



THE OHM TOWN NEWS

Voice of the Bridgerland Amateur Radio Club

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

June, July, August Summer 2012

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ARRL Affiliated



PRESIDENT'S MESSAGE

It is June already and Field Day is just around the corner on the 23rd and 24th. Field Day will be at the same place as last year, just up a ways on Swan Flat Road behind the UDOT Maintenance Shed in Logan Canyon. See our web site www.barconline.org for the Field Day information. It has been a dry and warm start to June this year, but the conditions this year are a lot different than a year ago. Last year on Memorial Day, there was over 3 feet of snow at the Swan Flat Road Field Day location. On June 10, Ted and I went up to check out the Swan Flat location. The site was dry and the wild flowers were not yet in bloom. The extended forecast has a cold front arriving Monday night, June 18, so temperatures will be cool prior to Field Day weekend, with mid 70's for Field Day weekend. Looks like another great year for Field Day.

Congratulations to Kylie Elwood KE7NTS. Kylie was selected to receive the first ARRL Rocky Mountain Division Scholarship. The scholarship was announced last year at the 2011 ARRL Rocky Mountain Division Convention at Taos, New Mexico, and is envisioned to become a gift that keeps on giving with the support of interested members within our Division. This scholarship is intended to provide funding for the educational expenses of a young Rocky Mountain Division amateur radio operator who is pursuing higher education.



Here is what Kylie has been doing with Amateur Radio. Kylie earned her license when she was 13 years old. While she was studying for her license test, she convinced her two older sisters to study with her, resulting in all three of these sisters passing their tests on the same day. One of Kylie's first public service events was to help with the Cache Valley Biathlon in Wellsville, Utah. She has helped with the Top of Utah race for the last four years. During three of those years, she and her younger sister were at

the Mile 11 Station without any adult assisting them with their tasks. Kylie has participated in a 4-H sponsored Ham Radio day where she built her own portable J-pole antenna. She used that antenna that year when she helped at the Mile 11 Station during the Top of Utah race. And Kylie often checks in her family on the weekly BARC net.

Amateur Radio is a fantastic hobby. It lets us enjoy life-long friends, and a hands-on technical education. It provides the resources and encouragement to experiment with new things and to design and build on the latest communications technologies.

73
Cordell
KE7IK

UPCOMING ACTIVITIES

RACES VHF Net — 21 June 8:00 PM 447.00 IRLP 145.49 Promontory 147.18 Snowbird

[Radio Rocket Recovery](#) — 21-23 June

Field Day — 23-24 June ([See page 7](#))

Club Transmitter (Fox) Hunt (at Field Day) — 23 June

MS 150 — 25-26 June

[ARRL Rocky Mountain Division Net](#) — 11 July 7:30 PM IRLP Node: 9871

[Pike Peak Radio Amateurs Assoc. Megafest](#) (Monument, CO)—14 July

RACES HF Net — 21 July, 8:00 AM 3920 KHz

[ARRL Rocky Mountain Division Convention](#) (Bryce Canyon City, UT)—27-29 July

[ARRL Rocky Mountain Division Net](#) — 8 August 7:30 PM IRLP Node:9871

[Cache County Fair](#) — 9, 10, 11 August

RACES VHF Net — 16 Aug 8:00 PM 447.00 IRLP 145.49 Promontory 147.18 Snowbird

[Bike the Bear](#) Bicycle Race — 18 August

[Denver Radio Club Hamfest](#) (Golden, CO) — 19 August

BARC Club Meeting/Pot Luck Dinner/LOTOJA Meeting — 6 September

[LOTOJA Bicycle Race](#) ([Radio Info](#)) — 8 September

[ARRL Rocky Mountain Division Net](#) — 12 September 7:30 PM IRLP Node: 9871

[Top of Utah Marathon](#) — 15 September

RACES HF Net — 15 September, 8:00 AM 3920 KHz

[Bear 100](#) — 28-29 September

[ARRL Rocky Mountain Division Net](#) — 10 October 7:30PM IRLP Node: 9871

Swaptoberfest (in place of Club Meeting) — 13 October

BARC Meeting May 12, 2011

Announcements:

