



THE CHERRY JUICE

cherryland amateur radio club traverse city, mi

September 2008

Club Officers
President
Don N8QX

Vice President
Hope AA8SN

Recording Secy
Gloria N8KXJ

Corresponding Secy
Bill W8PIT

Treasurer
Ward N8WK

Directors

Jon N8UL

Chuck W8SGR

Dave K8WPE

Cherry Juice Editor
Dave N8CN

CLUB NETS

MESH NET
8 pm Monday
146.86 MHZ

SMASH NET
9 am Sunday
3.935 MHZ



ARRL Affiliated Club
#1082

Coming Club Events

September 23rd Club Meeting

This month's meeting will be an encore presentation of the video "Everything you've always wanted to know about antennas...but were afraid to ask". This is an excellent video demonstrating various antennas in miniature with a microwave transmitter. You'll be glad you attended. As usual we will meet at the Governmental Center at 8th and Boardman at 7 pm.

Tuesday Project Nights

Where: At the club station in the lower level of the Salvation Army Building located at the NE corner of Barlow and Boone. 7 p.m. Every Tuesday except the 4th Tuesday of the month which is reserved for the regular club meeting.

Forward Waves

VE EXAMS:

Traverse City, MI. November 8, 2008. Cherryland Amateur Radio Club. 1 p.m. Walk-ins allowed. Salvation Army Bldg. 1239 Barrlow Street. Traverse City. Contact: Hope **AA8SN** at 231 941-7262 or AA8SN@arrl.net

Gaylord, MI. December 9, 2008. Top of Michigan ARC. 9 a.m. Otsego County Public Library. 700 Otsego Ave. Contact: Chad 989 705-9322. Walk-ins OK.

HAMFESTS:

Sunday, October 12, 2008. Kalamazoo, MI. Kalamazoo ARC Hamfest and Michigan State Convention. Hamfest: 8 am til noon. Banquet Social Hour Noon til 1 p.m. Banquet 1 p.m. Kalamazoo County Fairgrounds 2900 Lake St. TI: 147.640 (PL 94.8) www.kalamazoohamfest.com

Saturday, October 18, 2008. Holland, MI. Holland ARC. The Great Lakeshore Superswap. West Ottawa South Campus. 3600 152nd St. 8 a.m. til ? TI: 147.06 (PL94.8) Contact: John **WD8BWK** 616 394-9821 www.hollandarc.org

Reflected Waves

September 1985

Don **NC8P** presented the Clubs traveling Golf Trophy to its new custodian, VP Dave **KA8UCQ**. The new antenna for the repeater has arrived and is at the repeater site awaiting the next tower climb. Most of the September meeting involved coordination of Novice classes and examinations. The classes will begin on October 16th.

September 2000

The September club meeting featured a two part presentation on the art of Fox Hunting. The first part consisted of a demonstration of various antennas and other equipment and then an actual Fox Hunt. Joe **W8TVT** has jackets and t-shirts available and we will be looking for a new location for the VE exams. Several club members were involved with radio support for the Leelanau Harvest tour. Dave Dell **W8TVC** organized the radio volunteers.

VOLUNTEERS NEEDED!

This year's Leelanau Harvest Tour will be held on Sunday September 21st, 2008. This year the cycling club will be celebrating their 25th Anniversary of hosting this ride. There will be 6 food stops and 7 SAG vehicles. We hope to have hams at every food stop and in each SAG vehicle. Our help with communications in Leelanau County is a huge contribution to the success of the ride!

Please email Dave Dell **W8TVC** at: bdell2@chartermi.net or call 231 947-7409 if you will be able to help with bike tour.

Thanks, **W8TVC**

SEPTEMBER MEETING

The program for this month's Club meeting is entitled "Everything you've ever wanted to know about antennas...but were afraid to ask". Some of you may have seen this video around 1991 but we have not shown it since that time. This video is a clever presentation of the core principles in understanding how antennas work and how the different configurations compare.

The presenter is Frank Rutter K3AW and the tape was made at a presentation at Johns Hopkins University in 1981. At the time, the presentation was made to both hams and operators of commercial antenna installations.

Frank K3AW is now a silent key but for many years he traveled around giving the demonstration to various radio clubs. The demonstration utilizes a 3 Ghz transmitter and a 2 element receiving antenna and the transmitted signal is reproduced as an audio tone via a guitar amplifier. In this manner Frank can demonstrate the nulls, lobes and polarization of the various antennas.

