



CHANGES TO ARRL VHF/UHF CONTEST RULES NOW IN PLACE

The League's Programs and Services Committee has approved recommendations made by the ARRL's VHF-UHF Advisory Committee (VUAC) <<http://www.arrl.org/contests/vuac.html>> to change two rules in the ARRL's VHF/UHF contest program. These changes are in effect immediately, and include the 2009 June VHF QSO Party, scheduled for June 13-15 <<http://www.arrl.org/contests/rules/2009/june-vhf.html>>.

The first change concerns the Limited Rover category. The ARRL Programs and Services Committee accepted the VUAC's proposal that Limited Rovers may now compete on only the four lowest frequency bands available for any given contest. For the January, June and September VHF Contests, this means 6 and 2 meters, as well as 222 and 432 MHz. For the August UHF Contest, this means 222, 432 and 902 MHz and 1.2 GHz. QSOs on other bands can be made by Limited Rovers, but they will not count toward the Limited Rover's score and will be considered a checklog. "We have already applied changes to the log-checking software that will adjust the Limited Rover's QSOs above the lowest four bands to zero-point QSOs," said ARRL Contest Branch Manager Sean Kutzko, KX9X.

The second change concerns the ARRL UHF Contest <<http://www.arrl.org/contests/rules/2009/uhf.html>>. For the first time, Kutzko said, the ARRL Awards Committee voted to add Club Competition to the UHF Contest, beginning in 2009. "This is something that the VHF/UHF community has been asking for quite some time," he explained. "The VUAC made their recommendations and the Awards Committee agreed. We hope to see VHF/UHF clubs across the country help increase participation and get involved with this fun contest."

According to Kutzko, these changes come on the heels of the redesign of the June VHF QSO Party Plaque Program. "In the past," he said, "plaques in the June VHF QSO Party have been awarded for first through tenth place in any category, regardless of location. As any VHFer will tell you, there are radical differences in propagation from one part of the country to another. We decided the plaque program needed to be based on Division, just like every other plaque program that the ARRL offers, not position in the standings."

Kutzko explained that the Programs and Services Committee agreed with this recommendation and voted in favor of it: "This change in structure recognizes the Division-level competition that takes place in the June VHF QSO Party, sometimes under conditions of little to no propagation."

June VHF QSO Party plaque sponsorships are available for all entry categories in all 15 ARRL Divisions, Canada, Mexico and DX. If you or your club is interested in sponsoring a plaque (\$75, including shipping charges), contact ARRL Contest Branch Manager Sean Kutzko, KX9X, via e-mail <[kx9x@arrl.org](mailto:kx9x@arrl.org)> and he will help you find a plaque that's right for you or your club to sponsor.



STATE OF TENNESSEE  
**PROCLAMATION**  
BY THE GOVERNOR

**WHEREAS**, amateur radio operators have been instrumental in serving the United States of America and the State of Tennessee in consistently providing behind the scenes support for our emergency response and other critical needs; and

**WHEREAS**, amateur radio provides excellent volunteer emergency communications for served agencies including: National Weather Service; Tennessee Emergency Management Agencies; Tennessee Department of Health; The American Red Cross; Central United States Earthquake Consortium and others in times of natural disasters and other emergencies; and

**WHEREAS**, Tennessee amateur radio operators have demonstrated this support over many decades. More specifically, in recent times the amateur radio community has responded to assist with communications emergencies related to hurricanes Katrina, Rita, Wilma, and Gustav. Amateur radio operators act as trained weather spotters who report during severe weather events across Tennessee, thereby assisting the National Weather Service with ground activity reports which can save lives. This year, as well as in years past, amateur radio operators have assisted during times of tornado, ice storms and flood emergencies, using their communications skills to assist in reporting the weather events, to assist in shelter operations and to be available during rescue and relief activities; and

**WHEREAS**, by continuous learning and experimentation, amateur radio operators have helped to forward the science of electronics and radio related communications; and

**WHEREAS**, by example, teaching and practical experience, including the opportunity to communicate with amateurs in space, amateur radio operators teach young people the opportunities available in radio and electronics;

**NOW, THEREFORE**, I, Phil Bredesen, Governor of the State of Tennessee, do hereby proclaim the week of June 21 - 27, 2009, as

## **AMATEUR RADIO WEEK**

in Tennessee and encourage all citizens to join me in this worthy observance.



**IN WITNESS WHEREOF**, I have hereunto set my hand and caused the official seal of the State of Tennessee to be affixed at Nashville on this 1st day of June, 2009.

