After Launch Report ALP40-Charlie

What We Know

- The launch went as planned at the Boulder City Dry Lake Bed; however the assumption was made that if the activity light on the U4B was acting normally, then it was OK to launch. Shortly after launch CW from the balloon was heard on 28.022 MHz, but not decoded.
- Sadly, a check of the LU7AA website did not show any WSPR reception from the balloon nor was there any reception at the QTH of Tom, KB7HTA.
- There was however CW reception from the balloon during the day. As expected the CW stopped at 1950 PDT (sundown) near Ely, NV, when the payload was no longer powered.
- The timing and decoding of the CW transmissions provided some clues as to what was going on.
    - The transmissions occurred at 10, 20, 30… after the hour, which was not consistent with the U4Bs planned programming.
    - The date, time, grid square (Shane, KG7QWH QTH), altitude and ground speed were all incorrect and static. The voltage was around 4400 mv and the U4B temperature was between 268 – 279 Kelvin.
- One day after launch there was still no WSPR transmissions received by the LU7AA website and no WSPR or CW received by Tom, KB7HTA.

Speculative Conclusions

- The CW transmissions at the wrong time would indicate a GPS hardware or software problem, like corruption.
- The incorrect/static location information would indicate a problem with the GPS hardware or corrupted software.
- The lack of WSPR transmissions would indicate a GPS hardware or software problem. WSPR requires the correct time to work properly.
- The U4B temperatures were consistent with the balloon being at 40,000’ or above.

- There is no reason to believe the balloon has come down to earth and is most likely still transmitting CW and could be received by the Reverse Beacon Network or some other Amateur Radio Operator.

Recommended Changes to the Payload and Prelaunch Procedures

- Add software/hardware to the U4B for a LED indication of a GPS lock and/or other indicators of proper operation
- Double check software the day of the launch, before breaking off the USB connector
- Make sure both CW and WSPR are received before going to the launch site and at the launch site, if possible