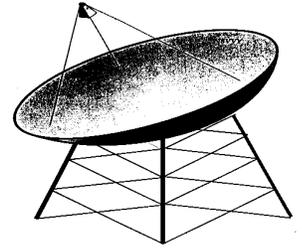


Anomalous Propagation

The home page of

The MIDWEST
VHF-UHF
SOCIETY



Vol. 17 No.1

Jan 2003

Club Memorial Call W8KSE

Our **January Meeting** is on Fri. 24th at 7:30 PM at the Perkins Restaurant at SR 73 and I-75.

Discussion Topics: Resistor Packages, 10 Ghz preamps, plans for the new year...and more...

The Midwest VHF/UHF Society brings together hams with strong interest in building and experimenting at the higher frequencies including microwaves & light. The society provides exchange of ideas with monthly meetings and a technically oriented newsletter (called Anomalous Propagation). Noise figure and antenna measurements are performed at the Hamvention or on demand. Building projects are undertaken and surplus or special parts are procured. The society has presently 90 members, most from the tristate area (OH,KY,IN) but also from other parts of the US. Why don't you join us, membership is \$ 10.- per year (foreign \$ 17.-). Mail your check (made out to Gerd Schrick) with name/call, address & telephone number to: Gerd Schrick, WB8IFM, 4741 Harlou Dr. Dayton OH 45432.

The Society meetings are on the 4th Friday of the month at 7pm except for May, July, and December when the Hamvention, Central States Convention and the Christmas Party take their place. The meetings are located at the Perkins Restaurant at SR 73 and I 75.

The Newsletter appears monthly except for May, July and December.

Officers for 02/03: President Tom Holmes, N8ZM (937) 667-5990

Secretary Steve Coy, K8UD (937) 426-6085

Treasurer Gerd Schrick, WB8IFM (937) 253-3993



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Anomalous Propagation is the monthly newsletter of 'The Midwest VHF/UHF Society', and subscription is part of the annual dues of the Society which is **\$10.-**, payable by check or money order to:

Gerd Schrick (WB8IFM)

Besides news directly relating to the Society's activities, 'Anomalous Propagation' carries technical articles written by experimenters in the frequency range from VHF through light. Featuring reprints of work being done in other parts of the country with publications that we have exchange agreements with. Occasionally we have commercially produced equipment reviews, but the overwhelming majority of our equipment articles concern work done by hard core home-brewers.

Many articles are tutorial in nature, and occasionally there are results of various operating or construction competitions that many of the Society's members engage in.

The Newsletter appears monthly except for May, July and December.

Dayton Hamvention, May 16/17/18

De N8ZM

Gee, it is time for another meeting already. Great! Since I missed the tech session at N8UR's, I have a bit of catching up to do. Gerd has an excellent write-up on the session, as well as pictures, buried a few pages back, so check it out. I did get to stop by John's place a few days later and see his setup. If Barb would let me take over the whole downstairs portion of the house, I could be that neat and organized, too! I am not expecting that to happen, though, so I'll have to continue to make do with two bedrooms that I've already commandeered.

Recently, I picked up from N8UR (there he is again) the GPS receiver and synthesized (not super-sized) sig gen proposed for putting the 10 GHz beacon dead on frequency with no drift problems. I have chatted with Bruce, KA8EDE, about getting this change made to the current configuration. We need to find out more about the Brick oscillator module that is in the beacon to find out what we'll need to do to lock it to the ~105 MHz from the synthesizer. It should be easy to implement FSK modulation for the ID, and maybe we can AM it with a PIN diode modulator as well. I have an idea for where we might find one if needed.

By the time you read this, the January VHF contest will be history. W8PLZ, KD8FO, and I are planning to operate this one from our hilltop site, pending the weather. Now that we have heat and electricity in our shelter, the only obstacle to using it this time of year is whether the snow is too deep for a 4WD to get up there. If the forecast is correct, the snow won't bother us, but the wind and cold may prove a challenge for the heaters, rotators, and mortals involved. Also, we have to replace the balun on the 6m beam and put it back in the air before we can use it. Ten degrees and 15 mph winds might scuttle that plan.

