

Hamgram

Newsletter of the Winona Amateur Radio Club, Inc. Nov 2004

<http://www.winonaarc.org>

Meeting Notice

The November Meeting of the Winona Amateur Radio Club, Inc. will be held on Thursday, November 18, 2004, at the TRW plant at Airport Industrial Park. This meeting will be held in the lunchroom area. Please enter on the North side of the building. You may park in the North parking lot. When approaching the plant look for the TRW sign labeled SHIPPING/RECEIVING for the Customer Center. This will be the TRW entrance that is closest to the WinAir entrance and Technical college parking lots. Our meeting will open with a tour of parts of the TRW facility followed by a short business meeting. A coffee-social will follow the business meeting. All interested persons are invited to attend. before the meeting to see if the location is changed. 452-2482

MINUTES WARC MEETING, October 21, 2004

The Meeting came to order at 7 p.m.; Vice President Paul, KØZYV informed all that the only business for the meeting was to activate the nominating committee for our own elections at the end of the year. The committee consists of Ken, NØJP; Walt, KEØXI; and Erik, WBØNIU. No other business was brought before the group.

For the rest of the meeting, Erik, WBØNIU and Les, KØBAD presented a talk on our 835 repeater. The repeater was in the room with us and attempts were made to troubleshoot some problems the receiver has with being over sensitive to a ham repeater in Rochester. The tower antenna is fed through duplexers to prevent the close proximity of the transmitter from overloading its own receiver since they are both active on frequencies only separated by 600 KC. The super heterodyne receiver circuit has a tuned r.f. stage and multiple high Q fixed i.f. stages at 11.7 megahertz. The signal is run through a limiter to eliminate noise on stronger signals and then run through an f.m. detector. Audio is run through an amplifier and squelch circuits after detection. During the presentation, the detector circuit was centered on the i.f. frequency.

The repeater committee is planning to place a receiver on the 835 tower tuned to 146.040 MHz and to send any signals heard at this frequency to the 64 repeater via a 2 meter link. The 64 repeater would have a voter to select the stronger signal from either this source or its own receiver. It may be possible to use the squelch circuit for the voter. It is thought that this would allow for better coverage of the 64 repeater into the valleys extending off the Winona area and also to allow some better coverage up and down the Mississippi Valley.

The Committee for the Link includes Erik, WBØNIU, Matt, KFØQ, and Len, KCØRSX.

Members Present:

Paul	KØZYV	Yes	Ken	NØJP	Yes
Pete	KC9ERJ	No	Jake	KC9CRM	Yes
Bob	NØPDD	Yes	Joe	KCØMBL	No
Walt	KEØXI	No	Les	KØBAD	Yes
Lance	KBØYJU	Yes	Erik	WBØNIU	Yes
Dick	NØVV	Yes	Tom	WØMK	Yes
Terry	WBØEUU	Yes	Kim	KCØCTG	No
Matt	KFØQ	Yes			

Fritz(Guest Brainerd)WØKO Yes Emily Hart(10)Winona(Guest)

Treats schedule 2004:

January:	Holiday Party, no treats
February:	Clare, KØNY, and Shari, WA9IGK
March:	Tom, KAØMLO
April:	Delores, NØNUO
May:	Bob, NØPDD
June:	Dick, NØVV
July:	Picnic, no treats
August:	Joe, KCØMBL
September:	Erik, WBØNIU
October:	Tom, WØMK
November:	Les, KØBAD
December:	Lance, KBØYJU

Respectfully submitted,

Tom Wilmot, WØMK, Secretary

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Editorial

Change to the Constitution and By Laws

As required by the Constitution and By Laws I am presenting a number proposed changes to those two documents for the inspection of club members. I will make a motion to approve these changes at the Annual Meeting in December.

The changes I am proposing will serve to begin a transition in club governance that I believe can lead to a more interesting and meaningful club as its membership base increases. These changes are just a beginning. I would expect that we might want to make additional changes and to refine some of the language next year.

You may not like these changes. Please look them over closely. We will discuss and vote on them in December.

Original text that is to be removed has been struck out. New text is in a different color or shade of gray and is underscored. Portions of the original documents that were not changed have been left out of this presentation. These deleted sections are indicated by ellipsis periods (...)

