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MVUS Sunday Net at 14:30 UT (currently 10:30 AM local time, EDT).
The net frequencies are primarily **144.280 Mc** and **28.960 Mc**.

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Upcoming Events: Ft Wayne Hamfest 21/22 Nov. 2008

We need your help.

I've been into radio for a long time, actually got started on VHF. I measured wavelength using Lecher wires and cracked and removed the tube's Bakelite bases and didn't use sockets to reduce losses.

Being a ham is something special and we ought to act that way. It includes being of service to society and, of course, to our fellow hams. With all the new gadgets around it gets more difficult all the time to attract young hams. Our newsletter tries to keep everybody "up to date"

Everybody is working on a few projects, so please take your time to write about it. You may provide good tips and ideas for other hams. We are transitioning to digital "over the air" TV, maybe you just got your converter box. What are your experiences? Have you helped a neighbor with his installation?

Nobody can see electricity. So we depend on instruments to detect, test and measure. What are some good ones to have that do not bust your budget. It is nice to have occasional access to high priced test equipment, but I am talking here about instruments that could be on everybody's workbench. You are also reading Electronic magazines and or visit conventions. Keep you eyes and ears primed and report us what impressed you.

This issue of the AP will be late, We just came back from DL and I didn't have an opportunity to work on this newsletter until after we came back last Wed (10-22)

Vy73, Gerd, WB8IFM

DE N8ZM (10-08)

The long running, yet still tacky joke in MVUS is that every time the treasury gets a little fat, Gerd takes a trip. And so it is again; this time he is in Berlin and the surrounding territory. But he still remains in touch, even if he has to borrow a computer to get word to us that the Anom Prop articles are due. So herein, only slightly behind schedule, is the latest installment of my rambling monthly communiqué.

Mike, KA8ABR, brought the 1296 beacon antenna over last week for a final tune and checkout. The SWR looked pretty good, although closer to 2:1 than the desired 1:1, but in dB terms, it isn't much to worry about. Given 800 feet of 7/8" Heliac back to the TX, the SWR won't be noticed. There will be a dB or so of lost radiation due to the reflected power, but the height should make up for that. Word is that the tower crew is due any day (haven't we heard that before?). This time, though, I have a lot of reason to believe it. Once the tower work is finished, we'll start on finishing the transmitter and amplifier pieces. That job will mainly be done by Mike, W8RKO, who is finishing up a project started by Bruce, KA8EDE for his own use. Given the opportunity to have a much better site, Bruce was kind enough to share the hardware he had painstakingly assembled. If you have ever seen an example of Bruce's work, you know that it is well thought-out and built like a tank. With the mod's being made by Mike to use a GPS derived 10 MHz reference to a PTS Frequency Synthesizer, we will have bragging rights for the most frequency accurate 1.2 GHz beacon on the planet. We have talked about throwing in a 1 pps beep, a la WWV, so that there would be a time and frequency reference beacon as well. Might be a first on 1296! So stand by!

While a few of you (very few, as I hear it) were attending the September MVUS meeting, John, N8UR, Mike, W8RKO, Bruce, ND8I, and myself were attending the annual TAPR Digital Communications Conference, held this year in the outskirts of Chicago. Elsewhere in this issue of Anom Prop, I believe there will be a detailed report from Mike or John, so I will only say that if you have the slightest interest in any of the digital communications aspects of ham radio, the DCC is the event to attend. The who's-who in the digital world are there to talk about the latest trends and technology, along with some good old how-to advice. I'll try not to scoop Mike's report too much, but if you wanted to learn the basics of digital signal processing and software defined radios, the Sunday morning tutorial was a knockout. The good news is that next year will be back in Chicago again, which makes for an easy drive. Don't miss it!

I've used up my allotted space for this month, so got to go, but I'll see you on Friday!

Tom, N8ZM.

