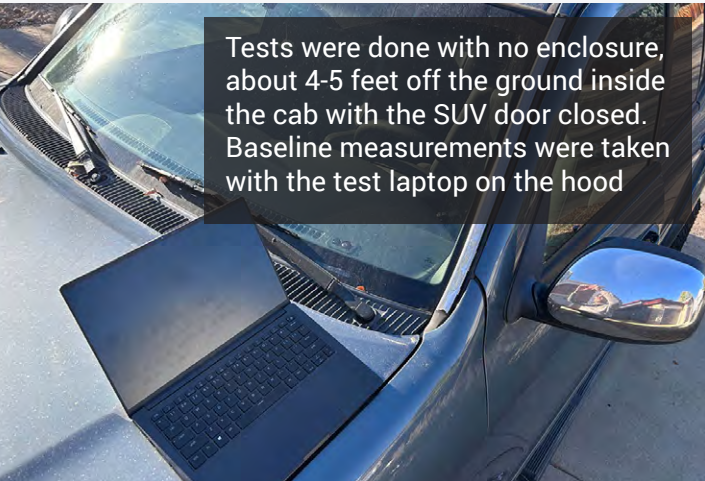


Test Set Up

- AP test device was placed on the floorboard in the cab of a large SUV sitting in the driveway.
- AP used CEL's CMP9611 w/omni-directional and highly efficient PCB-trace antenna
- Wi-Fi throughput tested using 802.11a, 802.11g, 802.11n, and 802.11ac access point setups.
- Tests were run twice for each b/g/n/ac band.
- Laptop equipped with an Intel Wi-Fi 6 AX201 card, ran tests from 100 ft and 300 ft.

Baseline Test



The driver was loaded and the AP was set up using the commands:

```
root@imx6qpdlisolox:~# modprobe moal mod_para=nxp/
wifi_mod_para.conf root@imx6qpdlisolox:~# ifconfig uap0
192.168.50.1 root@imx6qpdlisolox:~# udhcpd /etc/udhcpd.
conf root@imx6qpdlisolox:~# hostapd -B /etc/hostapd-
<specific band config>.conf
```

Config. Files: [hostapd-2g.conf](#) [hostapd-5g.conf](#)
[hostapd-n.conf](#) [hostapd-ac.conf](#)

- The AP device ran an iPerf server that reported results at 1 second intervals: `iperf3 -s -i 1`
- Laptop took a baseline from the hood of the SUV, and ran 20 second tests from 100 ft and then out to 300 ft

The only thing changed between tests was the hostapd specific band configuration file for options like `ssid`, `hw_mode`, `ieee80211h`, `ieee80211n`, and `ieee80211ac`.

CMP9611 Wi-Fi iPerf Throughput + Range Tests



AP Test Device inside SUV



Baseline Test Results

Band	Test 1 Results	Test 2 Results
2.4 GHz (g)	23.0 Mbits/sec	22.9 Mbits/sec
5 GHz (a)	28.0 Mbits/sec	28.0 Mbits/sec
5 GHz (n)	52.9 Mbits/sec	52.8 Mbits/sec
5 GHz (ac)	62.4 Mbits/sec	62.3 Mbits/sec

Field Test Images



The test environment was **NOISY**, with approximately **90 SSIDs** from neighbors, Xfinity, and others.

Distance Tested
100 ft.



100 ft. Results

Band	Test 1 Results	Test 2 Results
2.4 GHz (g)	15.5 Mbits/sec	17.7 Mbits/sec
5 GHz (a)	19.5 Mbits/sec	19.3 Mbits/sec
5 GHz (n)	20.9 Mbits/sec	21.9 Mbits/sec
5 GHz (ac)	15.6 Mbits/sec	17.8 Mbits/sec

Recommendations

- Overall, the tests were a success. Adding some height to the AP and having it higher than 4 ft. off the ground in the cab will help to extend the range.
- Given the differences between throughput and range on the different bands, having a dynamic configuration for the AP would be crucial. Or, alternatively, set up one for 2.4 and one for 802.11n/ac.

Distance Tested
200 ft.



300 ft. Results

Band	Test 1 Results	Test 2 Results
2.4 GHz (g)	2.41 Mbits/sec	2.25 Mbits/sec

All 5 GHz bands lost signal at 130-150 feet.