- Sign-up for activities—do it yourself on BARCOnline.net
- Scout-a-rama today all day. BARC store will be at the Cache County Fairgrounds today.
- Little-Red Ride: 1st weekend of June.
- June 7: Next VE exam at ASTE building, 7:00 p.m.; contact Phil Rasmussen.
- June 15: Wasatch Back race.
- June 20-24: Bridgerland Radio Rocket Recovery (BRRR) + Field Day.
- June 23-24: BARC Field Day at Swan Flat, Logan Canyon – same site as last year.
Club provides meat and drinks; bring salads and deserts.
- ARES: Winlink webinar was presented online last month; we will review the CD of this webinar at our upcoming meeting.
- Next BARC meeting is the Pot-Luck prior to LOTOJA in September.
- Bunny Hunt: 4th Saturday each month starting at 10:00 a.m. Bunny frequency will be announced on the BARC net the prior Tuesday. We will also have a bunny hunt at the Field Day site.

D-Star Presentation: Northern Utah Technical Society, (NU7TS)

By Ted McArthur, AC7II

- D-Star was developed by the Japanese Amateur Radio League (JARL) and is currently released as an “open protocol;”
- D-Star radio equipment, however, is currently marketed only by ICOM, all models also offer analog FM voice mode for backward compatibility, and have a “DV” button to switch from analog FM voice to digital mode voice;
- D-Star digital voice (DV) is sent and received using digital packets via narrow band frequency modulation;
- Digital compression is applied before transmission and decompression on receive;
- Voice and Data on VHF/UHF/Above can be sent simultaneously;
- Text will display on a D-Star radio screen or on a connected computer using D-Star software;
- Why use D-Star? - Spectral efficiency: simultaneous voice and data, 2m/70cm/23cm (small amount of 10m and 6m with the 9600 and homebrew); - High speed data transmission capability on 23cm; - Microwave and Internet linking capability; - Occupies only 6.25 KHz bandwidth (vs. 20-25 KHz for analog FM), can put two signals in the same spectrum width as one channel of analog FM, separated by 10 KHz; - Better performance, comparing analog FM signal strength to D-Star signal strength; - 4800 bits/s max data rate: voice frame is 2400 bps, with 1200 bps forward error correction, data frame is 1200 bps, with no error correction and can be used to send D-PRS (location by GPS coordinates, through a D+ repeater), text messaging and binary data transfer; - Voice QSOs are routable -- can be directed to another radio, repeater, or gateway.
- D-Star repeater basics: - Port types are designated by a letter in the 8th character position (example: NU7TS B), if left blank, the system assumes PORT A is used; - A-1.2 GHz (23cm voice, DV); - B-UHF (70cm, DV); - C-VHF (2m, DV); - G-Gateway designator; - “YOUR”: is any call sign=CQCQCQ, or desired station call sign; - “RPT1”: NU7TS B; - “RPT2”: (optional second repeater); - “MY”: your own call sign;
- Several variations on the entries to define repeater, gateway, specific call sign
- Digital data stream only on 1.2 GHz band and entirely data, with 128 kbps, 150 KHz bandwidth, an Ethernet connection is used for high-speed digital data, using half-duplex format, plug and play, no extra TNC or radio cabling – Duplex-sensitive apps do not work well;

- Gateway: no call sign registration is required for local repeater use, but registration (one time only – takes 15-20 minutes-through local gateway administrator to get your name in the database, keep track of where you last transmitted, etc) is required for gateway operation – similar to IRLP except D-STAR calls are automatically-, and can be self-routed, ****conversations are NOT private.****
- Can use a computer DV-dongle to address a gateway;
- Reflectors (about 50 now active) are a computer gateway that acts as a central conference hub where multiple D-STAR node and DV-dongle users can gather and talk to each other – “hub-and-spoke” model (O29-X locally, net each Sunday evening), issue a command to local repeater and link up to the reflector
- Call anyone: radio knows your call sign, your call sign appears on the other radios; can enter other call sign for call sign squelch
- Call anywhere: voice can be sent through repeater or routed through a gateway via RF or the Internet, D-STAR users are registered with local repeaters for cellular-like service
- DV-Dongle is made by Robin Cutshaw: plugs into USB port and allows you to connect to a repeater or reflector, will show status of repeater or reflector and others on the system, allows you to see and type digital messages, and test the digital quality of your signal and record it;
- DVAP: Digital Voice Access Point (if no local repeater that can be used), many types available; makes connections via a computer and Internet to repeaters and reflectors, has a radio either built in or wired to it that is a standard analog radio that can be set up as a repeater -- must have a D-STAR type radio and amateur license and registration to talk to the DVAP radio;
- D-RATS: Programming for PC use of D-STAR;
- Several HT and mobile rigs for D-STAR, all about \$600 to \$1,000 to fully operate with GPS.
- RT-Systems software (purchased) is more user-friendly than the ICOM software
- BARC D-Star repeater is located near Wellsville on Murray hill and operates at 449.80 MHz.
- Mt. Logan D-Star repeater, NR7DS, is currently being built – installation soon!



