60 GHz Hardware

60 GHz is an unlicensed band that now has some cheap gigabit point to point (p2p) antennas that we are using.

60 GHz is extremely susceptible to "rain-fade", which is why it is not used in licensed spectrum. Rain Fade is caused by water in the atmosphere which interferes with the RF signals, causing the antennas to loose signal strength or in the worst case loose connections all together. The affects of rain fade are worse for longer links, so keeping 60GHz links short can avoid issues.

Often these radios come with a 5GHz backup, which isn't really useful for bandwidth but it will keep your link online during rain.

Ubiquiti

There's a very confusing range of Ubiquiti 60GHz. Basically there's dishes and enclosed headlight looking ones

Ubiquiti Gigabeam

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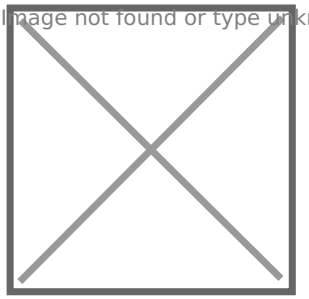
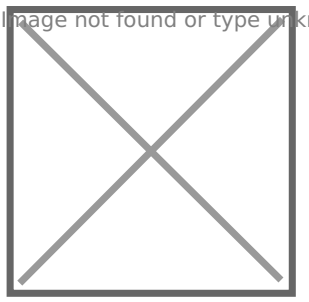


- Price: $260 pair
- no quoted range! (assume it's meant for neighboring buildings)
- 5GHz backup: yes but not usable

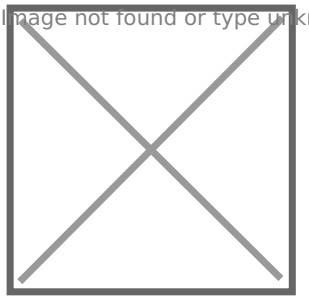
Ubiquiti Gigabeam Plus GBE-Plus

Image not found or type unknown 

This is a well-designed router that is small and reliable. We have a couple of these at our Rivington hub

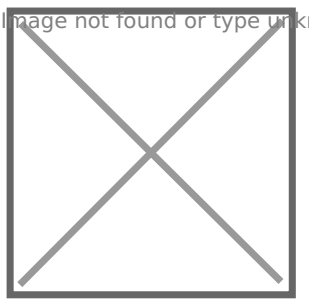
- Price: $360 pair
- Range: "up to 1.5km"
- 5GHz backup: no

Ubiquiti Gigabeam GBE-LR

Image not found or type unknown 

- Price: $400 pair
- Range: "long range"? probably means "up to 2km" like the af60
- 5GHz backup: no

Ubiquiti airFiber 60 Long Range

Image not found or type unknown 

- Price: $600 pair
- Range: "Long range, up to 2 km"

- 5GHz backup: yes

Ubiquiti airFiber 60 LR (dish)

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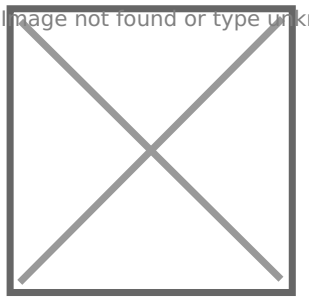

- Price: $800 pair (sold as pair)
- Range: "Long Range, Up to 12 km" (hard to believe!)
- 5GHz backup: no

We are currently running two links with these. Grand to Navy Yard, and PH to 5283

The Navy Yard link:

- 2km and bandwidth decreases in the rain
- "1751" capacity (they are adding up and down capacity together)

The 5283 link:

- 2.2km and works ok in rain
- "1951" capacity
- 5GHz: no

MikroTik LHG 60G

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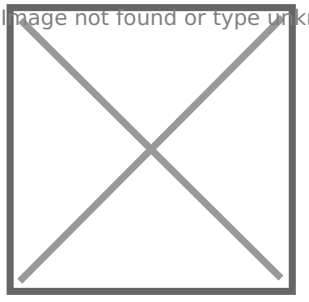

- Price $300 pair
- Range 200m
- 5GHs backup: no

- Tested speed: 700 Mbps

We originally installed these for 800m links but they will go down every time in heavy rain. 200m seems a good distance for them. It's a cheap way to connect neighboring buildings. We use these between the Grand St towers.

IgniteNet Metrolinq One 60-19

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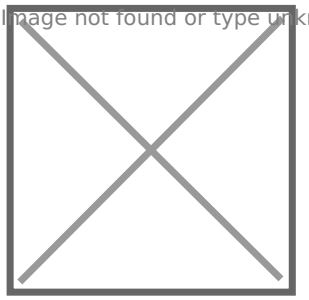

- Price: $500 pair
- Range: 200m?
- 5GHz backup: yes
- Tested speed: 300

We use these between Henry and Grand. It never got over 300 Mbps

- The mount is extremely heavy and obviously designed for the larger antenna
- The lights on the back aren't visible due to the mount
- It is possible to mount on horizontal pipe but you only have ~15 degrees of movement
- Bandwidth is about half of the cheaper Mikrotik 60Ghz
- Maybe we should have used the larger 60 – 35
- The backup 5GHz is strangely very low bandwidth (~20 Mbps)
- The telescope is very good, and great for aligning
- Everything is very well built and feels like a scientific instrument

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