

# The *Microvolt*

November, 2009



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UARC  
c/o Dick Keddington  
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Holladay, UT 84124-1632

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## Prologue

The Utah Amateur Radio Club was organized under its present name in 1927, although its beginnings may date back as early as 1909. In 1928, it became affiliated with the American Radio Relay League (club #1602) and is a non-profit organization under the laws of Utah. It holds a club station license with the call W7SP, a memorial call for Leonard (Zim) Zimmerman, an amateur radio pioneer in the Salt Lake City area.

**Meetings:** The club meets each month except July and August. The meetings are held on the second Thursday of the month at 7:30 PM in the University of Utah's Warnock Engineering Building in room 1230.

**Membership:** Club membership is open to anyone interested in amateur radio; a current license is not required. Dues are \$17 per year, including a *Microvolt* subscription. *The Microvolt* and membership cannot be separated. Those living at the same address as a member who has paid \$17 may obtain a membership without a *Microvolt* subscription for \$9. Send dues to the Club Secretary: Dick Keddington, KD7TDZ, 1933 Woodside Drive, Holladay, UT 84124-1632.

**Contributions:** Monetary contributions are gladly accepted. Send directly to the Club Treasurer: Chuck Johnson, 1612 W. 4915 S. Taylorsville, UT 84123-4244. For in kind contributions, please contact any board member to make appropriate arrangements.

**Repeaters:** UARC maintains the 146.62- and 146.76- repeaters. The repeaters are administered by the UARC Repeater Committee. Comments and questions may be directed to any Committee member. The Lake Mountain repeater (146.76-) is IRLP node 3352. Instructions for IRLP use are on the club website.

**Ham Hot-Line:** The Utah Amateur Radio Club (UARC) has a Ham Hotline, 583-3002. Information regarding Amateur Radio can be obtained, including club, testing, meeting, and membership information. If no one answers leave your name, telephone number and a short message on the answering machine, and your call will be returned.

**Publication:** *The Microvolt* is the official publication of the club. Deadline for submissions to *The Microvolt* is the 24th of each month prior to publication. Submissions by email are preferred (uarc@xmission.com), but other means including diskettes and typewritten submissions can be mailed directly to: Gordon Smith, 632 University St., Salt Lake City, UT 84102-3213. All submissions are welcome but what is printed and how it is edited are the responsibility of the Editor and the UARC board. Reprints are allowed with proper credits to *The Microvolt*, UARC, and authors. Changes in mailing address should be communicated to the Club Secretary: Dick Keddington, 1933 Woodside Drive, Holladay, UT, 84124-1632.

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Engineer: Randy Finch, K7SL	801 556-7565
ATV Engineer: Clint Turner, KA7OEI	801 566-4497
Board Liaison &	
Autopatch Engineer: Gordon Smith, K7HFV	801 582-2438
Provo Autopatch Host &	
ATV Engineer: Dale Jarvis, WB7FID	801 224-3405

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## IRLP Information

For information on using the club's IRLP node on the 146.76 repeater, check <http://www.utaharc.org/irlp>.

For late breaking news listen to the UARC Information Net Sundays at 21:00 on 146.62 or set your browser to:  
[www.xmission.com/~uarc/announce.html](http://www.xmission.com/~uarc/announce.html)

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## The Microvolt

The Official Publication of the Utah Amateur Radio Club, Salt Lake City, Utah  
Volume 52, Issue 10, November 2009

### November Meeting: Amateur Microwave

Have you operated the high frequencies? We mean the *really* high frequencies? Like up above 1000 MHz? If not, the coming UARC meeting may be a chance to find out what it's like.

Thursday, November 12, is the date of the next UARC meeting, and the program will be presented by the local microwave group. (More about the group at <http://groups.yahoo.com/group/utahmicrowave/> ) Learn about mountaintop expeditions to set new distance records, making an antenna with 40 dB of gain or more, and communicating on a light beam.

What bands are available? What does it cost to get started? How hard is it to build your own equipment? What does it take to compete in the Microwave contests? The group will be answering these types of questions and showing off the commercial and home-built gear.

November is also the month for nominations for 2010 officers. Please help choose people to lead the club in the coming year, or even volunteer to run for office yourself. Nominations will be accepted from the floor both before and after presentation of the names found by the Nominating Committee.

Meetings are now on the *second* Thursday of each month, so the coming meeting will be Thursday, November 12, at 7:30 P.M. Our meetings during the Fall semester are being held in room 1230 of the Warnock Engineering Building on the University of Utah campus. Our traditional parking on the east side of the building is blocked off for construction, so recommended parking is near the southeast corner of the Merrill Engineering Building lot. Go south along the east side of Merrill, then go in the north door of Warnock. For a map and directions for finding the building, check the club web site at [http://www.xmission.com/~uarc/ablip\\_meetmap.html](http://www.xmission.com/~uarc/ablip_meetmap.html) .