At the December dinner party, we talked about the resistor assortment project, and about ten of you said "let's do it." Steve Coy, K8UD, is working out the details on the 1/2watt parts, and is looking into the

1 watt and 2 watt assortments. These would not include as many parts, as there isn't much need for high wattage parts above 10 kOhms. We agreed that the simplest storage method was the "envelopes in a shoebox" scheme, and there seems to be a good number of volunteers to help with the sorting task. We will probably have to go to Steve's shop for that to keep the logistics simple. Anyway, we should have enough info from Steve at the meeting to finalize a plan.

I'll be on the road the day of the meeting (1/24/03), so I may be a little late getting there. Gerd and Steve will do a fine, probably better, job of officiating.

See you there!

de N8ZM.

MVUS Officers for 2003

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This and That 1/03

30 Miles. Word came from Rich, W2RG, that Earl, W8MGJ picked up the Xenia 10 GHz beacon at a strength varying over a day (24 Nov-02) between an S2 to an S8. His QTH is at Loveland, approximately 30 miles south of the beacon.

Incredible Transponder. "On orbit 1000 of OSCAR-40 at MA 125, with just 3 watts of uplink power on 1269 MHz at the 3 foot dish feedpoint, the SSB is readable with 51." [Rolf, DK2ZF]

Rovering Advice. One good advice I heard at a gathering of 222 FM mobile enthusiasts. When asked, what's with all the antennas on your van? The reply he gives is that he is an antenna salesman, and this is the company demo van. [Lloyd, NE8I]

Teen Lingo. There have always been strange terms like MT for "empty", and 4sale "for sale". But now teenagers and the Internet are spawning lots of new combinations. There is sup for "what's up", n2m for "not too much", 2nite for "tonight", j/j for "just joking", and lol for "laughing out loud". The in-word and a comment that is universally used, whether it fits or not, is "cool". [CSM]

Cutting Cost. The European Space Agency is embarking on a three-year program to not only make science payloads lighter but also to increase the payload to spacecraft ratio. In both there is money to be saved. Presently a 10 kg science load requires a 350 kg spacecraft, which costs \$ 10 million to launch. [ESA]

Are We Alone? "...Whether the universe is teeming with life or we are alone, whether our existence is strongly necessitated by the laws of nature or highly contingent and accidental, whether there is more to come or this is all there is, we are faced with a worldview that is breathtaking and majestic in its sweep across time and space," [Michael Shermer]

Backpack. "Football and soccer are fun, but sure are a lousy career choice for most kids. I'd rather see kids with QRP rigs in their backpack, with a whip sticking up and them making DX contacts as they are going to and from school." [Wayne, W2NSD]

Screw Driving Contest. An Ohio man won \$ 1 million for screwing in a few screws. Exactly, he had to drive in 5 screws in less than seven seconds in front of more than 100,000 people at the Phoenix International Raceway before the checker Autoparts 500. He did it in 6.77 seconds. The "DeWalt Million Dollar Challenge" began in April and involved 100 cities and 50,000 people! [AP, Nov-02]

Mummies. According to one estimate, Egyptians mummified more than hundred million people.[Bruce Feller in "Walking with the Bible]

Duct Tape. There are numerous uses in particular in emergencies, so "Don't leave home without it!" However, it is not good for the purpose of sealing ducts. Looking around the ductwork in my basement I see several strips of duct tape dangling! [WB8IFM]

Just Two. For repair you need only two items: WD-40 and duct tape. Here is the rule: if it doesn't move and it should, use WD-40. If it moves and shouldn't, use duct tape. [Internet]

Profit Margins. Microsoft 85%, HP ink 60%, grocery supermarkets 1%. How about that?

Engaged. "People ask me whether I am optimistic or pessimistic about the future, my answer: I am neither, I am engaged." [Bruce Sterling who wrote a book: "Tomorrow Now!"]

