



**SKYFIBER™**



SOLUTIONS BRIEF  
**TECHNOLOGY  
COMPARISON**

**Optical Wireless Broadband vs.  
Microwave Radio**

Powerful mobile devices and bandwidth-hungry applications are generating exponential growth in global network traffic, and today's current backhaul solutions all face time, cost and licensing challenges. To be successful, mobile operators will need to be creative, and consider unconventional backhaul solutions that offer mega bandwidth at minimum cost.

Optical Wireless Broadband (OWB) is the innovative alternative that can address these needs with high-capacity low-cost connectivity. OWB can be used as a growth accelerator, overlaid on top of existing Fiber and Microwave networks to provide a Gigabit boost of capacity at very low cost. And when deploying new backhaul, Optical Wireless Broadband is the technology that delivers the 1-2-3 punch where it really counts: Low Cost, High Capacity and Fast Deployment.

SKYFIBER's Optical Wireless Broadband (OWB) technology uses infrared light to deliver over 1 Gbps of Broadband connectivity. OWB employs a laser transmitter to generate a focused optical light wave that carries data through the atmosphere, to an optical receiver located at a fixed distance from the transmitter. Optical Wireless Broadband is free of the constraints that radio based technologies wrestle with, including limited spectrum, difficulty obtaining licenses, and a ceiling on capacity. In contrast, OWB requires no permits, no licenses, and currently provides up to 1 Gigabit connectivity, with 2 Gig and 10 Gig coming soon.

Licensed Microwave systems typically support up to 300 Mbps, in some instances licensed systems can deliver up to 800 Mbps if sufficient contiguous spectrum is available, but acquiring licenses always presents significant challenges. Unlicensed Microwave systems typically support up to 150 Mbps of capacity, and neither comes close to matching the multi-gigabit capabilities of the Optical Wireless Broadband technology.

## Comparing Capacity: Truth In Bandwidth

When comparing technologies, it's critical to account for the common practice of Microwave vendors to advertise their capacity with half-duplex numbers, meaning a radio advertised as 100 Mbps is actually 50 Mbps full-duplex. OWB numbers are always quoted in full-duplex, so a 100 Mbps OWB system is equivalent to a 200 Mbps radio system.

## Time For a Weigh-In

Microwave antennas start at 1' diameter dishes, with a 2' diameter dish being more typical. The equipment required on the rooftop weighs at least 40 lbs (18kg), often substantially more. In contrast the SKYFIBER OWB outdoor unit weighs in at a slim 11 lbs (5kg), which translates to a smaller footprint, easier installation, and overall faster deployment.

## Advantages That Win The Fight

Optical Wireless Broadband also offers significant advantages with lower power consumption, lower weight, minimal wind loading, zero interference, and a host of other key benefits on critical decision parameters. The table below details the differences in these critical factors.

		Optical Wireless Broadband	Microwave	
			Licensed	Unlicensed
	Core Technology	Infrared Light	Radio Wave Transmission	
Up to 6 times greater capacity	Data Rates	100 Mbps to 1 Gbps (2 Gbps in Q3 2011, 10 Gbps in Q3 2012)	Up to 300 Mbps	Up to 150 Mbps
	Indoor Footprint	21.8cm (8.6") x 23cm (9") x 4.5cm (1.8")	Full 19" rack unit	
Footprint more than 3 times smaller	Rooftop Footprint	0.75 sqft (0.07 sq m)	2.5 sqft ** (.45 sq m)	
	Wind Surface Area	0.46 sqft (0.043 sq m)	4.9 sqft ** (1.82 sq m)	
70% less weight	Weight	5 kg (11 lbs)	18 kg (40 lbs)	
70% less weight	Power Consumption	Typical 15W (Max 30W)	100W	
No license needed	Licensing and Permits	No	Yes	No
	Rain Tolerance (99.9% availability)	2 km link .6" rain/hr (15 mm/hr) 1.6 km link 1.25" rain/hr (31 mm/hr) 1.0 km link 4" rain/hr (100 mm/hr) 500 M link 11" rain/hr (279 mm/hr)	Up to 8 km (5 mi) with 99.9% availability	
	Fog Tolerance (99.9% availability)	Operational Range = Visible Range plus 250 m (i.e. In 1500m visibility, link will function to 1750 m)	Up to 8 km (5 mi) with 99.9% availability	
Zero interference	High Density Hubbing	Unlimited Multiple units can exist in one hub, no interference between the beams	Max 3 to 4 radios Limited due to side and back lobing effects as well as limits on spectrum	
	Viable as a Fiber Alternative	Yes In both last mile or core metro ring applications	No Does not provide sufficient bandwidth	

## Contact Us

For further information on SKYFIBER™ products and solutions, please contact [sales@skyfiber.com](mailto:sales@skyfiber.com) or visit us on the web at [www.skyfiber.com](http://www.skyfiber.com).