



Fiberwire 8211 Tri-Radio

ONE STOP SHOP FOR ALL ITS COMMUNICATION NEEDS

1. 150Mbps 5GHz Fiber capacity wireless backhaul and mobile router
2. 2.4GHz Wi-Fi TSP, pre-emption, hot spot
3. 5.9GHz WAVE compliant 802.11N V to I radio

BENEFITS TO DOT, MTA, DPW AND PUBLIC SAFETY INCLUDE:

- Reduce Deployment cost and increase applications: Wireless backhaul in place of Fiber
- Improve Traffic Safety: 5.9GHz DSRC
- Reduce Maintenance and installation costs
 1. Connecting all the intersections together to enable access to all intersection IP equipment.
 2. Pull one cat5 wire to power all radios.
- Improve MTA passenger safety: Continuous on board remote CCTV monitoring
- Improve Quality of Life and decrease harmful emissions with shorter commute times: Adaptive Signal Control, vehicle detection
- Improve commuter experience and increase ridership by providing on board Wi-Fi
- V to I
 - Citywide Safety
 - Reduce Commute times
 - Transit Signal Priority
 - Signal Pre-emption
 - DSRC based Vehicle Detection
 - Optimize street usage
 - Tolling
 - Automatic Amber Alert identification

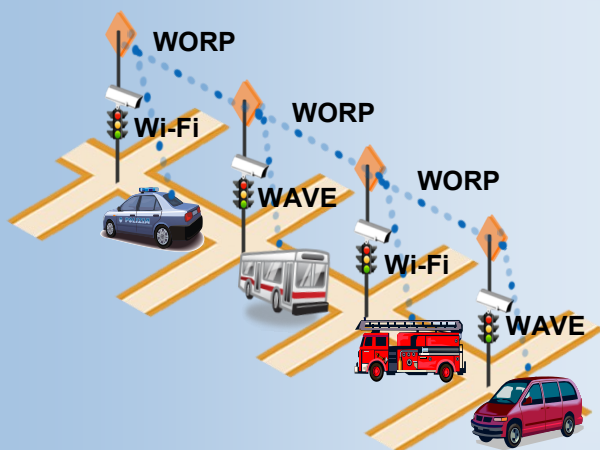
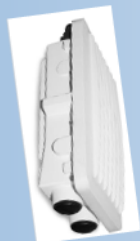
EVERYTHING YOU NEED TO PROVIDE FASTER AND SAFER COMMUTES IN CITIES AND ALONG HIGHWAYS

The new Fiberwire® 8211 product is a tri-radio outdoor device with built in antennas, one 2.4GHz radio for TSP, pre-emption and hotspot, one 5.9GHz V to I radio for connected vehicle applications and one carrier-class point to multipoint radio with built in 23dBi panel antenna or 16dBi 90 degree sector antenna which is SW configurable between a Base or Subscriber.

It is designed with an IP67 enclosure, built in heating and cooling and lightning protection to work in all environments.

ADVANCED FEATURES

- Non-line-of-sight capable, utilizing OFDM and MIMO techniques to improve link performance and penetrate through or around obstructions better
- 802.11N WAVE for advanced high throughput applications
- AES Encryption
- Advanced QOS and VLAN support
- Mobility: seamless video roaming up to 295 km/h (185 mph)
- Jitter Correction Algorithm with built in multicast support for CCTV backhaul
- Spectrum analysis feature helps to study frequency bands for interference, and select a relatively low interference channel.



