Meeting: Fri 22nd at the MCL Cafeteria in Kettering

Feb 2013

ANOMALOUS PROPAGATION

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

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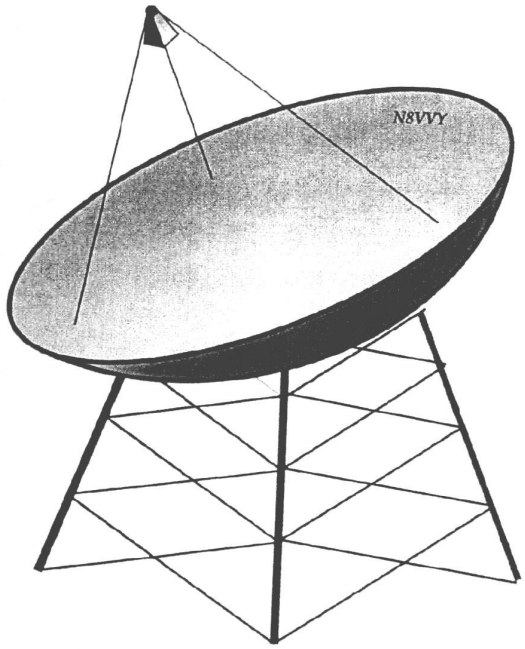

Annual Society membership is $ 12.00. Please make checks payable to Gerd Schrick

MIDWEST VHF-UHF SOCIETY

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

Contents

Hamvention 2013

17/18/19 May

The Midwest VHF/UHF Society has **noise sources** available in two frequencyranges: 50 MHz to 3 GHz, and 3 GHz to 11 GHz. Both versions are fully assembled and tested with ENR data provided. The lower frequency version is currently in stock at $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.

MVUS Officers

Pres. Tom Holmes, N8ZM
Vice Pres. Bob Mathews, K8TKQ
Secretary, Steve Coy, K8UD
Treasurer, Gerd Schrick, WB8IFM

De N8ZM

First things first, as they say. The 4th Friday rolls around on the 22nd this month, and next month as well, so heads up! I know from experience that some of you might not look at your calendars closely enough, so here is a gentle reminder.

Also, as Hamvention approaches, you all need to be thinking about my annual plea for something interesting and attractive to put in our MVUS booth. Yes, we have one confirmed now, in the same space as last year. So I need to know who to get badges for, and soon please. I am making no assumptions this year about who the booth staff will be, so if you plan to help out, please let me know as soon as you can. I need at least 6 people to spend a few hours each over the three days, and of course to help with setup and teardown on Thursday and Sunday respectively. It isn't really fair to expect Gerd to do it ll himself.

I have high hopes this year of us being able to display the live Slow-Scan feed from the weather balloon launch, nominally on Friday afternoon, winds permitting. The plan is to have a receiver outside that feeds a PC, also outside, with a wired internet link into the building. That will allow us access to a stream from the outside PC via wired or wireless 'net inside. I may need some tech help with this, and possibly will need to borrow a laptop for the duration of the flight. Any takers?

On other subjects, I have received three more orders for noise sources, including one from Australia! And the cost of the Noise/Com diodes has gone up $3 each, which along with potential increases in postal rates might drive our selling price for the microwave model up by $5 ifor the next run. Once I have the parts on hand for this build I will be organizing a work party to get these built, tested, and shipped, so stay tuned. And it might be a good time for me to put another post on the various reflectors for pickup at Hamvention. That seemed to go well last year as we discounted the price by $5 since we didn't incur any shipping. Living so close to Dayton is a good thing!

I spoke with Sandra at DEMI a few weeks ago and she told me that the Signal source for the 1296 beaconwould be a 6 week item, so I am thinking we will get it in early March. With a bit of luck, we might have the new transmitter in place by May, but that's all depenedent on W8RKO's schedule. Mike has done a lot of the work on the beacon already to get something on the air; so the new hardware is not an urgent item. I am still contemplating how to include some sort of digital mode on the beacon signal, maybe JT65, but is a project for further down the road.

Also, keep in mind that MUD 2013 is being held in Morehead, KY in October. According to one source, the dates are the 18th and 19th, so mark your calendars. Several of you have volunteered to help wherever you can. Jeff tellsme he would like some help with the antenna range, noise figure, and frequency measurement sessions. A lot of that will ivolve simply managing the entrants and recording the measurements. I suspect there will be folks there to run the test gear who know more about that than we do^ .