Items for Sale or Trade, Items Wanted, Items Available

This section is to be a regular part of The Ohm Town News newsletter. If you have something you would like to advertise as available or are looking for please contact the newsletter editor at newsletter@barconline.org with the details.

Audio amplifier, 20 Watt, 6L6 tube output, several inputs, STROMBERG CARLSON. Still good for blasting your neighbors out of bed in the morning.
Free giveaway. Boyd Humpherys 752 4868



May Transmitter Hunt Results

Here are the results from the t-hunt from May 26.

- 1- Brian (N7QAR), Brady and Nathan Ulrich at 3.9 miles
- 2- Russell Smart(KD7WRA) and Josh Jensen (KD7WRC) at 4.3 miles
- 3- Rick Blair and Kelly Hansen (KF7TDP) at 20 miles

The shortest route between the starting point and the ending point (according to Google Maps) is 3.1 miles (<http://goo.gl/maps/QlBn>).

Congratulations to those that were able to bag this fox. The starting point was the Providence South Stake Center in Millville. The fox was hidden behind a utility/Scout shed in Nibley behind the Nibley Stake Center at 3701 S 450 W. It was a cool and raining day (which is not very unlike my deer hunts as a kid in Idaho).

Come join us next month at the Field Day site for our next T-hunt on June 23rd.

Brian Ulrich and boys will be the T-hunt masters for the t-hunt on July 28th.

Also, here are the results from the 2nd transmitter hunt at April's Club meeting.

- Rick Stilling (N7XZ) 23 miles (first to find it)
Stan Wellard (W7SJW) 8 miles
Beanie (KJ7LQ) and Jim (K7OA) Lofthouse 7 miles (shortest milage)
Jody Reese (KC7CVI) and Kevin Bozworth (W7BOZ) 9 miles

The fox was hidden in one of the test boxes behind Campbell Scientific's campus at 815 W 1800 North in Logan.

Again, congratulations to those were able to bag this pelt.

See you next month!

-Gary (AG1T), Melissa, and Dallin Roberts

Field Day Itinerary

It's June and BARC will be participating in the [American Radio Relay League \(ARRL\) 2012 Field Day event](#) on Saturday June 23rd and Sunday June 24th. Field Day is an annual amateur radio exercise, encouraging emergency communications preparedness among amateur radio operators. It is typically the largest single emergency preparedness exercise in the country, with over 35,000 operators participating each year. Field Day is part educational event, part operating event, part public relations event. But most of all, we have a fun and enjoyable time operating the radios. Anyone can attend and participate, licensed or not, club member or not.

You can operate a radio (with a control operator present) in making contacts to other amateur radio operators, help with logging the radio contacts on a computer, or just watch and listen to a Field Day event. We use this opportunity to let everyone experience operating on an HF radio. We are planning to have several radios setup, including one radio for digital mode (PSK, RTTY) and one for Morse Code (CW).

Our Field Day location will be at the same location that we had last year, a half mile up the Swan Flat Road. [Click here for a map to the BARC Field Day site](#) and the GPS coordinates are 41.9580 - 111.4884. It is about 30 miles up Logan Canyon on Highway 89 (just past the UDOT Maintenance Shed near mile marker 490), where you will turn onto Swan Flat Road and continue about one-half mile. We will be in an area that is west of the Swan Flat Road.