Of course, the meeting will include the “standard” meeting features:

- Availability of ARRL books from Fred, the “book lady”
- An opportunity to join UARC or renew your membership
- An opportunity to join ARRL or renew your membership
- The chance to meet face-to-face the people you talk to on the air
- The “Meeting after the meeting”: A chance to enjoy pizza or other gastronomic delights with other hams. It happens at Litza's Pizza, 716 E. 400 South.
- The “Meeting *before* the meeting”: A similar get-together for those who can leave work early enough to get there by 5:15 P.M. The November get-together will be at “Crown Burger,” 377 E. 200 South in Salt Lake City.

## Latest News

### Our Cover: '62 Linked System

Our cover this month shows two photos taken from some of the trips to repeater sites to get the new 146.62 MHz synchronous pair running. The system involves two repeaters at different mountaintops using the same frequency pair and linked together.

The main photo shows the receiver site on Farnsworth Peak. UARC President John Hardy, K7ALA, is on the tower installing a new receiving antenna. Clint Turner, KA7OEI, designer of the synchronous system, is on the ground. The inset photo is from an October 10 trip to the other repeater site, Scott's Hill, to install the repeater there. Standing in front of the new repeater are (l. to r.) Bruce Bergen, KI7OM; Clint Turner, KA7OEI; Gordon Smith, K7HFV; and John Hardy, K7ALA.

The new repeater extends the '62 coverage to include areas east of the Wasatch including Park City, Midway, Coalville, and even a hot spot in Evanston, Wyoming.

The "synchronous" linked pair was conceived over 11 years ago when Bruce Bergen, KI7OM, first made arrangements for UARC to acquire a lease for the Scott's Hill site, northwest of Brighton.

A package of two repeaters with overlapping coverage operating on the same frequency pair has been used in commercial service for years, but this could be the first instance of such a system in amateur radio. It requires that a "voter" unit choose the best of the received signals from the two sites and send it to both transmitters. It also

requires that the frequencies of the two transmitters be held to tight tolerances.

This spring, a new, simplified scheme for meeting these criteria was conceived. Clint designed and built most of the custom electronics required. Others helped by building 70-cm cavities, packaging electronic boards, getting the Scott's building in usable condition, modifying power supplies, building antenna brackets and antennas, and mounting antennas.

Final installation of equipment on the Scott's Hill site was done Saturday, October 10. Installation on Farnsworth started Friday, October 16 and continued through the 17<sup>th</sup> and 18<sup>th</sup>. Finally a trip to the Scott's site in the wee hours of the 19<sup>th</sup> was necessary to correct a squelch-setting problem.

The system is now up and working. There may be a chance for some fine tuning before snow makes access to the sites difficult. More tuning and enhancement are likely next year, but the system is fully usable as it stands. For more information see [http://utaharc.org/rptr/synchronous\\_62.html](http://utaharc.org/rptr/synchronous_62.html).

### Web Site Gets New Look

Those who visit the club website at <http://www.utaharc.org> have probably noticed a new look complete with an animated key sending...well, we'll leave the text as an exercise for the viewer. The new design was created by Gary Wong, AB1IP. Last spring we held a web design contest and Gary created the winning entry. It was also the only entry, but was still very nice. The club voted to incorporate it. UARC President John Hardy, K7ALA, recently applied the new design to all the most commonly accessed pages. Thanks to Gary and John!

## An HF Mobile Installation

**Installing the Yaesu FT-857D and Yaesu ATAS-120 Antenna for use on the MF/HF/VHF/UHF bands in a 2005 Toyota Tacoma Regular cab Pick-up.**

**By Noel Ladle, KC7DWL**

After obtaining my General License and setting up my base HF station in the basement, I wanted a mobile HF transceiver in my pickup.

After reviewing the available compact MF/HF/VHF/UHF transceivers currently on the market, I purchased the Yaesu FT-857D with the optional ATAS-120 motorized screwdriver antenna. The small remote control head just fit on the lower left hand area of the dash. Being left handed, this worked best for me.



The first task was to hook up the power cable to the truck battery. I secured the cable with plastic ties and used heat shrink sleeves on each lead for watertight connections. I placed the cable along the radiator then back to the passenger door. The cable was fished through the fender and around the door jamb into the cabin and placed under the plastic panel in the passenger foot well. It then went under the door sill and carpet to the floor behind the seat. I decided to use a Battery Booster since a recent article in *QST* reviewed

battery boosters and pointed out that the voltage from the vehicle's battery would drop, while transmitting, to as low as 11 volts.