Enough for now; see you all on the 22nd! 73, de Tom.

This and That 2-13

Zero Gravity. Astronauts in space can grow up to 3 percent taller during the time spent living in microgravity, NASA scientists say. That means that a 6-foot-tall (1.8 meters) person could gain as many as 2 inches (5 centimeters) while in orbit. [Miriam Kramer / space .com]

Heat Records. 34,008 new daily high-temperature records were set at weather stations in the US in 2012, compared with just 6,664 new record lows; it was the countrie's hottest year ever! [Time, Jan21, 2013]

Other "Earths". If you look up on a starry night, each star you are looking at-- almost each one of them-- has a planetary system. And one in 6 of those has a planet the size of Earth. In some of them, somebody might be looking back. [Francois Fressin]

Following Instructions. A faulty car-navigation system sent a Belgian woman on an 1,800 mile detour through six countries. Sabine Moreau, 67, had intended to drive 93 miles to Brussels, but ended up in Croatia, "Suddenly I appeared in Zagreb," she said,"and I realized I wasn't in Belgium anymore." [The Week,1-25-123]

Footlongs. Somebody measured the Subway Chain's staple, the "Footlong". Would you believe it came out an inch or more short. [NBC News]

Expiration Date. Many medical schools tell their students that half of what they've been taught will be wrong within five years – the teachers just don't know which half. [Samuel Arbesmann in his book "Facts"]

The Earth. Assuming that the earth were completely dry, a man walking day and night at a steady pace could circumnavigate the planet in a little less than a year. A tidal wave could accomplish a round trip in just 60 hours; a bullet, in 14 hours; and a beam of light in just 1/10 of a second. [from Triviata by T.T. Fullerton]

A Car in Every Garage. Preceding Henry Ford by two years, Ransom Olds commercially produced a three-horsepower Oldsmobile. He built over 400 cars a year before the turn of the 20th century. [Same as above]

The Hat. Here's one for Western fans; a 10-gallon hat actually holds ¾ of a gallon. [Same as above]

Babylon. There are 156 languages in the world each of which is spoken by at least one million people. [dto]

"73" First use was in 1857, at that time it meant "My love to you!". In 1859 it was more like "accept my compliments" or also just "compliments". Finally by 1908 it had morphed into "best regards" which is basically what we still use to-day! [L.R. Moreau, W3WRE & C.A. Wimer, KC8EHA]

Edible, adj. Good to eat, and wholesome to digest,as a worm to a toad, a toad to a snake, a snake to a pig, a pig to a man, and a man to a worm. [Devil's Dictionary by Ambrose Bierce]

Economy, n. Purchasing the barrel of whiskey that you do not need for the price of the cow that you cannot afford. [ditto]

Keep on Going and chances are you will stumble on something, perhaps when you are least expecting it. I have never heard of anyone stumpling on something sitting down. [Charles F. Kettering]

Software takes over. America now has more computer software engineers than farmers. More than one million people are trying to make a living writing apps and other software. [NYT, Nov. 2012]

Electrical Grid. The U.S. Electrical grid is so old and prone to failure that , even without a devastating storm like Hurricane Sandy, some 500,000 Americans lose electricity for at least two hours every single day. [Washington Monthly]

January 2013 VHF Contest Adventure - Curse of the Game.

By Lloyed, NE8i/r, EN73 etc

The January VHF contest is always the biggest challenge of the year. Why, it gives more points for contacts. The biggest source of problems, however, is the cold.

Spent a few days, setting up rover. Checking everything. Testing everything. If you did not test it, you don't know. The only thing I had fail, was my 902 transverter. Foumd it was the oscillator after spending a cold night in the rover. It spread all over the band . Replaced crystal, seems to work fine now.

Weather is usually the biggest concern. That in turn, affects driving. Where I can drive and operate from. Snow and ice. Here in the North woods, most if not all of my good rover sites are closed. Snow and ice piles up. So, I have to try and make use of what open sites there are. Store parking lots work. Saturday was the best weather. It was a combination of heavy wind, rain, and blizzard. I started Saturday in NW Michigan. EN74/64/73. Then Sunday, drove down to the Hazel Park Swap, EN83/82/72/73/62/63. Getting out Sunday was even more fun. 9 degrees F and the main roads were 2 icy ruts under 3 inches of snow. Those conditions, north of a line from Just North of Flint, to Big Rapids. I started early, but not early enough.

