Moultrie Amateur Radio Klub P.O. Box 91 Lovington IL 61937

R F Feedback

Volume 3 Issue 6 June 16 2005

Club Tours WEIU TV Station

On May 16th the Moultrie Amateur Radio Klub toured the WEIU TV Station Studios at Eastern Illinois University

The Group was met by Kevin Armstrong & Keon Rogers ,tour guides… Special THANKS to them for all their work & efforts in making this an enjoyable tour

The group was lead into the building, shown the first of a series of sound proof rooms which were recording studios etc Next came the control room with monitor and boards

Ken then told us how they operated etc… Next was another series of rooms which had racks of routers Continuing on we were taken to the studio where the actual on air programs were made we got to examine the TV cameras Next was the radio room then went outside to look at the mobile unit..

Those in this group were :
N9GIF– Ron, WX9D Jerry, KA9Z Alan, WX9D XYL Gale, W9LYN Bill, N9PLB Tom WC9V Ralph, Kean Rogers Tour Guide, K3BY Sam, W9UFR, K9BML Jean WB9ZCN Ron WB9ZCN Son, K9SWY Vernon, KB9BWS Byron, KA9LRZ President

More photos later in this issue

PROGRAM

- - - MORE ON SATELLITES - - -

Clint Parrish – KC9S

Specifically, Clint will talk about how to set up a relatively inexpensive satellite station and even how to work satellites with handhelds. He will also include more on the new ECHO (AO-51) FM satellite and on NOAA weather satellites.

H F CONDITIONS

Since last month's report there have been two peaks for the Solar Flux Index. The first reached 125 on May 11th and the most recent one was up to

117 on June 9th. Between those peaks there was a valley where the flux was in the low 80's for about a week during the middle of May.
Currently (June 14th), the SFI has slipped to 92 and is predicted to fall to 85 in a couple of days as a pair of spots rotate off the Earth-facing portion of the Sun.

Was not very active in the last month but did manage to work a few countries, mostly on 17 meters, when the SFI was above 100 and the "A" Index was below 10. They included Sao Tome (S9SS), Liechtenstein (HB0/DL2SBY), Bulgaria (LZ2WO), Hong Kong (VR2XMT) and Paraguay (ZP4KFX). Having never even heard Hong Kong before, it was a tremendous thrill to work VR2XMT with the 100 watts to the 17 meter vertical dipole. Do hope he will QSL! de W9LYN

QSL CARD RETURNS

With regard to W9LYN's story last month about the 18 QSL cards that he had sent to Europe on April 5th, he still has received only the 12 cards mentioned last month. He is hopeful that the remaining ones will come but less so than last month. The QSL card received for his oldest contacts this month was for a couple of contacts with Easter Island sent on 19 January 2005. Most of the remaining five were sent 23 April or later.

LoTW

The LOGBOOK OF THE WORLD that ARRL is running and that Dave (KD9AC) told us about last year has been used for DXCC credit for more than a year now. A fair number of DXpeditions are saying that they will QSL via LoTW and more and more individuals are starting to use the system. The last QSOs that I put in the system was nearly a year ago. Since the first of the year,
I have had more than three dozen of those confirmed, that is QSLd for a total of 228 QSLs out of 1,351 QSOs that I have entered or nearly 17%. However, the total numbers in the system do not look as good. There are 3.3 million QSLs but 73.5 million QSOs in the system or under 5%. Perhaps the percentage difference is due to the fact that a fair number of my submissions were for relatively "domestic contests" like sweepstakes and the ARRL 160 meter contest where US and Canadian hams where making submissions.

One of my last QSLs in the system was submitted May 30th 2005 for a CW contact in the 2003 CQ WW CW Contest by JA3JBK so it is good to see overseas hams beginning to participate in LoTW. Then too it was great to be able to use a 15 meter contact with Saudi Arabia QSLd in the system for my 150th entity on that band in my recent DXCC submission at Dayton.
de W9LYN

The NEC and U
By Jerome Buie KB4POA and Art Varga WA9LXT

Ever wonder what the National Fire Protection Association has to say about your amateur radio station? The NFPA is the body that developed the National Electric Code® (NEC). The primary purpose of the NEC is to set standards which promote safety. It does not provide construction methods or practices. The code is intentionally written to allow flexibility in the implementation. Local building authorities in most states have adopted the NEC as requirements for construction standards. These standards have become the law and must be observed. Some jurisdictions have made additions and modifications to the NEC to suit special local conditions. However, this article will only address NFPA code and not any unique local requirements.

