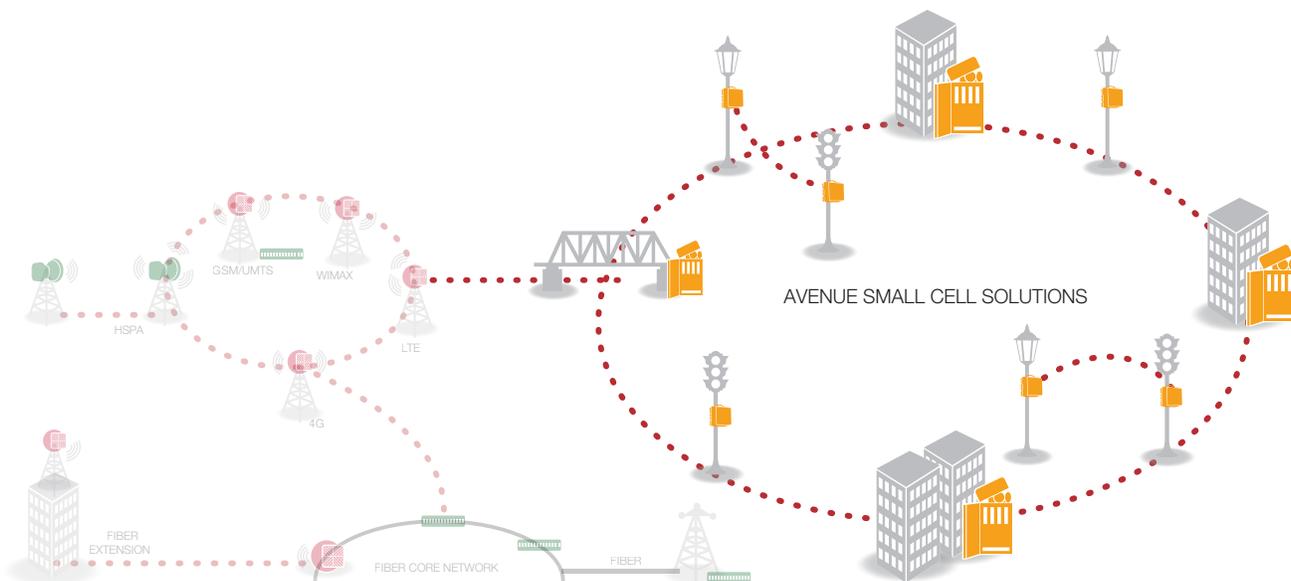
Completely interoperable with other DragonWave systems, the Avenue Link operates in 24, 26, 38 and 60 GHz bands.

SOLUTION HIGHLIGHTS

- Small cell-optimized backhaul
- Integrated flat-mini antenna
- Zoning-friendly, environmentally hardened enclosure
- Flexible mounting options
- Unparalleled backhaul performance:
 - Pay-as-you-grow bandwidth scalability
 - 500 Mbps capacity per hop
 - Bandwidth Accelerator for 25-150% bandwidth increase
 - Service-aware Hitless Automatic Adaptive Modulation
 - Advanced QoS with 8 levels of prioritization
 - SyncE support and optimized transport of 1588v2
 - Integrated 256-bit AES encryption with FIPS 140-2 Certification
 - 2:0, Ring, and Mesh protection options
 - Comprehensive management and provisioning with Netviewer NMS

KEY APPLICATIONS

- Small Cell Network Backhaul
- Leased Line Replacement
- Last Mile Fiber Extension
- Public Safety Networks
- Private and Enterprise Networks



FREQUENCIES

24 GHz DEMS	FCC/IC
26 GHz	ETSI
38 GHz	FCC/ETSI/AUS/NZ/MX
60 GHz	UNLICENSED

FEATURES

Antenna	Integrated flat-mini antenna
Capacity w/Accelerator	Variable from 10 to 1000 Mbps full duplex
Base Capacity	Variable from 10 to 500 Mbps full duplex CIR
Interface	Software selectable: 2xGE or 1xGE + 2x10/100/1000bT
Latency GigE	120µs @ 256QAM. 50 MHz
Packet Size	64 to 9600 Bytes
Flow Control	Yes
Prioritization	8 levels served by 8 hardware queues, based on 802.1p/q, MPLS, DSCP ToS Bits
Modulation Shifting	Yes, Hitless
Loopback	Yes, Radio loopback
Synchronization	SyncE support, optimized transport of 1588v2
Encryption	Integrated 256-bit AES encryption

POWER

Input	-40.5 VDC to -56 VDC
Optional Adapter	110/240 VAC
Consumption (per link end)	55 Watts / 45 Watts

MECHANICAL

All Hardware in Enclosure	20 cm x 20 cm x 14 cm; 3 kg 8" x 8" x 5.7"; 7.5 lbs
Wind Loading	112 kph (70 mph) Operational 200 kph (125 mph) Survival
Backhaul Beam Adjustment	+/- 360° Azimuth; +/- 22° Elevation
Antenna Mount Adjustment	+/- 45° Azimuth; +/- 22° Elevation

CONNECTIONS

Power	-48V, Power on Ethernet (RJ45)
Payload (+ Inband NMS)	RJ45 or optical LC
NMS (when out-of-band)	RJ45

NETWORK MANAGEMENT (NMS)

Alarm Management	SNMP Traps, Enterprise MIB
NMS Compatibility	Netviewer NMS; any SNMP based network manager; SNMP v1, v2c and v3
Ethernet OAM Support	802.3ah, 802.1ag, Y.1731
Security	3 Level Authentication
EMS	Web Based Management System, SSL HTTP,SSH, Radius, Telnet, TACACS+

ENVIRONMENTAL

Operating Temperature	-40°C to +60°C (-40°F to +140° F)
Humidity	100 % Condensing
Altitude	4500 m (14,760 ft)
Water Tightness	Nema4X, IP56 (directed hose test)
Operational Shock	ETSI 300-019-1-4; 5g 11ms
Operational Vibration	ETSI 300-019-1-4 Class 4m5, NEBS GR-63
Earthquake	NEBS GR-63