ePMP 1000 vs ePMP 2000 test

The following will document the results of a hopefully true apples to apples comparison between the Cambium ePMP 1000 AP and the new ePMP 2000 AP with beam steering antenna. This test was performed on a tower located on Lookout Mountain above Golden, Colorado. The subscriber modules ranged in distance from 1.5 miles to 3 miles from the tower and where located in and around the city of Golden. All subscribers were within the 90 degree sector and vertical beam.

The tower sits about 1800' above the town and is also the site of dozens of TV, radio and other antennas. It is the primary location for RF transmission for the Denver metro area. The city of Golden is home to a large university and the Coors brewing campus – both of which have numerous indoor and outdoor 5GHz WiFi hotspots and are both directly in line with the center point of this particular AP. There is little to no RF coordination in the 5GHz spectrum at this location between the multiple companies with antenna sites. No other WISPs are providing service into Golden but Lookout Mountain is the location for a number of point to point links to sites around the metro area.

Hardware:
ePMP 1000 GPS AP with RF Elements Carrier Class 17 dBi 120-degree antenna
ePMP 2000 GPS AP with Cambium 90/120 antenna and beam steering attachment

Environment:
AP is mounted 100' above ground with ~8-degree mechanical down tilt. ePMP 1000 AP is powered by a Netonix 12-200-AC switch. ePMP 2000 AP is powered by the included 56v POE injector.

The ePMP 1000 radio was an existing AP with 11 clients on it. To start the test, the maximum MCS rate on the AP was raised from 13 to 15. In addition, the maximum MCS rate on each SM was raised from 11 to 15. This would allow testing of maximum throughput for both tests. The APs were in "flexible" mode and set to a 20 MHz channel width. On both radios, frame size was 5ms and traffic was set to MCS0. GPS sync was off.

There are two other ePMP 1000 APs on this tower. AP 2 is 60 feet off the ground and operating at 5790 Mhz (but was turned off for these tests). AP 3 is 100 feet off the ground (directly above AP 1) and operating at 5190 Mhz.

Here is a look at the RF environment using a Mimosa B5 radio located on the tower 20 feet off the ground and pointed in the same direction as AP 1.
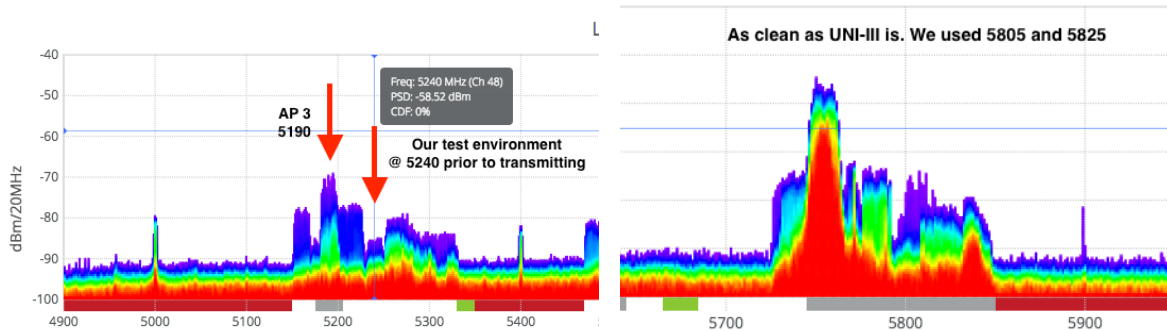
The first set of tests was done with the ePMP 2000 AP running firmware 3.0 (as were all 11 clients). RSSI, SNR, MCS and throughput were tested with all 11 clients on the following frequencies: 5240, 5805, 5825. Those frequencies were chosen because they are the cleanest at the tower but as you can see from the RF graph, none are "clean". We also ran an eDetect from all 3 frequencies. Screen grabs and results are included at the end of the document. All subscribers are referenced with the last three digits of the IP (ie .113).

Once those results were documented, the ePMP 2000 AP was removed from the tower and the ePMP 1000 AP was installed in the same spot. The ePMP 1000 AP was configured with the same exact software settings as the ePMP 2000 AP. The only difference between the two radios was hardware and 1 dB gain on the antenna.