- Leslie Hittner, KØBAD

Proposed Constitution and By Laws Changes

WINONA AMATEUR RADIO CLUB

Constitution

December 5, 1997

PREAMBLE

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**ARTICLE III
Duties of Officers**

SECTION 1 The President shall preside at all meetings of this club and the Executive Board, and shall conduct the same according to the rules adopted; shall enforce due observance of this Constitution and By-laws; decide all questions of order; sign all official documents that are adopted by the club, and none other; and perform all customary duties pertaining to the office President.

SECTION 2 The Vice President shall assume all the duties of the President in the absence of the latter. In addition, the Vice President shall ~~arrange meeting places for the club and report these arrangements at regular club meetings in advance of the meeting dates, and~~ be chair of the club meeting committee.

SECTION 3 The Secretary shall keep a record of the proceedings of all meetings, keep a roll of members; carry on all correspondence; read communications at each meeting; ~~and mail written notices to each member~~ and ensure that club and Executive Committee meetings have been properly announced in advance in accordance with these By Laws. ~~; of every meeting of the club, except when excused by action under the By Laws.~~ Upon succession, the outgoing Secretary shall turn over all club records to the incoming Secretary.

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**ARTICLE IV
Meetings**

SECTION 1 The By Laws shall provide for the regular and special meetings. At all meetings, one third of the membership shall constitute a quorum for the transactions of business.

**ARTICLE V
Dues**

SECTION 1 The Winona Amateur Radio Club by majority vote of those present at ~~any regular~~ the Annual Meeting of the membership, may levy upon the general membership such dues or assessments as shall be deemed necessary for the business of the organization within ~~its~~ the objectives as set forth in the Preamble thereof. Non payment of dues or assessments shall be cause for expulsion from the club at the discretion of the membership.

ARTICLE VI
Executive Board

SECTION 1 The Executive Board shall consist of the elected officers, the club station custodian(s), and ~~a single Member-At-Large~~ two Members-At-Large.

SECTION 2 The chair of the Executive Board shall be the President. The Secretary shall maintain the minutes of the Executive Board meetings.

DELETE SECTION 3, SECTION 4, and SECTION 5.

~~SECTION 3 The term of the Member-At-Large of the Executive Board shall be 6 months. The Member-At-Large of the Executive Board shall be elected by voice vote at the Annual Meeting and at a regularly scheduled business meeting six months later. A Member-At-Large may not serve consecutive terms.~~

~~SECTION 4 The Executive Board shall be empowered to authorize all routine monthly expenditures for programs and projects cleared by the membership; authorize other one time expenditures for the good of the club, if these expenditures do not exceed a total of \$50.00 in any calendar month; plan, with the Vice President, meeting programs and locations, and discuss and prepare for presentation for the membership approval such plans, projects, and activities as it deems to be in the interests of the club.~~

~~SECTION 5 The Executive Board shall meet as required at the call of an Executive Board member. Said meetings should not routinely be carried on "over the air" or by telephone.~~

INSERT SECTION 3.

SECTION 4 The Executive Board conducts the business of the club by authorizing expenditures for approved programs and projects; planning club activities and programs, and discussing and preparing for presentation to the membership for approval such plans, projects, and activities as it deems necessary.

When the Executive Board desires to obtain membership opinion or approval, one or more of the following methods may be used:

- A special membership meeting may be called.

- A survey may be distributed by means of the club newsletter mailing/email list.

INSERT SECTION 4.

SECTION 4 The Executive Board shall meet monthly at regular times and places determined by the Executive Board and published in the club newsletter at least one month in advance of the regularly scheduled meeting. Special meetings of the Executive Board may be called at any time with prior notification of the membership. Prior notification shall consist of one or both of the following:

- Announcement on the club-sponsored VHF net at least three days in prior to the special meeting.
- Announcement to the club newsletter mailing/email list at least five days prior to the special meeting.

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**ARTICLE VII
Amendments**

SECTION 1 This Constitution may be amended by a two-thirds vote of the total membership members present at the Annual Meeting. Proposals for amendments shall be submitted in writing to the Executive Board and published in the club newsletter at least one month prior to the Annual Meeting at a regular meeting and may not be voted on until the next regular meeting. Written proxy votes for changes to this Constitution are acceptable when submitted by a member in attendance at the meeting at which the vote is being taken.