He begins with a simple 1/4 wave vertical ground plane and progresses to dipoles, inverted V's, yagi's, half-squares and inverted L's.

While the video is obviously quite old and a little "grainy", all the principles still hold and the presentation is highly informative and entertaining. This is a video you will not want to miss.

FOX HUNT RESULTS

Last month's Fox Hunt was won by the team of Ward **N8WK**, Hope **AA8SN** and Joe **W8TVT**. They were able to find the Fox, Jon **N8UL**, in about 35 minutes. Jon was hiding at the Presbyterian Church Parking Lot on Airport Access Road. Coming in second was the team of Dave K8WPE, Ann **KA6AYJ**, and Viaggio **N0CALL**. Viaggio is Ann's grandson and while only 7 had a good time chasing the Fox.

LIGHTHOUSE SPECIAL EVENT STATION

Once again, the CARC put the Grand Traverse Light at Northport on the air for Lighthouse Weekend. I don't have the actual numbers for the effort but as of September 15th, we had received over 30 requests for QSL cards. The operators for the event were: Ward **N8WK**, Chuck **W8SGR**, Hope **AA8SN**, Ed **K8SZN**, Jon **N8UL** and Bernie **KC8TDG**.

SILENT KEY

Long time CARC member Chuck Ziegler **W8GLV** passed away this summer. Chuck had moved to Florida in the early 90's but maintained his CARC membership until 1998. He held the Advance Class license and was a member of the QCWA. Chuck was born in 1914 and licensed for 75 years!!

MEMBER NEWS

One of the things I've enjoyed over the years that I have been writing the Cherry Juice is perusing some of the old issues and seeing what some of my predecessors such as Elbert Ford **WS8Y**, Mick Glasser **W8EYC** (ex N8DBK) and Bill Martinek **W8JUY** wrote during their years as editors. A common thread in the older newsletters is regular reporting of events in the daily lives of our club members. Things such as new children and grandchildren, trips and vacations, hamfest attendance, new rigs, upgrades, involvement in civic activities, etc. You get the picture.

What got me thinking about all this was a chance meeting with Jack Leishman **K8XX** at the Mike McIntosh 3rd Annual Memorial Auto Show at the M-Tech center. I was there as a participant exhibiting one of my 1958 self-restored Cushman Eagles and Jack commented that he had no idea that aside from playing around with radio contests I liked to get greasy and oily and play with wrenches as well. Jack opined that it would be nice to know about the other hobbies and activities of fellow CARC members both from an interest standpoint and the chance of finding someone with another common interest beside amateur radio. I agreed and lamented that no one ever sends me info or "blows their own horn" any more. Once in awhile someone tips me off with a "member interest" article but such "tips" are few and far between. Did you know we have an horologist in the club? And now he has an horology apprentice who is also in the club?

So how about it? Let me know what you do when you're not on the radio and what's happening with you and yours—believe it or not, there is a lot of interest out there.

So, back to the Auto Show. Not only did I find Jack **K8XX** but also talked with Edgar **KA8HYE** and Jean **KA8OGC** (the Bringmans). Edgar had a camera around his neck and was enjoying the "iron" on display. The event turned into a mini-ham fest when Brian Cox **N8TC** (ex WA8QAF) appeared. In case you're wondering why we haven't seen a lot of Brian the past couple of years, he's been earning his pilot's license and is now riding the air waves in a literal sense rather than only figuratively. Congratulations, Brian. I'm sure anyone who can do high-speed CW contesting, carry-on a conversation with a bystander and drink a beer at the same time will be an excellent pilot.

My wife was also at the show exhibiting her 1967 VW Squareback. Although she didn't win anything, she had a ball talking "Squarebacks" with several of the people viewing the cars. I did win a "Top Ten Trophy" for my Cushman Eagle and had a great deal of fun re-living the 50's and early 60's with other people who owned scooters. Was surprised at how many men told me they had a Cushman or Allstate scooter they used to deliver newspapers. Several also used Whizzer motorbikes for their paper routes.

CLARA'S BIRTHDAY PARTY

Hosting his mother's 99th Birthday Party at the Traverse City Elks club, was Chuck Mellberg **W8SGR**. Attending family members included nephews and nieces and her grandson, CARC member, Brad **W8QPO**.