With the ePMP 1000 AP installed, all 11 subscribers were migrated to it. We duplicated the same tests and documented the same set of data for all 11 subscriber radios now attached to the ePMP 1000 AP. The time of day was the same as it was for the ePMP 2000 tests and the average client throughput on the AP at the time of the tests was approximately 10 to 15 Mbps total.

Other notes:
ePMP 1000 AP firmware: 3.0
ePMP 2000 AP firmware: 3.0
All subscriber modules: 3.0

See Appendix A for test results

Initial Findings for test:

Hardware
- ePMP 2000 AP and beam steering antenna is significantly heavier than the ePMP 1000 with the RF Elements CC-17 antenna.
- Antenna was difficult to mount on the Rohn antenna mast. The clamp is designed for a pole with a larger diameter than the Rohn antenna and the clamps would not close all the way to form a tight fit.
- The hole in the plastic door for the Ethernet cable to exit the radio is machined too small for our Ethernet cable (Ubiquiti carrier grade shielded cable). We did not notice this until we were hanging 100' in the air. It was very difficult to get the plastic door back on the radio.

- The profile for the new antenna is larger than the 1000 antenna when you have the beam steering antenna attached. In addition, the width of the beam steering antenna made azimuth aiming of the AP difficult since it would come in contact with the side of the Rohn antenna mast. You must mount this with a standoff pole.

Performance
- The beamforming antenna of the ePMP 2000 radio does work in certain circumstances. It appears to perform better at higher frequencies (5800 vs 5200). This makes me wonder if the antenna is better tuned to the higher frequencies.
- Take a look at the data, charts and graphs and draw your own conclusion. Your mileage may and will vary in your RF environment. We are a pretty noisy environment on this tower facing this direction. However, by and large, the ePMP 1000 with the RF Elements antenna performed better, especially with download speeds.

We ran a number of throughput tests on each subscriber using the radio tool. We also ran some true bandwidth tests to the Internet at some subscriber locations. The radio reported speed and the actual speed to the Internet were nearly identical. This gave us some confidence in the radio reported numbers, despite being UDP packets.

The slower download speeds with ePMP 2000 gave us some concern. At the very least, we expected to see download speeds stay the same as they were in the ePMP 1000 tests, especially since all other factors were the same.

See Appendix A for test results

Conclusions:

Every RF environment is different and there are reports out there of the ePMP 2000 solving RF noise issues for customers. I believe them and believe in the product. The beam steering antenna works and improves upload speeds, especially in poor RF environments at the higher 5.8 Ghz channels. What is not clear is why download is suffering when compared to an identically configured ePMP 1000 AP.

We decided at the conclusion of these tests to leave the ePMP 1000 AP with the RF Elements antenna on the tower and return the loaner ePMP 2000 AP.

