



The Illuminator



The monthly newsletter of the Carbon Amateur Radio Club

September 2002

September Meeting

The next regular meeting of the Carbon Amateur Radio Club will be held on Thursday, September 19, at 7:30 p.m. at the EOC in Nesquehoning.

Due to the lack of a quorum at the August meeting, nominations and elections of officers are scheduled for the September meeting, so it is very important that we get a good turnout. The positions of President, Vice-President, Secretary, Treasurer, and one At-large Director are to be decided at this meeting.

Please make every effort to attend! We need a minimum of 11 voting members to elect officers!

CARC Picnic Scheduled

This year's Carbon Amateur Radio Club picnic is scheduled for Saturday, September 28, in the Beltzville State Park at 11:00 a.m. We plan to have the usual good food, as well as portable radio equipment and antennas. It promises to be a lot of fun! See you there!

Treasurer's Report

By John, W3MF

Previous Balance	1012.86
Receipts (dues)	0.00
Subtotal	1012.86
Disbursements (newsletter)	7.03
Final Total	1005.83

Homeland Security Grant Training to Start September 1

(From the ARRL Letter)

Amateur Radio emergency communications training supported by a \$181,900 federal homeland security grant will begin within a few weeks instead of next year as reported initially. During its first year, the grant from the Corporation for National and Community Service (CNCS) special volunteer program will reimburse the cost of Level I ARRL Amateur Radio Emergency Communications Course training for up to 1700 volunteers.

"It will begin with the recruitment of additional mentors and trainers for the national program," said ARRL Chief Development Officer Mary Hobart, K1MMH. Hobart and Dan Miller, K3UFG — formerly ARRL Certification and Continuing Education Program Coordinator and now the Emergency Communications Course Manager — have been working with CNCS to expedite the grant details.

As Emergency Communications Course Manager, Miller will manage the CNC special volunteer program and United Technologies Corp training grants. Replacing Miller as program coordinator August 19 will be Howard Robins, W1HSR.

The CNCS has accepted ARRL's proposal to commence the expanded emergency training program September 1. The League was among several dozen nonprofit organizations designated to receive some \$10.3 million in federal money to boost homeland defense volunteer programs.

Miller says that since the July 18 grant announcement, interest in the subsidized training has been high. He urged those eager to participate to stand by for announcements via the ARRL Web

and other League news outlets. The first priority when the grant-supported training effort kicks into gear in September will be to recruit and train at least 200 Amateur Radio Emergency Communications course mentors/trainers. These volunteers then will help to manage and train the student load for the first year of the grant.

This week, ARRL section managers were asked to recommend up to five students to sign up to take the Level I Amateur Radio Emergency Communications on-line course starting in September. These individuals also will receive additional training to become instructors and mentors for future classes.

"Although we have a core group of wonderful mentors and instructors who have helped students through the courses given to date, we need more to help with the volume of students training under the CNCS grant," Hobart emphasized. "With the help of the section managers, we will ensure a good distribution of mentors nationwide who can advise students about local ARES groups and activities in addition to helping them with the course material."

Anyone who has already completed the Level I course is qualified to become a mentor with some additional training. Mentor candidates should contact Miller <k3ufg@arrl.org> for information on how to take part.

To comply with grant requirements, the ARRL also will survey served agencies and certain segments of the amateur population, Hobart said. The League wants to ensure that the course offered accurately represents "what really happens in the field" during an emergency or disaster, she said.

Once the ARRL members hand-picked by section managers to train as mentors have completed the program, registration for routine Level I training will open October 1, initially for ARRL field appointees. Miller anticipates that the program will continue to handle approximately 200 students per month. "As much as we'd like to, we can't train everyone at once," he said. "Please be patient."

Students taking advantage of Level I emergency communications training under the grant program will be asked to pay for the course via credit card during the registration process. Upon successfully completing the training and certification, students

will be reimbursed the \$45 fee. Miller said the goal is to dramatically improve the course completion rate from the current 68 percent to nearly 100 percent.

Level I course candidates from Connecticut will continue to be trained under \$33,000 grant from United Technologies Corporation to expand Amateur Radio emergency communications training opportunities. Hobart says the UTC Connecticut grant paved the way for success under the new federal grant.

