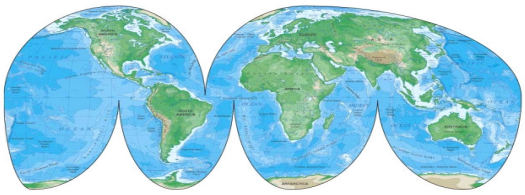
MOUNT VERNON AMATEUR RADIO CLUB

C  Q

April 2007 Newsletter

MEETINGS SECOND MONDAY OF THE MONTH AT THE RED CROSS ANNEX BUILDING,
300 N MULBERRY ST, MT. VERNON, OHIO
REPEATER FREQUENCIES: 146.790 (-) K8EEN /R 444.750 (+) KC8YED /R 53.790 (-) WA8YRS/R
SUNDAY NIGHT ARES NET AT 8:00 P.M ON THE K8EEN REPEATER OPEN TO ALL

NOTES FROM THE EDITOR

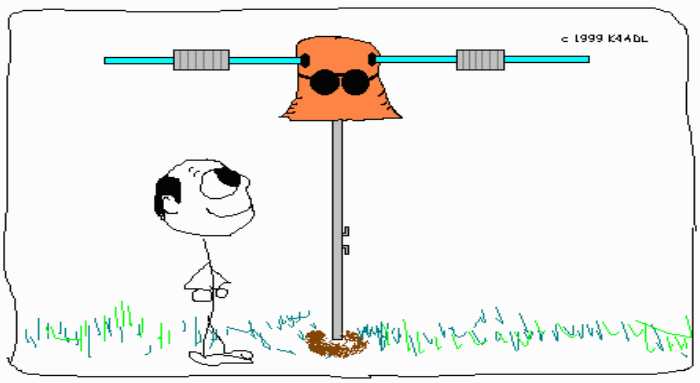
This Newsletter has what I hope proves to be some interesting articles. The SkyWarn training was very successful. Please read the write up on that event.

Mr. President Mike McCardel, KC8YLD, has his always interesting PIO column. The final installment of the General Upgrade series is finally here. There are a few more surprises in store, so please read on.

To make room for all these articles, I will be skipping my "Repeaters and Stuff" column for this month. It will be back next month. The last part on repeaters from my VHF/UHF World column has also been delayed yet one more month. I have been trying to get this last part in for some time now. As the Editor, that is a good problem to have. The more articles I have, the easier it is to create an interesting and noteworthy Newsletter. I do not mind delaying something I have written to allow space for others to participate. The time sensitive stuff is always carried first.

Planning ahead, I would like the June edition of the Newsletter to be a "Field Day" edition. Meaning that the main theme and majority of articles will cover some aspect of Field Day. For those that would like to contribute, this is your chance. I am looking for antenna articles, information on batteries, generators, emergency lighting, alternate power sources. Just about anything Field Day oriented would be acceptable. Please try to limit your article to one page. Articles of more than one page may be broken down into several parts. However, let me be the judge of that. Do not worry if you do not believe you can write. Heck, I can't either, and look what I am doing! If you get a rough draft with your ideas in place, I should be able to quickly piece together a suitable article. That is why they call me the Editor. Pictures and drawings are welcome. So send me some articles. Email, snail mail, or whatever. By all means, feel free to deliver a hand written article to me at one of our meetings. If I need to revise an article you have written, I will get it back to you for your final approval. If I would be fortunate enough to receive more articles than there is room for, I will select articles for the June Newsletter, and save the rest for future publication. Everything will get published! I may even consider an expanded June Newsletter which would be beyond the usual ten pages. This would cost more in postage, but special is special, right?

Another thing I would really like to put in our Newsletter is a series of short stories. This is something I do not believe I have the talent for. However, if one of our readers, their spouse, or children would like to attempt this, please feel free to do so. Of course, the story would have to have ham radio as the main theme. Could be comedy, drama/mystery, or sci-fi. I am open to all possibilities. Enjoy the Newsletter.



WARREN REALLY DIDN'T UNDERSTAND THE CONCEPT OF A "DISGUISED FLAGPOLE ANTENNA."

SKYWARN SPOTTER TRAINING HUGE SUCCESS

The Skywarn Weather Spotter training sponsored jointly by the College Township Fire Department and the Mt. Vernon Amateur Radio club attracted over fifty Knox County citizens interested in helping to provide this important community service.

The Knox County Citizens Corps., the American Red Cross, and Knox County Ham Radio operators where well represented. Gary Garnet, course Instructor and warning coordination meteorologist with the National Weather Service in Cleveland, gave a lively and entertaining presentation on what to do and what not to do during severe weather.