The area that we are at near the Swan Flat road is open camping so there will be a few of us that will go up early in the week to claim a spot. There will be plenty of space for camping so bring your camper or tent. A rental porta potty will be at the camp site for the week. Those that can, arrive early during the week for some radio camping. We will have a radio set up during the week to use so we can enjoy the airwaves with less man made interference that in the valley. Come and enjoy the outdoors, play on some radios, we will be setting up a couple of antennas and testing them. If you have a radio or an antenna (no beams) you want to try out, you can bring it up and we can put it on the air, either before or during Field Day.

We will have the BARC UHF Portable Repeater, 449.250 (T103.5), setup at the Field Day site. It will be connected to the BARC Repeater System (Mt Logan, Promontory, and Red Spur) during the week prior to Field Day. On Field Day Saturday June 23, the IRLP Repeater, 147.200 (T103.5), will be connected to the BARC Repeater System for valley coverage to the BARC Repeater System, while the Mt Logan 146.720 and 449.625 repeaters will be disconnected from the BARC Repeater System for valley used for the 2012 Bike MS Utah event. On Field Day Sunday June 24, the Mt Logan 146.720 and 449.625 repeaters will be reconnected to the BARC Repeater System.

Here is the Field Day schedule:

Friday

Noon - Those that can, arrive at site to help set up the site and antennas until about 6 PM.

Late afternoon - Demonstrate building an antenna with coax and wire and using the spud gun to put the antenna up in the trees, to the BARC Ladies Net group.

Saturday

Morning - Setup remaining antennas and radios. Check everything; radios, antennas, computers, etc.

Noon - Contest starts. Anybody who wants to can get on the air or help with logging contacts. Contest lasts for 24 hours.

1:00 pm until 3:30 pm - The BARC Ladies' Project--Building power cables with Anderson Power Pole Connections.

3:30 pm - Bunny Hunt. We will have a short class and demonstration. Later, the bunny will be hidden and anyone who would like to can try to find it. Hunters don't even need a license to participate

because you won't be transmitting—just listening on a radio.

6:00 pm to 7:00 pm - Potluck Dinner. The Club will provide Barbeque Beef on buns, some hotdogs & buns and drinks. Please bring your own chair, plates, cups, utensils, and a potluck food item to share (make sure to bring plenty to share -- there are a lot of mouths to feed).

Sunday

Noon - Contest ends. Start taking down the site and antennas, put stuff away, and clean up the camp site.

Come on up, bring your family, camp chair, mosquito repellent, wood (for group campfire), and water (no water at the site); stay as long as you can (there are plenty of us camping out in tents and RVs), and enjoy the good food and the fun of Field Day.

Hope to see you there -- the Field Day committee is working hard to make it an enjoyable weekend for all ages! We encourage anyone to come up anytime. Try to come at least for the Saturday activities & potluck dinner -- you won't regret it.

Cordell
KE7IK



Are you ready - Part 2

In Part 1 we covered fuses.

In Part 2 we will cover labeling.

When you show up to do radio communications for a communications exercise or a public service event, you often times work with someone else. Sometimes that means you pool your equipment and resources to set up a station, net control point etc. It is a good practice to label your stuff. And I mean everything, ham and non ham related. I have found the paint markers you can get at the craft stores like Michaels, Hobby Lobby, and JoAnns to be perfect for labeling cables, batteries, radios, rig runners, anderson power pole products, antennas, coax, masts, and event tables, chairs, power supplies and extension cords. I have found sticky labels to work in some instances on power supplies and equipment, but they do not work very well on cables.

You can also use colored electrical tape or shrink tubing to mark your coax and other cables. The electrical tape will eventually wear down, especially when the cable gets hot out in the sun and it starts to fall off.

The paint markers come in various tip widths so you may want more than one.

Good luck and see you at a BARC event soon. Oh ya, Field day is just around the corner.

73's
Kevin N7RXE

The ARRL Letter for May 10, 2012

End of an Era: Heathkit Educational Systems Closes Up Shop



For the second time since 1992, Heathkit Educational Services has shuttered its doors. Rumors of the legendary kit-building company's demise were posted on QRZ.com, with several readers bringing the news to the attention of the ARRL. In August 2011, Heathkit announced it was returning to the kit building business, and in September, that it would once again be manufacturing Amateur Radio kits. The ARRL tried to reach Heathkit to confirm that the company is still in business, but their phone and fax numbers have a continuous busy signal, and e-mails to the company have gone unanswered. Read more [here](#).