Enforcement of these regulations is normally performed when a building is being constructed or major changes are required. Unless you are building a new home you may never have to comply with the codes. However, for you and your family's safety, it would be prudent to maintain compliance with the NEC as you build your station.

Any wiring changes you make to your house to accommodate your station should be made in accordance with the sections of the code that relate to residential wiring. Article 810 of the code applies directly to receiving and transmitting stations. It also refers to any radio noise suppressors that are connected to power-supply leads; they must be listed. This means they will have a stamp stating that they comply with NEC requirements and you must protect them from physical damage.

Wire antennas and lead-in conductors must be made of hard-drawn copper, bronze, aluminum alloy, copper-clad steel, or other high-strength, corrosion-resistant materials. Soft or medium-drawn copper is only permitted for lead-in conductors where the maximum span between supports is less than 35 feet. Antennas and lead-in conductors must be securely supported and must not be attached to the electric service mast. Don't connect them to poles, or similar structures carrying open electric light, power wires, or trolley wires. Make sure that all insulators used to support antennas and lead-in wires have sufficient mechanical strength to safely support the conductors. Lead-in conductors must be securely attached to the antennas.

Antennas and lead-in conductors from antennas to a building must not cross over open conductors of electric light or power circuits, and must be kept well away from all such circuits to avoid the possibility of accidental contact. Where proximity to conductors cannot be avoided, the installation must provide a clearance of at least two feet. When possible, antenna conductors should be installed so as not to cross under open electric light or power conductors.

Splices and joints in antenna spans must be mechanically secured with approved splicing devices or by other means that will not appreciably weaken the conductors. Masts and metal structures supporting antennas must be grounded in accordance with Section 810-21.

The physical aspects of antenna conductors and self-supporting antennas for receiving stations and transmitting stations are similar, but transmitting stations have additional requirements that will be covered later. The conductor sizes for receiving stations are as follows.

Minimum Conductor Size vs. Maximum Open Span Length

Materials	Length < 35 ft	Length 35 – 150 ft.	Length > 150 ft.
Aluminum alloy, hard-drawn copper	19 AWG	14AWG	12AWG
Copper-clad steel, Bronze, or other high-strength mat'l.	20AWG	17 AWG	14 AWG

Self-supporting antennas, such as vertical rods, dishes, or dipole structures must be made of corrosion-resistant materials and of strength suitable to withstand ice and wind loading conditions. They must be located well away from overhead conductors of electric light and power lines to avoid the possibility of the antenna or structure falling into or making accidental contact.

Lead-in conductors from receiving antennas must have a tensile strength at least as great as that of the conductors for the antennas as specified in the table above. Lead-ins consisting of two or more conductors that are twisted together, enclosed in the same covering, or are concentric; the combination will be at least as great in size and have tensile strength as that of the conductors specified in the above table.

Lead-in conductors from receiving antennas that are attached to buildings must be installed so that they cannot swing closer than two feet to the conductors of circuits of 250 volts or less, or 10 feet to the conductors of circuits of over 250 volts. In the case of circuits not more than 150 volts between conductors, where all conductors involved are supported to ensure permanent separation, then minimum permitted clearance may be reduced to not less than four inches.

Clearance between lead-in conductors and any part of a lightning rod system shall not be less than six feet. Underground lead-in conductors must be separated from any light or power circuits by at least 12 inches.

Indoor antennas and lead-ins must not be run nearer than 2 inches to conductors of other wiring systems in the premises, except where such other conductors are in metal raceways or cable armor, or where permanently separated from such other conductors by a continuous and firmly fixed nonconductor, such as porcelain tubes or flexible tubing. Indoor antennas and indoor lead-ins are permitted to occupy the same box or enclosure with conductors of other wiring systems where separated from the other conductors by an effective permanently installed barrier. The use of electric supply circuits for receiving antennas is permitted in Section 810-19 providing that the receiver is connected via a listed device.

