



THE OHM TOWN NEWS

Voice of the Bridgerland Amateur Radio Club

>>>>>> <http://www.barconline.org> <<<<<<<

May 2010

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PRESIDENT'S MESSAGE

In preparing to teach the general class license sub element "G2 - Operating Procedures" for the class that is being held, I came across some information that is a worthy reminder to all amateur radio operators.

The Amateur's Code

The Radio Amateur is

CONSIDERATE...never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED...radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC...station and skill always ready for service to country and community.

--*The original Amateur's Code was written by Paul M. Segal, W9EEA, in 1928.*

Amateur and ham radio station operating is a privilege.

The individuals who benefit from these privileges have been granted a license to operate an amateur radio station by the regulating agency of their country.

These unique privileges come with responsibilities. All privileges do!

All amateur radio operators must follow internationally accepted operating procedures and code of ethics. The operator who does not abide by the rules runs the risk of losing her/his license and call sign!

Amateur radio societies, from (most) countries of the world, collaborate to ensure an orderly use of the privileges granted to ham radio operators.

The ham societies collaborate under the auspices of a democratic organization called the *IARU - International Amateur Radio Union*.

Why collaborate? Because we all share a *common* natural resource: allocated portions of the radio spectrum (air waves).

Unlike commercial radio, who are usually allocated *only one frequency* to operate on, the ham radio community can operate on a huge number of frequencies!

Amateur and ham radio operators are all over the place meaning that we can operate in any of many narrow bands of frequencies scattered all over the radio spectrum.

We often operate "elbow to elbow" with a large number of neighbors, in crowded areas of the radio spectrum. Therefore, we must always be careful not to "step on anyone's toes".

The internationally recognized document that gives some basic operating guides for the amateur radio operator, within legal limits and in a considerate manner, is titled: "*Ethics And Operating Procedures For The Radio Amateur*". It can be downloaded from the International Amateur Radio Union at this link:

http://www.iaru-r1.org/index.php?option=com_remository&Itemid=173&func=fileinfo&id=19



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Cordell

KE7IK

HAM PROFILE

by Jared B. Luther

Bob Humpherys, KD7BHB, remembers as a young boy growing up in Bountiful and Salt Lake with an HF rig in his bedroom, and his dad, Boyd Humphreys, W7MOY, talking on the microphone. "I figured I had RF exposure from a young age" Bob says. It now continues with three antennas on his roof; a 40 meter loop, a 5/8 wave vertical, and an 80 meter dipole. He started with a Kenwood TH 22-AT, with an offer from his dad to buy half a radio if he earned his license. It was in April 1998 that Bob showed up at his mom and dad's home and showed him his certificate of successful completion of examination, with Novice and Tech Plus certifications, as well as Morse Code at 5 WPM. He noticed that his mother had someone there from Trend Interiors helping her decide on some renovation in the living room. Seeing his offer of a new radio in jeopardy, Bob told his dad that they needed to go now! So Bob took the afternoon off of work and took Boyd to Preston and picked up the Kenwood. Bob now has a Yaesu 1500 from a very generous Elmer, and has a Yaesu FT-757GX which he bought from his dad, and told him to go buy a new HF rig, which he did the next week. Bob now has a Yaesu VX-6R and has retired the Kenwood.



Bob had just finished a twin lead J-Pole and tied it in a tree in his front yard and sat in a lawn chair to try it out. A neighbor lady came across the street laughing her head off asking if he was talking to aliens. Just then a call came over the radio from Dixon Allen, KC7SJX, who had gone to the LDS stake young women's camp at Cinnamon Creek east of Porcupine Reservoir. Bob took the call, and Dixon said all the restrooms up there were plugged up and needed someone to call Roto-Rooter to deliver some port-a-potties to them. Bob went inside and made the phone call, and reported to Dixon that four port-a-potties would be delivered by midnight. He could hear the happy young women leaders screaming in the background. All this happened while his neighbor was standing there listening. Bob looked at her and said, "That was a real emergency!" She never made fun of him again. She also had a daughter at that stake young women's camp.