BSA to Offer Morse Code Interpreter Strip

For many years, Boy Scouts and Scouters have been able to earn an interpreter strip to wear on their uniforms. This strip -- worn on the uniform above the right pocket -- denotes proficiency in a foreign language or sign language. Each language has its own strip (with the name of the language embroidered in that language), and some Scouts and Scouters wear more than one strip. Now those hams involved with the Boy Scouts can show their proficiency in Morse code with a Morse code interpreter strip (with M-O-R-S-E spelled out in Morse code). Read more [here](#).



Scouts and Scouters can earn the new Morse code interpreter strip by completing all three requirements: Carrying on a five minute conversation in Morse code at a speed of at least five words per minute, correctly copying a two minute message sent in Morse code at a minimum of five words per minute (copying means writing the message down as it is received) and sending a 25 word written document in Morse code at a minimum of five words per minute.

The ARRL Letter for May 24, 2012

New "PRB-1" Law Now in Effect in Ohio

On May 15, Ohio Governor John Kasich signed a bill, granting comprehensive rights to Amateur Radio operators in that state. HB 158 codifies the federal restrictions on the local zoning of amateur station antenna structures, thereby preserving Amateur Radio Service communications as a Homeland Security resource, placing the burden of proof for compliance on the zoning authority. According to ARRL Ohio Section Manager Frank Piper, KI8GW, this places the full language of [Section 97.15](#) into the *Ohio Revised Code*: "This new law law states that 'Any legislative authority that denies an application for approval of an amateur station antenna structure shall state the reasons for the denial and shall, on appeal, bear the burden of proving that the authority's actions are consistent with this section.' This language removes the burden of proof from the Amateur Radio operator and places it on the legislative authority." Read more [here](#).



The ARRL Letter for May 31, 2012

FCC News: FCC Expands Part 95 MedRadio Rules to Allow Devices in 2360-2400 MHz Band

In a *First Report and Order* and a *Further Notice of Proposed Rule-making* (ET 08-59) released on May 24, the FCC decided to expand the Part 95 Personal Radio Service rules to allow medical devices to operate on a secondary basis in the 2360-2400 MHz band. These devices -- called Medical Body Area Networks (MBAN) -- provide a way for health care facilities to monitor their patients via wireless networks. Because use of these frequencies will be on a secondary basis, MBAN stations will not be allowed to cause interference to -- and must accept interference from -- primary services, including radio amateurs who operate on a primary basis in the 2390-2395 MHz and 2395-2400 MHz bands. Read more [here](#).

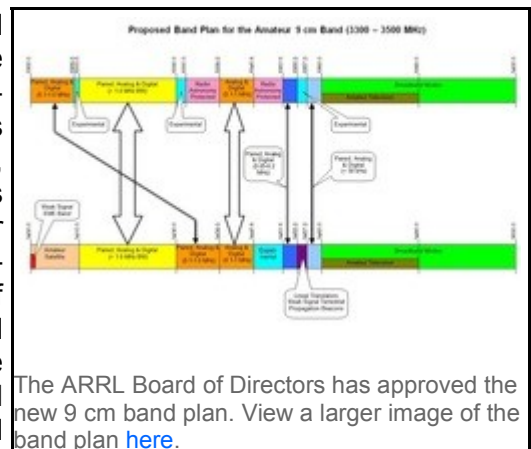


The ARRL Letter for June 7, 2012

ARRL Board of Directors Approves 9 cm Band Plan



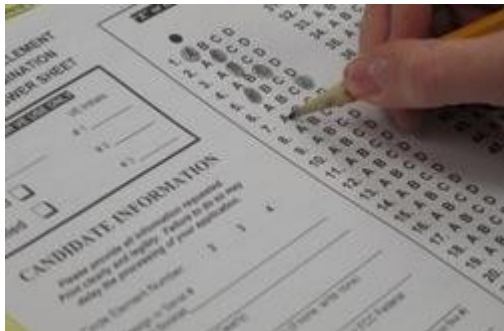
The ARRL Board of Directors has unanimously voted to approve the 9 cm band plan, as presented by the ARRL UHF/Microwave Band Plan Committee. Earlier this year, the committee [asked](#) radio amateurs for comments on a proposed 9 cm band plan, explaining that the purpose of these band plans is to share information about how the amateur bands are being used and to suggest compatible frequency ranges for various types of applications. The committee also recognized that local conditions or needs may necessitate deviations from a band plan, and that regional frequency coordinating bodies may recommend alternatives for use in their respective regions. Read more [here](#).