What DSP? Intel despises the "DSP" nomenclature, its description of that function is: "media-processing technology with 40 bit accumulator and 16 bit SIMD (single instruction, multiple data)." [Will Strauss]

Hold the Cheese. The new x-ray machines at airports have a problem. Both cheese and chocolate show up on the screen exactly like explosives. This will stop the line and lead to hand examining the luggage ... so unless you want to cause a lot of trouble and delay forget about bringing cheese and chocolate.

Only One. "I am only one, but I am one. I cannot do everything, but I will not let what I cannot do interfere with what I can do." [Edward Everette Hale]

Forgotten Gift. "The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift." [Albert Einstein]

Golf & Football. The average American male is easy to figure out, he spends his spare time playing golf or watching football. [Olaf, KF4TP]

American Cooking. Asked about American cooking a visiting French chef commented: "American cooking is very simple, if it is hot, use a lot of salt, if it is cold use a lot of sugar". He figured it out all right.

Legs. "A man's legs should be long enough to reach the ground," [Lincoln]

Clearspeech Speaker*

By Gerd, WB8IFM

Digital signal processing (DSP) has been with us for a number of years and proven its usefulness. There are at least three boxes that I have personally tried: JPS, Timewave and MFJ. Of those three the original Timewave (DSP-9+) was the absolute winner with the simplest layout and the easiest way to operate. While on the air, you have little time to fiddle around with controls. For many years we've used the DSP 9+ during Field Day working the P3 satellites, which, as everybody knows, have very weak signals and anything that reduces noise is welcome.

Unfortunately, Timewave has now embarked on the Japanese path of adding numerous functions and the accompanying control knobs and pushbuttons which puts you into a position of painful choosing (Wer die Wahl hat, hat the Qual = He who can choose, will feel the pain!) By the way, in this process the price of the DSPs has gone out of reach. Would you spend 50% of what the transceiver cost you on the DSP? I understand newer transceivers have now some sort of DSP built in!

Here comes Am-Com with their "Clear Speech" speaker going the opposite route, ala Henry Ford (You can choose any color, as long as it is black!). You don't even get a chance to connect headphones and the settings are all fixed. Since all you can do is, turn the unit on or off, which is ok with 99% of the hams, it doesn't even come with a manual or instructions for use. One might appreciate a tutorial on how DSP works, what this particular unit addresses, and how it is implemented (bloc diagram). But all you get is a "spec sheet."

Unfortunately, the headphone option is a requirement for the full duplex satellite operation; so if that were your situation, than you'd have to open the box and install a jack.

Other than that, I have no complaints, everything works as advertised. The audio range is narrowed to the essential 300 to 3400 Hz. In this range any white noise and similar noise, power line, ignition, atmospheric etc is reduced to about 10% of its value. Any carrier (beat note) is almost completely (50 dB) removed after about one second. That time delay permits the use of the "keying modes": CW, PSK31 and RTTY.

You have to provide your own power, which is 12 Volts at a nominal 300mA (I measured only 100 mA or 120 mA with the audio cranked up to earsplitting strength).

* Available from AMCOM, 100 Bierney Creek Rd, Lakeside, MT 59922 Tel. 1-888-803-5823

	Microwave Ham Bands	
1240-1300 MHz	5650-5925 MHz	75.5-81.0 GHz
2300-2310 MHz	10.0-10.5 GHz	119.98-120.02 GHz
2390-2450 MHz	24.0-24.25 GHz	142-149 GHz
3300-3500 MHz	47.0-47.2 GHz	241-250 GHz
		All above 300 GHz

N8UR's "Himmelreich"

By Gerd, WB8IFM

The garage door was open and there was a sign on the front door. I was tempted to enter through the garage but curiosity made me walk to the front door to read the sign which naturally said, enter through the garage, go into the house and down to the basement.

What a basement, John had taken this over almost completely except for a corner for the washing machine and some litter boxes for the two housecats. Eight-foot fluorescents illuminated all like a studio so that pictures could be taken easily without flash or extra lighting. There were shelves with supplies and parts and racks with equipment and sprinkled in between a number of worktables, partially loaded with more equipment.