Bob's family was on vacation at Rendezvous Beach at Bear Lake and he was helping to hang a dipole in the trees. Boyd had brought a flipper with some fishing line with a lead bell sinker for weight. Bob aimed high and let her go, but his finger got caught in the fishing line. The sinker kept going. They heard it hit a car roof in the next campsite. Boyd quickly put the flipper in his pocket, and they finished. They turned the HF radio on and heard a net going on. When they asked for others to check in, Bob's dad picked up the mike as net control said that this is the "senile net." Boyd paused and Bob looked at him and said, "No way I am going to check into that net!" Boyd just put the mic down.

While serving on a Woodbadge Scout Leader training course at Camp Browning, just east of Huntsville, Bob had mounted a 20 foot metal pole with a disc antenna on top just outside his tent, with the coax coming inside. That night an intense lightning storm hit the canyon. Bob's tent buddy was awake all night, thinking the lightning rod outside their tent

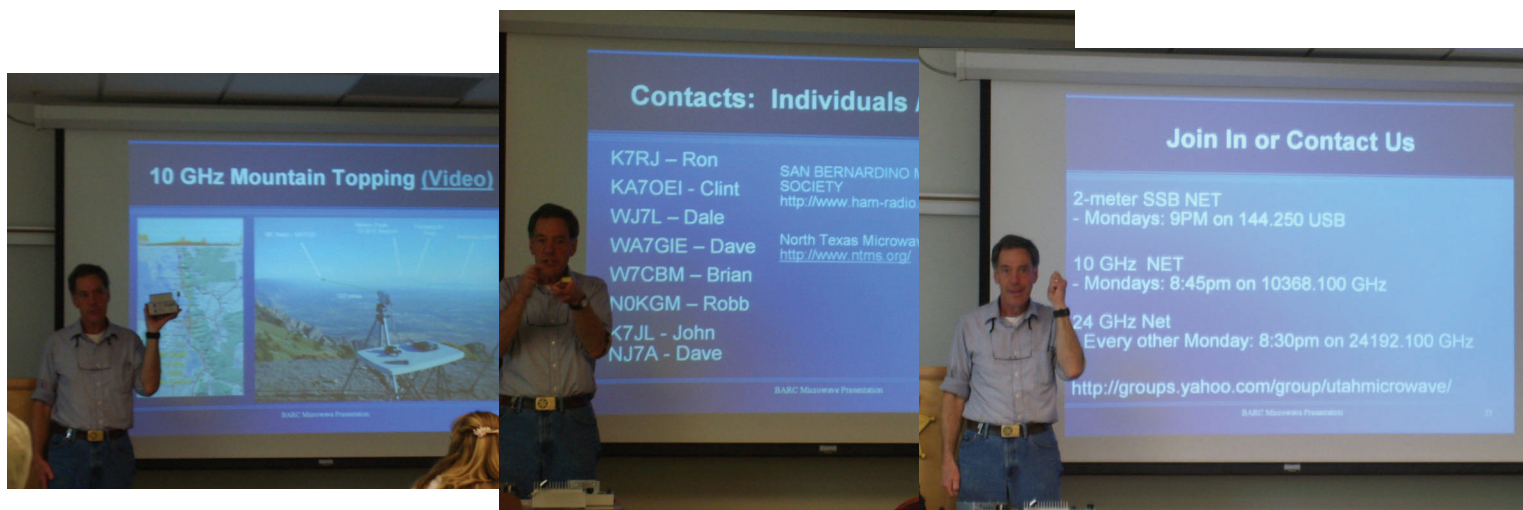
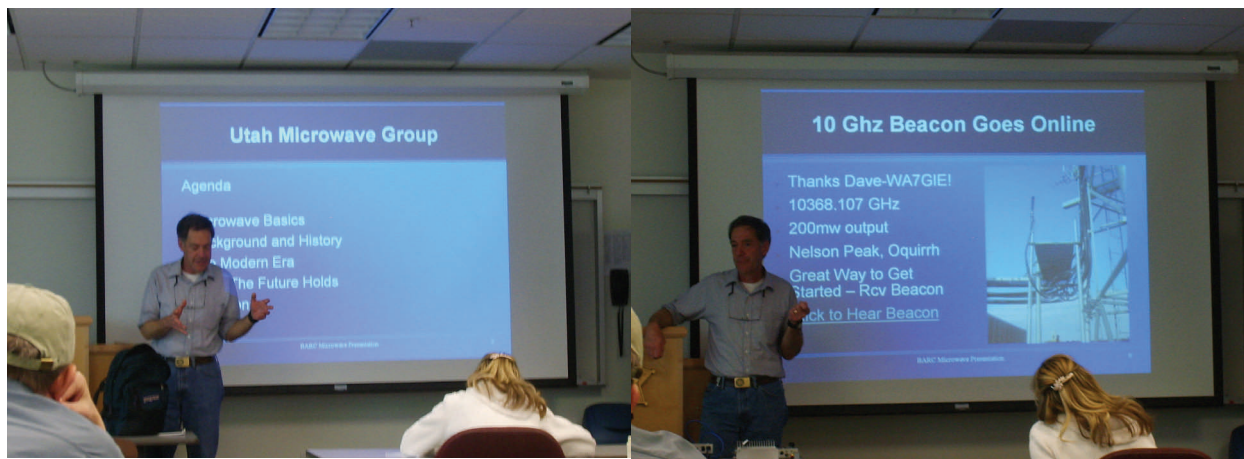
would fry him before morning.