The ARRL Board of Directors has approved the new 9 cm band plan. View a larger image of the band plan [here](#).

The ARRL Letter for June 14, 2012

Getting Licensed: New Amateur Extra Class Question Pool Effective July 1



The new [Amateur Extra class \(Element 4\) question pool](#) -- released by the National Conference of Volunteer Examiner Coordinators ([NCVEC](#)) in January 2012 -- becomes effective on Sunday, July 1. The current Amateur Extra class pool expires on June 30, 2012 and cannot be used after that date. This new question pool -- including graphics and diagrams -- will remain valid until June 30, 2016. The new Amateur Extra pool contains 702 questions, from which 50 are selected for an Element 4 examination. As of June 13, three questions -- E1D09, E2A14 and E6E10 -- have been [removed](#) from the new pool. The [current Technician class question pool](#) that became effective July 1, 2010 is valid through June 30, 2014. The [current General class pool](#) that became effective July 1, 2011 is valid until June 30, 2015.

ARDF Update: Team USA Forming after USA ARDF Championships

By ARRL ARDF Coordinator Joe Moell, K0OV

From DXing to microwaves, nearly every facet of our hobby has its competitions. But there are no more ardent contesters than the ones who take to the fields and forests to see who can locate the greatest number of radio transmitters in the shortest time. They call themselves foxhunters, foxtailers, radio-orienteers and ARDFers. Each year, they come together from around the country to see who is best. Every two years, the best from each country gather to see who is tops in the world. The 12th USA ARDF (Amateur Radio Direction Finding) Championships took place May 30-June 3 near Mt Laguna, California. In September, the 15th ARDF World Championships will get under way at the resort city of Kopaonik, in central Serbia. Standard rules and procedures of the International Amateur Radio Union govern these competitions. Read more [here](#).



Stevie Van Skiver, VE7SMX, of New Westminster, British Columbia, comes up the finish corridor of the 2 meter contest. This is her second year attending the USA ARDF Championships. [Joe Moell, K0OV, Photo]

Special Bulletin 9 ARLX009

From ARRL Headquarters Newington CT June 18, 2012
SB SPCL ARL ARLX009

ARLX009 2012 W1AW Field Day Bulletin Schedule

Day	Mode	Pacific	Mountain	Central	Eastern	UTC
FRIDAY	CW	5:00 PM	6:00 PM	7:00 PM	8:00 PM	0000 (Sat)
	Digital	6:00 PM	7:00 PM	8:00 PM	9:00 PM	0100
	Phone	6:45 PM	7:45 PM	8:45 PM	9:45 PM	0145
	CW	8:00 PM	9:00 PM	10:00 PM	11:00 PM	0300
SATURDAY	CW	7:00 AM	8:00 AM	9:00 AM	10:00 AM	1400
	Phone	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1500
	CW	5:00 PM	6:00 PM	7:00 PM	8:00 PM	0000 (Sun)
	Digital	6:00 PM	7:00 PM	8:00 PM	9:00 PM	0100
	Phone	6:45 PM	7:45 PM	8:45 PM	9:45 PM	0145
SUNDAY	CW	7:00 AM	8:00 AM	9:00 AM	10:00 AM	1400
	Phone	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1500
	Digital	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1600

K6KPH Field Day Bulletin Schedule

SATURDAY	CW	7:30 AM	8:30 AM	9:30 AM	10:30 AM	1403
	CW	5:30 PM	6:30 PM	7:30 PM	8:30 PM	0030 (Sun)
	Digital	6:30 PM	7:30 PM	8:30 PM	9:30 PM	0130
SUNDAY	CW	7:30 AM	8:30 AM	9:30 AM	10:30 AM	1430
	Digital	9:30 AM	10:30 AM	11:30 AM	12:30 AM	1630

W1AW will operate on its regularly published frequencies.