Hobart emphasized that community involvement is key. "It's not enough to just finish the course," she said. "You're expected to join and take part in your local Amateur Radio Emergency Service organization." The grant training program is especially interested in attracting more seniors — those 55 and older — and those for whom the course fee would mean a hardship unless they were reimbursed.



Batteries

By Rob, KB3BYT

During the past year of pedestrian mobile operation, I have found myself burning out AA batteries in ham radios, FM radios, and CD players. I never really had much luck with rechargeable batteries. I used them in tape players at jobs and they never lasted a full day on the job. Once they died out and would not recharge anymore, I always was faced with a BIG price tag to get more NiCads. I always got sticker shocked by Radio Shack: \$6 for one AA battery, so I would buy the brick of 8 batteries for \$8.

Then, I found the Internet:

<http://www.batteryprice.com> sells rechargeable NiCads for \$1.32. That price is misleading because shipping is \$4.33. So, I bought 4 batteries and with shipping totaled \$9.61, which averages the price to be \$2.40 each.

I am now testing the performance of the batteries. I fully charged 2 batteries for 4 hours and then used them in a CD player and the player shut off after 4 hours of solid play. I can live with that, especially if I am carrying 2 spares. If I am walking

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or taking a bus, I usually can get where I am going in 3 hours or less and headphones are really nice to have when babies are crying on a bus. There are rechargeable batteries that will last longer than NiCad batteries, but they cost much more than the NiCads, so I wanted to test the cheap NiCads first. The other type is Nickel Metal Hydride, NiMH. NiMH batteries cost a buck more for each battery, so, with shipping, would have been \$3.40 each. I already had a NiCad charger, so I would have to buy a NiMH charger if I start using them. NiMH batteries cannot be charged by all NiCad chargers. Shipping costs seem to be cheap enough. Shipping 4 batteries cost \$4.33 and the cost to ship 20 batteries would be \$5.02, so overall cost with shipping for 20 batteries would be \$1.57 each and that's about what I was paying for Duracell AA batteries. If anyone is interested in a bulk purchase of batteries, then perhaps we can pool the order and save on the shipping costs. I am certain I will continue to buy batteries from this source instead of local sources. One more note here about pricing. I live in a tourist town and the prices are really high here for certain items. Batteries are a real shocker. I walked into a shop on a Friday night to purchase a 9-volt battery and the clerk rung it up as \$4.85. I nearly fell over. Five bucks for a 9-volt battery. So, if you come to Jim Thorpe, you may want to BYOB.



ARRL Director, Vice Director Races Set in Four Divisions

(From the ARRL Letter)

ARRL members in the Atlantic and Great Lakes divisions will cast ballots this fall in contests to pick directors, while members in the Delta and Midwest divisions will have a choice of candidates for vice director. Six other incumbents — including both the Director and Vice Director in the Dakota Division — avoided challenges in the current election cycle to choose directors and vice directors for the 2003-2005 term.

Two directors face opposition. In the Atlantic Division, incumbent Director Bernie Fuller, N3EFN, of Saegertown, Pennsylvania, will face Anthony Gargano, N2SS, of Sewell, New Jersey. Vice Director Bill Edgar, N3LLR, is among those facing no opposition. In the Great Lakes Division, Director

Gary Johnston, KI4LA, of Edgewood, Kentucky, is in a three-way race with Paul Daley, WT8S, of Canal Winchester, Ohio, and Jim Weaver, K8JE, of Mason, Ohio. Johnston only recently took over the top spot from George Race, WB8BGY, who, in a surprise move, resigned during the July Board of Directors' meeting. Vice Director Dick Mondro, W8FQT — who was Michigan Section Manager before his appointment in the wake of Johnston's accession — is unopposed for election.

Incumbent vice directors in two divisions will compete for their seats. In the Delta Division, incumbent Henry R. Leggette, WD4Q, of Memphis, Tennessee, faces a challenge from Nicholas R. Smith, W4GKM, of Crossville, Tennessee. Delta Division Director Rick Roderick, K5UR, has no opposition. In the Midwest Division, incumbent Vice Director Bruce Frahm, K0BJ, of Colby, Kansas, has competition from Bill Wheeler, K0DEW, of Lebanon, Missouri. Midwest Division Director Wade Walstrom, W0EJ, is unopposed.

Dakota Division Director Jay Bellows, K0QB, and Vice Director Twila Greenheck, N0JPH, also face no opposition in their bids for re-election.

