ANOMALOUS PROPAGATION

Newsletter: ***The Midwest VHF/UHF Society***

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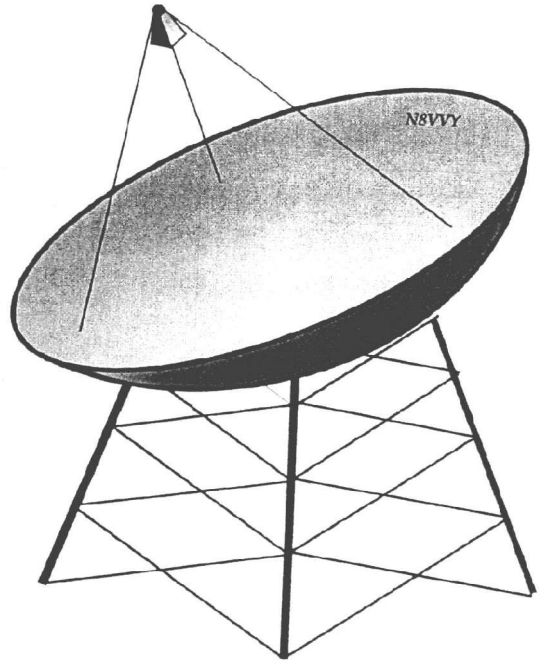

Annual Society membership is $ 12.00. Please make checks payable to Gerd Schrick

MIDWEST VHF-UHF SOCIETY

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Beacons: 1296.079 **W8KSE** *) EM79ur Dayton, OH---- 2W to Big Wheel at 800' AGL.

Listen for the **10GHz Beacon** at EM79qk, tower of **K9AYA,** 2W @ 10,368.000 Mhz

Contents

Silent Keys: Ki8CA, Peter Morris, Jan 2014

WR8A, Ed Garner(93), Feb 2014

SVHFS Conference 25/26 Apr. in Atlanta, Schedule Pg 8

www.svhfs.org Presentations: K4CSO@ARRL.net

Hamvention 16/17/18 May, Dayton, Ohio

MVUS Booth as usual #332

Pres. Tom Holmes, N8ZM Vice Pres. Bob Mathews, K8TKQ Secretary, Steve Coy, K8UD Treasurer, Gerd Schrick, WB8IFM	*) off the air, pwr-supply needs repair, stand by. Mike, W8RKO

Noise sources available in two frequency ranges: 50 MHz to 3 GHz, and 3 GHz to 11 GHz. Fully assembled and tested with ENR data provided. The lower frequency version $50 including shipping in the USA. The 11 GHz version is $95, but delivery is about 8 weeks ARO. Contact N8ZM at n8zm@mvus.org for more details.

DE N8ZM:

To say that I am late writing this is an understatement; Gerd understandably has somewhat less kind thoughts on the matter. So down to business.

Elsewhere in this issue you should find the details of the VHF/microwave Forum at Hamvention. Lots of great speakers who have all agreed to share the limited time available by holding their talks to 15 minutes each. Needless to say things will be kept moving along swiftly, with little time for Q&A, but I am working on a plan for that.

Also, there will very likely be a change in the location of the balloon launch as the location on the HARA ramp is really a major artery for traffic to the flea market and for HARA personnel to use to supply to food vendors in outside. I haven't had a chance to work out a new location with the HARA folks yet but that will be published here and on the Hamvention web site as soon as we know the answer. The HARA folks have been very supportive of our launches and are being very cooperative in finding a solution.

The FMT is coming up soon, and this time the format will be the tried and true 'simple' task of finding the signal close to the published frequency and then measuring it the best you can. So Mike and our W8KSE signal will be silent for this one, but don't let that stop you. Take a shot at it anyway; it's fun! Details are in the April QST.

I have found a 30 Watt 1296 amplifier kit for the beacon from a ham in CA, and Randy, WB8ART, has agreed to build it. Also, Mike, W8RKO, told me he would help build the driver amps, once I come up with a design. I have been looking at some Mini-Circuits parts which look promising, and someone sent me some other suggestions a couple of days ago which I haven't yet had time to investigate. It looks like we'll need two stages to get from 0 dBm to +30 to drive the bigger amp. Another part of the project will be keying the RF, but I think that RKO may already have a pretty good idea for that.

Regarding our Hamvention booth: Mike Schulsinger may not be available to do the superman job of manning the booth almost all weekend as he has done so exceptionally in the last several years, so I need to find several folks who would be willing to fill in for him. If you can do a few hours over Friday or Saturday, especially, please contact me ASAP so I can put together a schedule. Thanks! That's all for now, see you on the 28th at the MCL! 73, Tom.