Achtung! Please, check your mailing label and pay your dues, Please! **Thank You!**

This and That 10-08

Learning Curve Experience. If you don't blow up something, you must not be doing much of anything, or you are really lucky. [Lloyd, NE8i]

Once Upon a Time. Before there were cell phones, before there were laptops, before there were PCs, there was Wayne Green, a ham radio enthusiast turned magazine publisher from Brooklyn, N.Y. [Robert L. Mitchell]

US Amateurs as of Aug-2008. Extra 114,434, Advanced 62,712, General 143,055, Technician 318,961, Novice 18,851 , ARS Total 658,013. [FCC]

Bicycle. Life is like riding a bicycle, to keep your balance you must keep moving. [Albert Einstein]

Fuel Efficiency. Interestingly, the most important fuel economy decision you'll make is selecting the car you drive. [NAPS]

Second Law. In physical systems as in daily life, disorder tends to increase. This principle is known as the second law of thermodynamics. [Martin Bojowald]

Step Voltage. Caught in a thunderstorm in the open? Stoop low to the ground and keep your feet close together because when it strikes it can travel up one leg and down the other. [Lieutenant Petrilla]

Wind Power. Once again, some ships are turning to wind power... companies are manufacturing kites the size of football fields that can be deployed with a cable from the bow of huge vessels. Rising nearly 1000 feet above sea level, they catch winds that are up to 50% stronger than at the surface and help pull the behemoths along. [Shelley Emling, Cox News Service]

More on Greenland. It's the world's largest island, three times the size of Texas. Yet it only has 2 traffic lights. [AARP Magazine]

Sweet Teeth. Sugar consumption per person per year in the United States has increased from 22 pounds in 1850 to 180 pounds in 2006. [Ann Louise Gittleman / book: Get the Sugar Out]

Cern's Large Hadron Collider (LHC). A massive failure (Sept. 12), known as a quench, caused around 100 of the super-cooled magnets to heat up by as much as 100 degrees. The fire brigade was called out after a ton of liquid helium leaked into the tunnel. Repairs will be extensive. The LHC just opened after a construction period of some 13 years [BBC, see article on pge 10]

Full House. You cannot have everything --- where would you put it? [Posting on a Bulletin Board]

Faster in the Fall. The earth rotates faster in the fall on account of the leaves falling off the trees and since there are more trees in the northern hemisphere the sprouting spring leaves in the southern hemisphere do not cancel out the effect. The effect is tiny, a mere one thousands of a second per day, but it is measurable by the ring laser of the TU Munich in Wettzell. [Norbert Lossau]

4 Billion Cell phones. The number of mobile phone subscriptions topped 3.3 billion by the end of 2007. Continued progress in 2008 is chiefly due to the growth in major developing markets such as Brazil, Russia, India and China. These economies alone are expected to account for over 1.3 billion mobile subscribers by the end of 2008, [ITU, 9-26-08]

First Rule of Kiss. Stay away from gadgets (don't buy): alarm clocks, radios, kitchen tools, telephones --you get the idea-- that "require" a (poorly written) manual to get them to work. It's not worth the trouble! [Gerd, WB8IFM]

Digital Communications Conference, September 26-28, 2008

Mike Suhar, W8RKO

Tom, N8ZM, John, N8UR, Bruce, ND8I, and I made the trip to Chicago for the DCC. The conference presented various papers on digital communication. If you are interested in digital communications this is the conference to attend. It is the only place where you can be in the same room with the movers and shakers of digital communications. Display of equipment was also available including an operational DSTAR repeater on VHF, UHF, and 1200 Mhz.

D-STAR had a major presence at the conference this year. Topics ranged from the basics for beginners to more advanced discussions. Erick Westgard, NY9D talked about D-STAR in his area and its use for public service. Robin Cutshaw, AA4RC discussed the DV Dongle for accessing the D-STAR network using only a PC. Pete Loveall, AE5PL got into the details of the D-STAR discussing the digital voice and digital data specification and how it translates into the D-STAR specification. D-RATS (small application to provide data communications with D-STAR radios) was discussed and how to use it for text chatting, file transfers, position reporting, mapping, etc. D-PRS (converts GPS information from D-STAR radio in GPS mode into formatted APRS strings) was also discussed.

Bob Bruninga, WB4APR talked about APRS and reminded everyone that APRS is not just about GPS tracking beacons. APRS has many useful functions that involve 2-way communications. Those of us that use APRS just for position packets are not getting full use out of the protocol. He suggested setting the radio receiver used for APRS to decode 100 hz PL. When traveling your radio will decode the PL when you are near another APRS station transmitting 100 hz PL. When you hear the packets call the other station on the APRS frequency then QSY to simplex to carry on a voice conversation. Also in the tracking message indicate what frequency you are monitoring. Someone observing your message string can then call you on that frequency. From personal experience this works as my position beacon indicates I am monitoring 146.52 MHz. Coming through Washington, PA one night on I-70 I got a call on .52 from someone that observed my message string. You can also get a stand alone APRS decoder to connect to your receiver to see APRS messages. Even the control head from a D710 will decode APRS from an audio stream. Bob also discussed interfacing DTMF into APRS and potential uses.