Test Results Spreadsheet

ePMP 1000 AP vs ePMP 2000 AP

Client			RSSI (Download / Upload)			SNR (Download / Upload)			MCS (Download / Upload)			Speedtest (Download / Upload)		
IP	Hardware	AP	5240 Mhz	5805 Mhz	5825 Mhz	5240 Mhz	5805 Mhz	5825 Mhz	5240 Mhz	5805 Mhz	5825 Mhz	5240 Mhz	5805 Mhz	5825 Mhz
101	Force 180	2000	-63 / -70	-63 / -57	-62 / -58	28 / 25	27 / 33	25 / 32	14 / 12	12 / 14	12 / 13	64 / 36	50 / 55	40 / 42
101	Force 180	1000	-66 / -70	-64 / -64	-64 / -67	28 / 28	31 / 33	31 / 30	15 / 12	13 / 13	15 / 13	64 / 41	53 / 41	64 / 43
102	1000 Connectorized	2000	-60 / -74	-60 / -60	-62 / -58	30 / 17	30 / 28	27 / 26	14 / 6	12 / 15	9 / 14	79 / 23	28 / 51	14 / 52
102	1000 Connectorized	1000	-62 / -75	-63 / -62	-61 / -64	32 / 22	34 / 36	34 / 33	15 / 10	14 / 13	11 / 11	77 / 26	51 / 41	20 / 41
106	Force 200	2000	-58 / -70	-58 / -55	-56 / -50	32 / 19	32 / 38	32 / 36	9 / 9	14 / 14	14 / 15	48 / 37	79 / 57	67 / 54
106	Force 200	1000	-59 / -72	-59 / -56	-57 / -59	35 / 24	38 / 40	37 / 39	13 / 11	15 / 12	15 / 11	60 / 27	75 / 41	62 / 33
107	Force 180	2000	-60 / -66	-59 / -55	-58 / -55	31 / 27	31 / 38	31 / 36	12 / 10	11 / 13	9 / 10	79 / 39	36 / 50	65 / 43
107	Force 180	1000	-62 / -68	-61 / -61	-61 / -61	32 / 29	36 / 37	35 / 35	15 / 11	12 / 15	14 / 12	73 / 41	36 / 38	53 / 35
108	1000 Connectorized	2000	-67 / -79	-67 / -66	-67 / -64	24 / 15	23 / 26	22 / 27	12 / 9	11 / 6	10 / 11	49 / 22	31 / 52	16 / 44
108	1000 Connectorized	1000	-66 / -81	-66 / -67	-65 / -66	28 / 17	31 / 31	29 / 31	14 / 10	14 / 12	12 / 12	65 / 12	67 / 44	35 / 24
111	Force 180	2000	-61 / -67	-61 / -55	-58 / -56	30 / 26	29 / 34	30 / 36	10 / 11	10 / 7	9 / 10	77 / 34	42 / 48	54 / 39
111	Force 180	1000	-62 / -68	-65 / -63	-65 / -61	31 / 29	32 / 35	31 / 35	15 / 12	13 / 11	10 / 10	65 / 40	43 / 42	59 / 32
112	Force 180	2000	-67 / -72	-71 / -64	-67 / -65	22 / 21	20 / 28	21 / 27	12 / 9	10 / 11	10 / 10	54 / 19	15 / 21	41 / 43
112	Force 180	1000	-68 / -73	-69 / -68	-68 / -70	26 / 24	30 / 31	27 / 29	12 / 11	12 / 12	12 / 11	41 / 25	35 / 26	34 / 15
113	Force 180	2000	-66 / -70	-68 / -62	-64 / -63	25 / 22	23 / 29	24 / 32	13 / 13	12 / 12	12 / 12	49 / 35	29 / 35	46 / 39
113	Force 180	1000	-66 / -73	-68 / -68	-67 / -67	28 / 24	29 / 32	29 / 28	13 / 11	14 / 12	14 / 12	61 / 27	53 / 42	56 / 27
115	Force 200	2000	-68 / -79	-71 / -65	-69 / -65	22 / 15	20 / 29	19 / 27	10 / 10	2 / 12	10 / 5	47 / 11	3 / 28	23 / 38
115	Force 200	1000	-67 / -81	-66 / -67	-66 / -65	27 / 15	30 / 30	29 / 31	14 / 9	9 / 12	13 / 12	71 / 10	19 / 42	34 / 27
118	Force 180	2000	-63 / -70	-66 / -63	-64 / -63	27 / 23	26 / 33	24 / 30	15 / 10	3 / 4	11 / 4	65 / 27	16 / 24	45 / 24
118	Force 180	1000	-66 / -72	-66 / -68	-67 / -69	28 / 26	30 / 30	30 / 28	14 / 12	14 / 12	14 / 11	67 / 31	34 / 41	48 / 22
126	Force 200	2000	-60 / -74	-60 / -56	-58 / -57	30 / 19	28 / 35	30 / 34	14 / 10	12 / 7	13 / 6	81 / 33	53 / 55	63 / 49
126	Force 200	1000	-62 / -72	-60 / -59	-61 / -60	32 / 22	37 / 37	34 / 36	15 / 10	14 / 12	15 / 12	75 / 25	64 / 43	68 / 41