Course Instructor Gary Garnet presents Weather Spotter Training

Garnet claimed that while high tech radar weather maps are excellent tools, there is a need for real time information to confirm radar analysis and add to the information that the National Weather Service Office in Cleveland uses when making the decision to issue warnings. Presenting a Pie Chart for Comparison, it was shown that trained weather spotters shared a significant piece of the pie.

Garnet said warnings are issued for an entire county and this often leads to false warnings for most of a county. The Weather Service is working to narrow this down into sections within the county with the hopes of eliminating many false warnings.

When facing severe weather, spotters need to remain calm and remember to report all the information. This includes your name and location. It was pointed out that street addresses, or even highway intersection locations are not always a good choice when describing your location. Much better would be something like “I am 2 miles North East of Mt. Vernon”. Or “I am 1 mile South of Gambier.” Spotters should give their exact location, start and end time of the event, a description of the event, and frequent updates.

Garnet explained the “SET Effect”. Stress, excitement and tension. The SET Effect can impact spotters’ logic and reasoning, causing them to misreport or exaggerate details.

Surprisingly, the group found out that lightening was not part of the criteria for a thunderstorm warning. This is because lightening is far to unpredictable.

Many items such as Updraft, Downdraft, Wall Clouds, Wind Sheer, and Wind Rotation where discussed. Development of Severe Thunderstorms and Tornados was also talked about in detail. Some information on how to read the radar weather maps was also given. The Red areas of the map show heavy rains. While this is important, it sometimes is the lighter areas that cause concern. A lighter colored “hook” may represent a severe updraft, which is usually the cause of severe thunderstorms or tornados.

Mr. Garnet mentioned how important Amateur Radio Operators were to the National Weather Service, even going as far as mentioning that ham radio was the preferred method of reporting severe weather.

To view the online story presented by the Mt. Vernon News with bonus video (which includes comments by Ruben Clark, KB2SAI), go to:

http://www.mountvernonnews.com/local/07/03/13/storm.spotters.html

The National Weather Service Web Site is:

http://www.erh.noaa.gov/cle/

The SkyWarn program is here:

http://www.erh.noaa.gov/cle/skywarn/skywarn.html

You can download your own study guide from the above site if you missed the training.

MVARC
Mt. Vernon Amateur Radio Club
Minutes for the February 12, 2007 Meeting.

By Jeff Butz, N8SMT, Club Treasurer

Attendees:

Jeff Butz	N8SMT
Dick Huggins	WD8QHY
Don Bunner	KB8QPO
Steven Seymour	KC8IKF
Ken Allen	KC8TDW
Robert McBride Sr.	N8QPM
Jay Bookwalter	KC8GNL
Ruben Clark	KB2SAI
Larry Helzer, DVM	AA8WP
E. Mike McCardel	KC8YLD
Zach McCardel	KC8YLE
Barry Butz	N8PPF
Dan Crowthers	KB8TEX
Don Russell	WA8YRS

President McCardel called the meeting to order at 7:07 P.M.

Treasurer's Report: Barry Butz, N8PPF

Barry reported that the club's total balance is approximately $2100.00. $97.50 has been donated to the Library Book Fund so we are only $2.50 short of funding the purchase. The Club bought two Certificate of Deposits (CD) totaling $1200. These CD's will mature in 11 months at 5% interest.

Repeater report: Don Russell, WA8YRS

Don reported that the 2-meter repeater is working fine. The 6-meter repeater had some noise in it when it was very cold out but Don thought he has taken care of it.

The 440 repeater is off the air and he is not sure when it will be back up.

Web-Master/Citizen Corps Report: Ruben Clark, KB2SAI

Ruben has taken Cert Training from the Citizen Corp. It was a pretty decent course, very informative. There is not too much going on there as relates to the Club. He added that he has not heard back from EMA about the identification cards.

Emergency Coordinator's Report: Robert McBride Sr., N8QPM

Bob announced he is resigning from the position of Emergency Coordinator and that Ruben Clark will succeed him.

Public Information Report: Mike McCardel, KC8YLD

Mike reported that we will be putting on an FCC Test Session March 3rd.

The test session will be held here at the Red Cross Center at 9:00 A.M. It will be the third session since the new FCC rules have gone into effect within a 50-mile radius of Mt. Vernon.

Class Report: Don Russell, WA8YRS

Last class was last Tuesday. Don expects three for the March 3rd. test. He also mentioned one of the young class members has six of his buddies interested in taking the class.

Mike mentioned that ARRL had contacted him about our last test session where we had a 78 year old and a 10 year old pass the Tech exam. They thought that was the largest age spread ever. Mike sent them a story and some pictures so we might get mentioned in QST.

Guest Speakers:

Mike introduced Jay Bookwalter, KC8GNL, District Emergency Coordinator and Ken Allen, KC8TDW, District 6 Winlink and Skywarn Coordinator. They explained that Winlink is a lot like packet but that it uses an Outlook Express e-mail interface that transmits over HF, VHF or UHF and can be interfaced back to the Internet. They believe this will be a valuable tool during an emergency situation. They are encouraging additional nodes to be set up. Jay also gave a presentation on the Skywarn Program and its changes.