Other CARC members in attendance were Joe **W8TVT** and Jan **N8RR**, Bill **W8PIT** and Marilyn **N8UUJ**, Ward **N8WK** and Carol **K8CAK**, and Frank **W8TVQ** and Pat **KC8NJR**.



Clara and Chuck at her 99th Birthday Party

D-STAR REPEATER INTERFERENCE

-by Ray Abraczinskas **W8HVG**

Digital communications activity utilizing ham radio repeaters is expanding. The lure of the many capabilities in connecting repeaters through the Internet keeps growing. Modes such as Echo Link , IRLP , VOIP , Wires , and D-STAR, etc. are all current means of connecting radios and repeaters to the Internet allowing talking with hams all over the world. Some people say that it isn't really ham radio, but truly it is, and it will continue to grow and affect every amateur radio operator's future both for the good and bad.

How are all these advanced technology digital voice modes being implemented and provided for? Successes are being touted all over the country. Hams are jumping on the digital bandwagon everywhere. There are ham nets growing everywhere on the Internet but what if the Internet capability goes down? What real purpose do nets on the Internet serve? Will the only ham repeater stations operating in the future be reflectors and gateways? Ebay and the price of gas are affecting hamfest attendance and if people reduce their driving habits, more than likely the role of repeaters will become affected also. Will we still need repeaters, repeater networks, and link repeater systems? Commercial FM broadcast stations are discovering "interference effects" from digital transmissions in-between the analog FM channels. Digital TV is coming in February 2009 with its associated weather-related antenna reception problems (pixel fadeouts) that will raise ire while watching TV. As hams are we all heading for that inevitable question someday (God forbid), "Do we need ham radio at all?" Will it too eventually follow the way of the 8-track and VHS cassettes?

Most every ham has some knowledge of Icom and D-STAR. Simply, it's a versatile digital communications mode for voice and data. It can connect D-STAR users to other D-STAR radios all over the world through the Internet. It's growing everywhere but not all hams are jumping into the fray for various reasons, i.e., knowledge, compatibility, expense, naivety, and band plan constraints.

The Michigan Area Repeater Council (MARC) started addressing making provisions for D-STAR repeater frequency coordination in latter 2006. It was a challenge because most 2M-repeater frequencies in the lower-Michigan 20 kHz band plan are fully assigned with analog repeaters. As a provisional means, the MARC created

several channels in the 145 and 147 MHz bands to allow 2M D-STAR repeaters to exist in-between the coordinated analog repeaters frequencies. The resultant 10 kHz spacing necessitated focusing on distance separation for adjacent channel repeaters. Initially it was 20 miles and after further deliberations in June 2007, it was made 50 miles (without any reference to TX power levels). However, due to variability's, further tests and observations may be required to adjust the 50-mile adjacent channel repeater separation factor even further and also consider including limits on D-STAR transmitter output power. As is, the burden falls mostly on all repeater owner/trustees (involved) to show that the newly assigned D-STAR repeater will be compatible. Realistically, that may take (?) years to prove because of all the variability's involved, e.g. equipment differences, repeater profiles, propagation variability (10 to 25 db band enhancements), D-STAR transmitter power levels, terrain, observation methods, and observation times, etc.

While D-STAR sellers and users tout a narrow operating bandwidth, supposedly allowing more operating channels, the fact remains that D-STAR repeaters must fit into the existing repeater spectrum band plan, which differs from state to state. In lower-Michigan in early 1984, by repeater owner/trustee agreement through the Michigan Repeater Council then, the 2M-repeater band plan was made 20 kHz, which took over four years to fully implement including "flipping" inputs and outputs in the 147 MHz band to conform to the new ARRL band plan. All the surrounding states including Michigan's Upper Peninsula and Ontario, Canada, opted or stayed on a 15 kHz band plan for their 2M-repeaters giving them 15 more repeater frequencies but complicating (somewhat) the coordinating process (then).

Another factor sometimes ignored, is that all ham radios commercially manufactured and sold (for ham repeater use) have different receive selectivity factors among other things including FM discriminator response. This becomes an important factor in rejecting adjacent channel interference 5 or 10 kHz away. It's called "capture effect" response. That is, in receiving an FM signal using a discriminator circuit, it will generally lock to the strongest signal in its capture range. It can even capture on strong signals 10 kHz away and hence, with a strong D-STAR carrier, it would swamp out the desired signal and sound just like noise. That is called interference at the user receiver, and even though some people suggest it, using a tone encoded squelch will not solve the problem. Only by reducing receive signal levels or by controlling transmit power and distance separation will the problem be solved. With a 10 kHz band plan, this becomes a huge burden for everyone involved. NOTE: Some coordinating bodies used to consider 5 kHz and 10 kHz spaced channels as "co-channel" in their coordinating processes.