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Winona Amateur Radio Club By-Laws

June 20, 2002

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**Section 2
Meetings**

1. ~~Regular meetings~~ Meetings of the Board of Directors shall be held monthly at a regularly scheduled time and place. ~~on the~~

third Thursday of each month at 7:00 P.M. of each calendar month as such place as the President shall order. Any member of the Board of Directors may petition the President to call for a special meeting of the Board. All meetings of the Board of Directors must be announced to the general membership at least five days in advance of the meeting by one or more of the following:

- The *Hamgram*
- WEPNet
- Announcement sent via US Mail

Notices sent by US Mail must be postmarked at least five days prior to the announced meeting. Notices of special meetings must indicate the business to be conducted at the special meeting. Special meetings are limited to the business specified in meeting announcements.

~~Such notices shall be so sent that in the ordinary postal delivery they shall arrive at least twenty four hours before the time therein set for the meeting. Only such business as is designated in said notice shall be transacted at such special meeting.~~

2. The Annual Meeting of the club membership shall be held in the regularly designated business meeting of December at a time and place that has been designated by the Board of Directors at least 30 days in advance of the meeting. Special meetings of the club membership may be called by submitting to the Board of Directors a petition stating the reason for the meeting and signed by at least 25% of the club membership. Such meetings must be scheduled within 3 weeks of the receipt of the petition by any member of the Board of Directors.

Section 3 Dues

The WARC is a non-profit corporation in the State of Minnesota and derives its operating funds entirely from member dues, donations or grants, and special fund raising activities.

Regular annual dues are \$25.00 per member and are payable in

December of each year. Dues for new first time members who join the club after March are \$2.00 per month through and including the following December. The dues for two or more related members living at the same address are \$30.00. ~~Dues are for individual memberships, except that two or more members living at the same address may all be members for \$30.00.~~

Annual dues for ~~these~~ Elementary though High School age students whose parents are not club members shall be ~~an annual fee of \$5.00~~ until they finish High School or turn 18 years of age.

Thoughts on Hamfests

By Ken Spittler, NØJP

During the past ten years or so there has been much comment on the viability of hamfests. Some points: too much junk, too much computer stuff, too expensive to attend, not enough ham gear, lack of vendors, etc. In my opinion, hamfests, like beauty, are in the eye of the beholder. And yes, they have become expensive with higher admission fees, plus parking and travel costs.

This year I attended one hamfest; the "Big One" in St Paul. I went to this one because others in the area didn't happen this year. I feel the organizers did a good job this year with advance tickets at a good discount, free parking lot with shuttle bus service, and free attendance for youth.

Part of the reason I go is for the camaraderie with good friends, meeting old friends in person at the event, and buying what I find desirable at the moment. Also available at most 'fests are seminars and license testing. One may even win a prize.

Winona area hams did a god job in support of the October 23 event with 17 -18 people in attendance. Food for thought; 35 rubber stamp hobbyists from Winona chartered a bus to go to their convention in St Paul at the same site! Could we be so organized?

Holiday Party Announcement

January annual Holiday party ADVANCE NOTICE

The WARC Holiday Party is scheduled for January 20, the usual third Thursday meeting date. I invite suggestions during the next month on your desires. Full details will be in the December issue.

-Ken, NØJP

Silent Keys

WAØEPX: This past summer, death claimed two Winona area Amateur Radio people. On July 14, 2004, Donald Johnson WAØEPX, passed away. Although not known to newcomers, Donald was a WARC member in the 60's and 70's. He attended our meetings and before the days of handicap access, we carried him and his wheelchair in to the meeting sites.

Donald was one of the founders of the Piconet, *Piconet All Day Watch*, and the *Handy-ham system*. He was also active on the Minnesota phone and CW traffic nets, and an Army MARS member. He recruited me (NØJP) to the Army MARS program.

Donald was the proprietor of the Fremont Store, where some of us will remember operating a special event in 1996. Afflicted with a debilitating disease at an early age, his life was to be of short duration. However, he was 69 at the time of his death.

His Mother is currently operating the Fremont Store.

NØVGT: Robert (Bob) Wera NØVGT passed away Aug. 23, 2004. Although not a WARC member, Bob was occasionally heard on 2 meters chatting with NØRXW, NØJP, NØPDD and others. He was a 60 plus years friend of mine (NØJP) and an active Aeromodeler. Local model airplane enthusiasts will especially miss him. He was 77 years of age.

FOR SALE

From the estate of NØVGT
Approx 40 ft tower, rotator, VHF yagi, cables etc.
ICOM communications receiver model R-7100
YAESU communications receiver model FRG-8800

Contact Ken, NØJP for details.

The 146.745 repeater (Rochester) is now on a frequency of 147.255 with a PL tone 100.0 Hz.

