Bartec PIXAVI Enclosure Testing

Aruba AP-318 with ANT-22

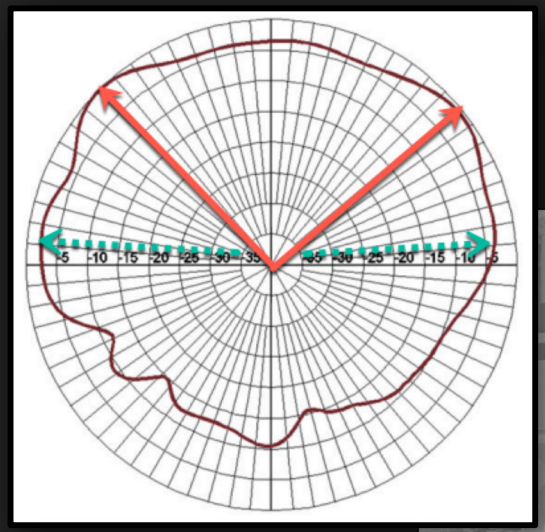
Testing RvR with and without cover

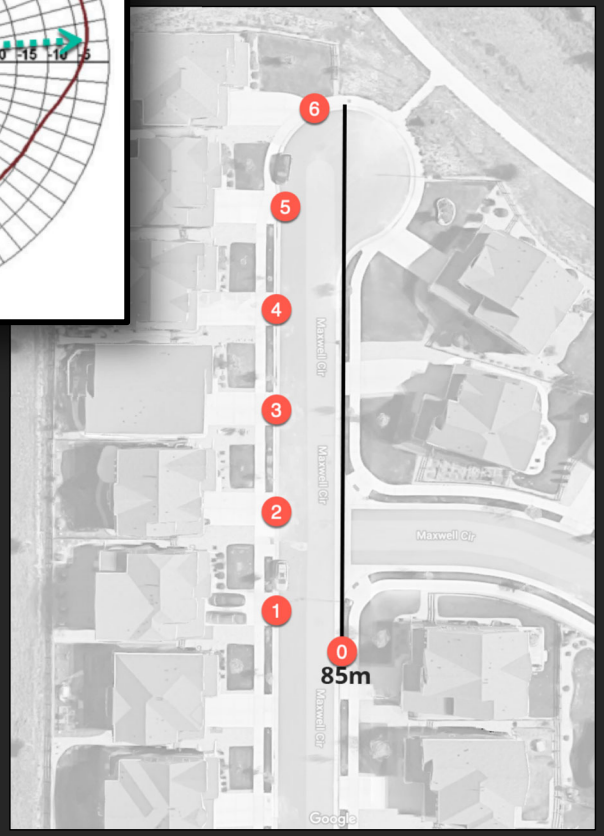
aruba
a Hewlett Packard Enterprise company

Note about test configuration

- Current mast system used for testing could not support the weight and standoff distance
- Testing was done with AP on the ground. Not ideal due to antenna pattern but does give a worst-case scenario (actuals when mounted 5-8m above the ground should be 1-3dB improved)
  - Red arrow represents maximum gain of antenna pattern (when inverted facing down)
  - Green arrow represents approximate testing orientation (a few degrees above horizon)
- AP was set for VHT20, Channel 1 and 165, max power
- Client was MacBookPro using Iperf3 for throughput
- SNR was captured with Ekahau 10 with Sidekick (dual radio, approximately 2-6 samples per test)
- Range was between 12m and 85m away
- Throughput testing was (3) runs, throw out the lowest, and averaged the remaining two
- Testing done along a residential street, some multipath is likely contributing to some of the resulting data

Note: testing done here is only for basic trending, and can not be extrapolated to other sites