Bob's oldest daughter, Camille, KC9MYU, and her husband Matt, KC9MYV, also got their ham radio license to use in their ward for emergency communications. While Bob was staying with them one summer in St. Louis, he helped install a Comet antenna in their attic, and drilled holes in the attic and also in the basement to run coax down into their "tornado room." Bob hooked a small flashlight on some twine and lowered it from the attic, in between the wall, and dropped it right through the hole in the basement. Since he had a generous offer with his first radio, he offered to pay half on their radio and helped them pick out a Yaesu FT-2800M.

Bob has organized a neighborhood calling tree, with block captains using FRS radio's and CB's, and utilizing those in his vicinity who have ham radios, using his home as a command center for ward leaders to meet when something happens.

Bob and his wife, Ann, have four children: Camille, Darin, Michelle, and Kelly Anne; all married and they have 9 grandchildren. Presently, Bob and Boyd both serve as church service missionaries at the Logan bishop's storehouse. Both of them helped install a 2m yagi and a HF dipole antenna on the roof, and ran coax cable down into the office where an HF radio and a 2m radio are hooked up, with a battery backup system in place, and conduct the storehouse nets on the 1st and 3rd Sundays of the month.

For the April Club Meeting we had a visitor from the Utah Microwave Group talk about working 10 GHz



UPCOMING ACTIVITIES

BARC Club Meeting - 8 May, 10:00 AM
Overview of Field Day plans, schedule, location, other information

RACES HF Net - 15 May, 8:00 AM 3920 KHz

Cache Valley Biathlon - 22 May, 9:00 AM

Mountain Man Rendezvous - 25-26 May

Rocky Mountain Division Convention - 28-30 May
At the newly renovated 302-room Platte River Resort in Casper, Wyoming.

Little Red Riding Hood - 5 June

Tour De Cure (Box Elder Co.) - 12 June

Rocket Recovery - 16-18 June, in Green River, Utah

RACES VHF Net - 17 June, 8:00 PM

Wasatch Back Relay - 18 June

Field Day/Club Meeting - 26-27 June

MS 150 - 26-27 June

RACES HF Net - 17 July, 8:00 AM 3920 KHz

Bike the Bear Bicycle Race - 14 August

Denver Radio Club Hamfest - 22 August

LOTOJA Bicycle Race - 11 September

Top Of Utah Marathon - 18 September

RACES HF Net - 18 September, 8:00 AM 3920 KHz

Bear 100 - 24-25 September

Jamboree on the Air - 16-17 October

BARC Club Meetings are normally on the 2nd Saturday of the month at 10:00 A.M. on the 3rd floor of the Cache County Sheriffs Complex on 200 North and 1225 West, Logan, Utah.