Took me 2 hours to drive what is normally 40 odd minutes to south of that line. This was on the interstate. One problem here in Michigan, the previous governor stopped weekend and holiday snow service funding. So, only some counties have any. That is only for main roads. PS, if you rely on road signs to navigate. Forget it. All covered in snow and ice. Unreadable, in either direction. All signs. Even billboards. If you are a landmark navigator. Drive to the exit with the green building, exit and turn right. First, that green building was now white. Can you recognize the shape? Dead reconing territory. Second, if you don't have 4 wheel drive and serious snow tires, forget it. The road is there, somewhere, under all the white stuff. So is everything else. No hint.

OK so you have a Tomtom. First, find where the road is. In the dark. Second, everything is white except the pine trees. Have fun. Even if you know where you are going it not easy to find your way. At least I have 2 icy ruts. If you go >30 MPH, you soon will be calling for a tow truck.

South of that line, in Southern Michigan, roads were fine. 70 MPH, dry and all. Hazel Park Swap, did my usual take in my HT, call CQ contest on various acceptable FM simplex frequencies while walking around. HT multiband, just in case. Chastising several VHF stations for not being on. Activity in SE Michigan was very light. Heard and worked 2 stations. Heard 2 stations in Ohio, and one in Ontario. Was not able to work either. One serious problem. On 2m I use low power. From a rover on 2m without any amplifier, barefoot, it is very hard to get attention. Conclusion: had to get closer. So, had lunch with friends, and drove towards Grand Rapids. Activity improved greatly. Lots of 9 land stations on. Getting their attention, however, with low power, was proving to be very difficult. This cost me an awful lot of points.

Then when I got to Lake Michigan, and had a good location the band went dead. Looked at my watch. Simple explanation really. Sunday evening, game started. There would be no activity until after the game. Curse the game.

Got about 9,010 points. 74 contacts, through 10 GHz. Did not find anybody on 24 or 47 GHz. Activated 8 grids. EN62/63/64/72/73/74/82/83 Operated 22 hours and drove 764 miles.

Those who chose to drive over the Zilwaukee Bridge Sunday morning, rather than the ice covered I-675 Bypass got to enjoy the curse of the Zilwaukee Bridge. It took hours to clear the mess. On I-75 only 2 lanes out of the 4 had reasonable traffic.

Thanks to all who got on and made activity happen.

February 2013 MAD Report. By Lloyd NE8I/r EN73 etc

Local weather radar looked like it should work. I hear many complain of the cold. 9 degrees F. This weather is best for DX on 24 GHz and above. If you have ever heard WA1ZMS talk on this subject. Get used to it. Bundle up, if you woulde like to work 24 GHz DX. Cold, low humidity and snowscatter.

After the January test, I freed up some 4 sq feet on the work bench space, which is a rare event. Warmed up rover. Loaded a couple of bands. Soon as I get out it snows. Radar showed no snow. Snow covers up the ice, melted from a warm spell we just had. OK, careful driving <10 mph. See stop sign. Start to brake early. ABS working fine. Driving, braking straight. But, not slowing down. Right through the stop sign. Lucky no traffic. Nice fresh snow, insulating, lubricating and polishing the slick slippery ice. Humm, Saturday, minimum to no county service. No Sand and or Calcium Chloride. This is just a secondary road. Ask myself, why am I out driving in this? Make the decision this is enough adventure. Go home and decide what project to put on the work bench space. Next month maybe. Oh, 10 GHz won.

Transitions: Cable to waveguide at the foot of a water tower
on top of a hill in Manhattan Kansas (Thanksgiving 2012) WB8IFM.

Dipole.

The Dipole is probably the most used antenna and a good understanding how it works and many not so well known characteristics are described very well by Klaus, DJ4AX in Chapter 8 of an huge book, 3 lbs and 672 pages, on Antennas by ON4UN. I do not have my own copy yet but plan to aquire it sometime soon to add to the many other books of Antennas I already have.. The sample page on the back of this page is from Chapter 8 page19 of the book. This should give you a good idea of what you can expect! To read the rest of the chapter on dipoles type: "DJ4AX" and "Dipole" into Google.