Governor

Secretary of State



## **ARC Radio Room**

We have been offered a larger radio room that will be four times as large as our current room. We will need a crew for at least 8 hours to do the boring (please bring the fire caulk), placing of desks, checking aerials (could someone bring an antenna analyzer), rerunning of coax, painting (we will need pleasant colors) and clean-up (lots of dirt and spots). I would like this area to be very attractive so we can invite the media in for show and tell about amateur radio and how it can better serve our community. Before we start we will need a meeting of the minds to set down our floor plans and put the best ideas out for considerations. If we could locate any surplus communications desks all the same color with panels to be cut for radio installations, it would be sharp. We may need to put up additional antennas when we expand the usage of our radio room. We presently have 2- H.F... Radios and 2 V.H.F. radios in station. We could use U.H.F. and D-Star additionally and we will need the antennas to support them and the second H.F. radio location (We will need another work party for the installation). There is a large bulletin board in the room to keep us from having to put holes in the walls for posters and maps or frequency charts. There are several cabinets and chairs in this room that will need to be removed for the Red Cross. They may allow members to take the cabinet's home but I do not know about the chairs. We may want to ask for some of the chairs to remain in the radio room. Please contact myself, the board or attend the next meeting with your ideas. M. Rose 423-544-5857, 4040 Mtn. Creek Rd. Apt. 804, Chattanooga, Tn. 37415.

### **Getting the Most from Your Hand-Held Transceiver**

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Ed Harris, KE4SKY, Virginia State RACES Training Officer

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If repeaters are unavailable after a disaster and you are limited to simplex operation, a portable transceiver with its original flexible antenna is inadequate for emergency communications.

I started with a "handy-talkie" or "HT" when I first got my ham license. Today, as Virginia ARES / RACES training officer I recommend that new operators buy 2-meter mobile transceivers. They cost no more than a portable. Today's equipment is very compact, rugged and reliable. For portable operation, carry the mobile transceiver in a briefcase with a 17ah-gel cell battery and



telescoping 1/2 wave or magnetic-mount mobile antenna. Include 25 feet or more of coax to get the antenna up high, away from people. This arrangement may not work for everyone. Therefore, if all you have is a portable transceiver, the following will help you to make the most of it!

An "HT" makes perfectly good sense for:

- Anyone who doesn't drive;
- Commuters who use public transportation;
- Controlling a mobile radio as a cross-band repeater
- As a spare, a backup or loaner.

The National Institute of Science and Technology tested Public Safety "high-band" VHF and amateur 2-meter antennas. Flexible antennas commonly used on portable transceivers have negative gain compared to a quarter wave whip held at face level. This means that 5-watt portable VHF with stock antenna has an effective radiated power of only 1-watt. Placing the portable on your belt produces -20db of attenuation, reducing EIRP to 50 milliwatts! UHF results are no better...

"Rubber ducky" antennas are rubber covered helical springs, which are intended to withstand some rough handling, but they are not indestructible. Flexible antennas used on California fire lines for several weeks showed a 60% failure rate. Flexible antennas should be replaced annually or as soon as they show ANY apparent kinks, cracks, abrasion or other wear to visual inspection.

An effective expedient to improve a flexible antenna is to attach a counterpoise (19.5" long for the 2-meter band, or 6.5" for the 70 cm band) of stranded wire, crimped and soldered to a battery clip or ring terminal which will fit over the antenna connector. Reinforce the soldered connection with heat shrink to resist flex. When attached to the outer collar of the BNC connector or the antenna shield, the counterpoise prevents transmitted RF from coupling with your body. This enables it to perform like a center-fed dipole, instead of an "end-fed dummy load!" The main lobe of the radiation pattern can be "aimed" by, grasping and pointing the end of the counterpoise in the direction where you need a stronger signal.

Some after-market and home-made antennas perform much better than the standard helical "rubber duck." A J-pole antenna constructed of 300-ohm twin-lead rolls up and fits into your pocket. When thrown up in a tree, it increases both height and gain. Full-sized, flexible 1/4 wave and telescoping 2-wave antennas work very well.

A quarter wave provides unity gain when used with a counterpoise and held at face level. This represents a 5 dB improvement over a stock flexible antenna, because most of the effective signal is radiated. If operating from a vehicle, connect your portable to a magnetic mount mobile antenna to provide a clear RF path outside the vehicle. This overcomes the substantial attenuation, which results from operating a portable unit from inside a metal vehicle. Always carry suitable adapters



so that you can connect your portable transceiver to an outside base or mobile antenna, when one is readily available.