Old Business:

Library Donation: Don Russell, WA8YRS reported that the money is all but completely raised. He suggested we wait until all the books have been updated with the new

FCC rules. Mike suggested we have a formal press conference type presentation.

New Business:

Knox County office of Homeland Security Emergency Management Emergency Coordinators Institute announced there are three courses that can be taken here locally.

Field Day: Mike said we are looking for a new coordinator. Doc Helzer, AA8WP volunteered to chair the committee.

Equipment Fund: Mike thought we might contemplate starting an equipment fund to supply or replace club radios for emergency management or whatever. After a discussion period it was decided to table the subject for further discussion and the formation of a committee for further investigation.

The meeting was adjourned at 8:17 P.M.

(Read the March Minutes on Page 6 -- Ed.)

HAM HISTORY
By Barry Butz, N8PPF

Credit for this article goes to: International Electrotechnical Commission (IEC)
http://www.iec.ch/100years/techline/

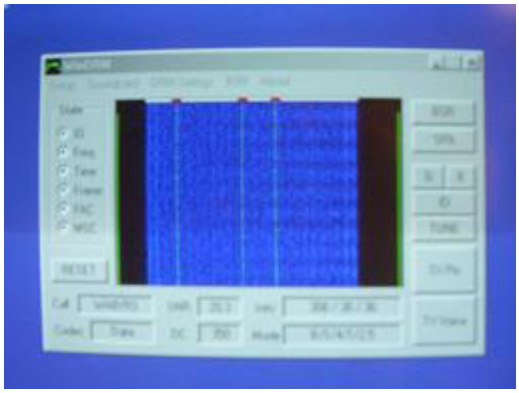
Guglielmo Marconi (1874-1937) was the first to make radio into a practical communication system.

Born to an Italian father and Irish mother, the young bilingual Marconi early read the works of Maxwell and Hertz. After many youthful experiments at home with electricity and laboratory training at Bologna University, he started practical experiments on his father's country estate in 1895, transmitting wireless signals over a range of one and a half kilometers. To get financial support to develop his device, Marconi demonstrated his transmissions in Britain the following year, soon acquiring the world's first patent for a wireless telegraphy system. Two more spectacular demonstrations of wireless communication – between France and England in 1899 and between England and Canada in 1901 – removed all doubts about the viability and scope of this exciting new technology. Marconi's famous U.K. patent No. 7777 for "tuned or syntonic telegraphy" was the cornerstone of much wireless transmission and by 1907 he had launched the world's first commercial transatlantic wireless service.

Following service in the Italian navy during the First World War, he returned to research on the shortwave transmissions that he had used in his earliest trials. These were used in the 'beam' system for long range transmissions after Marconi and his colleagues successfully communicated between Cornwall (southwest England) and Marconi's yacht "Elettra" cruising in the Mediterranean and Atlantic during 1923. The British Government adopted this system and in 1926 installed the first beam station linking England and Canada. In 1931 Marconi investigated even shorter waves, resulting in the world's first microwave radio-telephone link the following year. Two years later he demonstrated his microwave radio beacon for ship navigation and in 1935 demonstrated the practicability of radar, a technology he had forecast in 1922.

Marconi won the Nobel Prize in Physics in 1909 for his theoretical and practical accomplishments in wireless telegraphy.

NEW HF VOICE DIGITAL MODE NOW AVAILABLE
By Don Russell



According to an article that I read in the April 2007 issue of QST, there is a new digital voice mode available for use on our HF bands. Digital voice is something where Amateur Radio is lagging behind the rest of the communications community. This is because ham radio voice on the HF bands is a lot of weak signal work that requires SSB. AM modulation being a weak second choice. Examples of weak signal communications would be contesting and DX'ing. Digital voice requires a fairly strong signal between both stations. However, wouldn't it be nice to have an FM quality voice mode for use on our shortwave bands? It certainly would make Rag Chewing much more fun.

Digital voice on the HF bands has actually been around for a while. A company called AOR, U.S.A., Inc. has been selling a digital voice system for years. This system comes as a box that you plug into an SSB transceivers microphone input to transmit. You also plug this box into your transceivers headphone output to receive and decode the digital signals. With this box you can also do text messaging and send pictures back and forth. This is box a stand alone box (meaning no external computer with soundcard) and retails for around $550.