2014 Hamvention VHF/UHF Forum Sched, Moderator: Tom Holmes, N8ZM.

1. Rick Campbell, KK7B *VHF Maker-Technology Harvesting and Spin-off Designs*
2. Jeff Wadsworth, KI5WL Easy 10 GHz Transceiver without Unobtainium
3. Mike Kana, AA9IL Newbie Explorationsat 24 and 47 GHz
4. Ed Krome, K9EK Homebrew VHF amplifier-modern style\
5. Zack Widup, W9SZ Building 47 GHz Transverters from Scratch\
6. Tony Emanuele, WA8RJF Assembling a 10 GHz Portable Station
7. Terry Price, W8ZN K8GP-VHF Contesting run Amuck!
8. Dave Sublette, K4TO (Alternate) A 5,760 MHz Amplifier Project

This and That 3-14

Antenna Myths and Old Wifes Tales. "I'm made of rubber and you're made of glue. Whatever you say bounces off me and sticks on you." [Kurt N Sterba]

Awful German Language. My philological studies have satisfied me that a gifted person ought to learn English (barring spelling and pronouncing) in thirty hours, French in thirty days, and German in thirty years. It seems manifest, then, that the latter tongue ought to be trimmed down and repaired. If it is to remain as it is, it ought to be gently and reverently set aside among the dead languages, for only the dead have time to learn it. [Mark Twain]

Foolproof. A common mistake that people make when trying to design something completely foolproof is to underestimate the ingenuity of complete fools.
[Douglas Adams Mostly Harmless]

Stupidity. If humans were just bad, as they always were -- but that they got to be so stupid, is highly suspicious. [Curt Goetz,from "3 Times a Day" 2005]

Near Earth Asteroids Potentially Hazardous Asteroids (PHAs) are space rocks larger than approximately 100m that can come closer to Earth than 0.05 AU. None of the known PHAs is on a collision course with our planet, although astronomers are finding new ones all the time. On March 18, 2014 there were 1461 potentially hazardous asteroids. [NASA Space News}

Aurora. Imagine you were the first person ever to experience the Northern Lights. Suddenly the dark nights were no longer dark, but lit up by a fluorizing, ghosty light - dancing over your head in unpredictable movements. Ghosts? Extra-terrestrials? The Gods? It would indeed have been a frightening sight - something impossible to escape from. Today we dont escape from the Aurora - we go to the north to discover it. [Norwegian travel brochure]

Atomic Weights. I learned about atomic weights when I was a boy. At 11, I could say "I am sodium" and at 79 , I was gold and now at 80, I am mercury.
[Oliver Sacks, in "Joy of Turning 80"]

Frankensteining. Some colors for nail polish are VHTF (very hard to find), but existing colors can be mixed to achieve the desired shade. [Alice Gregory]

Tube RF-Amplifiers. One can still buy RF power amps with multiple kinds of vacuum tubes. It is hard to beat them for power in the HF range. LDMOS amps are available too but more expensive. I suspect we will see some GaN ham power amps at modest prices in the near future. But I am not betting on the demise of the vacuum tube. [Lou, W5LEF]

Improvement. To improve is to change; to be perfects to change often.
[Churchill]

Powering your Rover De Lloyd, NE8i

Decided to write up some thoughts, experiences of Rovering. Going to start with power. Then move onto other topics. Next 6M Antennas. Rover portable junk box. About rigs. I am going to mostly omit or gloss over.

Reliable power to operate is important. Easiest is to use the car battery. That is fine when the car is running. But be careful. It is easy to run the battery down so the car won't start. Or you can overload the electrical system. The easiest access point is the cigarette lighter. Use a cigarette plug adapter. This will typically supply up to about 30 Amps. GM provides a fuse block connection and recommended installation guide. Big thing is solid connections and fuses.

A car is typically a 1,500 Watt power plant. that's 125 amps. 30 amps easily available for rover and equipment. However, I use 3 separate deep cycle marine batteries. Charging 9current limited) when I drive around. When I stop and set up I turn off the engine for max RF quiet operation. (Auto disconnect) The batteries can power all my rover activity for some time.

I have seen many rover power supply styles over the years. Generators like field day. Multi voltages. 110 VAC with inverters. 28 V. For relays and rotors. I try and keep everything 12 V DC, battery friendly

One big battery is totally portable. With a carry handle. Plus a collection of smaller batteries. That is up to your style and likes. Small batteries I have 2 power pole connectors, so I can chain them for easy charging or more current needs. The car batteries I have 2 of the bigger power pole sets. My amplifiers also have the bigger connectors.

