## Grid Antenna Test 07/09/2019

## **Equipment:**

PaccL #1 – IP: 192.168.88.100
PaccL #2 – IP: 192.168.88.101

• 2 Laptops

• 2 Grid Antennas

#### Setup:

PaccL #1 was setup (as the server) and wired to a grid antenna just outside the highbay garage. PaccL #2 was setup (as the client) and wired to a grid antenna in front of the dumpsters. The distance between the antennas was approximately 400 ft. Both PaccLs were set to 4.95 GHz with a bandwidth of 20 MHz.

#### **Conducted Tests:**

- Ping test PaccL #1 alone, PaccL #2 alone, PaccL #1 and #2 simultaneously.
- TCP iperf test PaccL #1 alone, PaccL #2 alone, PaccL #1 and #2 simultaneously.
- UDP iperf test PaccL #1 alone, PaccL #2 alone, PaccL #1 and #2 simultaneously.

### **Ping Test:**

	Min (ms)	Ave (ms)	Max (ms)	Mdev (ms)
PaccL #1 alone	0.695	4.538	32.874	7.226
PaccL #2 alone	0.703	4.930	35.050	7.786
PaccL #1 simultaneous	0.698	1.667	18.335	2.816
PaccL #2 simultaneous	0.816	2.203	27.371	4.241

For the simultaneous test, there was 8% loss. All other tests had a 0% loss.

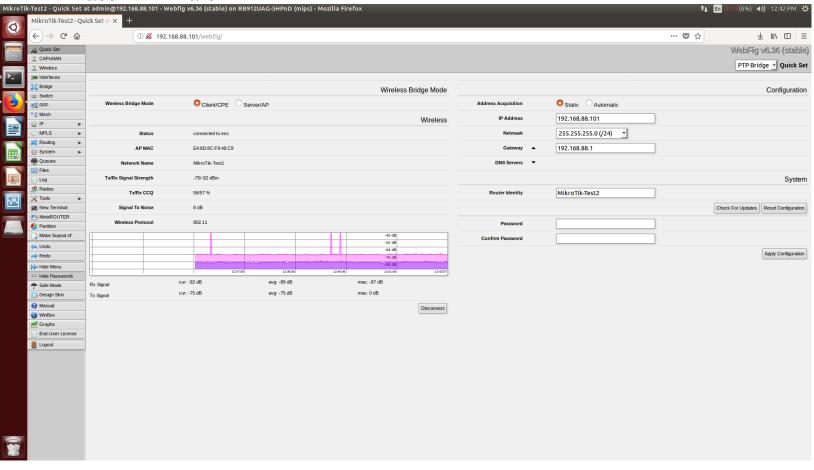
# **TCP Iperf Test:**

	Transfer (Mbytes)	Bandwidth (Mbits/s)	Send/Recieve
PaccL #1 alone	125	17.5	sender
	125	17.4	receiver
PaccL #2 alone	91.8	12.8	sender
	91.6	12.8	receiver
PaccL #1 simultaneous	61.2	8.56	sender
	60.5	8.40	receiver
PaccL #2 simultaneous	29.3	4.09	sender
	28.8	4.03	receiver

# **UDP Iperf Test:**

	Transfer (Mbytes)	Bandwidth (Mbits/s)	Jitter (ms)	Loss/Total Datagrams
PaccL #1 alone	7.49	1.05	2.354	0/959 – 0%
PaccL #2 alone	7.49	1.05	3.916	1/959 – 0.1%
PaccL #1 simultaneous	7.49	1.05	5.420	0/959 – 0%
PaccL #2 simultaneous	7.49	1.05	8.250	7/959 – 0.73%

#### **PaccL Firmware:**



#### Info on PaccL #1 and #2:

• Channel power TX: -75 dBm

• Channel power RX: -89 dBm

· Signal to noise: 8 dBm