The new digital system costs much less and is not compatible with AOR's system. It is software driven and is a free download off the internet. You do need a soundcard interface. You can build your own for under $10. You can buy one for $29 on up to whatever you wish to spend. According to the article in QST, it is advisable to use two soundcards for this mode. Soundcards are pretty cheap these days, so the cost would still be low. It is not necessary to buy another soundcard, however. If you stick with on sound card, you will need wire a switch so that the sound card is properly wired when switching from transmit to receive. I have not tried transmitting yet, but I think I will stick with one sound card for now. Seems like an easy task to slave a switch so that the soundcard would be switched with the microphones push to talk switch. With a desktop and a laptop, I also have the option of using one computer for receive and the other computer for transmit. Then again, I have found a USB soundcard at Micro Center for only $12.

Another requirement is the need for a computer with Win2000 or XP and a speed of at least 1 Ghz. This must not be entirely true because I have loaded the software onto my old Celeron 500 Desktop, which runs at 500 Mhz. It also uses Win98. I have been able to download pictures, which is another capability of the program. I have also successfully decoded voice using the slow desktop. I have not tried transmitting yet.

The name of the program you need to download in order to start your digital voice or picture operations is WinDrm. DRM stands for Digital Radio Mondiale. This is a relatively new digital shortwave format. WinDrm has been written for ham radio by Cesco, HB9TLK. As with all digital modes, you need to connect the soundcard to your SSB transceiver. Any standard soundcard interface that is set up properly for psk31 and other digital modes will allow you to use this program. You can download WinDrm, along with other files and documentation here:

http://n1su.com/windrm/download.html

If you want to receive pictures via this digital mode, Irfanview software is the choice of hams using WinDrm. The way it is explained, if you have Irfanview on your computer and WinDrm downloads a picture, it sends it to Irfanview and is automatically displayed on screen. I have received pictures and they look just like what you would download from the Internet. Very nice. The free Irfanview can be downloaded here:

http://irfanview.com/

To explain how to download, install, and use WinDrm is beyond the scope of this article. Instructions are on the download site. Those interested should download and install the software. There are many help files that will

Mt. Vernon ARC Officers

President: Mike McCardel, KC8YLD	**kc8yld@arrl.net**	**Phone: 740-599-6614**
Vice President: Don Russell, WA8YRS	**Wa8yrs@arrl.net**	**Phone: 740-397-0249**
Secretary: Jeff Butz, N8SM	**Jaylynn@copper.net**	**Phone: 740-965-9368**
Treasurer: Barry Butz, N8PPF	**n8ppf@mvarc.net**	**Phone: 740-397-7540**

Newsletter Credits
Editor: Don Russell, WA8YRS

Clip Art and Cartoons thanks to http://wm8c1.50megs.com/radio_clip_art.htm, http://www.qsl.net/k4adl/, http://pages.prodigy.net/kg0zz/clipart/ham_art3.htm, http://www.arrl.org/,

The ARRL letter is a weekly e-mail publication by the ARRL. You may read the entire ARRL letter by visiting the ARRL Web page at http://www.arrl.org/. **Other News** from: http://ky4ky.com/fyi.htm.

The ARES E-Letter is an e-mail digest of news and information of interest to active members of the ARRL Amateur Radio Emergency Service (ARES). Past issues of The ARES E-Letter are available at http://www.arrl.org/ares-el/. Issues are posted to this page after publication.

Project OSCAR is a monthly column written for Newsletter Editors. Columns will appear as space permits. You may download all the columns yourself at: http://www.projectoscar.net/beacon.php

Members are encouraged to send articles pertaining to ham radio, with an emphasis on local activities, equipment reviews, and personal experience to wa8yrs@arrl.net or Don Russell, WA8YRS, 815 Brookwood Road, Mt. Vernon, Ohio 43050

guide you through the use of the program. Read them carefully. Doing an internet search for WinDrm brings up many possibilities.

There is one more thing that I forgot to mention. WinDrm has the capability of sending text messages as you are talking. That is another neat feature.

I do not know where this digital voice stuff will go from hear. Maybe it will eventually replace SSB as improvements continue to be made. For now though, it is a very unique and interesting mode. Now that there is soundcard driven software available, perhaps more hams will give it a try. Certainly the price is right just to play around receiving some stuff.

Frequencies that have WinDmr activity are: 14.233 Mhz. (digital pictures), 14.236 Mhz. (voice), 7.169 Mhz. and 7.173 Mhz. (voice and pics), There are a few others, but these seem to have the most activity.

Have fun exploring this new mode. If you are successful in using this mode, please let me know. If you need a local test station, let me know.

ComPIOnents April 2007

By Mike McCardel, KC8YLD

57 Attend Skywarn Spotter Training

57 people, including 14 local Amateur Radio Operators attended the March Skywarn Spotter Training. The training was held at the College Township Firehouse, in Gambier. It was co-sponsored by MVARC and the College Twp Fire Department. Skywarn Spotter certification is good for three years. I would like to thank all those Hams who took the time to attend.