Medium (800 bytes) @ 10 seconds

ePMP 2000 AP

Ant: Cambium 90/120 degree	**Ant Gain:** 18 dBi	**Xmit:** 18 dBm	**Width:** 20 Mhz	**Downtilt:** 7 mech

ePMP 1000 AP

Ant: RF Elements SEC-CC-5-17	**Ant Gain:** 17 dBi	**Xmit:** 19 dBm	**Width:** 20 Mhz	**Downtilt:** 8 mech

ePMP 2000 Screen Grabs:
Frequency 5240

IP Address	Device Name	SM Distance (miles)	Session Time (hh:mm:ss)	RSSI (dBm) Downlink / Uplink	SNR (dB) Downlink / Uplink	MCS Downlink / Uplink	Downlink Quality	Downlink Capacity	MIR Profile	MIR Rate (kbps) Downlink / Uplink	Antenna Selected
.101		1.77	00:02:15	-62 / -66	28 / 30	15 / 12	97%	90%	0	100000 / 100000	V-18° H-17°
.102		2.887	00:03:50	-60 / -71	30 / 23	15 / 13	100%	100%	0	100000 / 100000	V 17° H 17°
.106		1.583	00:01:54	-58 / -68	32 / 26	15 / 10	100%	100%	0	100000 / 100000	V 8° H 8°
.107		1.77	00:02:06	-59 / -61	31 / 33	9 / 10	100%	20%	0	100000 / 100000	V -4° H -3°
.108		3.26	00:03:22	-65 / -77	25 / 17	11 / 1	100%	40%	0	100000 / 100000	V 19° H 17°
.111		1.49	00:02:16	-59 / -63	31 / 31	9 / 10	100%	20%	0	100000 / 100000	V-11° H-10°
.112		2.328	00:02:05	-67 / -69	23 / 26	12 / 9	100%	60%	0	100000 / 100000	V-21° H-15°
.113		2.421	00:02:03	-66 / -67	24 / 25	14 / 4	94%	80%	0	100000 / 100000	V-18° H-15°
.115		2.794	00:03:47	-68 / -77	22 / 15	12 / 5	100%	60%	0	100000 / 100000	V -4° H -8°
.118		1.862	00:02:05	-62 / -67	28 / 28	9 / 10	100%	20%	0	100000 / 100000	V-11° H -8°
.126		1.583	00:02:11	-60 / -70	30 / 25	14 / 5	100%	90%	0	100000 / 100000	V 17° H 17°

Device Instant Health	Detecting Device Info			Interferers' Info			
	Device MAC	Device RSSI (dBm)	Device MCS	Interferers' MAC	Interferers' SSID	Interferers' RSSI (dBm)	Interferers' Max MCS
🟢	107	-59	MCS-14				0x00
🟢	115	-68	MCS-12				0x00
🟢	108	-66	MCS-9				0x00
🟢	111	-59	MCS-9				0x00
🟢	101	-62	MCS-14				0x00
🟢	126	-59	MCS-15				0x00
🟢	107	-60	MCS-9				0x00
🟠	112	-69	MCS-12	22:86:8C:DE:1C:BC 32:86:8C:DE:1C:BC 10:86:8C:DE:1C:BC	xfinitywifi BagInnWiFi	-84 🟠 -85 🟠 -85 🟠	LEG-6
🟢	118	-62	MCS-9				0x00
🟢	113	-64	MCS-13				0x00
🟢	106	-57	MCS-15				0x00
🔴	ePMP 2000 AP	-68	MCS-0	10:86:8C:DE:1C:BC 32:86:8C:DE:1C:BC 22:86:8C:DE:1C:BC 8A:15:54:A8:65:16 8E:15:54:A8:64:D0	BagInnWiFi xfinitywifi unknown unknown	-70 🔴 -71 🔴 -72 🔴 -84 🟠 -85 🟠	LEG-6

ePMP 1000 Screen Grabs:

Frequency 5240

IP Address	Device Name	SM Distance	Session Time (hh:mm:ss)	RSSI (dBm) Downlink / Uplink	SNR (dB) Downlink / Uplink	MCS Downlink / Uplink	Downlink Quality	Downlink Capacity
.101		2.049	17:03:12	-65 / -70	29 / 27	14 / 12	97%	90%
.102		3.167	17:02:22	-62 / -75	32 / 22	15 / 11	100%	100%
.106		1.676	17:02:31	-59 / -73	35 / 24	14 / 1	100%	90%
.107		1.955	17:02:01	-63 / -68	31 / 31	15 / 11	100%	100%
.108		3.446	17:00:35	-66 / -81	28 / 15	14 / 9	98%	90%
.111		1.77	17:00:32	-63 / -68	31 / 29	15 / 12	100%	100%
.112		2.421	16:59:41	-68 / -73	26 / 24	12 / 9	100%	60%
.113		2.608	16:57:52	-66 / -73	28 / 24	14 / 11	97%	90%
.115		2.794	16:57:28	-68 / -81	26 / 15	14 / 2	97%	90%
.118		2.142	16:57:55	-65 / -73	29 / 25	14 / 11	100%	90%
.126		1.862	16:57:59	-62 / -76	32 / 22	15 / 4	97%	100%

Device Instant Health	Detecting Device Info			Interferers' Info			
	Device MAC	Device RSSI (dBm)	Device MCS	Interferers' MAC	Interferers' SSID	Interferers' RSSI (dBm)	Interferers' Max MCS
🟢	101	-66	MCS-15				0x00
🟢	106	-58	MCS-14				0x00
🟢	102	-62	MCS-15				0x00
🟢	107	-62	MCS-15				0x00
🟢	108	-65	MCS-14				0x00
🟢	111	-63	MCS-15				0x00
🟢	112	-68	MCS-12				0x00
🟢	126	-62	MCS-15				0x00
🟢	118	-65	MCS-14				0x00
🟢	113	-67	MCS-14				0x00
🟢	115	-68	MCS-15				0x00
🔴	ePMP 1000 AP	-72	MCS-0	10:86:8C:DE:1C:BC 22:86:8C:DE:1C:BC 32:86:8C:DE:1C:BC	BagInnWiFi xfinitywifi	-79 -80 -81	LEG-6

ePMP 2000 Screen Grabs:
Frequency 5805

IP Address	Device Name	SM Distance	Session Time (hh:mm:ss)	RSSI (dBm) Downlink / Uplink	SNR (dB) Downlink / Uplink	MCS Downlink / Uplink	Downlink Quality	Downlink Capacity
.101		1.862	00:09:06	-64 / -57	27 / 34	12 / 14	94%	60%
.102	zz	2.98	00:09:06	-62 / -60	29 / 30	14 / 12	100%	40%
.106		1.397	00:09:14	-58 / -54	33 / 39	13 / 13	100%	80%
.107		1.955	00:09:09	-61 / -56	30 / 39	9 / 13	100%	30%
.108		3.446	00:08:32	-69 / -63	22 / 30	11 / 11	100%	40%
.111		1.397	00:09:18	-60 / -56	31 / 39	11 / 11	81%	60%
.112		2.235	00:09:04	-72 / -64	19 / 29	10 / 1	71%	40%
.113		2.608	00:09:10	-68 / -64	23 / 31	11 / 12	100%	40%
.115		2.7	00:08:40	-71 / -65	20 / 29	9 / 11	50%	20%
.118		1.862	00:09:16	-65 / -62	26 / 32	12 / 11	50%	40%
.126		1.583	00:09:24	-60 / -56	31 / 38	12 / 14	100%	60%

