

Performance Report – Cyfre 819 Wired Cellular Amplifier

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Tested Equipment

A revised version of the Cyfre 819 amplifier was tested for operation and signal gain. The [Shasta/CA-819 amp + MAK Mobile Accessory Kit](#) with the 5dBi magnetic mount antenna was the test kit.



This kit is quite nice – it contained three alternatives for power hookup (a direct wire 12-volt, a cig lighter 12-volt and an AC adaptor). It also contained case, and the antenna. What was missing was the cable connecting the amp to the cellular device. I supplied my own, along with a FME

Male-TNC Male converter. The input/output connectors on the amp are TNC. Curiously, a TNC coupler was included. I'm told that is so the amp can be removed and the existing TNC cables used to connect just the antenna to the cellular device.

Test Location

The test was conducted in the mountains of central Colorado – the “front range” – at 8500'. The vehicle was driven away from the town of Woodland Park, into the Pike National Forest. This consisted of varied terrain, including mountain valleys with little cellular reception.

Test Environment



I tested this in a vehicle, and moved to various locations that I know have poor reception. The test vehicle was a Jeep Wrangler with a hardtop. The magnetic mount external antenna was mounted on the front of the hood. This is about 4' off the ground. While mounting in the center of the roof of the vehicle is technically a better location it is not possible with the mag mount antenna, since the Jeep roof is fiberglass. The location on the hood gave unobstructed 360 degree access to the cellular towers – but a higher location on the roof might have been better. The tested antenna in the picture is the white one on the left. I had what appears to be an identical antenna that I have used for some time. I tested with this (black) antenna and the results were the same. Both these antennas are rated at 5dBi – but in my experience perform far better than that. They actually outperform a Wilson Trucker that I have (the Wilson is rated at 6dBi gain).



An Asus Eee Netbook, the latest version of Verizon VZ Access Manager and a Verizon 727 cellular modem (aircard) was used to test signal at each location, and continuously along the route. Only 3G testing was done, since this amplifier is only for 3G networks.

Signal testing was done with a data device because (in my opinion) a wired amplifier is best used in conjunction with a cellular modem to improve data acquisition. Most modern phones no longer have rf antenna ports on them, so testing with a phone would not be typical use. If a wired amplifier is to be used with most phones then an inductive cradle or patch antenna connector would likely be used. Both of these compromise signal to some extent. To get a fair test of the amplifiers "raw" capability I wanted a device that was directly connected. Thus the use of the cellular modem.

In my opinion, for boosting voice in a mobile environment the wireless ["Traveller" mobile amplifier](#) that Maximum Signal sells is very effective, and is a better option than a wired amplifier. I previously tested that amplifier and the test report is downloadable from my website.

Signal levels were obtained directly from VZ Access Manager, and recorded along with the “bars” shown.

As a basis of comparison I also tested a Wilson wired amplifier.



Test Results

The test route was driven three times and the recordings averaged. Six stops were made and readings with and without the amplifier were recorded. Then the Wilson amplifier was connected to the same antenna and signal levels recorded. To connect the Wilson I had to remove the gender adaptor on the device cord (the Wilson amp is an FME) – which actually should have helped the Wilsons results.

It appears that VZ Access Manager “tops out” at -117, since I never saw a lower signal level. In any case, -117 is not a usable signal and no device connected at that level.

Stop	RSSI – no amp	Cyfre RSSI	Cyfre Gain	Wilson RSSI	Comments
1	-81	-52	29 dBi	-59	In town
2	-117	-79	38	-85	3 bars with Cyfre, 1 with Wilson
3	-117	-72	45	-86	Not sure why Wilson did not improve more.
4	-117	-81	36	-94	Deep in a mountain hollow; I would not have expected that much improvement.
5	-117	-84	33	-89	
6	-117	-91	26	-117	Far into the National forest. This is a big difference between the Cyfre and Wilson. And the only time the Wilson was not usable.

Conclusion

The Cyfre showed very impressive signal gains. With a better antenna I might have been able to get a signal even deeper into the forest than I tested. This is the first Cyfre I have tested against a Wilson that performed this much better than the Wilson – although in my testing the Cyfre has always (marginally) outperformed any Wilson amp I tested. Either they significantly improved the Cyfre technology, or perhaps this Wilson amp has seen better days. However, I did test at locations 2 and 3 with another Wilson amp I own and got comparable results. The Wilson was useable in all locations but 6, so it is not like it is doing nothing – but the Cyfre is clearly better in this test. Remember, an improvement of 3 dBi is an approximate doubling of signal.

Because VZAM's lowest (worst) reported signal is -117 dBi there is no really accurate way to tell how much signal gain I was really getting, but it was at least the amount in the "gain" column.

More pictures and commentary are in my [Picasa Album](#).