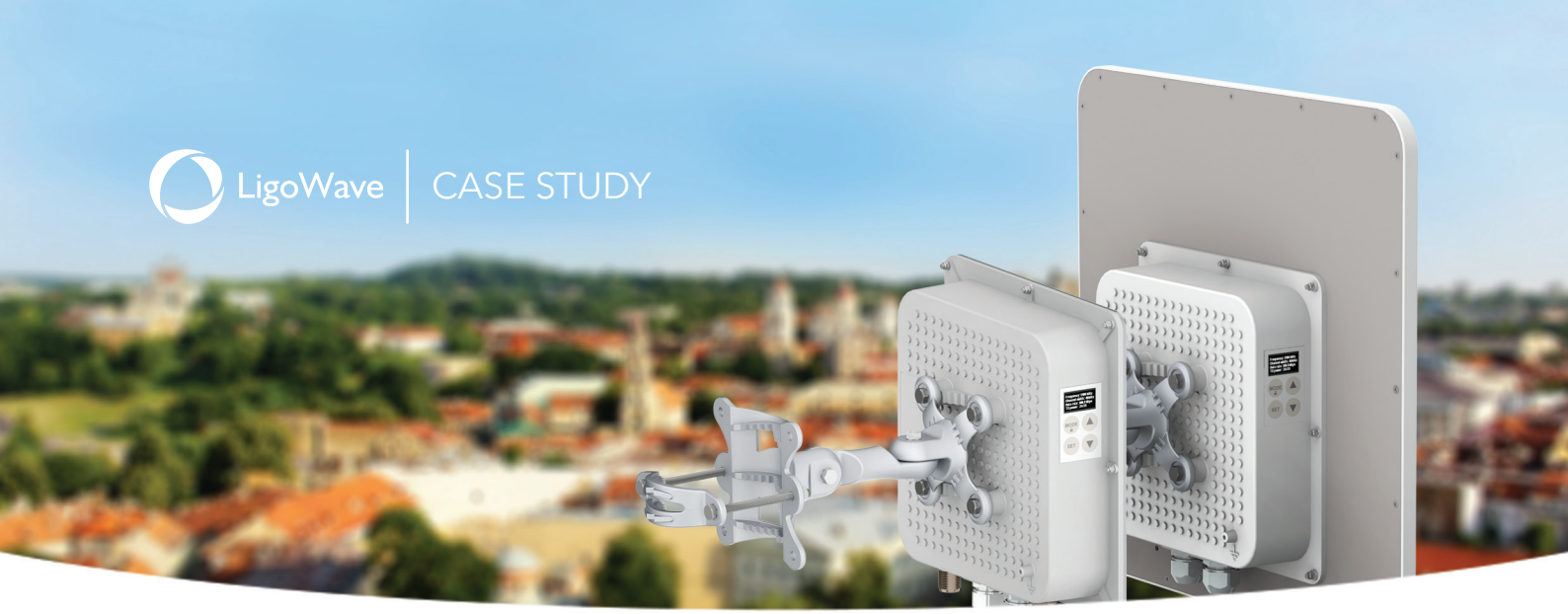


LigoPTP UNITY test on a 25 km link in Hungary

LigoWave's distributor in Hungary, Accesspoint Kft., provided UNITY devices to Nicom Wireless Ltd. They configured a 25.3 kilometer link using the N-connector models of the UNITY product coupled with 90 cm (32 dBi) dish antennas from Jirous. Impressive results were achieved for such a long distance link with signal levels of -50 to -60 dBm and running on the highest modulation (64 QAM 5/6). The Mikrotik Winbox tool was used to measure the throughput and packet per second rate. The average single direction TCP throughput was approximately 160 Mbps and the average single direction UDP throughput was nearly 170 Mbps! The comparison of the PPS rate with different packet sizes can be found in the table below. The following pages contain a LigoWave LinkCalc path analysis with satellite map illustration, and the performance screenshots from the bandwith testing tool.