ARES Meetings are usually held on the Third Wednesday of each month at 7 P.M. at the Cache County Sheriffs Complex.
Contact Tyler Griffiths for more information.

The ARRL Letter for April 8, 2010

BPL: City of Manassas to End BPL Service

Once touted as "the most successful BPL deployment in the nation," the City of Manassas has decided to get out of the BPL business, once and for all. At a Special Meeting on Monday, April 5, the Manassas City Council -- acting on a recommendation from the Manassas Utilities Commission -- unanimously voted to discontinue Broadband over Powerline (BPL) Internet service as of July 1, 2010 to the approximately 520 residents and businesses who currently subscribe to the service; these customers were told that they have three months to find a new Internet service provider.



After almost eight years, the City of Manassas has voted to discontinue BPL service

According to Manassas City Clerk Andrea Madden, there was no discussion on the resolution to discontinue service and the motion was passed "without incident."

With the motion made by Councilman Jonathan Way and seconded by Mark Wolfe, the City Council cited three reasons for discontinuing BPL service: a declining customer base, an annual income deficit of almost \$166,000 from providing Internet service, and a determination that [AMI](#) [Advanced Metering Infrastructure] platforms don't require BPL. Way and Wolfe favored [shutting down the BPL system in November 2009](#), the last time this matter was brought to the Council's attention. "The City needs to get out of BPL forthwith," Way said back in 2009. "It's not a good product. The whole business is not financially sound and it never has been."

Manassas residents pay \$24.95 each month to receive Internet service via BPL. In November 2009, the Utility Commission showed the Council that little more than 500 residents and 46 businesses currently subscribed to the service, which since 2008, [has been run by the City](#). "It's costing a little more to maintain the system than we projected in the budget," Manassas Director of Utilities Michael Moon told the Council. "The original projections

were that the customer base would be double this." In September 2008, the Manassas City Council voted to assume control of the BPL service from [COMTek](#), the private company that served (back then) approximately 675 residents.



BPL technology uses the electricity grid in a city and the wiring in individual homes to provide direct "plug in" broadband access through electricity sockets, rather than over phone or cable TV lines.

In January 2009, there were 637 residential and 51 commercial BPL subscribers in Manassas. In February 2010, those numbers had shrunk to 457 residential and 50 commercial subscribers. The Utilities Commission said that the total revenue brought in by BPL for FY2010 was almost \$186,000, but the expense of keeping up the City-owned system was costing the ratepayers a little more than \$351,000, resulting in a net loss of almost \$166,000.

"In October 2003, the Manassas City Council was told that it could expect as much as \$4.5 million in revenue from awarding a 10 year BPL franchise," said ARRL Chief Executive Officer David Sumner, K1ZZ. "Instead, six months later, BPL had turned into a money pit for the City of Manassas. Anyone thinking of investing in BPL would do well to learn from the Manassas experience."

In November 2009, Manassas' Assistant Utilities Director (Electric) Gregg Paulson told the ARRL that they had "every intention of putting BPL Internet service in the budget and the Council can decide its fate as they work through the budget process." Paulson also said that while

Internet service to consumers would "probably" be the only thing that would be cut if the Council decided to forego BPL, he left the door open as to using the BPL infrastructure for other purposes: "We still own the BPL network, but we may or may not use this network for utility monitoring or other AMI purposes."

But according to the resolution passed by the Council, the Manassas Utilities Department will not be using BPL for AMI, but instead will use "a combination of fiber and wireless technology exclusive of the BPL." According to the Agenda Statement for the Special Meeting, the BPL equipment will be removed from the system and "inquiries will be made regarding the salvage value."

Sumner said that the ARRL's concern was not with the business plan -- that he termed "obviously flawed" -- but with "the interference to licensed radio services -- and in particular the Amateur Radio Service -- inevitably caused by putting radio frequency energy on unshielded, unbalanced conductors. Manassas was touted as 'the most successful BPL deployment in the nation' when FCC Chairman Michael Powell visited the site with much fanfare -- and, the ARRL maintains, in violation of the FCC's own rules -- on the eve of the FCC's vote to adopt inadequate protection for licensed radio services against interference from BPL systems. The taxpayers and ratepayers of Manassas are not the only ones who benefit from the end of this ill-considered foray into BPL. Radio amateurs in the Manassas area have good reason to celebrate, for they have spent countless hours documenting the widespread interference caused by the system."