KCARES Participates in State Wide Tornado Drill

Seven area Hams checked into the KCARES Net when it was activated March 28. Net Control KC8YLD opened the net at 9:45 am local time on the MVARC repeater, K8EEN 146.79. He began the test by running through the DTMF codes that place the repeater in Net Mode, Open Mode, Weather Watch Mode and Weather Warning Mode. All modes worked as they should. Check-ins were taken throughout the Net. At 9am the Tornado Sirens were activated KC8YLD, KC8GBY and KB8TEX all verified that they heard the sirens in Gambier, WA8YRS confirmed activations of the Newark road and Armory sirens. N8IIQ reported hearing sirens from within side of the Rolls Royce Offices but clarified he couldn't report where they were located. N8RPZ reported in from Northern Licking County and KC8MKL reported in from Southern Richland County and served as liaison to the District 6 DEC and Richland County Net being operated on 146.94. He forwarded our net report to District 6.
N8IIQ is actually an AEC from Portage County who works for Rolls Royce.

I would like to thank all those who participated. Also anyone who is available can activate the net. For the various DTMF codes please review the ARES/Emergency Reference file in the members' only section of the club's web page www.mvarc.net.

April meeting is Social Hour

The next meeting of the MVARC will be Monday April 9 at 7pm. Meeting is held at the American Red Cross Training Center, 300 N Mulberry (REAR), Mt. Vernon, OH. We will begin the meeting with a good old fashion social get together to talk about and share fellowship and information about Amateur Radio. We will end the evening with a short business meeting beginning about 8:30pm. Club will provide coffee and snacks.

So bring an, idea, an object and or a friend! Our meetings are always open anyone.

MVARC

Mt. Vernon Amateur Radio Club
Minutes for the March 12, 2007 Meeting.

The meeting was held immediately after Skywarn Training at the College Twp Firehouse, Gambier, Ohio 43022

Attendees:

Dan Crowthers	KB8TEX
Steven Seymour	KC8IKF
Melinda Clark	
Don Bunner	KB8QPO
Charles Fisher	
Ruben Clark	KB2SAI
Larry Helzer, DVM	AA8WP
Charles Barger	KD8FMI
Robert McBride Sr.	N8QPM
Arlin Bradford	KD8EVR
Don Russell	WA8YRS
Jeff Butz	N8SMT

Vice President Russell called the meeting to order at 9:00 P.M.

Treasurer's Report:

Don Russell reported for Barry Butz that the club's total balance is approximately $2207.88.

Repeater report: Don Russell, WA8YRS

Don reported that the 2-meter repeater is working fine. The 440 repeater is off the air and he is not sure when it will be back up.

Emergency Coordinator's, Web-Master/Citizen Corps Report: Ruben Clark, KB2SAI

Ruben has taken another Cert Training from the Citizen Corp. It was in Light Search and Rescue.

Class Report: Don Russell, WA8YRS

Congratulations to Steve, KC8IKF and Barry, N8PPF for upgrading to General and Amateur Extra respectively.

Field Day: Doc Helzer, AA8WP has looked at several places to hold the field day. After a rousing discussion, no decision was made at this time.

The meeting was adjourned at 9:20 P.M.

HAM RADIO READINESS PROVIDES SAFETY MARGIN IN NEW MEXICO TORNADO OUTBREAK

(From the ARRL Letter, March 30, 2007)

Dozens of Amateur Radio volunteers in New Mexico did what they do best Friday, March 23, when nasty weather threatening eastern New Mexico eventually spawned 13 tornados, from Tatum to Logan. A day before the storms, SKYWARN Coordinator and National Weather Service (NWS) meteorologist Keith Hayes, KC5KH, at the Albuquerque NWS office (WX5ABQ) warned New Mexico's Amateur Radio Emergency Service (ARES) district emergency coordinators and county emergency managers of the potential for severe weather. ARES teams and SKYWARN weather spotters consequently were already in the field and ready for action when the string of tornados struck. The early warning, aided by trained spotters' accurate minute-by-minute reports to the NWS and local authorities, provided an additional margin of safety for residents.

"The teamwork by the ARES teams, support from the surrounding county emergency managers, the NWS forecasts and real-time radar support, WA5IHL's Mega-Link [repeater system] and numerous SKYWARN observations saved lives," Jay Miller, WA5WHN, observed. During the weather emergency, Amateur Radio volunteers relayed real-time weather information to NWS offices in Albuquerque and in Midland, Texas.

After Chaves County District Emergency Coordinator Alf Lindsey, W5ALL, took note of darkening skies early Friday afternoon, he opened a SKYWARN net. More than 30 hams in southeastern New Mexico and West Texas relayed their weather observations through the net to the Albuquerque NWS office. Robert Tice, W5TIC, reported in with a tornado spotting west of Tatum at about 5 PM. Jim Morrison, KM5BS, observed a large tornado on the ground just south of Roosevelt County at about 5:45 PM. That prompted the first of many tornado warnings for the counties along the Texas-New Mexico state line.