In marginal operating locations a telescoping, half-wave is much better, because it provides the same unity gain without a ground plane that a 1/4 wave antenna does when used with a ground plane. A 2-wave antenna can be pulled up into a tree, dangled out a window, attached to a window pane with suction cups, or be used bicycle or motorcycle mobile, or in city driving on a window clip mount. A telescoping half-wave increases useable simplex range of a typical 5 watt, 2-meter portable from about a mile with the stock flexible antenna to 3 miles or more, depending upon terrain. Adding a counterpoise to an efficient antenna enables a portable unit to keep in reliable contact within 5 miles of an EOC or base station equipped with an efficient antenna elevated on a tower.

Telescoping antennas are more fragile and work best when stationary or in the open, avoiding side impacts or rough handling. Avoid prolonged mobile use of telescoping antennas on window clip mounts at highway speed, because excessive flexing loosens their internal electrical connections. Never collapse a telescoping antenna by whacking it down with the palm of your hand. Gently pull it down with your fingers. If you note any wobbling or looseness, replace the antenna.

Flexible antennas are safer when working in close quarters around people and are more durable when walking through dense vegetation for wildfire suppression or search and rescue operations. They better for dual-band transceivers because telescoping antennas are usually mono-band. Dual-band flexible antennas approximate a 1/4 wave on 2 meters and a 5/8 wave on 70 cm, are optimized for one band and may resonate poorly on the other. How efficient a particular antenna is can be determined only by testing. A telescoping half-wave, or half-wave, dual-band-mobile antenna with magnetic mount, will work well either with or without a ground plane, and offer the best bang for the buck.

Any emergency antenna for your portable transceiver is rated to safely handle up to 25 watts of RF output. This enables it to be used as an expedient antenna for a mobile radio in portable operation, or to permit use of an external "brick" amplifier with the portable transceiver.

A magnetic mount works best on a car, but an improvised ground plane can almost always be found around the home or office, such as a metal filing cabinet, metal trash can, cookie sheet, rain gutter, refrigerator, window air conditioning unit, balcony railing or any other large metal object. On boats, motorcycles, fiberglass truck caps or wooden balcony railings use a half-wave antenna, which does not require a ground plane.

## **BATTERY POWER BASICS**

A common error of new ARES / RACES operators is failure to plan to carry enough battery power. Always carry at least one spare charged NiCd pack and AA battery case, which enables you to keep operating when the power goes off, if you can't recharge your NiCd pack.

Cycle and recharge dry NiCd packs monthly. Write the recharge date on a strip of tape on each



pack. In cold weather keep NiCd packs warm by keeping them in an inside coat pocket and not exposed on your belt.

An adapter cord to power your transceiver from an auto cigarette lighter plug or a gel cell battery is needed for extended operation. Cigarette lighter cords are often unreliable because auto sockets aren't the best conductors, due to contamination and size variations, which cause the plug to vibrate loose. As an alternate power source, you should still have one, because they are ubiquitous and in a pinch, much better than nothing!

Portable power packs such as Quantum are excellent, but expensive. We encourage our operators to make their own using 12-volt gel cell batteries obtained from local hospitals. Sealed lead-acid (SLA) batteries are used to power emergency lighting, alarm systems, medical instruments and computer backup power supplies. They are replaced on a fixed schedule, usually before they are worn out. Because SLA batteries require disposal as hazardous waste unless recycled or reused, a hospital donation to your CERT or ARES / RACES group reduces their disposal cost. Contact your local hospital and explain how SLA batteries they discard can support auxiliary emergency communications.

Donated SLA batteries must be inspected, recharged and load-tested. Any 12V batteries with an open circuit voltage (Voc ) of 12.8V or more are tested immediately and distributed for reissue, if OK. Batteries with Voc <12.8V are connected in parallel across a regulated 13.8V power supply. Those which are not accepting charge after 4 hours are discarded. Total charge time and current should not exceed 140% of battery capacity. Gel cells should never be recharged at over 14V due to gassing.

Reject batteries if their internal resistance exceeds an ohm, as determined by voltage drop divided by the current load in amps. Good batteries suitable for re-issue should not drop below 11.7V under a test load approximating AC,@ their amp-hour capacity, for 30 seconds or AC/5" for one minute.

A simple test load for small gel cells up to 20ah is a 50w, 12V-marine/RV bulb or automotive droplight. This equals about 3.8A, approximating a mobile radio on low power 5w transmit or a portable 2-meter hand held, plus a laptop PC and packet TNC. Using two bulbs and 'Y' adapter simulates mobile or brick amp at 25w RF output. This is a good test load for batteries to 30amp-hours. In a good battery, voltage drop stabilizes quickly, does not fall below 11.5V under load, and recovers quickly when the test load is removed.