BPL technology uses the electricity grid in a city and the wiring in individual homes to provide direct "plug in" broadband access through electricity sockets, rather than over phone or cable TV lines. Because BPL wiring is physically large, is often overhead and extends across entire communities, these systems pose a significant interference potential to over-the-air radio services, including Amateur Radio.

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The ARES E-Letter for April 21, 2010

2010 Hurricane Season Forecast Grim

Colorado State University's Research Scientist Philip J. Klotzbach and Professor Emeritus William M. Gray reported that information obtained through March 2010 indicates that the 2010 Atlantic hurricane season will have significantly more activity than the average 1950-2000 season: "We estimate that 2010 will have about eight hurricanes (average is 5.9), 15 named storms (average is 9.6), 75 named storm days (average is 49.1), 35 hurricane days (average is 24.5), four major (Category 3-4-5) hurricanes (average is 2.3) and ten major hurricane days (average is 5.0). The probability of U.S. major hurricane landfall is estimated to be about 130 percent of the long-period average. We expect Atlantic basin Net Tropical Cyclone (NTC) activity in 2010 to be approximately 160 percent of the long-term average. We have increased our seasonal forecast from the mid-point of our early December forecast."

"We expect current moderate El Niño conditions to transition to neutral conditions by this year's hurricane season. The predicted weakening of El Niño conditions combined with a very strong anomalous warming of the tropical Atlantic are the primary reasons why we are increasing our forecast. We believe that these two features will lead to favorable dynamic and thermodynamic conditions for hurricane formation and intensification." More info [here](#). -- Department of Atmospheric Science, Colorado State University

National Communications System's SHARES Program

[The [National Communications System](#) is a long-time MoU partner with the ARRL. The NCS is a unique organization. It is a confederation of 23 organizations across the Federal Government tasked with ensuring the availability of a viable national security and emergency preparedness telecommunications infrastructure. The President designates member organizations that own or lease telecommunications facilities/services of significant value to emergency response or that have important telecommunications policy, regulatory, or enforcement responsibilities. The assets of these 23 organizations comprise the bulk of the Federal Government's telecommunications resources.

Veterans will recall the NCS "Night Tango" exercises of the '80s, designed to evaluate the capabilities of volun-

teer communications systems to support NCS goals. NCS recognizes the resources that trained radio amateurs bring to the table, especially through the decentralized field organization (ARES and NTS) of the ARRL.

The SHARES program often is operational during major disaster situations, and this month we look at this program as part of our basic emcomm education, reproduced from the NCS Web site. - ed.]

The SHARES program is charged with promoting interoperability between High Frequency radio systems used by the Federal departments and agencies. It is also tasked to foster interoperability through examination of regulatory, procedural, and technical issues. This role has taken on added importance with the widespread purchase and use of Automatic Link Establishment (ALE) technology throughout the HF radio community. In responding to this role, the [NCS SHARES HF Interoperability Working Group](#) has established the [SHARES Action Item](#) process to identify, record, and track issues affecting HF radio interoperability in the Federal government.

Emphasis has also been placed on expanding awareness of new technologies in HF radio. Technological advancements have made HF radio more efficient and competitive in day-to-day operations. Multiple microprocessors, Digital-Signal Processing (DSP) and computer control, and Automatic Link Establishment (ALE), combine to simplify and enhance HF radio operation and frequency selection. The US Navy has successfully demonstrated e-mail links within a surface fleet Battle Group via HF radio, with transmission speeds of up to 4.8 kbps.

Automatically combining HF radio and other communications media such as land line, satellite, and VHF/UHF enables a user to consider costs and priority in processing messages. This technology provides selective routing of high-speed, error-free transmission of fax, e-mail, text, and data files. Data compression techniques further enhance the effective data rate.