CW frequencies are 1.8025, 3.5815, 7.0475, 14.0475, 18.0975, 21.0675, 28.0675 and 147.555 MHz.

Digital frequencies are 3.5975, 7.095, 14.095, 18.1025, 21.095, 28.095 and 147.555 MHz.

Phone frequencies are 1.855, 3.990, 7.290, 14.290, 18.160, 21.390, 28.590 and 147.555 MHz.

W1AW will transmit the Field Day bulletin using 45.45-baud Baudot, PSK31 in BPSK mode and MFSK16.

The Maritime Radio Historical Society station K6KPH will transmit the W1AW Field Day 2012 bulletin for the benefit of West Coast stations on 3.5815, 7.0475, 14.0475, 18.0975 and 21.0675 MHz using CW.

K6KPH will transmit the Field Day bulletin using Baudot, FEC AMTOR, BPSK31 and MFSK16 on 7.095 and 14.095 MHz.

The K6KPH schedule is accurate as of June 18, 2012.

Any additional transmissions or changes in the schedule will be posted on the web at, <http://www.arrl.org/files/file/Field-Day/2012/2012-FD-W1AW-Sked.pdf>.

NNNN

/EX

Questions for General Class License

1. (G1B12) Who or what determines “good engineering and good amateur practice” as applied to the operation of an amateur station in all respects not covered by the Part 97 rules?
 - A. The FCC
 - B. The Control Operator
 - C. The IEEE
 - D. The ITU
2. (G2C02) What should you do if a CW station sends "QRS"?
 - A. Send slower
 - B. Change frequency
 - C. Increase your power
 - D. Repeat everything twice
3. (G3B02) Which of the following is a good indicator of the possibility of sky-wave propagation on the 6 meter band?
 - A. Short skip sky-wave propagation on the 10 meter band
 - B. Long skip sky-wave propagation on the 10 meter band
 - C. Severe attenuation of signals on the 10 meter band
 - D. Long delayed echoes on the 10 meter band
4. (G4B15) What type of transmitter performance does a two-tone test analyze?
 - A. Linearity
 - B. Carrier and undesired sideband suppression
 - C. Percentage of frequency modulation
 - D. Percentage of carrier phase shift
5. (G5B04) How many watts of electrical power are used by a 12-VDC light bulb that draws 0.2 amperes?
 - A. 2.4 watts
 - B. 24 watts
 - C. 6 watts
 - D. 60 watts
6. (G6B05) What is the approximate junction threshold voltage of a conventional silicon diode?
 - A. 0.1 volt
 - B. 0.3 volts
 - C. 0.7 volts
 - D. 1.0 volts
7. (G7B05) How many states does a 3-bit binary counter have?
 - A. 3
 - B. 6
 - C. 8
 - D. 16
8. (G8A08) Which of the following is an effect of over-modulation?
 - A. Insufficient audio
 - B. Insufficient bandwidth
 - C. Frequency drift
 - D. Excessive bandwidth
9. (G9B11) What is the approximate length for a 1/2-wave dipole antenna cut for 3.550 MHz?
 - A. 42 feet
 - B. 84 feet
 - C. 131 feet
 - D. 263 feet
10. (G9C16) How does the gain of a two-element delta-loop beam compare to the gain of a two-element quad antenna?
 - A. 3 dB higher
 - B. 3 dB lower
 - C. 2.54 dB higher
 - D. About the same
11. (G0A11) What precaution should you take if you install an indoor transmitting antenna?
 - A. Locate the antenna close to your operating position to minimize feed-line radiation
 - B. Position the antenna along the edge of a wall to reduce parasitic radiation
 - C. Make sure that MPE limits are not exceeded in occupied areas
 - D. No special precautions are necessary if SSB and CW are the only modes used

(For answers to test questions see [page 14](#))

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Answers to questions on page 13: 1-A, 2-A, 3-A, 4-A, 5-A, 6-C, 7-C, 8-D, 9-C, 10-D, 11-C