Some D-STAR experts are suggesting the user needs a more selective radio, but why did Michigan go on to the 20 kHz band plan in the first place? Answer: to easily manage adjacent channel interference problems both internally and with the surrounding states and Canada. It was based then on a typical receiver bandwidth spec of 13 kHz at 6 db and 30 kHz at 100 db. Placement of D-STAR repeaters in a 10 kHz channel spacing with analog repeaters using those receivers may allow the D-STAR repeater to work OK but it will probably cause heart burn for many repeater owners and their users (and the frequency coordinators). It can and will also raise the noise floor in many cases which affects

overall analog repeater sensitivity.

Besides the Michigan peninsula VHF band enhancement phenomena typically occurring 8-months out of the year affecting the problem, there are other factors that can affect the described situation. One is called third order intermod resulting in interference that, usually, most hams are neither concerned about nor capable of checking for.

Let's describe a typical situation involving an analog repeater transmitter and a D-STAR repeater transmitting (10 kHz away) with a user in a mobile (or a base station) located between the two repeaters running reasonably high power and transmitting into either repeater. There are potential intermod frequency products that can be created in either the mobile transmitter (because it has no rejection filtering), which then could interfere with one of the repeaters, or there could be intermod products created in either repeater transmitter because the repeater duplexer cannot reject it from occurring (10 kHz away). Also, most repeater owners do not use isolators or even check for intermod effects. This problem then becomes a hellacious burden on the repeater owner to track down and eliminate, all because adjacent channel repeaters are placed too close in frequency and too close in distance relative to their users.

In July 2008 in southeastern Michigan, an enthusiastic D-STAR sysop placed his new D-STAR repeater in operation supposedly on a frequency that was NOT recommended by the Michigan Area Repeater Council. Immediately, several hams using long time coordinated analog repeaters 10 kHz away, up to 45 miles around the area began noticing "cutouts" in reception blaming it on the analog repeater they were listening to. Even when some mobiles were operating close to the analog repeater, their mobile receiver was completely blanked by the strong D-STAR signal any time it was up. It was very obvious that there was something out side the analog system affecting it. The involved analog repeater(s) trustees were informed of the problem with one being a Michigan statewide linked repeater system trustee and the other a knowledgeable former MARC Board member. Hours were then spent analyzing what was happening with frustrations building because nothing in either repeater system appeared to be wrong. Suggestions were made to those users observing the cutouts to check and see if a D-STAR repeater was involved, as it was known that the MARC had assigned "splinter channels" for D-STAR.

Bingo! A new D-STAR repeater was found operating on a frequency 10 kHz away from the analog repeaters (that the MARC supposedly did not assign). The enthusiastic D-STAR sysop jumped the gun! After several communications between all involved including the MARC, the sysop turned the interfering D-STAR repeater off and stated that he will be moving it to a newly assigned frequency. He also expounded that the problem is not the DSTAR repeater, it's really the users FM receivers; they should use a more selective receiver! Like my 8-year old granddaughter frequently says these days, "Duh"!

In June 2008, there were four D-STAR 2M-repeaters assigned "splinter" frequencies listed in the MARC on-line directory with eight more assigned waiting to be added. The WX8GRR D-STAR repeater on 147.29 MHz south of Grand Rapids is not listed yet. D-STAR is an exciting mode and sysops are saying it's much better than analog FM in many ways. Some say it takes much less transmit power with D-STAR to communicate as far as analog. Therefore it would make sense for the MARC to consider limiting the D-STAR

repeaters power output in these provisional assignments (say five to ten watts maximum) for splinter frequency compatibility. D-STAR itself is not the problem; the MARC provisional "splinter" implementation plan may need refining. This recent wide-area observation of D-STAR interference is probably one example of the potential problems yet to come facing the Michigan Area repeater Council and Michigan repeater owner/trustees. But then how many hams will know why their analog repeater reception is occasionally cutting out? Is it happening elsewhere now? Could it happen during an emergency communication? Who will investigate it, prove it, and then correct it? With the technologies involving digital communications apparently requiring placing more transmitters into the repeater bands, the Michigan Area Repeater Council will need everyone's support, cooperation, and patience in their volunteer efforts. Maybe it's time to look at and consider "other approaches" to implement the 2M D-STAR repeaters in Michigan; there are several. One is to look at going back to the 15 kHz band plan possibly gaining up to 15 more frequencies that could contain D-STAR repeaters. There would still be some complexities with coordination process, but not as onerous and burdensome as the "10 kHz provisional plan." It was done once but it took over four years.