New technologies also enable the transmission of imagery over HF. High-resolution color and monochrome images from analog cameras, still video cameras, and digital cameras as well as imagery from IR and RADAR sources can be processed via HF radio. Image compression and error correction algorithms are featured in this newly enhanced technology.

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The ARRL Letter for April 22, 2010 *Hamvention[®]: Dayton Hamvention Organizers Announce Forum Schedule*



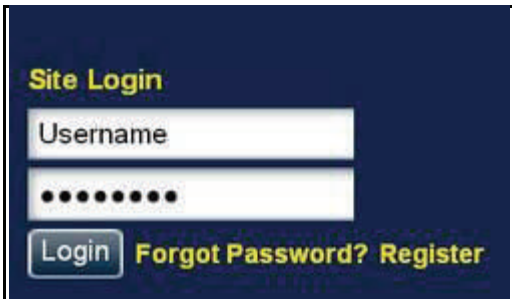
One of the many highlights at Dayton Hamvention[®] -- sponsored by the Dayton Amateur Radio Association (DARA) -- is the myriad of educational and fun forums that take place the entire weekend at Hara Arena. DARA has coordinated 43 unique programs that encompass nearly 80 hours of programs and activities for the thousands of people expected to attend these programs. Hamvention, the largest event of its kind, will be May 14-16 at Hara Arena in Trotwood, Ohio. Please keep in mind that the schedule may change before Hamvention. Read more [here](#).

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ARRL Web Site: Find Your Way Around the New ARRL Web Site

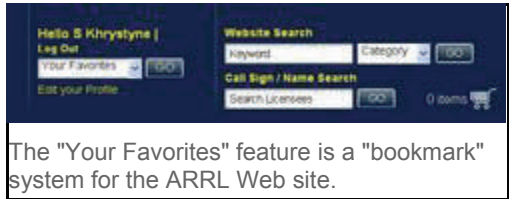
By ARRL News Editor S. Khrystyne Keane, K1SFA

When the new ARRL Web site launched on April 13, we received an overwhelming, enthusiastic response to it. But along with that, we have also received a few questions on how to find certain features on the new site. Click [here](#) for a quick guide to find some of the more popular features, such as the ARRL Periodical Archive Search and Logbook of The World, on the new ARRL Web site.

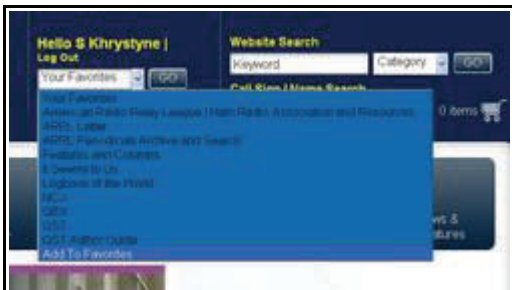


Have you forgotten your password? When you click on "Forgot Password?", you will be directed to a page that, upon verification, will grant you a temporary password. You can then change your password in the "Edit your Profile" section.

Have you forgotten your password? You can easily get a temporary password by clicking on the "[Forgot Password?](#)" link, located directly under the log-in box at the top of the page (see photo). You can either request a temporary password via e-mail (you must use the e-mail you originally used to register for the previous ARRL Web site), or you may retrieve a temporary password immediately by providing your user name (for hams, this is usually your call sign) and your ARRL member ID number (found on your QST mailing label). You must also provide either your call sign or your last name. Click [here](#) to receive a temporary password.



The "Your Favorites" feature is a "bookmark" system for the ARRL Web site.



You can easily add pages from the ARRL Web site to "Your Favorites." Just go to the desired page, click the "Your Favorites" drop-down menu, then click "Add To Favorites" and then click on the "Go" button.

We have also received inquiries regarding the "Favorites" function on the new Web site. Once you successfully log in to the Web site, you will see a drop-down box that says "Your Favorites" right underneath your name (see photo). Go to any page on the new ARRL Web site. Would you like to find it in just one step? The "Your Favorites" feature will do just that! When you are on the desired page, just click on the "Your Favorites" drop-down menu, click "Add to Favorites" then click the "Go" button. Now you have stored that Web page as one of your favorites; each time you wish to go to that page, you can just access it through the "Your Favorites" drop-down menu (see photo).