Test Your Amateur Radio Knowledge

by Len Litvan KCØRSX

The following are from the FCC exam pool—Technician, General and Amateur Extra.

#1 - If you let an unlicensed third party use your amateur station, what must you do at your station's control point?

- A. You must continuously monitor and supervise the third-party's participation
- B. You must monitor and supervise the communication only if contacts are made in countries that have no third-party communications agreement with the US
- C. You must monitor and supervise the communication only if contacts are made on frequencies below 30 MHz
- D. You must key the transmitter and make the station identification

#2 - Where is a power-supply bleeder resistor connected?

- A. Across the filter capacitor
- B. Across the power-supply input
- C. Between the transformer primary and secondary windings
- D. Across the inductor in the output filter

#3 - How can the output voltage of a loop antenna be increased?

- A. By reducing the permeability of the loop shield
- B. By increasing the number of wire turns in the loop and reducing the area of the loop structure
- C. By reducing either the number of wire turns in the loop or the area of the loop structure
- D. By increasing either the number of wire turns in the loop or the area of the loop structure

Answers to Exam Pool Questions:

#1--(A) [97.115b1]; #2—(A); #3 - (D)

10 GHz AKA “Ten GIGs”

Part 1

by Matt Burt, KFØQ

The ultimate achievement by some amateurs is to get a working station on the 10 GHz band. Some push even further to 24GHz, 47 GHz or beyond – but for most folks 10 GHz operating is challenge enough! Many of my friends have pursued 10 GHz (10 gigs) with an incredible amount of enthusiasm and effort.

The first goal is to assemble the needed parts of a station:

1. transverter, IF rig
2. antenna and feed method
3. transfer relay, power wiring, and interface
4. mounting method – tripod, tower etc
5. additional operating aids – cw key/keyer, level indicator, digital compass etc

In my case I was stopped at step 1 for over a year. I have a transverter kit that isn't quite finished. I moved to step 2 – purchased a 60cm aluminum dish and feed. Even though my transverter is still sitting in pieces – I have been fortunate to borrow a working model to get on the air! It really helps to have an Elmer or friend near-by with some working gear and test equipment capable of measuring power at 10 GHz, but this is not mandatory. There are several resources available to learn more about 10 gigs on the web etc that can fill in the gaps. It also helps if you happen to have a spare 2 meter all mode rig laying around that can be the platform for the IF.

Why operate 10 GHz?

Well – why operate QRP, CW, SSTV, RTTY, Satellites, whatever? 10 GHz represents a challenge with some satisfying

rewards. The band as many would guess is largely experimental. Frequency drift from slight thermal variations is a constant concern. Typical antenna systems used are parabolic dish antennas with really tight beamwidth making it difficult to find the other station. Although it is possible to purchase a plug and play 10 GHz transverter station few people have the resources to do that. Many people “roll their own” with respect to antennas, and transverters using recycled commercial gear, TVRO dishes and even some plumbing parts! Combine the challenge of distance with the possibility of tropo and you have the recipe for some fun. Other modes of propagation such as air plane scatter and rain scatter can fill in the gaps when the tropo is down. Another neat feature of 10 gig operating is the “portable” aspect. Locations over water, mountain ridges, line of site locations, and locations with views of the horizon are great places to visit, setup a portable station and activate some grid squares! The rewards can be gained fairly fast as the League offers the initial VUCC for 10 GHz for only five grids confirmed!

I suppose you're going to tell me there's a net on 10gig -

Yup. There is even a net on 10 gig here in Minnesota! Most of the stations are around and near the Twin City metro area but there are some amateurs in Rochester and even Minnesota City with 10 gig. The 10 gig group meets on Friday evenings at 6:00PM in the warmer months. The active group here in SE MN also participate in contests such as the ARRL 10 Ghz and up cumulative contest, and add some points to the score in other VHF contests by making some QSOs on the band.

10 gig DX?

Well I'm not going to tell you that you can work-all states on 10gig - but it is possible to get some pretty long haul contacts. The DX record for 10 GHz tropo (set this year) is now at 1,212 (km)!¹ My best DX sits at 370 km but hey, you've got to start somewhere! One of the further rain scatter contacts (632km) was between a station near the twin cities and Manitoba!^{11**} Great to see Minnesota near the top of the record list.