Device Instant Health	Detecting Device Info			Interferers' Info			
	Device MAC	Device RSSI (dBm)	Device MCS	Interferers' MAC	Interferers' SSID	Interferers' RSSI (dBm)	Interferers' Max MCS
🟢	126	-60	MCS-13				0x00
🟢	111	-61	MCS-9				0x00
🟢	106	-57	MCS-6				0x00
🟢	113	-68	MCS-11				0x00
🟢	107	-60	MCS-9				0x00
🟢	101	-64	MCS-12				0x00
🟢	118	-65	MCS-10				0x00
🔴	112	-71	MCS-4	5E:7A:8A:15:13:14 3C:7A:8A:15:13:14 4E:7A:8A:15:13:14	goldlake xfinitywifi	-69 -70 -71	LEG-6
🟢	102	-62	MCS-10				0x00
🟢	108	-69	MCS-9				0x00
🟢	115	-70	MCS-3				0x00
🔴	ePMP 2000 AP	-61	MCS-0	00:0D:67:93:B2:9B 00:0D:67:93:B2:99 00:0D:67:93:B2:9A 00:0D:67:93:B2:A0 00:0D:67:82:0B:69 00:0D:67:82:0B:70 7E:8F:E0:41:C2:85 00:0D:67:8B:86:D1 00:0D:67:93:AE:75	CableWiFi XFINITY xfinitywifi XFINITY XFINITY XFINITY	-68 -69 -70 -71 -72 -73 -76 -79 -82	LEG-6

ePMP 1000 Screen Grabs:

Frequency 5805

IP Address	Device Name	SM Distance	Session Time (hh:mm:ss)	RSSI (dBm) Downlink / Uplink	SNR (dB) Downlink / Uplink	MCS Downlink / Uplink	Downlink Quality	Downlink Capacity
.101		1.77	00:09:16	-66 / -66	31 / 32	11 / 12	88%	80%
.102	zz	3.167	00:09:15	-63 / -61	34 / 32	12 / 14	100%	60%
.106		1.583	00:09:24	-59 / -56	38 / 40	15 / 12	100%	100%
.107		1.862	00:09:19	-62 / -62	35 / 36	6 / 12	88%	80%
.108		3.632	00:09:01	-67 / -67	30 / 31	15 / 12	97%	90%
.111		1.77	00:09:29	-62 / -62	35 / 35	15 / 11	100%	90%
.112		2.421	00:09:15	-68 / -67	29 / 29	12 / 5	92%	60%
.113		2.515	00:09:20	-68 / -65	29 / 31	15 / 12	97%	80%
.115		2.98	00:09:10	-67 / -66	30 / 32	13 / 12	37%	100%
.118		2.142	00:09:19	-67 / -65	30 / 31	11 / 12	71%	90%
.126		1.676	00:09:35	-61 / -59	36 / 38	15 / 13	94%	100%

Device Instant Health	Detecting Device Info			Interferers' Info			
	Device MAC	Device RSSI (dBm)	Device MCS	Interferers' MAC	Interferers' SSID	Interferers' RSSI (dBm)	Interferers' Max MCS
🟢	126	-61	MCS-14				0x00
🟢	111	-65	MCS-14				0x00
🟢	106	-59	MCS-15				0x00
🟢	113	-67	MCS-14				0x00
🟢	107	-62	MCS-11				0x00
🟢	118	-70	MCS-3				0x00
🟢	101	-67	MCS-13				0x00
🟢	102	-62	MCS-12				0x00
🔴	112	-69	MCS-12	5E:7A:8A:15:13:14 4E:7A:8A:15:13:14 3C:7A:8A:15:13:14	xfinitywifi goldlake	-71 -71 -72	LEG-6
🟢	115	-68	MCS-14				0x00
🟢	108	-66	MCS-14				0x00
🟠	ePMP 1000 AP	-64	MCS-0	00:0D:67:93:B2:9B 00:0D:67:93:B2:9A 00:0D:67:82:0B:6A	CableWiFi xfinitywifi xfinitywifi	-77 -79 -81	LEG-6

ePMP 2000 Screen Grabs:
Frequency 5825

IP Address	Device Name	SM Distance	Session Time (hh:mm:ss)	RSSI (dBm) Downlink / Uplink	SNR (dB) Downlink / Uplink	MCS Downlink / Uplink	Downlink Quality	Downlink Capacity
.101		1.676	00:15:45	-62 / -59	26 / 34	12 / 13	100%	60%
.102		2.887	00:03:37	-62 / -64	26 / 28	1 / 11	57%	30%
.106		1.49	00:15:53	-56 / -51	32 / 36	15 / 15	92%	100%
.107		1.955	00:15:48	-57 / -54	31 / 38	14 / 11	100%	80%
.108		3.353	00:15:13	-67 / -67	21 / 27	4 / 3	100%	20%
.111		1.583	00:15:58	-60 / -56	28 / 37	13 / 11	80%	80%
.112		2.328	00:14:57	-68 / -63	20 / 28	10 / 11	100%	30%
.113		2.421	00:15:49	-64 / -61	24 / 30	12 / 12	94%	60%
.115		2.515	00:15:31	-68 / -65	20 / 26	10 / 4	100%	30%
.118		1.955	00:15:47	-63 / -58	25 / 33	12 / 10	100%	60%
.126		1.583	00:16:04	-58 / -57	30 / 36	13 / 12	100%	80%