PRODUCT MODELS							
MP -8211- BS9	Fiberwire™ 8211-16 Base Station Unit, 300 Mbps, MIMO 2x2, 16 dBi, 90° sector antenna + 802.11 g/n dual radio Access Point + 802.11N WAVE V to I						
MP -8211- BS1	Fiberwire™ 8211-23 Base Station Unit, 300 Mbps, MIMO 2x2, 23 dBi, 10° directional antenna + 802.11 g/n dual radio Access Point + 802.11N WAVE V to I						
INTERFACES							
WIRED ETHERNET	Two auto MDI-X RJ45 10/100/1000Mbps Ethernet - Port #1 with PoE in & Data - Port #2 with PoE out (802.3af pin out) & Data						
	PtMP Radio			AP Radio 1			DSRC
WIRELESS PROTOCOL	WORP®			One 802.11g/n radio			One 802.11a/n radio
RADIO & TX SPECS							
MIMO	2x2			2x2			2x2
MODULATION	OFDM with BPSK, QPSK, QAM16, QAM64			OFDM with BPSK, QPSK, QAM16 and QAM64 / DSSS			
FREQUENCY	4.900 – 5.925 GHz			2.400 – 2.484 GHz			5.150 – 5.850 GHz
CHANNEL SIZE	20 MHz, 10 MHz*, 5 MHz * Not applicable for DFS Band			20 MHz, 10 MHz, 5 MHz			
DATA RATE	MCS 0 to 15 for High Throughput mode (6.5 – 300 Mbps) with DDPS BPSK, QPSK, 16-QAM and 64-QAM for legacy mode (6Mbps - 54Mbps)			6.5 – 300 Mbps for 802.11n mode (MCS 0 to 15) 6 – 54 Mbps for 802.11a/g mode (BPSK, QPSK, 16-QAM and 64-QAM) 1 – 11 Mbps for 802.11b mode (DBPSK, DQPSK and CCK)			
TX POWER	Up to 25.8dBm (Triple chain)			Up to 20 dBm (two Tx Chain)			
TX POWER CONTROL	0 – 25 dB, in 0.5 dB steps. Automatic TPC with configurable EIRP limit			0 – 22 dB, in 1 dB steps.			
RX SENSITIVITY (PER=10%)	Channel Size (MHz)	20	10	5	Mode	802.11g	802.11a/n
	MCS 0 (dBm)	-93	-95	-98	BPSK (dBm)	-90	-90
	MCS 7 (dBm)	-74	-76	-79	CCK or 64QAM (dBm)	-75	-75
	MCS 8 (dBm)	-91	-93	-96	(MHz)	802.11n 20	802.11n 20
	MCS 15 (dBm)	-72	-74	-77	MCS 0/8 (dBm)	-87	-87
				MCS 7/15 (dBm)	-70	-70	
ANTENNA	Integrated 2x2 MIMO 16dBi Dual Polarized 90 degree Sector Antenna				3 dBi		5 dBi
MANAGEMENT							
LOCAL	RS-232 serial (RJ11 to DB-9 dongle provided)						
REMOTE	Telnet and SSH, Web GUI and SSL, TFTP, SNMP v1,v2c, v3				Telnet and SSH, Web GUI and SSL, TFTP, SNMP v1, v2c and v3		
OTHER	Syslog, sFlow™ agent, Sntp and local time, Spectrum analyzer * Only in PtMP						
SECURITY							
ENCRYPTION	AES-CCM 128 bits				WEP, TKIP and AES, based on 802.11i standard		
AUTHENTICATION	Internal MAC Address Control List, Radius based Authentication (with VLAN and QoS provisioning)				Internal MAC Address Control List, Pre-Shared Key and 802.1x (Radius based)		
WIRELESS	DCS based on interference detection, DFS based on radar signature ATPC with EIRP limit support , and DDPS				AP-AP COMMUNICATION : WDS with STP loop avoidance, RF ENVIRONMENT: Rogue Scan		
NETWORK							
MODES	Bridging, Routing (RIP v2 and IP tunneling)				Bridging		
IP STACK	IPv4 and IPv6 simultaneously				I{v4 and IPv6 simultaneously		
THROUGHPUT	Up to 240 Mbps				Up to 200Mbps		
GATEWAY FEATURES	DHCP Server & relay, NAT with Std ALGs, PPPoE end point with Proxy DNS, QoS, VLAN's				DHCP: Client and Server, QoS, VLAN		
DSRC	802.11N based supporting antenna diversity for 802.11p with .11N turbo mode for high throughput applications High Speed Roaming and Controlled Access OBU communication 802.11p 2010, 1609.1 2006 Resource Manager, 1609.2 2013 Security Services, 1609.3 2010/cor1-2012 Networking Services, 1609.4-2012 Multi-channel operation, SAE J2735 (SPAT MAP, TIM)						
POWER CONSUMPTION	19 Watt typical (34 Watt max) Combined both the power consumption						
ENVIRONMENTAL SPECS							
OPERATING TEMPERATURE	-40° to 60°C (-40° to 140° Fahrenheit) Will continue operating if temperature temporarily varies between -50° and 70°C (-58° and 158° Fahrenheit).						
STORAGE TEMPERATURE	-55° to 80°C (-67° to 176° Fahrenheit)						
HUMIDITY - IP RATING	100% relative humidity - IP67						
WIND LOADING	200 km/h (125 mph)						
PHYSICAL SPECS							
		DIMENSIONS				WEIGHT	
PACKAGED	Fiberwire 8211-16,23	14.56 x 13.69 x 8.18 in. (370 x 348 x 208 mm)				20 lbs	
UNPACKAGED	Fiberwire 8211-16,23	10.79 x 11.14 x 3.38 in (274 x 283 x 86 mm)				9 lbs	
Certifications	UL 60950, CAN/CSA-C22.2 No. 60950, IEC 60950, EN 60950 (part -1 and -22), IC, FCC Part 90m Part 95L						