	64 bytes	512 bytes	1024 bytes	2048 bytes
Throughput, Mbps	70	160	170	160
PPS rate		140 000		

Table | *Throughput results of the LigoPTP UNITY 5-N link*

LigoPTP UNITY Summary

220 Mbps capacity

140000 PPS rate

2nd Ethernet port for wireless failover

Wire speed QoS (L2 and L3)

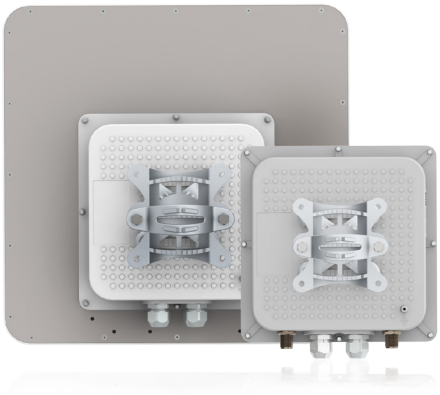
2 x Gigabit Ethernet ports

External OLED screen

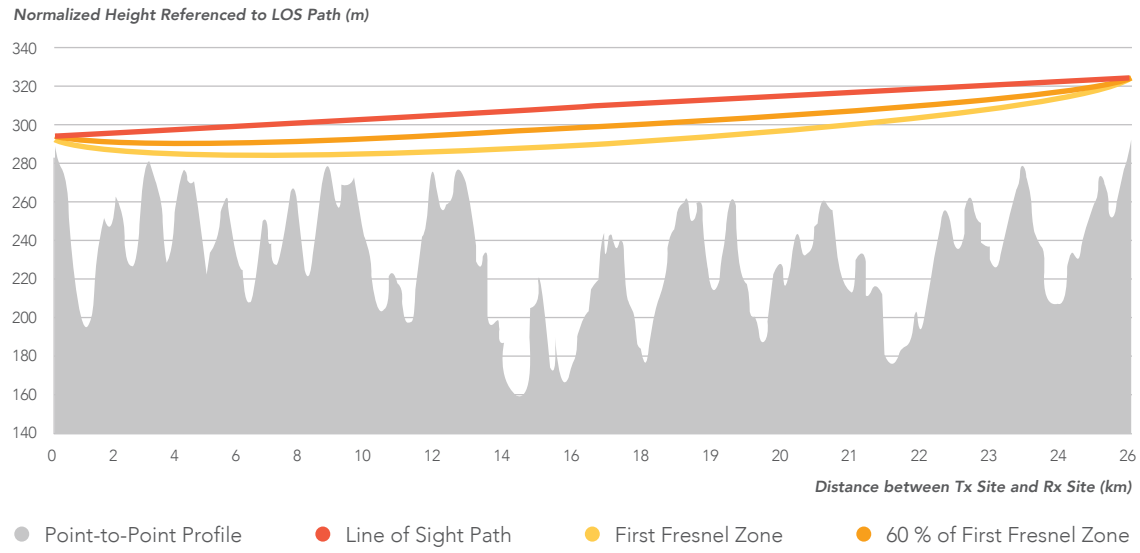
Integrated surge protection

IP-67 standards rated enclosure

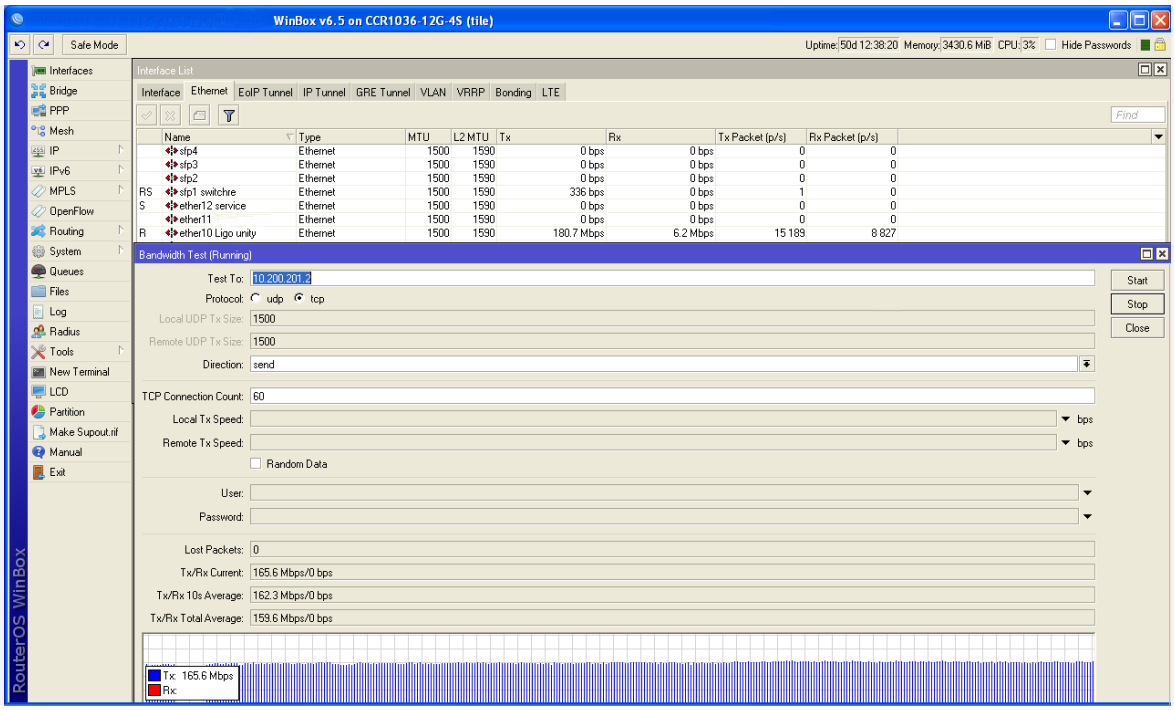
Flexible and professional mounting bracket