Device Instant Health	Detecting Device Info			Interferers' Info			
	Device MAC	Device RSSI (dBm)	Device MCS	Interferers' MAC	Interferers' SSID	Interferers' RSSI (dBm)	Interferers' Max MCS
🟢	126	-58	MCS-13				0x00
🟢	111	-58	MCS-13				0x00
🟢	106	-55	MCS-14				0x00
🟢	113	-64	MCS-6				0x00
🟢	107	-58	MCS-14				0x00
🟢	118	-63	MCS-12				0x00
🟢	101	-62	MCS-13				0x00
🟢	115	-69	MCS-10				0x00
🟢	108	-67	MCS-4				0x00
🟢	112	-69	MCS-10				0x00
🔴	102	-61	MCS-9	BC:16:F5:9E:25:FF 6C:FA:89:19:F2:0F	unknown unknown	-63 -74	LEG-6
🟠	ePMP 2000 AP	-63	MCS-0	6C:FA:89:19:F2:0F BC:16:F5:9E:25:FF	unknown unknown	-74 -78	LEG-6

ePMP 1000 Screen Grabs:
Frequency 5825

IP Address	Device Name	SM Distance	Session Time (hh:mm:ss)	RSSI (dBm) Downlink / Uplink	SNR (dB) Downlink / Uplink	MCS Downlink / Uplink	Downlink Quality	Downlink Capacity
.101		1.955	00:10:14	-66 / -67	29 / 31	14 / 11	93%	90%
.102	zz	2.98	00:10:13	-62 / -65	33 / 33	11 / 12	100%	40%
.106		1.676	00:10:21	-58 / -58	37 / 39	14 / 12	100%	90%
.107		1.955	00:10:16	-60 / -63	35 / 35	14 / 12	100%	90%
.108		3.446	00:09:58	-65 / -66	30 / 27	12 / 13	100%	60%
.111		1.862	00:10:26	-63 / -65	32 / 33	14 / 11	100%	90%
.112		2.421	00:08:01	-67 / -67	28 / 28	7 / 5	89%	60%
.113		2.421	00:10:18	-67 / -67	28 / 31	14 / 12	95%	90%
.115		2.887	00:10:09	-67 / -68	28 / 27	14 / 13	99%	80%
.118		2.142	00:10:26	-68 / -70	27 / 28	14 / 12	95%	90%
.126		1.676	00:10:33	-62 / -62	33 / 35	15 / 12	100%	100%

Device Instant Health	Detecting Device Info			Interferers' Info			
	Device MAC	Device RSSI (dBm)	Device MCS	Interferers' MAC	Interferers' SSID	Interferers' RSSI (dBm)	Interferers' Max MCS
🟢	126	-60	MCS-15				0x00
🟢	111	-63	MCS-14				0x00
🟢	118	-67	MCS-14				0x00
🟢	106	-58	MCS-15				0x00
🟢	113	-67	MCS-15				0x00
🟢	107	-61	MCS-14				0x00
🟢	101	-64	MCS-13				0x00
🔴	102	-62	MCS-11	BC:16:F5:9E:25:FF 6C:FA:89:19:F2:0F	unknown unknown	-62 🔴 -72 🔴	LEG-6
🟢	115	-66	MCS-13				0x00
🟢	108	-65	MCS-12				0x00
🟢	112	-66	MCS-6				0x00
🔴	ePMP 1000 AP	-69	MCS-13	6C:FA:89:19:F2:0F	unknown	-79 🔴	LEG-6