Of course, with a project as large as the new ARRL Web site, there are still some bugs to be worked out. Our IT Department is busy fixing them, so please know that we are trying to solve these problems as quickly as possible.

The ARRL Letter for April 29, 2010

FCC News: FCC Seeks Comments on Newly Proposed Rules for Amateur Radio Operators and Emergency Drills

In March, the [FCC released](#) a *Notice of Proposed Rulemaking (NPRM)* (Docket #10-72) that proposed to amend the Part 97 rules -- specifically 97.113(a)(3) -- governing the Amateur Radio Service. The new rules would provide that, under certain limited conditions, Amateur Radio operators may transmit messages during emergency and disaster preparedness drills, regardless of whether the operators are employees of entities participating in the drill. On April 22, a [summary of the NPRM was published in the Federal Register](#) and the FCC is seeking comments on it. Comments must be filed on or before May 24, 2010 (30 days after publication in the *Federal Register*); reply comments must be filed on or before June 7, 2010 (45 days after publication in the *Federal Register*). Instructions on how to file comments are listed [beginning on page 5 of the NPRM](#). The NPRM is available on the web in PDF format at, http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-45A1.pdf.



The FCC is seeking comments regarding its proposal to amend 97.113(a)(3) of the Amateur Radio rules. The deadline to file comments is May 5, 2010. Read the *NPRM* [here](#).

ARRL Rocky Mountain Division update – May, 2010

The 2010 Rocky Mountain Division Convention is going to be a FANTASTIC event, and all hams across the Division are invited to be a part of it.

It will take place Memorial Day weekend (May 28-30, 2010) at the newly renovated, 302-room Platte River Resort in Casper, Wyoming. Here are the details:

Early bird registration (extended until April 16): ARRL members pay only \$20, non-members pay \$30. First year hams pay only \$20 regardless of ARRL membership. Registration fee includes access to convention, one early bird prize drawing ticket, 10 convention prize drawing tickets, and a \$5 discount on the Saturday evening banquet ticket.

- Keynote speaker: ARRL President Kay Craigie W3KN
- Special Guest Speaker: ARRL Contest Manager Sean Kutzko KX9X
- W1AW/WY7 will be on the air " experience being behind a real W1AW pileup!
- VE testing
- Free swapfest
- Ham Olympics
- Saturday evening dinner banquet
- Prizes
- Great food
- Forums, including: Severe weather training, Packet/APRS, GPS, Contesting, Public relations, DXpeditions, ARES/RACES, Antenna building and repair, County hunting, Served agencies (VOAD), FlexRadio, Paper chasing, VHF/UHF, MARS, ARRL, Youth in amateur radio, Building your club, and more.
- ARRL Section meetings
- Wouff Hong ceremony
- Special Platte River Resort room rate of \$65 per night by mentioning Rocky Mountain Convention when making reservations.
- Outside of the convention: Fly-fishing and other family attractions nearby.

More details on the convention, including schedules and registration forms can be found at:

<http://wyomingsection.org/wiki/index.php/Convention>.

We look forward to seeing many hams from around the Division and surrounding states at the 2010 Rocky Mountain Division Convention.

===== Field Day: Map your site for other Hams and Visitors =====

Field Day takes place June 26-27 this year!

Whether it's to be enjoyed with a bunch of friends, a local club, or an ARES group, in the mountains or in the city, or to introduce a new person to the magic of Ham Radio, Field Day is only a few months away and we hope you and your club are gearing up for the fun.

ARRL once again offers a useful feature on its website: A tool that displays Field Day sites and information across the United States and Canada, thanks to Google Maps. While you or your club members may know where your particular Field Day site will be located, the real beauty of this feature is that it informs other Hams, prospective Hams, or visitors where Field Day efforts will take place in their areas. Is your site shown on the map?

Head over to <http://www.arrl.org/field-day-locator> to see what Field Day sites are nearby, or to add yours. This tool is only as good as the number of people who make use of it, so please post your site and spread the word to all the Hams you know, especially those new to the hobby.