Sounds to me like a “setup”

I always like to point out the positive side of a topic but there is reality. Without the help of a “Liaison” frequency (band in this case) such as 2 meters – there would be a great deal more difficulty hooking up on 10 GHz. Random CQs and QSOs are extremely rare on 10 gig just like most other microwave bands. Schedules are set and stations typically get lined up and oriented with respect to the beam heading on lower more reliable bands prior to attempting a contact on 10 gig. The web has been a great tool for setting things up and unfortunately the cell phone has found a place as a liaison tool – but it is a “legal” practice with respect to awards. For me the phone is a last resort; I find 2 meter FM or 432 SSB to work well for coordination.

Putting it all together:

Next month I will discuss some typical setups for 10 gig along with some details of recent activity around the Winona are on 10 gig! In the mean time check out some the links below:

THE WORLD ABOVE 1000MHz:

<http://www.g3pho.free-online.co.uk/>

W1GHZ (N1BWT) 10 GHz Page:

<http://www.w1ghz.cx/10g/startup.htm>

¹ Tropo 1,212 (km) W4DEX (EM95tg) -- K1WHS (FN43mj) 25-Sep-2004

<http://www.arrl.org/qst/worldabove/dxrecords.html>

¹¹ Rain Scatter 632 (km) VE4MA (EN19lu) -- WØZQ/Ø (EN34is) 29-Jul-2003

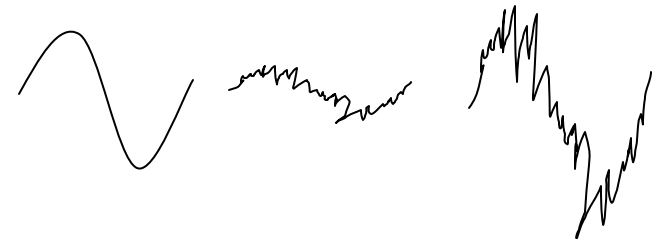
same link above

The New Digital Modes

Detecting (and correcting) errors

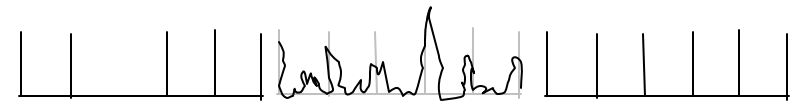
By Leslie Hittner, KØBAD

Now, where was I? I think we were rummaging around in a discussion about what constituted “digital” and “analog” and one of the features of digital that I mentioned was its inherent immunity to additive errors when the signal is sent over a noisy communications path. Let me try and use some simple graphic to demonstrate:



Original Signal Weak and noisy Amplified and still noisy
Analog Signal

Because we don’t know enough about the analog signal, we are forced to amplify (strengthen) the signal along with all of the noise components that were introduced in the communications path. Complex analog signals that contain additive noise may be able to be improved through the use of filters, etc. but it is very difficult and sometimes impossible to completely eliminate the noise without also affecting the nature of the original communications signal as well.



Original Signal Noisy signal Regenerated signal
Digital signal

Because we know that the digital signal consists of pulses that are spaced by multiples of a basic time element, we are able to *reconstruct* (regenerate) the original signal and completely remove the noise effects. Only when the noise is so bad that elements completely drop out or noise pulses are strong enough to be

perceived as valid pulses will information be lost from the original signal. The added pulse in the regenerated signal is an example. To combat this, error detection and correction schemes are employed.

Information is often passed in data words, packets, or frames on digital systems. For instance, a common digital system encodes the letters of the alphabet in groups of 7 (or 8) pulses. Letters are encoded by turning selected pulses “on” or “off.” Called the ASCII code, a letter “A” would be sent as:

OFF ON OFF OFF OFF OFF ON.

A simple error detection scheme is to add an 8th pulse and then count the number of pulses in the first 7. If there are an even number of pulses “on,” the 8th pulse will also be “on” to make the total number of “on” pulses odd. If there are an odd number of pulses “on” in the original 7, the 8th pulse will be “off.” Receiving equipment can then detect any single error in a sequence of 8 pulses. This system cannot correct that error, but it can automatically generate a message that says “send again.” Here is what our “A” looks like with such a simple system:

OFF ON OFF OFF OFF OFF ON ON

The Winona Amateur Radio Club, Inc.

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Dues: \$25.00 per calendar year per license holder.
\$30.00 per calendar year per license holder and members of the same family within the same household.
Dues should be sent to: Richard Kolter, Treasurer

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Monthly club meetings are held on the third Thursday. The submission deadline for the *Hamgram* is Wednesday of the week *prior* to that of the club meeting.

Hamgram

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