Nick Luther, K9NL, gave a very interesting talk of a protocol he is developing to multicast weather data over AX.25. This has some interesting possibilities for public service and microwave rover operation. Using this protocol you could send weather radar image data over AX.25 to assist in rain scatter operation. The data stream is available from NOAA. Using C-band receiver and dish the data could be collected on a server tied to the internet. AX.25 would be used to send this information via radio to the end users.

AX.25 is going strong as John Blowsky, KB2SCS, discussed using it for E-mail gateway. GateWayScs is a POP3 SMTP packet radio to internet gateway.

Paul Wiedemeier, KE5LKY, discussed using UDPcast to IP Multicast data over packet radio.

A couple of topics were on Winlink. Rick Muething, KN6KB, talked about sound card ARQ mode for Winlink HF digital messaging. Victor Poor, W5SMM gave an update on Winlink 2000.

Software defined radio was of course on the agenda. Paul Rinaldo, W4RI gave an SDR outlook. Scott Cowling, WA2DFI presented an update on HPSDR with a good discussion on the Mercury board (0-65 MHz direct sampling receiver) now going into production. Alex is the RF preselector now in alpha board design phase. A working HPSDR system with the current boards was operational in the demo room. Matt Ettus, N2MJI talked about his USRP2 system. This SDR device will take 25-MHz of bandwidth and pipe it into a Gig Ethernet interface. It fills the pipe so you had better have a powerful PC or other computing system to process all that data if that is what you want to use it for.

Tom Clark, K3IO talked about various AMSAT topics including the feasibility of a ham radio satellite in geosynchronous orbit piggy backed to a commercial satellite. This has numerous advantages for those building the satellite. The troublesome rocket motor would no longer be an issue. More power would also be available from the host. This would be a better platform for microwave at the cost of the lower frequencies. The lower frequencies (VHF, UHF) could be an issue as the host system may be using these for its own IF(s). Tom was also the banquet speaker and he discussed his life adventures in his 40+ years involved with satellite science.

Steve Bible, N7HPR, gave us the latest update on SuitSat-2 which is the next generation of amateur radio packed into a discarded Russian space suit. This one will be much improved over the first. It will have solar cells mounted on the leg to provide longer life. SuitSat will be equipped for voice messaging, linear transponder (2-meter down, 70-cm up), packet, 400 baud bpsk telemetry, and four SSTV cameras.

On Sunday a special presentation was given by Phil Harman, VK6APH, on the details of software radio. This was a very informative presentation and for me probably the most important of the show.

While not directly related to digital radio, Larry Wolfgang, WR1B, from ARRL talked to us about writing for publication. He stressed the importance of writing about projects you are working on. The ARRL editors will assist you in the editing and will determine if the article is for QST or QEX. His discussion also applies to other radio magazines such as CQ.

Outside of the presentations lunch and dinner presented opportunities to talk to those directly involved in digital communications. Anyone attending DCC should plan on attending any lunches and dinners arranged by the conference.

Next year the DCC will be in the same hotel (Holiday Inn, Oak Grove, IL). It will be around the same date in September. Plan now to attend as this is a worth while conference for anyone interested in digital communications.

Visiting Arno, DL6SX By Gerd, WB8IFM

My friend Olaf, KF4TP, had asked me, if possible, to visit his good friend Arno, DL6SX, on our trip to Germany and get a handful of spreader insulators. Arno lives fairly close to my mother-in-law, the final stop of our visit. This place is Northern Bavaria, mountainous, very picturesque, nice and cool in the summer but very cold in the winter. Arno, from Hamburg, retired there and got some extra income from renting vacation rooms.

Arno had a long successful career in electronics and audio techniques. His shack, aside from the usual ham equipment, is brimful with all kinds of audio recording and reproducing equipment. His demonstration of playing back special recordings just in an ordinary ham shack was impressive. What made the difference you like to know? Arno readily offered the explanation: a 100W powered subwoofer.