In the divisions where there is competition for director or vice director, ballots will go out to all ARRL members on record in the division as of September 10, 2002. Ballots will be mailed by October 1 and must be received back at ARRL Headquarters (via the ARRL's auditor) by noon on November 15, when they will be counted and the successful candidates announced. Candidates running unopposed are declared elected. New terms of office begin January 1, 2003.



ARRL DX Bulletin

DX Bulletin 36 ARLD036
From ARRL Headquarters
Newington CT September 5, 2002
To all radio amateurs

This week's bulletin was made possible with information provided by Tedd, KB8NW, the OPDX Bulletin, The Daily DX, DXNL, VK3DYL, PT2PS and Contest Corral from QST. Thanks to all.

LORD HOWE ISLAND, VK9. A group of YLs will operate from Lord Howe Island (IOTA OC-004) as VK9YL, from September 15 to 29. They will then continue on to the South Cook Islands where they will operate as ZK1XYL from Aitutaki Island (OC-083) from October 1 to 6 and from Rarotonga (OC-013), October 7 to 15. QSL with return postage to VK3DYL or via the VK3 Buro.

REUNION ISLAND, FR. Bernie, FR/F6BLK, will be active from September 23 to 29. He will then use the callsign TO8MZ from Mayotte, September 30 to October 9. QSL via F6BLK. He plans to stay mostly on CW but will do occasionally SSB.

BENIN, TY. Pat, I8QLS, will be active with Piero, W1NA/I8CZW and Gino, I8ULL, from October 19 to 28. During the CQWW Phone Contest, I8QLS will take part as a Single Op/10 meter entry, W1NA as a Single Op/15 meter entry and I8ULL as a Single Op/20 meter entry. Before the contest they will focus on the low bands, newer bands, 6 meters and CW. QSL via I8ACB. The only callsign provided so far is for Pat, I8QLS, who will be using TY2LS.

GAMBIA, C5. C56/G4IRN will be on the air from September 6 to 13, on 80 through 10 meters, using mainly CW. QSL via G4IRN.

GREECE, SV. J45DIG, the Greek DIG club station, will be activated by several operators until October 16, using CW and SSB. Ops include DH5JR, DJ8OT, DJ8VC, DF6QP and DJ8JS. QSL via DJ8OT, via the bureau is ok.

NORTHERN MARIANAS, KH0. JE6DND will use the call KH0R from Saipan from September 6 to 10. QSL via JE6DND.

EAST MALAYSIA, 9M6. Shun, JH7IMX, will be active as 9M6LSC from September 26 to October 1. He will participate in the CQ/RJ Worldwide DX Contest, RTTY as a Single Op/All Band entry. QSL via JH7IMX.

MAURITANIA, 5T. Op Nick Sinieokoff has again activated 5T5SN. QSL via IZ1BZV.

NORWAY, LA. LA7N/p will be on from Borgan Island, EU-062, September 7 and 8. The multi-op group will have five stations on the air on 160 through 10 meters using SSB, CW, PSK31 and

RTTY. They will also be on 6, 2 and 70cm SSB and FM with some satellite operations. They plan to hang out 5 to 10 kHz below the standard IOTA frequencies. QSL via SM5SIC.

BRAZIL, PY. LABRE will be active as ZW100J until September 30 in celebration of the centenary of Dr. Juscelino Kubitschek de Oliveira, ex PY1JKO. He was a ham, politician and founder of Brasilia City. Stations will be active on 80 through 6 meters. A special QSL will be issued. QSL via the bureau or direct to PT2AA.



ARRL Propagation Forecast Bulletin

Propagation Forecast Bulletin 37 ARLP037
From Tad Cook, K7VVV
Seattle, WA September 6, 2002
To all radio amateurs

Average daily sunspot numbers for the week were higher this week than last, and average solar flux was slightly lower. Geomagnetic indices were unsettled for most of the week, and then on Wednesday there was a surprising jump in geomagnetic activity. This began on Tuesday evening in North America after the interplanetary magnetic field near earth unexpectedly turned south.

The earth's magnetic field forms a bubble around the planet that helps protect against effects from the solar wind. Where the interplanetary magnetic field meets earth's magnetic field is called the magnetopause. Earth's magnetic field points north at this point. If the interplanetary magnetic field points south at the magnetopause, it partially cancels the earth's magnetic field at this point of contact and lets in the solar wind. This is what happened on Wednesday, and the results were impressive auroral displays and a planetary K index of six.