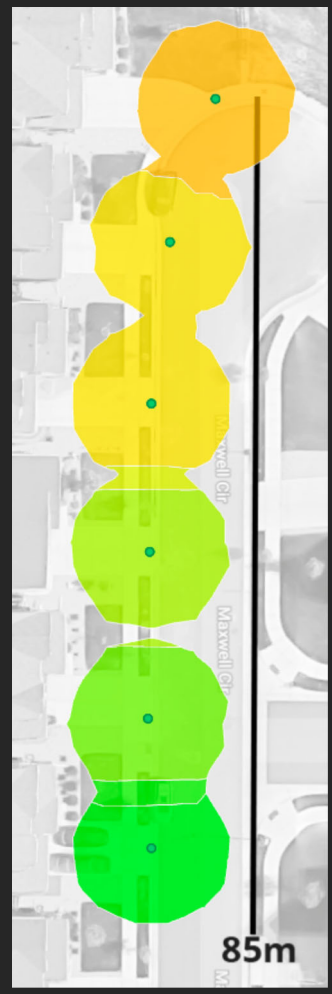




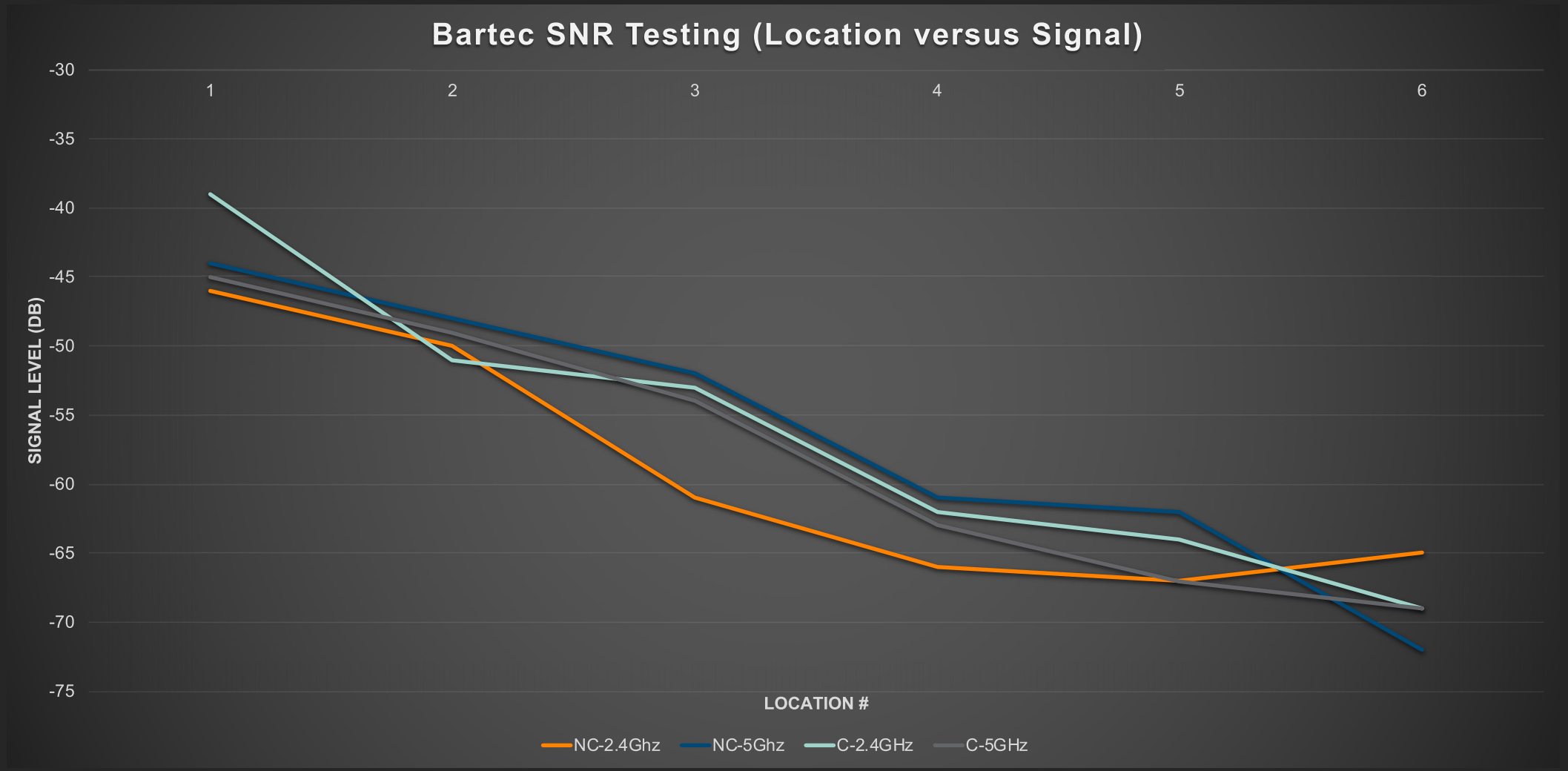
Rave versus Range – SNR Plots

Without Cover:

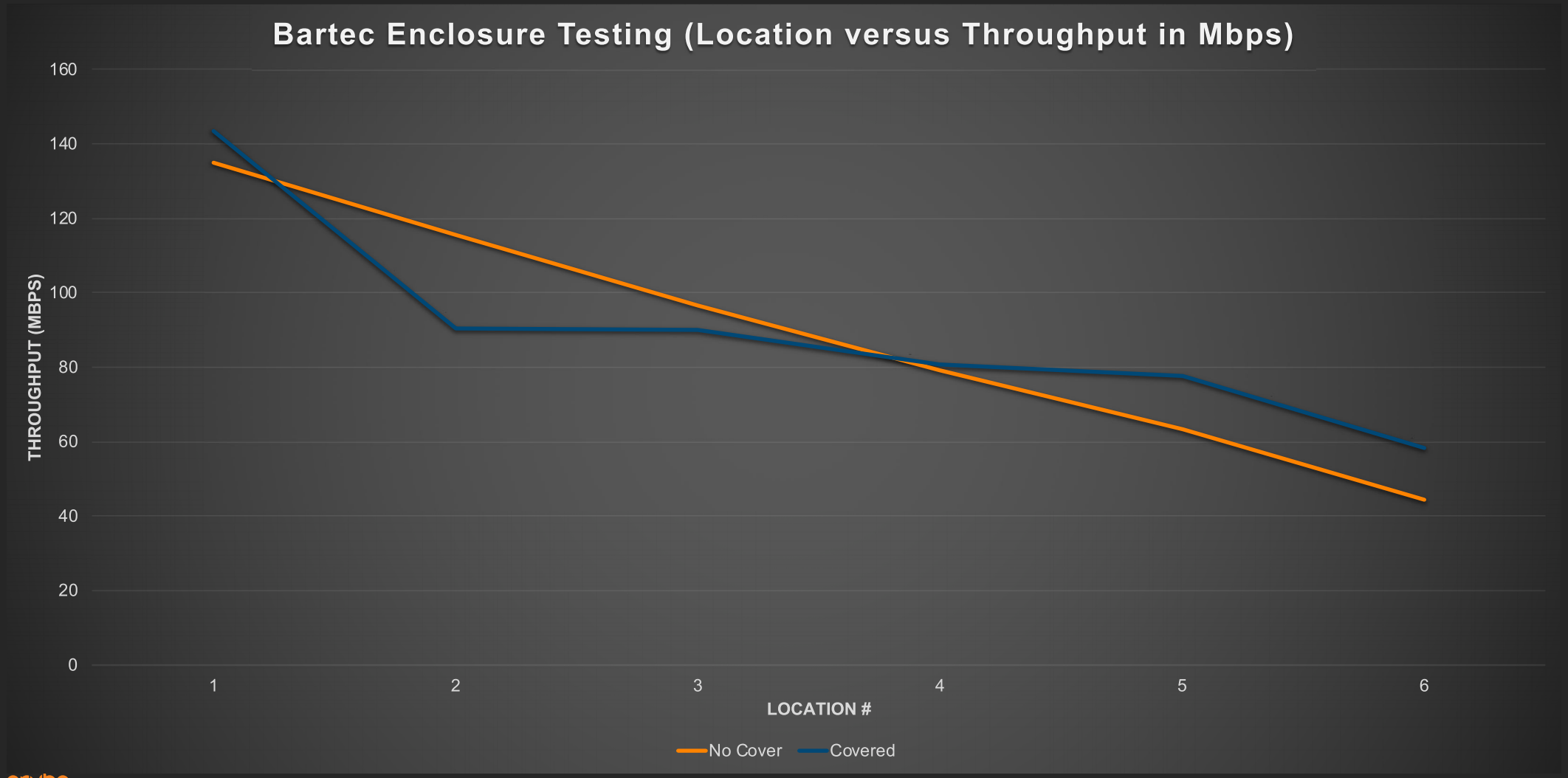
With Cover:



Rave versus Range – SNR Plots (graph)



Rave versus Range – 5Ghz Throughput Plots (graph)



Conclusions

- The cover doesn't create any major impairments to the RF, largest SNR impact is mostly observed in the 2.4Ghz band, actually ***benefitting*** 2.4Ghz when compared to no cover within this test environment
  - This could be internal reflections creating different multipath opportunities within the test area
  - Testing was done in two different series with nearly identical results
- The cover impairs the 5Ghz SNR marginally (1-3dB), which is similar to the variance of client positioning
- 5Ghz throughput was consistently trending without a cover, but with a cover seemed to be more variable at different distances. This is likely due to different internal reflections
- Observed that at location 2 with cover, if I raised the client to 2m, throughput more closely matched the uncovered speeds. This is likely at a specific MCS boundary and/or due to the antenna pattern and the client moving in to a better area of coverage
- A design guidance of 100m radius of coverage would be recommended here for coverage, depending on required client SNR. If client SNR requires -65dB @ 5Ghz, that radius could shrink to 75m radius.
- 2.4Ghz will offer better range, but at likely lower throughput due to noise and contention. All designs should be based on 5Ghz coverage

Capture Files, Logs, Configs, etc. all available upon request

Thank You

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