One rack sported a number of frequency and time keeping gadgets, liker super stable x-tal oscillators; built by companies most of us never heard about before. It turns out, this is one of John's "sub-hobbies". He showed us how he measured frequency at the recent ARRL measurement contest, leaving little doubt that he really knows that field. So MVUS, with his input and help, is going to convert our 10 GHz beacon into an accurate dependable frequency standard.

The center of the basement has his computer and ham station, highly integrated to work packet and other digital modes, as is becoming to the president of TAPR, the number one nationally recognized digital ham organization.

There are, naturally, shelves with books and publications. The whole set-up very nice and transparent, looking easy to maintain. Sure, John did a little bit of house cleaning for us, which would do good for a lot of us.

In an adjacent small room was the Internet server that John hosts. Not sure how many organizations have their bulletin boards residing here.

Daun Yeagley supplemented some equipment from his Agilent background. He himself spent some time to compare voltage standards, fighting over discrepancies in the order of fractions of a millivolt. Eventually, deciding that the fluorescent light were spoiling his ultimate accuracy. You have to admire these guys for their ambition to get things exactly right!

I was unfortunate with my "goodies" that I brought. We didn't have the right connectors/ adaptors and in another case we found that a fixture would have to be built. At the higher frequencies, many times, clip-on leads just wouldn't do!

I didn't stay to the end, but I understand, eventually there were about ten people and a lot of measurements got done. On the back of this page you see a few pictures of our activity.

No doubt we will soon have another measurement session someplace. Any volunteers?

10 GHz Checkout and calibration afternoon



John N8UR and Daun, N8ASB



Mike, WB8GXB checking his com test set



Ham Station and Computers



John, N8UR and Rich, W2RG w. 10 gig equipment



Daun, N8ASB checking precision voltmeter



Milli Milli Volts

Help Us Find the Answer

Motel Room Lock. Many motels now give you a card instead of a key at check in that allows you to open your door. At the front desk they program the card (and presumably the lock) and you are all set. When you examine the lock at your door you cannot find any wires that might lead to it. How does the front desk communicate with it? Is it wireless? Who has the answer?

Compact Disk. Many blanks for a CD (compact disk) look the same on both sides. Which is the side for the recording, or does it not make a difference. The follow-up question then would be: can one record on both sides? The disk basically is two layers of plastic with a thin center layer of aluminum for reflection.

E-Mail. Have you noticed? Since the beginning of e-mail, which goes back now many years, when you print it, there is usually first a largely incomprehensible so-called header. Sure this contains the sender, the addressee, the time (not sure which, however) down to the hour, minutes and seconds, and the subject matter, if the sender filled that in. But most of the header is just gibberish to the average person. Next you find the text, and for some strange reason, it is only being printed across half the page vertically, thus wasting a lot of space. And more often than not the printer will spit out a second page with often no more than one line telling you this "was printed for you". Is there a way to fix these two problems? Sometimes, for reasons equally baffling, e-mail arrives that prints over the entire width of the page. Any ideas?

AO-40 ... 1,000 Orbits

AO-40 has just completed 1,000 orbits (early Jan, 2003) since it was launched a little over two years ago. It has a period of a little over 19 hours and at an apogee of 36,000 miles is available for many hours daily covering practically an entire hemisphere. As it moves about, different parts of the world are covered on different days.

Here are some reports gleaned from the AMSAT BB. Rolf, DK2ZF, who is quite active on the satellite and occasionally conducts dx-peditions, gives an 8-month country statistic (May through Dec.) He worked a total of 485 stations with the following break down: USA 118, DL 111, JA 43, F 17, G 15, OE 12, VE 10, VK 10, I 10, HB9 6, ZS 6.

Gerald, DL1RG, reports: "After 30 years involvement with satellites, starting in 1972 working OH2RK via Oscar 6, I have to say AO-40 is the "real thing". He could conduct his QSO number 1,000 on the 1,000th orbit of AO-40. In total he had contact with 640 stations from 75 DXCC countries.