Over the next few days solar flux is expected to rise, with values over 200 by Sunday, then peaking around 230 by the end of next week. Don't forget that the autumnal equinox is soon. This year it will be on September 23 at 0448 UTC. High frequency propagation is improving as we move from summer to fall.

There is an interesting and informative space physics text on the net, which has lots of information on the sun, the magnetosphere, solar wind, and many other topics. You can find it at <http://www oulu.fi/~spaceweb/textbook/>. N4RYX wrote to ask about some basic propagation information, and as we've mentioned in the past, check <http://www.arrl.org/tis/info/k9la-prop.html> and <http://www.arrl.org/tis/info/propagation.html>.

In the past we've mentioned the WM7D solar resource page at <http://www.wm7d.net/hamradio/solar/index.shtml>. You'll find links there to some interesting historical charts of sunspot cycles. Now W3DF writes to remind us of his historical solar activity charts at http://www.qsl.net/w3df/sol_f0.html. Note that it links to a cycle 19-23 comparison at <http://www.qsl.net/w3df/cycomp.html>, and many other interesting views of solar data.

Sunspot numbers for August 29 through September 4 were 146, 150, 153, 187, 227, 266 and 215, with a mean of 192. 10.7 cm flux was 169.3, 170, 180.3, 180.5, 173.8, 171.4, and 171.3, with a mean of 173.8. Estimated planetary A indices were 10, 10, 13, 13, 14, 10, and 42, with a mean of 16.



United Parcel Service Now Neutral on SAVI Proposal for 70 cm (From the ARRL Letter)

United Parcel Service (UPS) now says it's neutral on SAVI Technology's petition to deploy RF identification tag devices at 433 MHz at much greater duty cycles than current Part 15 rules permit for such devices. UPS clarified its position this week in an ex parte filing to the FCC.

"UPS takes no position on the rule changes proposed in the SAVI Petition because they will have virtually no impact on UPS's shipping operations and are inconsistent with efforts to promulgate international standards for RFID tags," the shipping company said. The change in position is doubly significant because UPS has an equity interest in SAVI through its UPS Strategic Enterprise Fund.

RFID tags are used for tracking shipments and packages, among other applications. The ARRL has said that adopting SAVI's proposals would result in severe and harmful interference.

ARRL Chief Executive Officer David Sumner, K1ZZ, said the League was pleased to learn that UPS had "done the right thing." Sumner had pointed out UPS's support of the SAVI petition in his "It Seems to Us . . ." editorial in the December 2001 issue of QST.

"The ARRL is very gratified that, upon careful consideration, UPS has changed its position and now recognizes that the SAVI proposal for 425-435 MHz offers no benefit," Sumner said. "We are confident that if the FCC devotes the same attention to considering the issue, it will come to the same conclusion."

UPS said it wanted to clarify its position in light of the many comments filed in response to the Notice of Proposed Rulemaking (NPRM) in ET Docket 01-278 that cited the shipping company's initial support of the SAVI petition. UPS has not directly commented on the NPRM previously.

UPS now says that, after further consideration, it sees no particular advantage to the changes SAVI has proposed. "UPS now does not envision any of its applications requiring a transmission duty cycle in excess of what is currently permitted under Section 15.231," UPS said.

UPS also cited concerns that the proposed operating frequencies "are not fully compatible with frequency allocations" in many of the more than 200 countries and territories in which it does business. "Thus, it is of limited benefit to global companies such as UPS should the FCC adopt the proposed 10 MHz-wide RFID band from 425 to 435 MHz."

More than 130 amateurs filed comments in opposition to SAVI Technology's RFID tags proposal, and most supported the League's position that the proposed rules are flawed and should not be adopted.

A copy of the UPS ex parte filing in ET Docket 01-278 is available on the FCC Web site http://gulfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6513287285.



FCC Spells Out Utility's Obligations in Interference Cases

(From the ARRL Letter)

Electric utilities must correct equipment problems that cause harmful interference to stations operating in the Amateur Service. Following up on a recent pledge to get tougher on electric utilities that fail to promptly fix faulty gear that generates interference, FCC Special Counsel Riley Hollingsworth made that point doubly clear August 9 in a letter to Reliant Energy Company of Houston. The case involves unresolved interference complaints from Edward J. Gerber, W5GCX, of Houston.

