

# After Exercise Report

**Exercise:** Power Down Radio Test, 30 January 2024

**Op:** Joe, KF7MIX

## Summary

The goal was to operate JS8Call with no external power (battery only) for as long as possible, communicating two-way with members of the group throughout the test (balance of RX and TX, messages and longer transmissions, not just HB or SNR). I ran on 40m starting around 7am and going til about 5pm when I had to leave. I used my LifePo4 batteries and a Li-ion to run the radios, and recharge the laptop as needed. When I finished, my laptop battery still had about 45min on the final charge, and the battery running my QRP radio at that time was full (I could have continued to operate voice for quite a long time I believe).

My FTdx10 draws 3A on RX, according to the manual, and up to 23A on TX (100W); I did not use it for this test, but would probably use it in an emergency when operating voice. The G90 draws 500-650mA on RX, and I believe 3-4A on full-power TX (20W). The uSDX is 60-80mA in RX, and 500mA on TX. In this test I only operated the G90 (at 10W) and the uSDX (at 3W). Both operated excellently, and even with the power difference they both had the same results in terms of reach (checked on pskreporter throughout the test).

## Equipment

- 12.8v 20Ah LifePo4 battery
- 12.8v 4Ah LifePo4 battery
- 5v 25Ah Li-ion battery pack (with 5v->12v adapter for uSDX)
- T410 laptop (wifi off, backlight low)
- G90 (10w PO, screen mostly off)
- uSDX with ATU-10 (3w PO, backlight off)

## Outcome

Through the test, I found a few things I could improve or fix. I also found that running QRP on the uSDX was extremely power efficient on the radio side of things, and the results were very good. For anyone in the states surrounding me, I believe it would work well. For reaching HQ, I'd probably go with the G90 or the dx10 in an emergency, though I'll test on the uSDX so I know if it will work or not.

I'll be working on increasing capacity and efficiency, and resolving some equipment issues.

## Log & Additional Materials

07:05 NOTE Set to 40m, @HB off	11:25 TX SNR? to KE0DHO RESP from KE0DHO
07:08 NOTE Switched to battery power (T410 on internal battery, G90 on 4Ah)	11:40 TX MSG to KE0DHO RESP from KE0DHO
07:11 TX MSG to @HERC RESP from W7HLM	11:43 TX RESP to @HERC W0BYU
07:52 TX RESP to N6CYB MSG	12:01 TX SNR? to W6TAB RESP from W6TAB
08:01 TX SNR? to @HERC RESP from W7HLM, N0WKZ, KD0YXI, W0BYU, N0GES, K3DOC	12:20 NOTE Connected laptop car charger to 20Ah battery
08:05 TX RESP to @HERC K0EMP	12:21 NOTE shutdown G90 to use 20Ah battery for laptop charging. Switched to uSDX on 5v 25Ah battery. 3w PO.
08:12 TX RESP to @4SERC W6TAB MSG	12:24 TX SNR? to @HERC RESP from 10 stations
08:30 TX SNR? to N6CYB RESP from N6CYB	12:25 TX MSG to @HERC
08:31 TX MSG to N6CYB RESP from N6CYB	12:29 TX SNR? to N6CYB RESP from N6CYB
08:45 TX Manual @HB RESP from 6 stations	12:31 TX MSG to N6CYB RESP from N6CYB
08:53 TX RESP to @ERC KE0DHO	12:43 TX Manual @HB RESP from 6 stations
08:58 TX RESP to @HERC KF0DHO	12:54 TX HB RESP to KZ4AU
08:58 TX MSG to KE0DHO	12:55 TX HB RESP to KC0TAF
09:00 TX RESP to N6CYB MSG	12:58 TX HB RESP to N0KQX
09:05 NOTE Connected laptop car charger to 20Ah battery	13:01 TX RESP to N0WKZ MSG
09:12 TX SNR? to KE0DHO	13:04 TX QSO N0WKZ
09:12 NOTE 12v car laptop charger bringing noise into TXR. 10w PO folds to 6w. Disconnecting charger during TX)	13:09 TX QSO N0WKZ
09:14 TX SNR? to KE0DHO	13:31 TX SNR? to N0WKZ RESP from N0WKZ
09:15 TX SNR? to @HERC RESP from W7HLM, N6CYB, K0EMP, KE0DHO, KD0YXI, W0BYU, N0GES, K3DOC	13:32 TX MSG to N0WKZ
09:42 TX MSG to N6CYB RESP from N6CYB	13:53 TX SNR? to @HERC RESP from 8 stations
10:00 TX Manual @HB RESP from 7 stations	13:54 NOTE Disconnected laptop car charger from 20Ah battery
10:14 TX MSG to KF0LCJ	13:57 TX SNR? to KE0DHO RESP from KE0DHO
10:31 TX RESP to @HERC KF0LCJ	14:29 TX Manual @HB RESP from 6 stations
10:45 TX SNR? to KF0LCJ RESP from KF0LCJ	14:43 TX SNR? to AE0WM
10:52 NOTE Disconnected laptop car charger from 20Ah battery	14:58 TX SNR? to N6CYB RESP from N6CYB
10:57 TX SNR? to N6CYB RESP from N6CYB	15:00 TX MSG to N6CYB
10:58 TX MSG to N6CYB	15:02 RE-TX MSG to N6CYB
11:00 RE-TX MSG to N6CYB RESP from N6CYB	15:03 TX SNR? to N6CYB
11:05 TX RESP to @HERC N0N	15:28 TX SNR? to KC7HTK
11:20 TX SNR? to KE0DHO	15:30 TX SNR? to @HERC RESP from 8 stations
11:20 NOTE After about 4.5hrs mixed use 4Ah battery no longer charged enough for TX draw (still working for RX). Probably enough current to run uSDX but I don't have the right adapter.	15:31 NOTE Connected laptop car charger to 20Ah battery
11:25 NOTE Connected G90 to 20Ah battery	15:43 NOTE Enabled @HB network due to need to leave station
	16:38 NOTE 20Ah battery no longer able to charge laptop
	16:45 NOTE Shutdown station and return to normal operation, ~45min left on battery according to OS, much longer left on the battery powering the uSDX (it still showed full bars)