## **STANDARD POWER CORD CONNECTORS**

Auxiliary power cords should follow the configuration shown in the ARRL ARES Resource Manual. Use twin lead, red-black AWG14 or AWG16 zip cord with Molex Series 1545, 2-pin polarized connectors and .093 pins. The female pins are assembled into the male plug, which is attached to the power source, and the male pins into the female receptacle, which is attached to the rig.

The plug, receptacle and pin set is rated for 8A continuous duty and costs \$0.99 from Radio



Shack, Part No. 274-222. Wiring is simple. The end of the two-conductor Molex plug in cross section resembles a little 2-story house with peaked roof. Remember proper polarity by the word associations red roof and black basement, or pointy positive and flat black. Crimp wires before soldering to ensure a strong connection. After inserting the pins into the plug and receptacle, check fit of the assembled fitting. Reinforce the wires behind the plug and receptacle with heat shrink or tape. On the battery ends attach crimp type female tab terminals to fit the male tabs on the battery.

It is recommended that you rig two sets of cords directly to your car battery to power your portable or mobile radio, and laptop computer, if you will send data via packet radio to your EOC. Splice type fuse holders onto both leads, as close to the battery as possible.

If all you have is a portable transceiver, the above information will help to ensure that you can provide an adequate signal for reliable emergency communications. Doing so is vitally necessary to enable your volunteer disaster unit to complete its mission efficiently and safely. More training materials for amateur radio operators to learn essential core skills in emergency communications are featured on the Virginia ARES / RACES Training page located at: <http://va-ares.org/Training/training.htm>

## **6-meter noise floor drops as DTV replaces analogue**

A present to the United States VHF and UHF ham radio community. This from both the broadcasters and the FCC as many of the nation's VHF television stations vacate many of the low VHF channels, go digital and lower the overall noise floor on 6 meters.

The big digital television change-out began at 00:01 EST on Friday, June 12th. Stations across the nation chose their own time to turn-off their analog transmitters and move their operations to their permanent digital channels.

Many of the low-band stations opted to move to the UHF band. A lot of them operated on Channel 2 just above the 6 meter ham band. And when those analog channel 2 transmitters went QRT, the noise level on 6 meters dropped in many locations.

Places like Chicago, where **Keith Morehouse, W9RM**, reported over the VHF Reflector that this is a big plus in Chicago where the long known Channel 2 audio spur is gone. That spur used to trash the WSJT meteor scatter calling frequency 50.260 MHz.

In Milwaukee **Ray Greiner, K9KHW**, reports on the analog shutdown on VHF channels 4, 6 and 12. He reports that he found most of the VHF and UHF ham bands so quiet that he actually checked and see if his antennas were connected. He says that on 6 meters where the normal noise level was S-3 to S-4, its now zero.



But 6 meters is not the only band seeing a noise floor improvement. **Steve Rutledge, N4JQQ**, is in Memphis Tennessee. He says that when VHF channel 3 went to UHF and channels 5 and 13 went digital on their current assignments, that the noise he heard on the 222 MHz ham band when pointing his beam East is now completely gone.

He says that in the past, that the noise level was so high that it wiped out any signal from the east, even with a bandpass filter before his tower mounted preamp.

Even some of those living North of the United States and Canadian border are happy about the change.

**Jordan Arndt, VE6ZT**, in Calgary, Ontario says that he can hear the difference up in Grid Square DO-21.

This is especially true when the band is open.

Its going to take a few weeks to really assess the impact that the digital television conversion will have on most of the VHF and UHF amateur radio bands, but so far the results seem very good indeed.



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## Chattanooga Amateur Radio Club Minutes form June 4, 2009

Meeting was called to order at 7:00 pm by President Mark Rose.

The motion was made by Tom Morgan to approve the meetings from the May meeting as printed in the Waves. The motion was seconded by Bill Dobbs and passed.

Treasurer Jim Knight gave his report.

|                  |             |
|------------------|-------------|
| Checking account | 9,206.92    |
| Hamfest Account  | 9,693.83    |
| P.O. Account     | 135.09      |
| Total            | \$19,035.84 |

Motion was made by Susan Miller to accept the report as read, seconded by Tom Morgan, approved.

Tom Morgan says the 79 repeater is o.k.

D-Star will have a meeting at Memorial Hospital on June 16th at 6:00 pm.

Jack Green made a roster and will distribute via email.

Board of Directors meeting on June 18th will be at Ryan's on Hixson Pk. at 6:00. Please let any director or officer know of any matters you would like brought to the board.

Jim Knight, Field Day chair person, wants everyone to invite all the hams they know to com on down. Mark rose will have one station at field day, more news forthcoming.

The club has been given a new room at the Red Cross Bldg for equipment set up.

Meeting adjourned at 7:40

Respectfully submitted,  
V. Susan Miller, KI4RZJ  
Recording Secretary