Space Weather News for Feb. 15, 2013
http://spaceweather.com

RUSSIAN METEOR EXPLOSION: Today, Feb. 15th, a meteor exploded in the daytime skies of Chelyabinsk, Russian. Shock waves from the blast shattered windows in many buildings and sent onlookers to the hospital with wounds from flying glass. The meteoroid entered the atmosphere just as asteroid 2012 DA14 was approaching Earth for a record-setting close approach later in the day. However, NASA says there is no connection between the two: the Russian meteor and 2012 DA14 have different trajectories. A cosmic coincidence?

2-15-13

From a Russian news account:

Governor Yurevich reported that the meteor had landed in a lake 1km outside Chebarkul, which has a population of 46,000.

A Russian army spokesman said a crater 6m (20ft) wide had been found on the shore of the lake.

Asteroid coincidence

The Russian Academy of Sciences estimates that the meteor weighed about 10 tonnes and entered the Earth's atmosphere at a speed of at least 54,000 km/h (33,000mph).

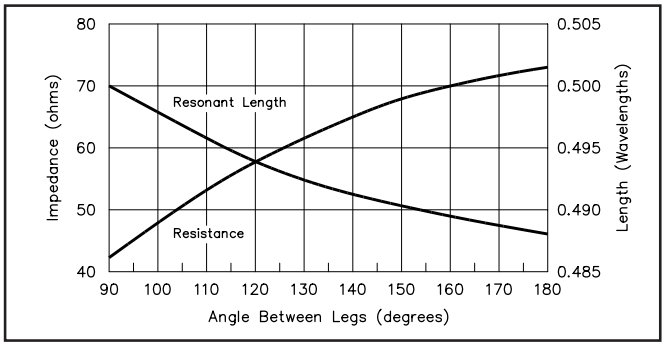

Fig 8-21—Radiation resistance (resistance at resonance) of the inverted-V dipole antenna in free space as a function of the angle between the legs of the dipole (apex angle). Also shown is the physical length (based on the free-space wavelength) for which resonance occurs.

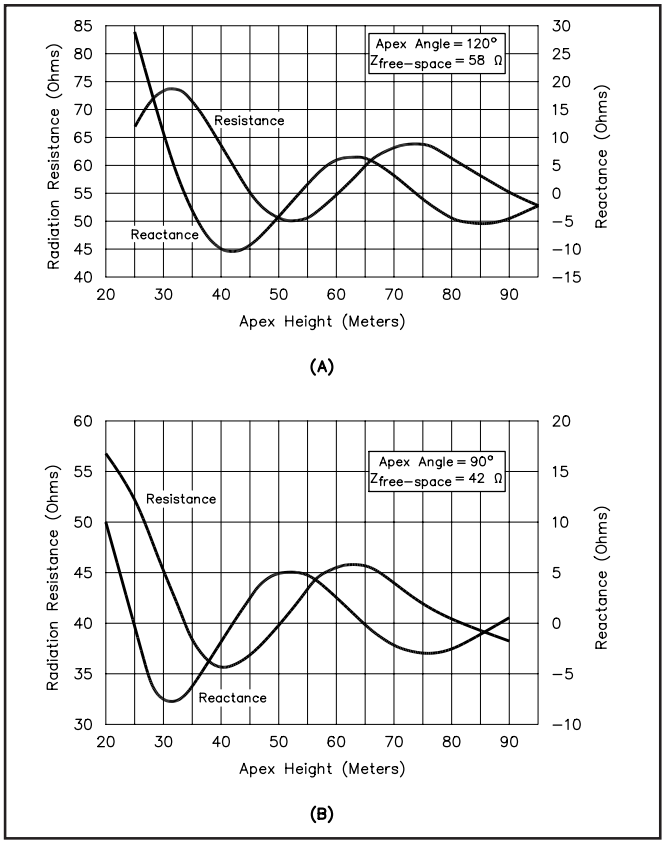

Fig 8-22—Impedance (feed-point resistance and reactance) of inverted-V dipoles as a function of height above ground. Analysis frequency is 3.75 MHz, with a 2-mm OD wire (AWG #12). Resistances at resonance are: 120° apex angle, 58 Ω; 90° apex angle, 42 Ω. *NEC-2* was used for these calculations, since *MININEC* is unreliable for impedance at low heights.