We are all familiar with the neighborhood teens driving down the street going boom boom boom. That's all we hear and we shake our heads. Now Arno played all the rest of the frequencies and together with the boom boom it did not sound so bad!

We tuned across 20mtrs, it was 4 PM in DL, which is presently the best time to contact the East Coast of the US, where it is 10 AM. At that time there were few US stations but they were easily covered up and missed by a casual tuning across the band. There was also one of the always-present nets where many talk and few identified. But the main problem with picking out the US stations are the many Europeans, especially from Eastern Europe and Russia, plus a few Mediterranean and Africans. There was one pile up with a station from Jordan. Listening to a Russian station, Arno commented how much better they sounded now with Japanese equipment.

He kept listening to the sound of the SSB signals commenting on their quality: too many lows, not enough high frequencies. He agreed with me that your best bet for readability (and all audio experts agree on that too) is "railroad station" they cut off the low frequencies and enhance the highs. The only improvement over this would be to employ cell phone chip technology. This is where additional processing is used to convert voice, even a "mumble", into a crisp narrowband easily readable voice. In the extreme you may not understand who the speaker is, but you sure understand every word he says. This is indeed very important to hams who often have to content with extremely weak signals embedded in noise and QRM.

One other "after retirement" activity Arno's was to engage a friend in town who owned an injection molding facility to produce wire antenna insulators. Here Arno, as an experienced ham, asked himself how one might want to employ such insulators and then he designed all the desirable features into the insulators.

The basic spreader that resulted has a center hole to form an x with two spreaders to obtain an insulator for a four-wire line. That hole can also be used to redirect the feedline. (Fig 1)

Next, an end insulator, designed by Arno, has a number of the usual insulating segments, but here they are meant to permit coiling up a few inches of extra wire so an antenna can be measured then adjusted in length; very practical. (Fig 2). You can get more information on the web site: www.hfparts.de.

Before we said "good by" we took a look at his antennas and some of the very practical but unusual mechanical contraptions. E.g. he had a tubular mast that was stabilized with stretched wires not unlike you might see for a circus tent pole or a bridge construction. Some levers brought into the right position tightened the affair.

Another sight to behold was his 40 m inverted V dipole. The dipole halves were made-up of some 7 or 8 wires joined at the feed point but then fanning out towards the ends where they were connected to an insulating rod equally spaced about 4 to 5 inches. As a true ham he could not give me exact numbers of the wires and or the distances involved nor had he a chart for the bandwidth, but mentioned the SWR was 1 to 1 across the entire band. (Pict 1, 2, 3)

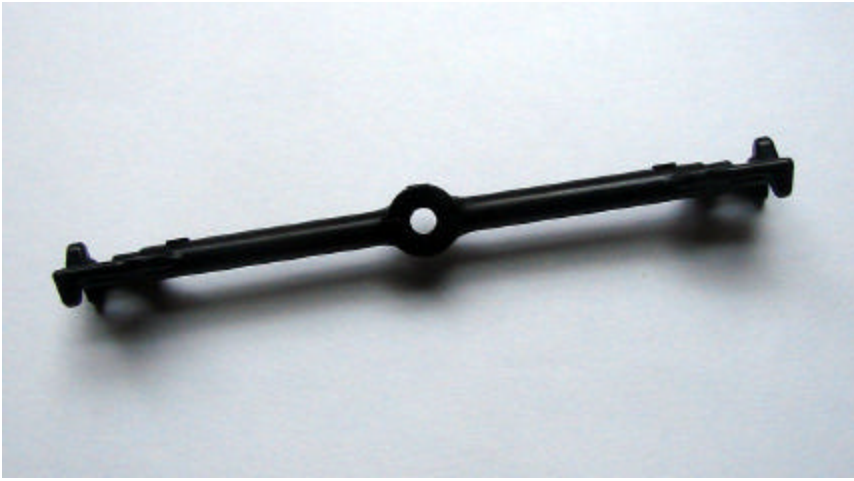


Figure 1 Spreader



Figure 2 Insulator



Feedpoint



40m Wideband dipole



Ends of Dipole

Grid Squares explained (2005)

By Bill Tynan, W3XO

The grid squares are based on latitude and longitude. They are divided into fields such as EM where I am in Texas, squares (which are not square) and sub-squares. The fields are 20 degrees wide in longitude and 10 degrees high in latitude. They begin with AA at the South Pole and the 180 degree meridian, and work their way north and east from there.