I chose the MFJ Battery Booster. The booster keeps the voltage to the transceiver at 13.8 ( $\pm 0.2$ ) volts as measured on the FT-857D's display. The power cable was wired to the input and output connectors of the booster, then to the transceiver. The unit was mounted to the left of the transceiver with sheet metal screws. I fed RF from the radio's antenna line to a "T" connector attached to the unit. This automatically boosts the voltage only when the high current demand of transmitting is required.

The transceiver was mounted with sheet metal screws into a horizontal brace on the back of the cab. A good ground was obtained with the mounting screws screwed into the truck frame. A diplexer was mounted close to the unit to accommodate using both MH/HF and VHF/UHF antenna inputs. The microphone holder and an auxiliary speaker were mounted high behind the



driver. The control head's mounting bracket was attached with small screws over several small plastic knock-outs. The control head is snapped in place over the mounting bracket.



The control head cable was snaked back through the dash, then down and under the driver's door sill protector to behind the seat and attached to the transceiver.



The antenna base was screwed tight to a steel bracket which was secured with heavy screws to the inside of the truck bed to secure a good ground, and leaving room for the tailgate to close. The ATAS-120 antenna is screwed finger tight on to the mounting base.

The antenna cable was attached to the outside of the aluminum camper shell with clips and run forward to the cab. It then went down between the cab and the truck bed and entered the cabin at the bottom rear of the driver's door.

Tuning the antenna is done by selecting the band you wish to use, then pushing the tune button on the control unit. The transmitter will automatically be activated, a carrier will be sent, and the antenna will go up or down for the best SWR. The antenna can be "parked" all the way down for travel using the manual tuning procedure.

So far I have made contacts on 20 & 40 meters with this radio. I enjoyed several QSOs in Grand Teton National Park this spring. This installation was enjoyable to do and required only a small battery-powered drill to drill and screw the units into place.



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## Member of the Month

### Carol Quist, KE7HDA

By Linda Reeder, N7HVF

This month we are featuring Carol Quist, KE7HDA. Carol received her Technician license in March of 2006. Carol and her husband William decided to take the amateur radio class that was being offered at Welfare Square because she is involved in emergency preparedness. Carol said her favorite thing about amateur radio is assisting others in emergencies.

One day she reported a car in the middle of a driveway in a parking lot. Carol also likes the idea of being able to check in with her husband by way of amateur radio.

Carol has been interested in radio in a different way: she enjoys radio and television production. Carol attended Stanford University in northern California where she obtained her Bachelor of Arts degree in radio and television production with a minor in German and French. After getting that degree she worked at KGO radio in San Francisco as a production assistant. Later she worked at KUTV Channel 2 in Salt Lake City. She worked there until she and her husband decided to start a family.

They have four boys who are all grown now. Their eldest son had a brain tumor and passed

away in 2005. Carol and William have 15 living grandchildren. Three of their grandchildren have passed away.

Carol and her family have lived in eight different states because of her husband's work in engineering. They even lived outside of the United States for two years. When they moved back to the United States and their sons were in college, Carol went back to college. She obtained her Masters degree in women's history literature at the University of Utah. Carol has taught for several years at the Salt Lake City Community College. Carol now works for *Sunstone Magazine* as an Associate Editor. She has been working for *Sunstone Magazine* for 16 years.

Carol is a professional writer. She writes short stories, fiction and poetry. She has done translations of French and German short stories and poetry in to English. Carol has received several awards for her publications.

Carol is a member of UARC. Carol and her husband joined UARC right after they obtained their amateur licenses. She enjoys going to the UARC meetings with her husband.



Carol Quist, KE7HDA  
(Photo by K7RLS)

Carol, we wish you the best in all of your endeavors.

## **Examination Schedule**

11/04/09	(Wed.)	Clearfield	Mike Youngs, KK7VZ	(801) 573-3922
11/18/09	(Wed.)	Provo	Steve Whitehead, NV7V	(801) 465-3983
11/18/09	(Wed.)	St. George	Gary Zabriskie, N7ARE	(435) 674-2678
11/24/09	(Tue.)	Salt Lake City	Eugene McWherter, N7OVT	(801) 541-1871 <sup>1</sup>
11/30/09	(Mon.)	Ogden	Mary Hazard, W7UE	(801) 430-0306
12/05/09	(Sat.)	Salt Lake City	Gordon Smith, K7HFV	(801) 582-2438 <sup>1</sup>
12/12/09	(Sat.)	Logan	V.P. Rasmussen, N7JFG	(435) 770-0630
12/16/09	(Wed.)	Provo	Steve Whitehead, NV7V	(801) 465-3983
12/16/09	(Wed.)	St. George	Gary Zabriskie, N7ARE	(435) 674-2678
	(Tue.)	(Last Tuesday test in Salt Lake City omitted in December)		

<sup>1</sup> Preregistration required. Contact the indicated person.