Always looking for corrosion and other connection problems. Good solid connections are important! A touch of Vaseline on the connectors help fight corrosion.

Bottom line; what works for you, is all that counts. Just make it reliable.

ne8i@arrl.net When my INTERNET is working. 73, Lloyd.

The Maker Culture (Wikipedia)

The **maker culture** is a contemporary culture or subculture representing a technology-based extension of DIY culture. Typical interests enjoyed by the maker culture include engineering-oriented pursuits such as electronics, robotics, 3-D printing, and the use of CNC tools, as well as more traditional activities such as metalworking, woodworking, and traditional arts and crafts. The subculture stresses new and unique applications of technologies, and encourages invention and prototyping.[1] There is a strong focus on using and learning practical skills and applying them creatively. **Comment:** Looks like our good old Home Brewing. Question is should we abandon home brewing and start “Making things”. Seems to me replacing home brewing with the bland “making” is not a good move! (ED)

Mitigating Hurricane Damage

Hurricanes are causing increasing damage to many coastal regions worldwide. Offshore **wind turbines** can provide substantial clean electricity year-round, but can they also mitigate hurricane damage while avoiding damage to themselves? This study uses an advanced climate–weather computer model that correctly treats the energy extraction of wind turbines to examine this question. It finds that large turbine arrays (300+ GW installed capacity) may diminish peak near-surface hurricane wind speeds by 25–41 m s^{-1} (56–92 mph) and storm surge by 6–79%. Benefits occur whether turbine arrays are placed immediately upstream of a city or along an expanse of coastline. The reduction in wind speed due to large arrays increases the probability of survival of even present turbine designs. The net cost of turbine arrays (capital plus operation cost less cost reduction from electricity generation and from health, climate, and hurricane damage avoidance) is estimated to be less than today's fossil fuel electricity generation net cost in these regions and less than the net cost of sea walls used solely to avoid storm surge damage. From: *Nature Climate Change* **paper (3-2014)**

PS. I remember a quick demo, a neighborhood ham gave me once, to measure how efficient a wind turbine was, He blew air from across the room over a kitchen table at a smaller turbine, then dropped a handkerchief behind that turbine and it just about fell straight down. I was impressed.
Ever since, I have been thinking that it would be "the idea " to mount wind turbines on the side of skyscrapers facing in the directions of predominant winds. At the same time as they are protecting the building, they could generate electricity for the building. Ed.

Storing Wind Energy with Hydrogen

With all renewable energy the problem is that it is not available at all times; the sun shines only during the day, the wind turbine only turnes when it is windy and the rivers flow only when it rains aenough. So a way has to be found to store energy in some way.

There is now a wind turbine facility in Falkenhagen, Germany, that now produces hydrogen. An electrolyses process transforms water into hydrogen (and oxygen) which is introduced into a natural gas transmission system. The 2MW facility will produce 360 m exp3 of hydrogen/h. Of course hydrogen can be used for other purposes as well, like using a small fuel cell to propell an automobile electrically or in a combustion engine (BMW is working on this). Ed.

The Advent of Lithium-Sulfur Batteries 1-2014

With slow progress in electric vehicle driving range and smartphone stamina, the limitations of current lithium-ion (Li-ion) batteries have become glaring. First commercialized by Sony in 1991, the now dominant Li-ion technology is struggling to improve the performance of the existing chemistry, its incremental gains outpaced by consumer demand. As the next breakthrough in battery design is hotly anticipated, one technology shines with promise due to superior performance and the practicality of its materials: Li-S.

The lithium-sulfur (Li-S) battery design provides a theoretical energy density (amount of energy stored per volume) which is five times that of Li-ion. Despite sharing an element, the chemistry is quite different: while Li-ion depends on the intercalation of current-carrying Li+ ions into the graphite layers of its carbon electrode during charge, the Li-S battery uses a sulfur-based electrode where Li+ ions react (reversibly) to produce lithium polysulfides, decreasing in state from Li2S8 to Li2S as the battery is discharged. The energy density of the Li-S system is higher because the reaction assimilates more Li+ ions per host atom than the carbon intercalation used in Li-ion.

While the Li-S concept has been kicked around since the 1970's, poor endurance and safety prevented commercialization—until now. In the past, the biggest problem was that intermediate polysulfides (with more than two sulfur atoms) are soluble in the liquid electrolytes; in other words, the transport medium which allows ion flow between the electrodes also dissolves part of the sulfur electrode, irreversibly decreasing the useful sulfur material in the battery and causing fast degradation. Recent developments (including a new solid electrolyte and the use of nanocomposite material which protects the sulfur from electrolyte contact) have nearly realized the goal of an Li-S battery that survives as many charge cycles as Li-ion and meets flammability regulations.