The city of Clovis was especially hard hit. "We have always trained for a single tornado, but not eight of them at the same time," Blaine Smith, KB5UOT, in Clovis commented afterward. The NWS issued the first tornado warning for Clovis at about 7:30 PM, and a tornado struck the city about 15 minutes later. Saundra Creiglow, KC5EGP, handled net control duties in Clovis as the storms approached. The Eastern New Mexico Amateur Radio Club had three teams operating in and around Clovis before and after the twisters.

Using the KK5OV EchoLink node, hams in Clovis established a backup connection with Jory McIntosh, KJ5RM, at the Fort Worth National Weather Service Office. McIntosh was able to pinpoint the exact course destructive tornados that hit the city.

The New Mexico State Emergency Operations Center (EOC) and the Bernalillo County EOC activated. During the tornados, however, the state EOC lost contact with Clovis, Logan, Texico, Carlsbad, and Portales. Sandoval County DEC Mike Scales, K5SCA, was able to relay information from hams in tornado-stricken areas to the state EOC via the state-wide Mega-Link repeater system. Scales also kept the state EOC up to speed on localized flooding in Carlsbad.

The American Red Cross requested Amateur Radio assistance to staff shelters in Logan and Clovis. John English, WB6QKF, was on the air from the Albuquerque Red Cross office to assist in setting up those shelters.

The tornados carved a 4.5 mile swath across Clovis. Thirty-five residents were injured badly enough to need hospitalization. In Logan, two-dozen mobile homes were destroyed. Tatum experienced four tornados in the span of a half-hour. Electrical power and telephone outages were reported. Interstate 70 was shut down between

Portales and Clovis.

More severe weather popped across eastern New Mexico and western Texas over the weekend. Spotters were active early March 25 near Lubbock, Texas, as possible tornados were reported. Showers and thunderstorms were in this week's forecast for West Texas and southeastern New Mexico. -- New Mexico PIO Charlie Christman, K5CEC, and other reports

CALANDER OF EVENTS FOR MVARC CLUB MEMBERS

- April 4, 2007 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m.
- April 8, 2007 (Sunday): ARES Net at 8:00p.m. Net Control will be Mike McCardel, KC8YLD.
- April 9, 2007 (Monday): MVARC meeting 7:00p.m. at the American Red Cross Training Center.
- April 11, 2007 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m.
- April 15 (Sunday): ARES Net at 8:00p.m. Net Control will be Don Russell, WA8YRS.
- April 18, 2007 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m.
- April 22, 2007 (Sunday): ARES Net at 8:00p.m. Net Control will be Ruben Clark, KB2SAI.
- April 25, 2007 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m.
- April 29, 2007 (Sunday): ARES Net at 8:00p.m. Net Control to be determined.
- May 2, 2007 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m.
- May 6, 2007 (Sunday): ARES Net at 8:00p.m. Net Control will be Bob McBride, N8QPM.
- May 9, 2007 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m.
- May 13, 2007 (Sunday): ARES Net at 8:00p.m. Net Control will be Mike McCardel, KC8YLD
- May 16, 2007 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m.
- May 20, 2007 (Sunday): ARES Net at 8:00p.m. Net Control will be Don Russell, WA8YRS.
- May 23, 2007 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m
- May 27, 2007 (Sunday): ARES Net at 8:00p.m. Net Control will be Ruben Clark, KB2SAI
- May 30, 20
- 07 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m
- June 3, 2007 (Sunday): ARES Net at 8:00p.m. Net Control will be Bob McBride, N8QPM.
- June 6, 2007 (Wednesday): Pizza Buffet at Pizza Hut, 5:00p.m
- June 10, 2007 (Sunday): ARES Net at 8:00p.m. Net Control will be Mike McCardel, KC8YLD
- June 11, 2007 (Monday): MVARC meeting 7:00p.m. at the American Red Cross Training Center.
- June 22, 2007 though June 24, 2007 (Friday through Sunday): Field Day. Start setting up Friday afternoon or evening. Operating starts at 2:00PM Saturday.