"Reliant must do all things necessary, and bear any and all necessary costs, to comply with its obligations as an operator of unlicensed devices pursuant to the Commission's Part 15 regulations," Hollingsworth reminded the utility's attorneys. He asked Reliant to provide a written report in 30 days detailing steps taken to eliminate the interference to W5GCX. Hollingsworth said he'd hold off on enforcement action until he has the report in hand but added that the FCC "expects a complete solution without further delay."

In its reply to a May 23 letter from the FCC, Reliant had suggested that the interference Gerber was experiencing had come from an otherwise properly operating 250 kVA step-down transformer. The utility had proposed to relocate the transformer at Gerber's expense.

Hollingsworth pointed out that the utility may not pass on the cost of fixing the problem to the victim of the interference. "It is exclusively the obligation of the operator of the unlicensed device," Hollingsworth wrote, referring to the FCC's Part 15 rules.

Responding to the initial FCC letter, the utility's attorneys — Baker Botts LLP of Houston — had attempted to claim it was not obligated to avoid interference to amateur stations. Hollingsworth called the attempted distinction "baseless."

A copy of the letter went to the office of Texas Public Utility Commission Chairman Rebecca Klein.

The League has worked with the FCC and utilities to resolve dozens of interference complaints. ARRL Electromagnetic Compatibility and Radio Frequency Interference Engineer John Phillips, K2QAI, applauded Hollingsworth's tenacious approach to dealing with interference complaints involving power companies. "Amateur Radio is very fortunate to have someone like Riley Hollingsworth in our corner," he said. "There is no way that amateurs could ever hope to resolve some of these problems without the backing of the FCC."



Proposal Filed to Allow European/UK FRS-type Radios on 70 cm

(From the ARRL Letter)

An amateur from Virginia has petitioned the FCC to allocate eight channels in the 70-cm band for use by visitors from Europe and the United Kingdom with Personal Mobile Radio (PMR 446) transceivers. The recently authorized PMR 446 is similar to the US Family Radio Service. Dr Michael Trahos, KB4PGC, a physician from Alexandria, filed the petition last January, saying it would help to promote international goodwill. The FCC on August 8 designated the petition as RM-10521 and invited comments on the proposal within 30 days.

A General-class licensee, Trahos wants the FCC to amend its Amateur Service "and/or" Family Radio Service rules to allow "visiting/transient/tourist non-amateur non-United States resident foreign nationals" unlicensed access to certain frequencies between 446.0 and 446.1 MHz. He proposed to permit operation at up to 0.5 W PEP output. The ARRL band plan for 70 cm designates 446.0 MHz as a national calling channel. Other frequencies in the segment are for simplex or repeater use.

In his petition, Trahos said existing Part 97 Amateur Service rules precluding the use of PMR 446 radios in the US "are essentially unenforceable" and that granting his petition would have minimal impact on existing amateur operations. "As such, Amateur Radio community oppositions to this petition, though respected,

would be misplaced and not in the international public interest or good will," he asserted.

As of August 15, two comments had been filed on RM-10521 by amateur licensees. Both opposed Trahos' petition, citing the potential for interference to amateur operations.

Comments on RM-10521 are due by September 6 and may be filed via the FCC's Electronic Comment Filing System (ECFS) <<http://www.fcc.gov/e-file/ecfs.html>>. To view the Trahos petition and filed comments, click on "Search for Filed Comments." To file comments, click on "Submit a Filing." Enter "RM-10521" (the ECFS is case-sensitive) in the "Proceeding" field of either form.



FCC Enacts Internet Morse Code Requirement

(From Ham Radio Online)

Note for the humor impaired: this is satire. Please do not read this if you are not properly trained and certified in satire.

The FCC, under pressure to clean up the Internet, especially after the Communications Decency Act provisions regarding Internet content regulation were stricken as violating the U.S. Constitution, has decided instead to require a Morse code requirement for Internet users. Citing the success of the Amateur Radio Service and the general belief that its requirement for operators to pass a Morse code proficiency exam and other technical requirements, has kept the A.R.S. "clean," the FCC will enact a 5 word-per-minute requirement for all Internet users. They are leaving open the issue of whether there should be a "codeless" class of Internet user and are soliciting comments on this proposal.