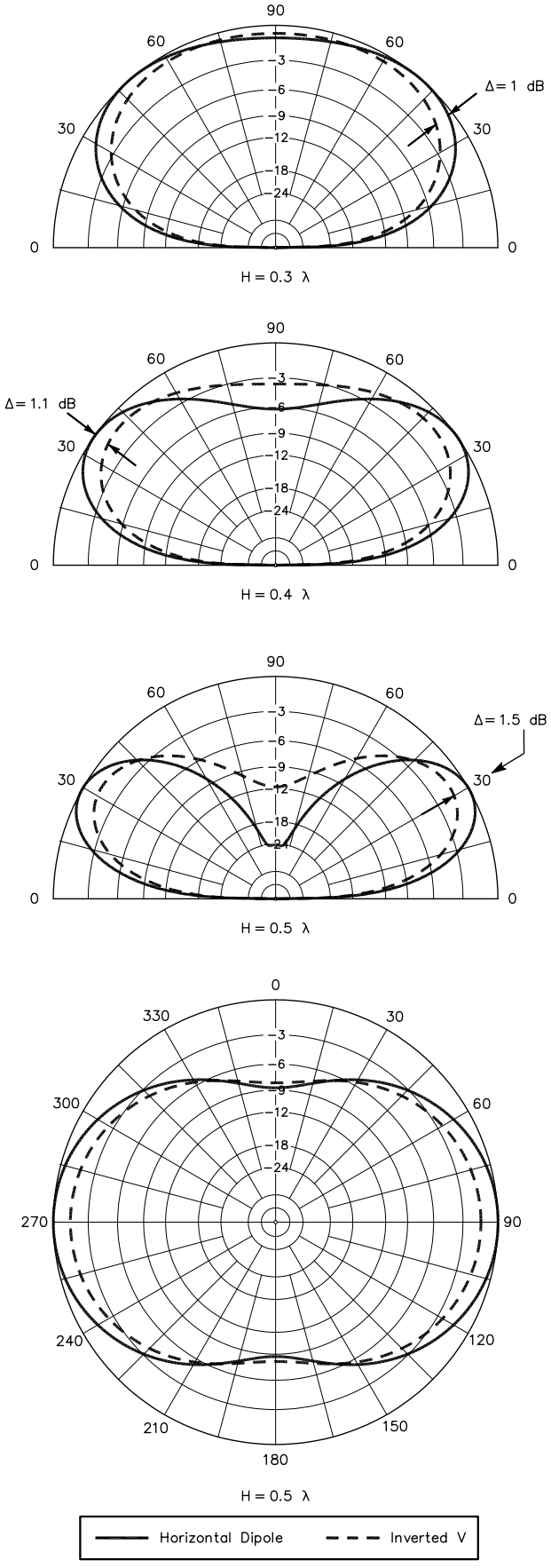

Fig 8-23—Radiation patterns for an inverted-V dipole with an apex angle of 90°. For comparison, the radiation pattern of a horizontal dipole is included in each plot, on the same dB scale. The horizontal pattern is shown for the main wave angle (28° for the straight dipole and 32° for the inverted V). The height of the inverted V is the height at its apex, which is the same height as the flattop horizontal dipole.

FM Radio Enters the Stage

By Gerd, WB8IFM

The time after WW2 was marked by a surge in electronics technology in particular in regards to radio and later TV. Radio stations at the time were operating in the medium wave (500-1500kc) or long wave (100 -500kc). The longer waves were reserved for long distance but even the medium waves were heard quite a distance away. Years ago I received a QSL from a Russian station with the comment: do you know WLW?

Anyhow there was a shortage of frequencies and with new technology available a new broadcast band was created (88-105 MHz), on VHF. As Marconi and Co disregarded the short waves, now the winners of ww2 claimed all the medium (good) frequencies and the losers were allowed to dabble in VHF.