All the details you need for the 2010 ARRL Field Day is available at <http://www.arrl.org/field-day> See you on the bands this June 26-27!

===== Rocky Mountain Division HF Net =====

Our next monthly Rocky Mountain Division HF net will occur next week to disseminate information and give us a

Questions for General Class License

1. (G1A09) Which of the following frequencies is within the General Class portion of the 80 meter band?
 - A. 1855 kHz
 - B. 2560 kHz
 - C. 3560 kHz
 - D. 3650 kHz

2. (G2A06) Which of the following is an advantage when using single sideband as compared to other voice modes on the HF amateur bands?
 - A. Very high fidelity voice modulation
 - B. Less bandwidth used and high power efficiency
 - C. Ease of tuning on receive
 - D. Less subject to static crashes (atmospherics)

3. (G3A05) What is the solar-flux index?
 - A. A measure of the highest frequency that is useful for ionospheric propagation between two points on the Earth
 - B. A count of sunspots which is adjusted for solar emissions
 - C. Another name for the American sunspot number
 - D. A measure of solar activity at 10.7 cm

4. (G4B09) How much must the power output of a transmitter be raised to change the "S" meter reading on a distant receiver from S8 to S9?
 - A. Approximately 2 times
 - B. Approximately 3 times
 - C. Approximately 4 times
 - D. Approximately 5 times

5. (G5B06) What is the output PEP from a transmitter if an oscilloscope measures 200 volts peak-to-peak across a 50-ohm dummy load connected to the transmitter output?
 - A. 1.4 watts
 - B. 100 watts
 - C. 353.5 watts
 - D. 400 watts

6. (G6C09) Which of the following is a characteristic of a liquid crystal display?
 - A. It requires ambient or back lighting
 - B. It offers a wide dynamic range
 - C. It has a wide viewing angle
 - D. All of these choices are correct

7. (G8B10) When transmitting a data mode signal, why is it important to know the duty cycle of the mode you are using?
 - A. To aid in tuning your transmitter
 - B. To prevent damage to your transmitter's final output stage
 - C. To allow time for the other station to break in during a transmission
 - D. All of these choices are correct

8. (G9D06) Which of the following is an advantage of a log periodic antenna?
 - A. Wide bandwidth
 - B. Higher gain per element than a Yagi antenna
 - C. Harmonic suppression
 - D. Polarization diversity

9. (G0A13) precaution should be taken when installing a ground-mounted antenna?
 - A. It should not be installed higher than you can reach
 - B. It should not be installed in a wet area
 - C. It should be painted so people or animals do not accidentally run into it
 - D. It should be installed so no one can be exposed to RF radiation in excess of maximum permissible limits

10. (G0B12) What is the purpose of a transmitter power supply interlock?
 - A. To prevent unauthorized access to a transmitter
 - B. To guarantee that you cannot accidentally transmit out of band
 - C. To ensure that dangerous voltages are removed if the cabinet is opened
 - D. To shut off the transmitter if too much current is drawn

(For answers to test questions see page 13)



BARC Club Officers

President

Cordell Smart KE7IK
president@barconline.org
(435)245-4581

Vice President

Tyler Griffiths N7UWX
vice-president@barconline.org
(435)752-7269

Secretary

Tammy Stevens N7YTO
secretary@barconline.org
(435)753-2644

Treasurer

Kevin Reeve N7RXE
treasurer@barconline.org
(435)753-1645

Board Members

Ted McArthur AC7II
ac7ii@comcast.net
(435)245-4904

Roger Ellis KE7HTE
ellis.roger@gmail.com
(435)753-7807

Bob Wood WA7MXZ
wa7mxz@arrl.net
(435)770-0637

Newsletter Editor

Dale Cox KB7UPW
newsletter@barconline.org
(435)563-3836

Web Page Editor

Jacob Anawalt KD7YKO
webmaster@barconline.org
(435)753-9033



Answers to questions on page 12: 1-C, 2-B, 3-D, 4-C, 5-B, 6-A, 7-B, 8-A, 9-D, 10-C