Persons wishing to develop a web site having only links to other web sites having links to other web sites, and so forth, must pass a 13 word-per-minute test and demonstrate proficiency in HTML, the Internet authoring language.

Persons wish to develop web sites that have actual content, as compared to just links to other web sites, must pass a 20 word-per-minute Morse proficiency test, demonstrate proficiency in HTML and the Java programming language, and show that they have mastery of at least one human language, such as English.

The FCC, which lacks budgetary authority to implement the testing program, has stated that it intends to create Volunteer Examiner programs for Internet applicants.



DXCC reminder

The ARRL DXCC Desk reminds all DXCC program participants that the September 30, 2002, deadline to submit items for the next DXCC Annual List is rapidly approaching. The DXCC Annual List will include all stations submitting an application to DXCC between October 1, 2001, and September 30, 2002. To appear in the Annual List, you must submit an application between those dates or be current on the DXCC Honor Roll. No submission is necessary if you are now on the DXCC Honor Roll, but only those modes that are Honor Roll will be shown. Applications must be postmarked by September 30, 2002. For more information, contact the ARRL DXCC Desk <dxcc@arrl.org>; 860-594-0234.



Final Two Ham Antennas Installed Aboard Space Station

(From the ARRL Letter)

The last two Amateur Radio on the International Space Station (ARISS) antennas were installed this week during a space walk. The installation wraps up work that began last January when the first two of the four Italian-designed antennas were attached to the ISS exterior. During the second of two space walks this month, two members of the Expedition 5 crew attached essentially identical VHF-UHF flexible-tape antennas to the ISS Service Module on August 26. The space walk — or EVA (extra-

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vehicular activity) — had been postponed from August 23.

Expedition 5 Flight Engineer Sergei Treschev, RZ3FU, joined Crew Commander Valery Korzun, RZ3FK, during the nearly 10-hour-long space walk. In addition to installing the new ham radio antennas, the pair prepared the station for upcoming space walks and worked with Russian and Japanese experiments on the station's exterior.

Installation of the new ARISS antennas on the Zvezda Service Module — the crew's living quarters — makes possible two separate ham stations aboard the orbiting outpost — one for VHF operation, the other for UHF (70 cm). Similar flexible-tape antennas for VHF-UHF and for HF were installed during January space walks by the Expedition 4 crew, although there is not yet any HF gear aboard the ISS.

The newest two VHF-UHF flexible tape antennas — designated WA1 and WA2 — were installed along the perimeter of the aft end of the Zvezda Service Module, near the Soyuz docking port.

ARISS is an international project sponsored jointly by ARRL, NASA and AMSAT. A paper entitled "2001: an Amateur Radio Space Odyssey on the International Space Station," which details the development of ARISS and discusses the four new ARISS antennas, is available via the ARISS Web site
<<http://ariss.gsfc.nasa.gov/EVAs/amsat01.pdf>>.

Helpful Hints

When out driving, always turn left. Then, should you become lost, you can always find your way home by reversing the procedure and always turning right.

Shallow Thoughts

Why are there Braille instructions at the drive-up ATM?



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"Gentlemen...tonight we will begin the Malicious Interference Net with a round of anonymous whistling, followed by free style profanity. Remember....no call signs!"

Check out <http://incolor.inetnebr.com/n0ujr> for other cartoons and to purchase N0UJR's book, "N0UJR and His Friends."



Carbon Amateur Radio Club – 2001-2002 Officers

President: Anthony “Goody” Good, K3NG, goody@fast.net
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W3HA Callsign Trustee: Bill Dale, WY3K
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Propagation and Commentary: open
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Services

W3HA Repeater: 147.255 MHz + PL 131.8

CARC Website: <http://www.learnmorsecode.com/carc/>
Webmaster: Rob, KB3BYT roomberg@ptd.net

CARC Email Reflector: see www.qth.net CarbonARC list for details

CARC Membership Information

Regular Membership is \$15.00, which includes autopatch privileges.

All amateur radio operators are invited to join the CARC ARES / RACES net held 21:00 local time every Wednesday on the W3HA repeater at 147.255 MHz + offset, PL 131.8. Any amateur radio operator or anyone with an interest in ham radio is welcome to attend our monthly meetings which occur the third Thursday of each month at 7:30 PM at the Carbon County EMA Center on Route 93 in Nesquehoning.

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