Antenna discharge units are required for receiving stations. Each conductor of a lead-in from an outdoor antenna must be provided with a listed antenna discharge unit, except where the lead-in conductors are enclosed in a continuous metallic shield that is either permanently and effectively grounded, or is protected by an antenna discharge unit. Antenna discharge units must be located outside the building or inside the building between the point of entrance of the lead-in and the radio set or transformers, and as near as practicable to the entrance of the conductors to the building. The antenna discharge unit must not be located near combustible material nor in any hazardous location where ignitable vapors and gases, dust, and volatile flammable liquids may be present. Antenna discharge units must be grounded in accordance with Section 810-21.

Grounding conductors may be made of copper, aluminum, copper-clad steel, bronze, or similar corrosion-resistant material. Aluminum or copper-clad aluminum grounding conductors should not be used where there is direct contact with the earth, masonry, or other corrosive conditions. Aluminum or copper-clad aluminum should not be installed within 18 inches of the earth. Insulation on grounding conductors is not required by the NEC.

Grounding conductors must be securely fastened in place and may be directly attached without the use of insulating supports. Where proper support cannot be provided, the size of grounding conductors may be increased so they become self-supporting. Mechanical protection must be provided for exposed grounding conductors to protect them from physical damage. The size of the conductor may be increased to compensate for lack of protection. When grounding conductors are run in a metal conduit or raceway, both ends

of the raceway must be bonded to the grounding conductor or to the same terminal or electrode to which the grounding conductor is connected.

Grounding conductors from antenna masts or antenna discharge units should be run in as straight a line as practicable to the grounding electrode. The grounding conductor should be securely fastened to the nearest accessible location on: the building structure grounding electrode system, the grounded interior metal water piping system, the power service ground, the metallic power service raceway, the service equipment enclosure, or the metal enclosure of the system grounding electrode. Interior metal water piping should not be used if located more than five feet from the point of entrance to the building. Make sure that the inside water piping is electrically bonded around a water meter or insulating joints. It is preferable to connect grounding conductors to a metal underground water pipe that is in direct contact with the earth for 10 feet or more.

Grounding conductors maybe run inside or outside the building and should be no smaller than No. 10 copper or No. 8 aluminum wire. A single grounding conductor is permitted to serve for both protective and operating ground purposes. Bonding jumpers connected between the radio equipment grounding electrode and the power grounding electrode system at the building, or structure served where separate electrodes are used, are required to be No. 6 copper equivalent or larger.

All previously mentioned requirements for materials, supports, clearance, splices, and grounding apply to antenna systems of Amateur transmitting stations as well.

The following table show the sizes of antenna conductors for transmitting stations.

Minimum Conductor Size vs. Maximum Open Span Length

Materials	Length < 150 ft.	Length > 150 ft.
Hard-drawn copper	14 AWG	10 AWG
Copper-clad steel, Bronze, or other high-strength mat'l.	14 AWG	12 AWG

Lead-in conductors for transmitting stations, for various maximum span lengths, must be at least as great as that of the conductors for antennas shown in the above table.

For transmitting stations, antenna conductors attached to buildings must be securely mounted at least three inches clear of the surface of the building on nonabsorbent insulators, except where lead-in conductors are enclosed in a continuous metallic shield that is permanently and effectively grounded. Lead-in conductors, other than types enclosed in a continuous metallic shield, must enter the building by one of the following methods: through rigid, noncombustible, nonabsorbent insulating tubes or bushings; through an opening provided for the purpose in which the conductors are firmly secured to provide a clearance of at least two inches; or through a drilled window pane.

Lead-in conductors to radio transmitters must be installed and located so as to make accidental contact with them difficult. Each conductor must be provided with an antenna discharge unit or other suitable means that will drain static charges from the antenna system. The

NEC provides exceptions for lead-ins that are protected by a continuous metallic shield that is permanently grounded and where the antenna is permanently and effectively grounded.

The minimum size of protective grounding conductors for transmitting stations should no smaller than No. 10 copper, bronze, or copper-clad steel wire. Remember, this is for safety only. The NEC states that the size of the operating grounding conductor must not be less than No. 14 copper wire or its equivalent. In practice however, an operating ground conductor may need to be much larger.

