

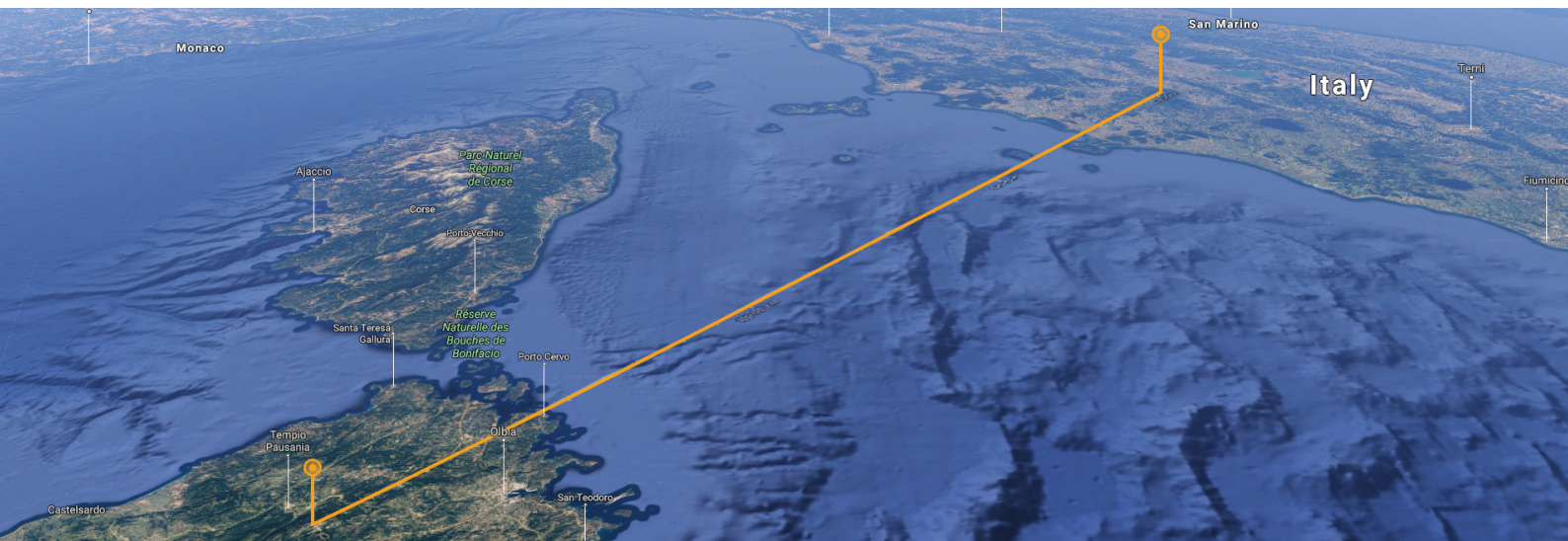
## CASE STUDY: LigoPTP RapidFire 5-N

304km Link Test Report | Amiata–Limbara, Italy



The CISAR Italian Center for Radio Activities collaborated with LigoWave's partner in Italy—Telcomms Srl—on testing a long-distance RapidFire link.

LigoPTP RapidFire 5-N wireless bridges were installed in Monte Amiata (Tuscany, local site) and Monte Limbara (Sardinia, remote site), 304km apart over the Tyrrhenian Sea.



Multiple tests were performed with the RapidFire link, providing remarkable results: over the 304km distance, 20MHz channel throughput and PPS rates peaked at 54Mbps and 105,426PPS respectively, while 40MHz channels achieved 100Mbps and 90,719PPS. RapidFire wireless bridges ensured comparatively high throughput and packet delivery despite the long distance.

Testing under the 5,745Mhz frequency, 20MHz channel, signal levels: -77/-64dBm remote site, -74/-77dBm local site.

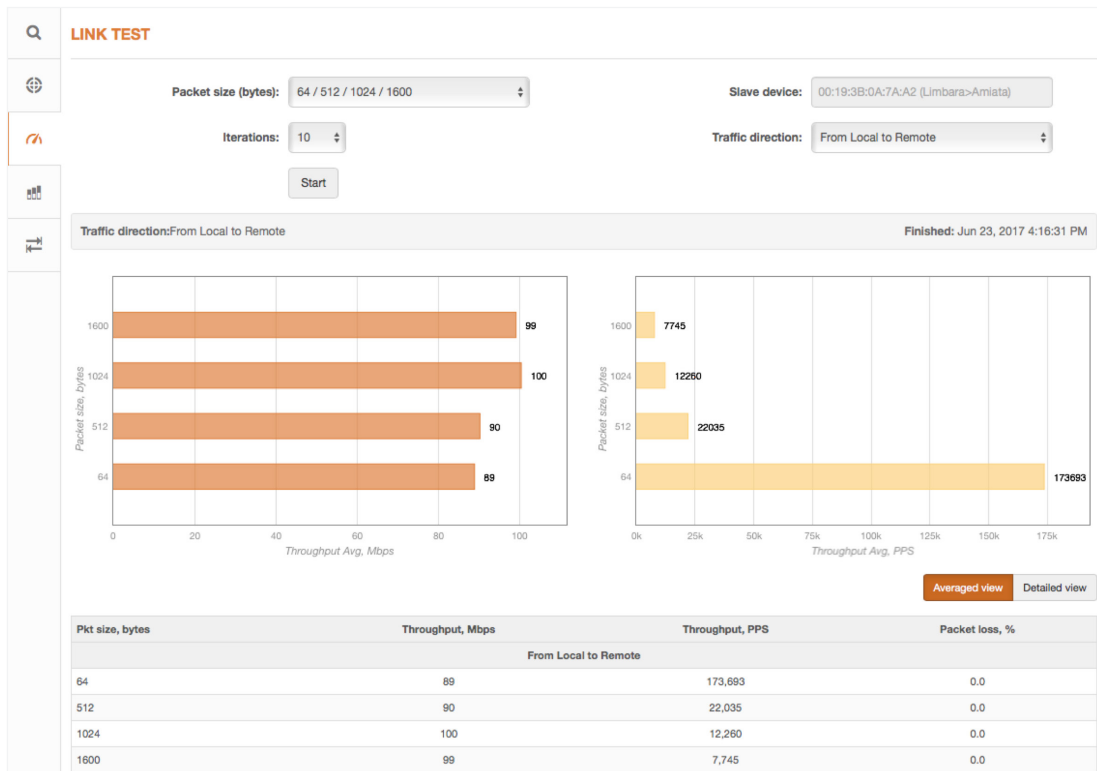
Traffic Direction: Local to Remote				Traffic Direction: Remote to Local			
Packet Size (bytes)	Throughput (Mbps)	Packets per Second	Packet Loss (%)	Packet Size (bytes)	Throughput (Mbps)	Packets per Second	Packet Loss (%)
64	54	105,426	0.0	64	38	74,400	0.0
512	48	11,820	0.0	512	50	12,221	0.0
1024	49	5,955	0.0	1024	60	7,381	0.0
1600	50	3,891	0.0	1600	64	5,010	0.0