The fields are divided into 100 squares, 10 in longitude and 10 in latitude. The longitude character is always presented first. In my case, EM, E is the longitude designator and M is the latitude designator. My grid within the field is 00. Therefore, I am in EM00. So, I am in the most southwest corner of the EM field. The most northeasterly grid in that field is EM99, which is up in Ohio somewhere. Those are the grid squares which people are collecting on the satellites and various VHF and microwave bands.

There is a further breakdown of these into sub-grids. Mine is kd, so my six digit designator is EM00kd. That takes it down to a couple of miles. Most people don't use the last two digits but microwavers often do. They are also useful in calculating distance and beam headings.

What most people do these days is use a GPS receiver to get an accurate reading of longitude and latitude. Some GPS receivers even read out in grid squares directly, so you don't have to calculate. There is a grid square calculator on the ARRL Web site. It also provides lat/lon information for various cities.

Deepest Hole into the Earth

By Gerd, WB8IFM

Located near Windischeschenbach in Northern Bavaria the attempt was made in 1990 to drill into the earth as deep as possible. In 1994 at a depth of 10km (abt 6 miles) the rock turned soft so that further drilling was impossible and was halted. The facility still exists and can be visited and there are almost daily guided tours, which include videos of the operation when it was in progress.

On the last Sunday of our visit to Germany (10-19-08) my good friend Kurt, DF7NH, an accomplished sailplane pilot and champion for many years, took me up in a motor glider for some sightseeing. That borehole, mentioned above was

not far from the airport. So he flew a loop around it and gave me a chance to get a good look at the drilling tower and facility. I took some pictures from the air. There were a few large windmills nearby and we circled those as well!

These motor gliders, lightweight sailplanes with a small engine are very popular in Germany and during our stay and walks through the countryside we did see quite a few in the air. They are relatively quiet and travel at around 70 mph. Cruising height is at 2200 feet just above the required minimum for over-land flights.



Hadron Collider halted for months

BBC 9-22-08

The Large Hadron Collider near Geneva will be out of action for at least two months, the European Organization for Nuclear Research (Cern) says.

Part of the giant physics experiment was turned off for the weekend while engineers probed a magnet failure.

But a Cern spokesman said damage to the £3.6bn (\$6.6bn) particle accelerator was worse than anticipated.

The LHC is built to smash protons together at huge speeds, recreating conditions moments after the Big Bang.

Scientists hope it will shed light on fundamental questions in physics.

Section damaged

On Friday, a failure, known as a quench, caused around 100 of the LHC's super-cooled magnets to heat up by as much as 100 degrees.

The fire brigade were called out after a tonne of liquid helium leaked into the tunnel at Cern, near Geneva.

The LHC has been in construction for some 13 years

Cern spokesman James Gillies said on Saturday that the sector that was damaged would have to be warmed up from its operating temperature - of near absolute zero - so that repairs could be made, and then cooled down again.

While he said there was never any danger to the public, Mr Gillies admitted that the breakdown would be costly.

He said: "A full investigation is still under way but the most likely cause seems to be a faulty electrical connection between two of the magnets which

probably melted, leading to a mechanical failure.

"We're investigating and we can't really say more than that now.

"But we do know that we will have to warm the machine up, make the repair, cool it down, and that's what brings you to two months of downtime for the LHC."

David Shukman heads deep underground to take a look at the LHC's tunnel

The first beams were fired successfully around the accelerator's 27km (16.7 miles) underground ring over a week ago.

The crucial next step is to collide those beams head on. However, the fault appears to have ruled out any chance of these experiments taking place for the next two months at least.

The quench occurred during final testing of the last of the LHC's electrical circuits to be commissioned.

At 1127 (0927 GMT) on Friday, the LHC's online logbook recorded a quench in sector 3-4 of the accelerator, which lies between the Alice and CMS detectors.

The entry stated that helium had been lost to the tunnel and that vacuum conditions had also been lost.

The superconducting magnets in the LHC must be supercooled to 1.9 Kelvin (-271C; -456F), to allow them to steer particle beams around the circuit.

As a result of the quench, the temperature of some magnets in the machine's final sector rose dramatically.

The setback came just a day after the LHC's beam was restored after engineers replaced a faulty transformer that had hindered progress for much of the past week.