✂

Membership Form

Club dues run from Jan. 1 until Dec. 31 and are collected during the last quarter of the year. You can mail in the dues to the address below or bring them to a meeting. Dues are prorated for new members at the time of application. Visit our Web Page at www.mvarc.net

Dues Schedule: $12 regular

$10 for second member in the same family, for those over 65 yrs. of age, and for those living outside Knox County

Mt. Vernon Amateur Radio Club, P.O. Box 372, Mt. Vernon, OH 43050

Name_____Call-Sign_____

Street_____

City_____State_____Zip Code_____

Phone Number_____License Class_____

ARRL Member (Y/N)_____E-Mail_____

Extra Donation (Optional)_____

Members are entitled to a free MVARC E-Mail address. Would you like one? No_____Yes_____

If yes please enter password_____

Other Comments:

GENERAL STUDY GUIDE
PART 7
FROM EARL PAAZIG, N8KBR
http://studyguide.eqth.org/

Read through this material a couple of times, then visit one of the many on-line web pages that allow you to take a General Class practice test. Here are a few: http://www.aa9pw.com/radio/ , http://www.eham.net/exams/ , http://www.qrz.com/ham/ Take a practice test every month and see how your score improves

SUBELEMENT G0 -- RF SAFETY [5 Exam Questions -- 5 Groups]

RF Safety Principles

- Depending on the wavelength of the signal, the energy density of the RF field, and other factors, in what way can RF energy heats body tissue.
- When estimating RF energy's effect on body tissue, its critical angle is NOT an important property.
- The frequency (or wavelength) of the energy has the most direct effect on the permitted exposure level of RF radiation.
- The unit of measurement, Specific absorption rate (W/kg), best describes the biological effects of RF fields at frequencies used by amateur operators.
- RF radiation in the 1270-MHz range has the most effect on the human eyes.
- The term "athermal effects" of RF radiation means the biological effects from RF energy other than heating.
- At the very-high-frequency (30-300-MHz) range the human body absorbs RF energy at a maximum rate.
- The term "time averaging" when it applies to RF radiation exposure, means the total RF exposure averaged over a certain time.
- The guideline to determine whether or not a routine RF evaluation must be performed for an amateur station is if the transmitter's PEP and frequency are within certain limits given in Part 97, an evaluation must be performed.
- If you perform a routine RF evaluation on your station and determine that its RF fields exceed the FCC's exposure limits in human-accessible areas, you are required to take action to prevent human exposure to the excessive RF fields.
- At a site with multiple transmitters operating at the same time, each of the transmitters that produce more than 5% of the maximum permissible power density exposure limit for that transmitter must be included in the RF exposure site evaluation.
- Factors that can affect the thermal aspects of RF energy exposure to human body tissues:
- The body part and duration of its exposure
- Frequency and power density
- Wave polarization
- *(All of these choices are correct)*

RF Safety Rules and Guidelines

- The FCC's RF-safety rules are designed to control the maximum permissible human exposure to all RF radiated fields.
- At a site with multiple transmitters, all licensees contributing more than 5% of the maximum permissible power density exposure for that transmitter are equally responsible to ensure that all FCC RF-safety regulations are met.
- When evaluating RF exposure, low duty-cycle emissions permit greater short-term exposure levels.
- The threshold power of 100 watts PEP is used to determine if an RF environmental evaluation is required when the operation takes place in the 15-meter band.
- The power levels used to determine if an RF environmental evaluation is required vary with frequency because Maximum Permissible Exposure (MPE) limits are frequency dependent.

- The threshold power, 50 watts PEP, is used to determine if an RF environmental evaluation is required when the operation takes place in the 10-meter band.
- The threshold power, 500 watts PEP, is used to determine if an RF environmental evaluation is required for transmissions in the amateur bands with frequencies less than 10 MHz.
- All amateur frequency bands between 1.25 and 10 meters have the lowest power limits above which an RF environmental evaluation is required.
- The threshold power, 225 watts PEP is used to determine if an RF safety evaluation is required when the operation takes place in the 20-meter band.
- Those amateur radio stations with transmitter output levels exceeding 500-watts PEP on the 40, 75/80 and 160 meter bands are subject to routine environmental evaluation.

Routine Station Evaluation and Measurements (FCC Part 97 refers to RF Radiation Evaluation)

- If the free-space far-field strength of a 10-MHz dipole antenna measures 1.0 millivolts per meter at a distance of 5 wavelengths, the field strength will measure 0.50 millivolts per meter at a distance of 10 wavelengths.
- If the free-space far-field strength of a 28-MHz Yagi antenna measures 4.0 millivolts per meter at a distance of 5 wavelengths, field strength will measure 1.0 millivolts per meter at a distance of 20 wavelengths.
- If the free-space far-field strength of a 1.8-MHz dipole antenna measures 9 microvolts per meter at a distance of 4 wavelengths, the field strength will measure 3 microvolts per meter at a distance of 12 wavelengths.
- If the free-space far-field power density of an 18-MHz Yagi antenna measures 10 milliwatts per square meter at a distance of 3 wavelengths, the field strength will measure 2.5 milliwatts per square meter at a distance of 6 wavelengths.
- If the free-space far-field power density of an antenna measures 9 milliwatts per square meter at a distance of 5 wavelengths, the field strength will measure 1 milliwatt per square meter at a distance of 15 wavelengths.
- The wavelength of the signal and physical size of the antenna are factors that determine the location of the boundary between the near and far fields of an antenna.
- An amateur operator might perform a routine RF exposure evaluation to ensure compliance with the RF safety regulations.