Patent-Applied-For
Lithium-Sulfur Battery Promises Low Cost, Safety, Quadruple Energy Density
by Jeff Cobb **June 15, 2013**

SE VHF Soc. Conference schedule in back of this page>>>

Eighteenth Annual SVHFS Conference in Norcross, GA

Thursday, April 24, 2014

6:00PM – 8:00PM Possible tour of MI Technology Antenna Range (reserve w/K4CSO)
Charles Osborne, k4cso@arrl.net

7:00PM – 'till? Conference Check- in and Hospitality – Check at Registration desk.

Friday, April 25, 2014

8:00 – 4:30 Registration

8:00 – 11:45 Antenna Range - Al Tirevold, WA0HQQ (hotel back parking lot)

9:00 – 11:15 Tailgate Workshop, Building a 6ft Mesh Dish, Lyle Dysinger N4QH (not in Proceedings) Workshop Located at Lyle's truck near Antenna Range.

9:00 – 11:45 Noise Figure— HP-8970B , in main conference room
Bob Lear, W4ZST and Ron Rogers WW8RR, Mike Stipick KC4RI and Joe Trantham WB4BPP, Tom Holmes N8ZM , and Jeff Murphy, Agilent RF Applications Eng.

11:45 – 1:15 Luncheon/ Guest Speaker, Ray Rector, WA4NJP

1:00 – 5:30 Vendor displays

1:15 – 5:30 Conference Presentations

1:15 – 1:30 Welcome- SVHFS President - Charles Osborne, K4CSO /Moderator

1:30 – 2:15 K4N EL84 DX'pedition to the Dry Tortugas, Marshall K5QE

2:15 – 2:30 Beaconspot.us , GoogleVHFMaps, 222-and-above-VHF-LIST

-15-minute break -

2:45 – 3:10 WA4IOB Beacons Donated to SVHFS, Ron Rogers WW8RR

3:10 – 3:30 10 GHz K4UHF Beacon Status Update, Ott Fiebel W4WSR (not in)

3:30 – 4:15 Antenna Ranges from Backyard to Professional, Charles K4CSO

4:15 – 4:45 Antenna Alignment Fixed and Portable, Ben K4QF

-15-minute break -

5:00 – 5:30 SVHFS Bus Mtg & Elections – Charles Osborne, K4CSO, SVHFS President

5:30 - 7:00 Supper time! Choose from many local Restaurants

7:00 – 9:00 SVHFS Conference Flea Market (in Meeting Room)

9:00 – 11:00 SVHFS BOD and Officers meeting (in Vendor Room)

9:00 - ??? Hospitality Suite --- Check for location

Saturday, April 26, 2014

8:00 - 8:15 Welcome by FourLanders VHF Contest Group President, Bob Lear W4ZST

8:00 - 3:15 Vendor Displays

8:15 – 12:00 Technical Presentations, Moderator - Charles Osborne, K4CSO

8:15 – 9:00 Getting on the Microwave Bands, Dick Hanson, K5AND (not in Proc)

9:00 – 9:45 10 GHz Effects of Reference Phase Noise, John Ackerman K8UR

10:00 – 10:30 VersaRef DDS Signal Generator, Moe Wheatly AF4JY

10:30 – 11:00 Water Barrel Counterbalance Tiltover Towers, Bruce Randall, NT4RT

11:00 – 11:15 Trends in VHF/UHF, Charles Osborne, K4CSO (not in Proceedings)

11:15 – 12:00 Working 2m VUCC with Attic Antennas, Les Rayburn, N1LF (not in Pr)

12:00-1:30 Lunchbreak on your own

1:30 – 2:15 Power Line Noise Trials and Tribulations, Ray Rector WA4NJP

2:15 – 2:30 Logging Programs, Bob Lear W4ZST

2:30 – 2:45 Sprints Rules and What is 3830 ?, Kent O'dell KA2KQM (not in Proc)

2:45 – 3:00 Switching Power Supply for Linear Amps, Bob Lear, W4ZST

3:15 – 3:30 M^2 T-Match Fix, Bob Lear, W4ZST

3:30 – 3:50 A Simple DC Grounded Power Divider, Bruce Randal, NT4RT

3:50 – 4:15 Noise Source Calibration, Charles Osborne, K4CSO (not in Proc)

4:15 – 5:00 Beyond the VUAC Roundtable, Steve Kostro, N2CE

5:00 – 5:45 SVHFS Auction- Auctioneer- Ray Rector, WA4NJP

6:00 –7:00 Cash Bar 7:00 – 10:00 SHFS Banquet / Speaker, Doug Rehman, K4AC,