Interior installations for transmitting stations require that all conductors inside the building must be separated at least four inches from the conductors of an electric light, power, or signaling circuits. Transmitters must be enclosed in a metal frame or grille, or separated from the operating space by a barrier or other equivalent means, and all metallic parts of the enclosure must be connected to ground. All external metal handles and controls accessible to the operating personnel must be grounded. All access doors must be provided with inter-locks that will disconnect all voltages over 350 volts between conductors when any access door is opened.

Compliance with the NEC does not guarantee that your station is totally protected against lightning strikes, but it is a good beginning point for building a safe and effective station.

For more information on station grounding and lightning protection, we suggest reading "Lightning Protection for the Amateur Station," written by Ron Block, KB2UYT. This three-part article was published in the June, July, and August 2002 issues of QST magazine. During thunderstorms, you still may wish to disconnect your antenna system. The April 2002 issue of QST features a handy lightning detector device, designed by Bob Radmore, N2PWP. It provides a warning that could protect you and your station from early expiration.

IDEAS FOR M.A.R.K. PROGRAMS

Would greatly appreciate your suggestions for programs for the club meetings. If you have something you would like to present, or know a person who could give us a good program please let me know. .... de W9LYN <cfwsj@eiu.edu

FOR SALE

Yaesu VX-2R Dual band handheld w/ two antennas, spk/mic, and all manuals. 85.00
Ron N9GIF

I have a complete ham station I would like to sell. I thought I'd drop you a line in case any of your club members might be interested. Here is the list:
Yaesu FT-757 GX All mode HF transceiver Icom IC-3200A Dual band FM transceiver (needs repair; squelch doesn't work)
Icom IC-27A 2m. FM transceiver
MFJ Deluxe Versa Tuner II antenna tuner Trippelite Mod. PR-40A 40 amp. regulated power supply
Cushcraft AR-270 Dual Band (70 cm / 2m.) Ringo antenna Hy-Gain Omni DX-88 eight-band vertical antenna
All manuals and original boxes
Package price: all for $550
Nick Stokes (KA9FTW)
1107 N. 19th St.
Mattoon, IL. 61938 217-235-2367
stokesnc@consolidated.net

Kenwood 520 F with manual
Paul K9COB

From the Editor's Desk

Anyone having news events or activities for this newsletter Please contact me Ka9lrz@advant.com
Bob KA9LRZ – Editor

Announcements

Ham Radio Breakfast- Every Friday morning Amateurs meet at D & W

Restaurant in Mattoon at 8 am All amateurs are welcome

Coles County ARES will meet Fridays at the Forum from 6:30 AM to about 7:10 AM until further notice. This is located about four doors East of the old Gowin's restaurant site in Mattoon...

Don't forget to check into the Clark County ARES Net Wed nights at 9:00 pm on 146.520 N9YRX NCS

APRS Net following the ARES net 9:30 pm APRS will be on 144.390 Will use 146.520 Simplex to coordinate things until established Use N9YRX-3 to check in N9YRX

WEEKLY M.A.R.K. NETS

Every Saturday Night ten meters net at 8 pm on 28400 USB Ken KA9AHP NCS

Every Sunday Night 8 pm Moultrie Amateur Radio Klub net 146.655 Tone 162.2 Bob KA9LRZ NCS

OFFICERS

President Bob Olson KA9LRZ

Vice President Bill James W9LYN

Treasurer Alan Dickens KA9Z

Secretary Robert (Bob)West W9UFR

TRUSTEES

Ralph Zancha WC9V Term Ends September 2005

Ron Amex N9GIF Term Ends September 2006

Byron Abrams KB9BWS Term Ends September 2007

CORRESPONDENCE & DUES

SEND TO: Moultrie Amateur Radio Klub

P. O. Box 91
Lovington, IL 61937

Group Dinner at Airport
Photos by Alan KA9Z
Thanks Alan

Tour Of WEIU TV Studio


WEIU
WEIU
WEIU
AccuSync 70
05/16/2005


581-6116
05/16/2005


WEIU
Digital Production Unit
05/16/2005