Interesting Q & A

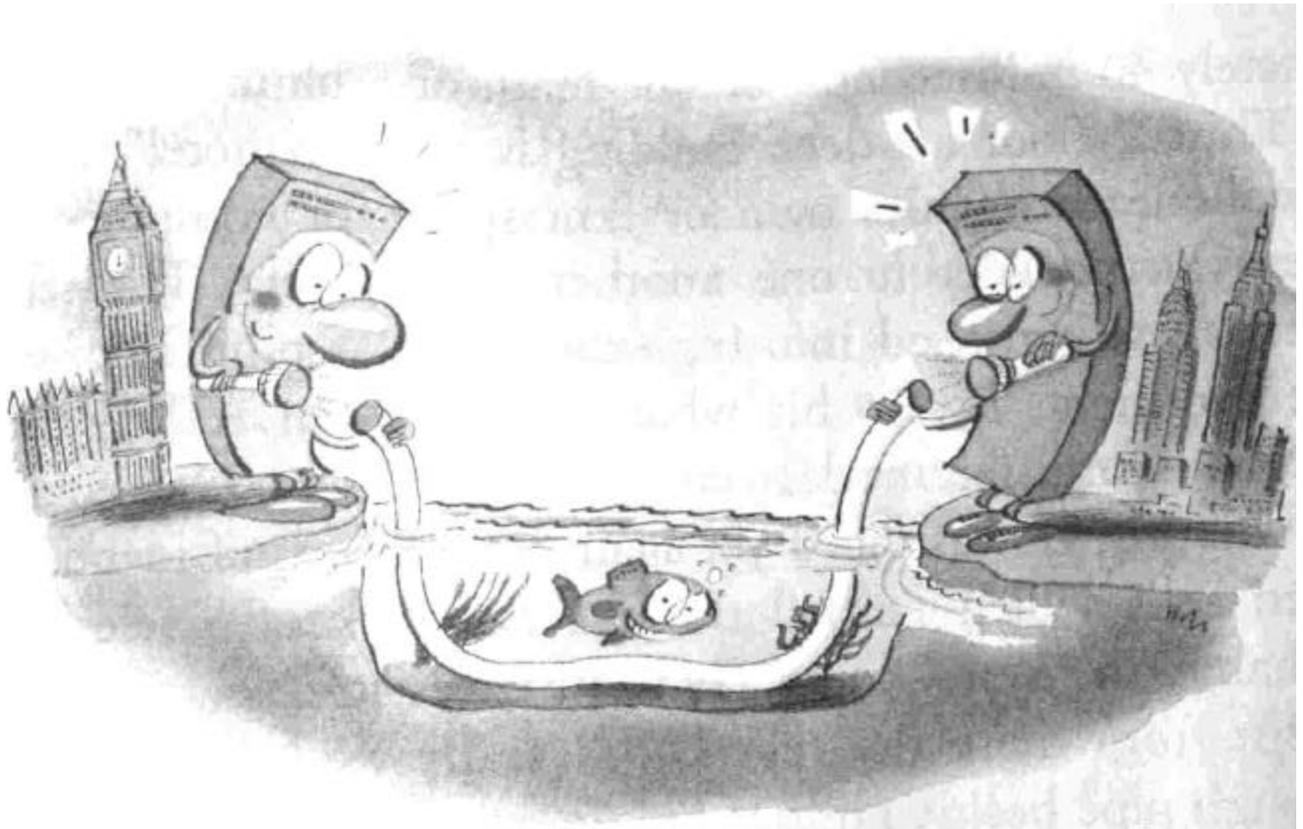
Current Questions Scientific American 11-02

[Why does bright light cause some people to sneeze?](#)

[Do scents affect people's moods or work performance?](#)

[Can you determine the time of death from bloodstains found at a crime scene?](#)

[Why do dogs get blue, not red, eyes in flash photos?](#)



A nice graphical explanation how a fibre cable under the ocean works. Kids using flashlights to signal. The real signal is turned on and off at a rate in the order of ten billion times per second. (The kids would need pretty nimble fingers for that, hi) This switch rate, of course, results in the tremendous bandwidth of the fibre glass cable, also known as "pipe" in the business!. (picture from Reader's Digest)

Transfer Relays - Here how they works