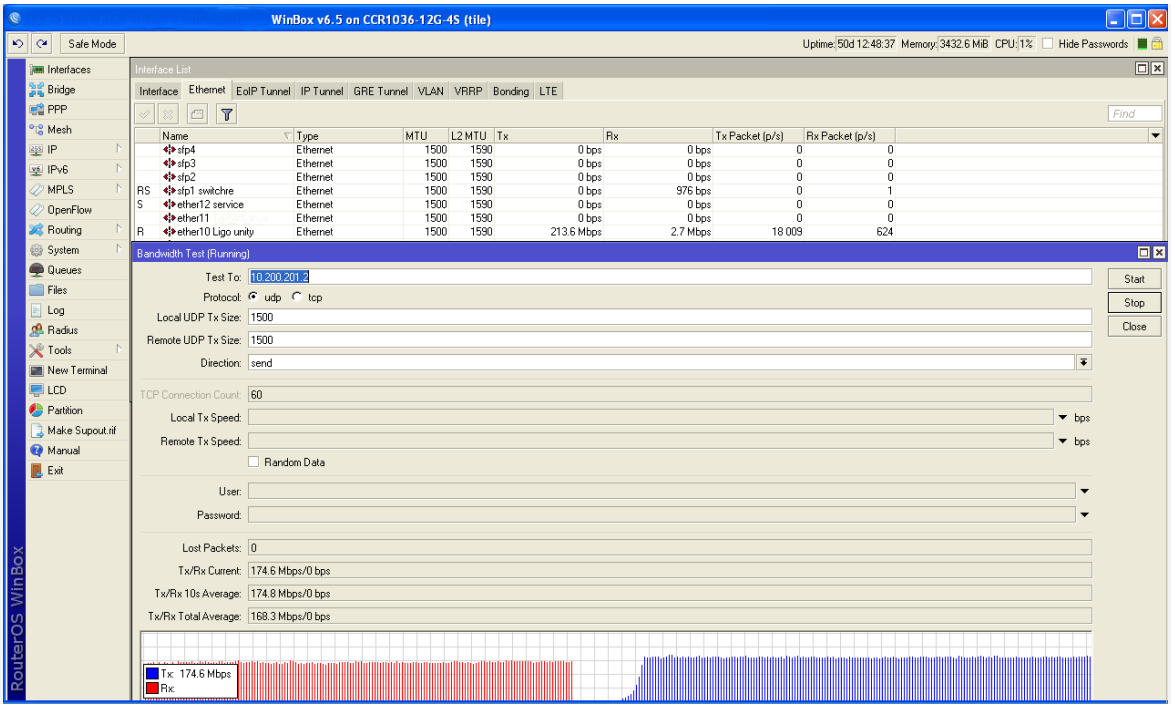


Site Information			
Tx Site Name	LigoPTP 5-23 UNITY	Tx Site Name	
Radio Type		Radio Type	LigoPTP 5-23 UNITY
Latitude		Latitude	
Longitude		Longitude	
Tx Power	27 dBm	Rx Threshold	-95 dBm
Ant. Gain	32 dBi	Ant. Gain	32 dBi
Ant. Height	15 metres	Ant. Height	32 metres
Parametres			
Frequency	MHz	Climate	Continental Temperature
Ant. Polarization	Vertical	Measurement	Metric System
Misc. Loss	0 dBm	Rain Rate	0 mm/hr
Results			
Total Path Loss	136.39 dBm	Total Fade Margin	49.61 dBm
RX Signal Level	-45.39 dBm	Distance between sites	25.35 km
EIRP	59 dBm	Link availability due to rain	N/A



MAP | *Link path analysis and satellite map illustration*





Picture | *Screenshot from the bandwidth testing tool*