- In the free-space far field, the electric field (E field) and magnetic field (H field) has a fixed impedance relationship of 377 ohms.
- A calibrated field-strength meter with a calibrated antenna can be used to accurately measure an RF field.
- If your station complies with the RF safety rules and you reduce its power output from 500 to 40 watts, you would not need to perform an RF safety evaluation, but your station would still need to be in compliance with the RF safety rules.
- If your station complies with the RF safety rules and you reduce its power output from 1000 to 500 watts, since your station was in compliance with RF safety rules at a higher power output, you need to do nothing more with respect to the RF safety rules that apply to your operations.

Practical RF-safety applications

- Considering RF safety, if you install an indoor transmitting antenna locate the antenna as far away as possible from living spaces that will be occupied while you are operating.
- Considering RF safety, be sure no one can activate the transmitter whenever you make adjustments to the feed line of a directional antenna system.
- The best reason to place a protective fence around the base of a ground-mounted transmitting antenna is to reduce the possibility of persons being exposed to levels of RF in excess of the maximum permissible exposure (MPE) limits.
- As an RF-safety precaution, be sure to turn off the transmitter and disconnect the feed-line before beginning repairs on an antenna.
- As a precaution when installing a ground-mounted antenna, it should be installed so no one can be exposed to RF radiation in excess of the maximum permissible exposure (MPE) limits.
- As a precaution, be sure the transmitter is turned off and the power source is disconnected before beginning repairs on a microwave feed horn or waveguide.
- Directional high-gain antennas should be mounted higher than nearby structures so they will not direct excessive amounts of RF energy toward people in nearby structures.
- For best RF safety, the ends and center of a dipole antenna be located should be as far away as possible to minimize RF exposure to people near the antenna.
- To reduce RF radiation exposure when operating at 1270 MHz you should keep the antenna away from your eyes when RF is applied.
- Considering RF safety, the best reason to mount the antenna of a mobile VHF transceiver in the center of a metal roof is that the roof will greatly shield the driver and passengers from RF radiation.
- You should avoid using attic-mounted antennas because they may expose people in the house to strong, near field RF energy.
- You must be careful when aiming EME (moonbounce) arrays toward the horizon because:
- Their high ERP may produce hazardous RF fields in uncontrolled areas
- They could cause TVI/RFI for your neighbors
- Reflections from nearby objects could detune the array
- *(All of these choices are correct)*

RF-safety solutions

- If you receive minor burns every time you touch your microphone while you are transmitting, you and others in your station may be exposed to more than the maximum permissible level of RF radiation.
- If measurements indicate that individuals in your station are exposed to more than the maximum permissible level of radiation, all of the following corrective measures would be effective:
- Ensure proper grounding of the equipment
- Ensure that all equipment covers are tightly fastened
- Use the minimum amount of transmitting power necessary
- *(All of these choices are correct)*
- If calculations show that you and your family may be receiving more than the maximum permissible RF radiation exposure from your 20-meter indoor dipole, it might be an appropriate step to move the antenna to a safe outdoor environment.
- Considering RF exposure, you should take all of the following steps when installing an antenna:
- Install the antenna as high and far away from populated areas as possible
- If the antenna is a gain antenna, point it away from populated areas
- Minimize feed line radiation into populated areas
- *(All of these choices are correct)*
- If an RF radiation evaluation shows that your neighbors may be receiving more than the maximum RF radiation exposure limit from your Yagi antenna when it is pointed at their house take precautions to ensure you can't point your antenna at their house.
- If an RF radiation evaluation shows that your neighbors may be receiving more than the maximum RF radiation exposure limit from your quad antenna when it is pointed at their house reduce your transmitter power to a level that reduces their exposure to a value below the maximum permissible exposure (MPE) limit.
- A dummy antenna provides an RF safe environment for transmitter adjusting because the RF energy is not radiated from a dummy antenna, but is converted to heat.
- From an RF radiation exposure point of view, aluminum would be the best material to use for your homemade Transmatch enclosure.
- From an RF radiation exposure point of view, the advantage to using a high-gain, narrow-beamwidth antenna for your VHF station is the RF radiation can be focused in a direction away from populated areas.
- From an RF radiation exposure point of view, the disadvantage in using a high-gain, narrow-beamwidth antenna for your VHF station is that individuals in the main beam of the radiation pattern will receive a greater exposure than when a low-gain antenna is used.
- If your station is located in a residential area, you can reduce the RF exposure to your neighbors from your amateur station by installing your antenna as high as possible to maximize the distance to nearby people.
- You could construct fencing to exclude people from getting too close to the antenna to ensure greater RF safety near a ground mounted vertical antenna.