Organization Name

K7UAZ University of Arizona Amateur Radio Club

Project Name	K7UAZ Grant for Station Equipment Refresh
How many people did your ARDC funded project impact?	15 total club members: 12 students and 3 community members

Please share your results and anything else you would like us to know about your work.

Overall, the project was a great success. We applied for an ARDC grant with the purpose of improving student member access to amateur radio opportunities. We had two primary goals: (a) increase the amount and quality of equipment available for students to check out and (b) upgrade/replace existing equipment in our on-campus radio shack.

For (a), we constructed five portable radio kits for student members using grant funds. Each of these included all the equipment necessary to reliably check into the club's 2m repeater as well as use digital communication modes over the repeater. This included 2m transceivers, 2m yagis, radio soundcard interfaces, and external speakers. These kits have been a wild success among the students, who have been using them to check into our weekly net on the club repeater; experiment with digital modes such as PSK31, FT8, and Feld Hell over FM; and communicate long distance using 2m simplex. When our club expands in size, we plan on approaching ARDC for additional funding to purchase equipment for more of these kits. They have provided fantastic hands-on amateur radio experiences for our student members, most of whom would be otherwise unable to access such equipment due to its cost.

For (b), we replaced a wide variety of old and unreliable equipment in the shack using grant funds. This equipment went towards renovating both the HF station and the satellite station. Our HF station, which is used for worldwide communication on the HF amateur radio bands, was in dire need of a new rotor system, which was successfully integrated onto our HF tower on the roof of the Engineering Building (where our shack is located). Thanks to ARDC, we were able to completely renovate the satellite station, which we use to communicate through amateur radio satellites. Our satellite station had been out of commission for several years, but with the new transceiver, computer, power supply, rotors, and controller interface, it is now fully operational. Student club members are gaining a lot of experience while using the revamped satellite station that otherwise wouldn't have been possible without funding from ARDC.

Please describe any major changes to your project or budget.

The biggest change to our budget was the decision not to purchase lightning protection equipment. When submitting the grant, we initially envisioned implementing full lightning protection for our club station. After further discussion with more knowledgeable members of the amateur radio community, we decided that such protection is unnecessary. First and foremost, our station has yet to be experience lightning damage in the over 35 years that it has been in its current configuration. Lightning is not a major concern in our region (southeast Arizona), except for during the monsoon. Even then, the potential for lightning damage is low in comparison to the Midwest or Southeast US. We decided to leave the station ground floating relative to Earth, as opposed to connecting the HF tower to Earth. The latter may even have the unintended consequence of inviting lightning strikes if done improperly.

We repurposed this money in order to better flesh out our HF and satellite station renovations, as well as to purchase a couple accoutrements for the student station kits. In terms of new items, we purchased power supplies for both the HF and satellite transceivers; a rotor controller interface for the satellite station; and rotor cables. For the student stations, we purchased equipment to manufacture external speakers perfectly suited to our requirements; and we also included power distribution panels so the kit users wouldn't have to deal with a mess of cables. We also used leftover grant money to purchase most of a battery backup controller, the rest of which was paid for using club funds. This charge controller was part of an upgrade to our failing repeater backup power system, which allows us to use the repeater even when building power is out. The full details of our final expenses are included in the attached Excel spreadsheet.

<Photos were included in this final report but omitted from this public copy.>