Testing under the 5,745Mhz frequency, 40MHz channel, signal levels: -80/-81dBm remote site, -81/-82dBm local site.

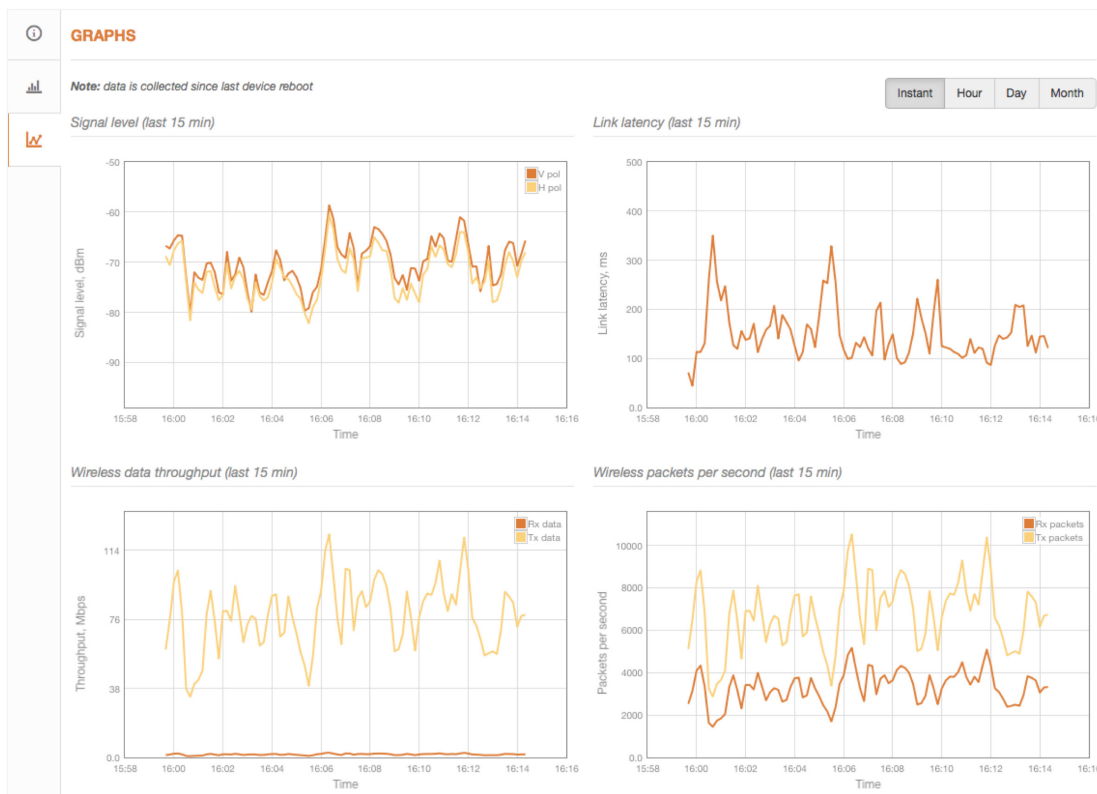
Traffic Direction: Local to Remote				Traffic Direction: Remote to Local			
Packet Size (bytes)	Throughput (Mbps)	Packets per Second	Packet Loss (%)	Packet Size (bytes)	Throughput (Mbps)	Packets per Second	Packet Loss (%)
64	46	90,719	0.0	64	21	41,794	0.0
512	82	20,105	0.0	512	30	7,344	0.0
1024	100	12,266	0.0	1024	22	2,698	0.0
1600	76	5,953	0.0	1600	49	3,825	0.0



A screenshot from the RapidFire 5-N's link test results, showcasing one of the most successful tests with network metrics averaging at 94.5Mbps and 53,933 packets per second and peaking at 100Mbps and 173,693PPS with zero packet loss.



A screenshot of the various link metrics, including wireless data throughput peaking at over 114Mbps and packet rate exceeding 100,000PPS.



Equipped with the W-Jet proprietary protocol, an efficient 1.2GHz CPU, and high-power 31dBm 2x2 MIMO radios, the RapidFire wireless bridges were not only successful in establishing a stable connection, but it was also possible to ensure relatively high throughput despite the extremely long distance and oversea environment.

The wireless link path profile, whereby "300 km RF 5-N" is the master device found on the Italian Mainland and "Slave" is the slave device located in Sardinia, approximately 304km apart.