Another approach would be to survey and promote repeater clubs and trustees as to their "spirit and willingness in cooperating" to implement a D-STAR repeater in place of their existing coordinated analog repeater on the existing 20 kHz band plan (or a revised 15 kHz band plan). After all, there are many individuals, clubs and cities with more than one analog repeater that virtually covers the same area. It would seem feasible then that one (or more) analog repeater(s) could be sacrificed in these areas for D-STAR implementation!!! With either plan, coordination of 2M repeaters in Michigan would still be under existing proven coordination standards, not an experimental observation provision subject to long term effects and changes.

A more ambitious plan might be to investigate the possibility of integrating an analog and a D-STAR repeater operating together on the same frequency at the same site in an "either / or fashion". It would seem technically feasible albeit there might be occasional "busy lockouts" to some users while either repeater is in-use. However, that's what ham radio is about, making things work and getting along.

It should be clarified that the Michigan lower-Peninsula 2-meter 20 kHz band plan only differs from the surrounding states and Ontario plans in the 146 and 147 MHz bands. That's where the extra 15 frequencies would come from if it were changed. The 145 MHz band is a 20 kHz band plan in all states around Michigan (including lower-Michigan).

The purpose of this article is to report an occurrence of typical repeater interference, which many hams may not know about or understand, and which was the fundamental reason why lower-Michigan operators selected the 20 kHz band plan in 1984. This information is also meant to create conversation among repeater owners and trustees in assisting the Michigan Area Repeater Council to accomplish their goals. Comments are welcome and if I can be of further assistance to anyone please contact me at abra@i2k.com, or send them directly to the MARC at mail@miarc.com.

<SK>

Addendum:

This is the complete obituary for Chuck **W8GLV**. It was provided by Roger Cameron **N8KV**. Chuck and Pat were Rogers godparents.

Charles F. Zeigler, **W8GLV**, of Leland passed away August 17 in Penny Farms, Florida. He was 93 years old.

Charles was born in Beaver Falls, PA on November 6, 1914, the son of Frank Zeigler, and the former Clara E. Wahl. He was married in 1940 to Norah Patricia Ead, who after 52 years of marriage passed away May 16, 1992. He was a graduate of Carnegie Institute of Technology with a BS in Electrical Engineering. Additionally he attended both MIT and Harvard University.

Charles entered the US Army in 1941 and was a commissioned officer in the Army Signal Corps. He was assigned to the 7th Infantry Division under Major General Joseph Stillwell. He was honored and promoted from Capitan to Major and served as 2nd in command of the 596 Signal Aircraft Warning Battalion, which was the pioneer force to formulate the use of radar by the United States Army. Major Zeigler remained in the Philippines until all his troops returned to the United States after WWII. Prior to WWII and just after college, Charles was employed by Philco Corp in Philadelphia, PA for 3 years. Following Philco Corp., he worked shortly for the WM Chace Company, in Detroit; Charles then served in the Army. After Charles' honorable service was completed, he returned to the WM Chace Company and worked there for 35 years.

He was active in Ham radio for over 75 years with the callsign **W8GLV**. He was also active in numerous civic and social organizations including Kiwanis Club, Leland United Methodist Church, **Cherryland ARC**, Boy Scouts of America, and associate member of the Penney Memorial Church.

He moved to Penney Farms Retirement Community in the fall of 1993 and on May 29, 1994 married his High School classmate Charlotte Burns.

Charles is survived by his wife Charlotte; two sons; Charles F. Zeigler, Jr. of Irvine, CA; and Andrew J. Zeigler, of Chelsea, MI; a sister, Inez Koontz of Mechanicsburg, PA; six grandchildren and seven great grandchildren.

Memorials may be directed to the Penney Retirement Community, Pavilion Expansion Fund, PO Box 555, Penney Farms, FL, 32079.