As a teenager I built my first VHF radio receiver, a “super regenerative”. The resonant circuit, as I recall, used a coil with three turns of approx. 2mm Cu wire about an inch in diameter and equally long, with a small trimmer like capacitor, maybe in the few tens of pico Farads. I was getting ready to install a coupling coil for a dipole antenna but, of course, was checking out the oscillator first. As I was tuning back and forth, low and behold, there was a radio station audible! That was a true revelation! One, there was no “antenna” installed yet and two, there was clearly no ”line of sight”. The coil and antenna was added, of course, and there was a difference. We listened fascinated by the new “technology”. Being “into radio” was the high tech thing at the time and it fascinated me then as it does to-day. While the younger generation to-day is into “computers” and in particular into “Twitter/Facebook/Tumblr/Instagram/Pinterest/...” [this collection from “Why I Dance on Chinese New Year” by Daysy J Lin].

Ham radio for us retains that special calling: to build your own equipment (to-day mostly the antennas and projects for testing, measuring and interconnecting equipment.)----But then you have the thrill of communicating with like minded hams from around the globe, exchange ideas and learn from other cultures. Just recently I talked to a ham in the Netherlands whose antenna was 28m above ground, but only 22m above sea level. How so? Well the house was on land behind a dam that kept the sea out. Large areas in the Netherlands have been claimed from the sea in that way! So he was operating “below sea level!”

Search for an Omni Directional Antenna

With broadcast stations (and later TV) appearing on VHF, there was a great demand for Omni directional antennas. With the old medium waves mostly radiated from vertical antennas there was omni directivity conveniently achieved without even trying. But at the time measurements and or theory indicated that horizontal polarization should be the preferred mode for VHF. So the industry came up with fancy designs not suitable for garage duplication. But experimentation went on.

Joe, N8QOD, some time ago read about a helical shaped antenna that functioned as an omni directional. But, as happens so often, he has not been able to locate that article since.

By looking for something else, I found an old publication: **Tele-Tech**, formerly the TELE-communications Technical Section of **Electronic Industries**/ DESIGN AND OPERATION OF RADIO_FM_TELEVISION RADAR AND ALL COMMUNICATIONS EQUIPMENT....
Well, if that doesn't describe it, not a single acronym if you do not count Tele and Tech.

My copy was for August of 1947! It had quite some interesting articles in it. What caught my attention was one announced on the cover as: ***Circularly Polarized Antennas for Better FM Coverage.*** It's a pretty long article and I hope to have a summary in the next AP. [Gerd, WB8IFM]

Video and High Definition

By Gerd, WB8IFM

Video is the term used for “moving pictures”, which is how movies were originally described. In videos our experience is much more vivid and realistic in comparison to still images. In Latin, the word “video” means “I see!”

When the (digital) computer appeared, it was first applied as a mathematical tool, i.e. a “number cruncher”. But as its computing power increased, text was added and processed. Thereafter followed images and anybody who remembers those early years will recall all those different image formats. There were at least 50 different formats and great confusion reigned. Finally the one that made the most sense “JPG” won out over the others. This is rare, but I guess the compression algorithm was just hard to beat.

Experimenting with video formats and methods has been going on for years and continues today. It seems as though there is a whole lot of money to be made with using a format that is proprietary, and the “industry” is in no hurry to help with the selection.

Unfortunately, one sorry consequence of the digital TV standard is the problem of lip sync. Lip sync is critical for understanding words and it is known that children learning a foreign language definitely do better when they have a live teacher. Next the aspect ratio (width to height) of today's flat screens is helter skelter. I just walked around the house and measured five screens, and here are the ratios: Mac-book, 1.625; TV, 1.77; old TV, 1.29; early monitor, 1.23; new monitor, 1.75. The new TV has a “wide mode” for which you can select normal, full, zoom, and wide zoom. When you view people they are either slim and tall or short and stout. You take your pick. Most commercial stations auto-select the proper format, saving you the headache of choosing.

HD, high definition, is another term that has no true measurements to it. The chart below might give you an idea of what we are talking about here. Of course, if you truly want HD, you have to go to a movie theater and sit in the front one-third of the seats. That is what most people do not consider, but your ultimate limit in watching anything is your eyeball and if you are too far away from the action, you are simply not going to get it. During the Super Bowl, I actually stood close to the TV, like 4 feet and I could actually see the football and follow where it went. While sitting about 7 to 8 feet away, 90% of the game is a blur! I guess drinking a beer and having friends to converse with helps to see it better.

Chart: Vector_Video_ Standards5.svg.png from the Web