

Measuring and Picnic, Sat. Aug. 27th, 2011 at Daun & Karen's Place, over>>

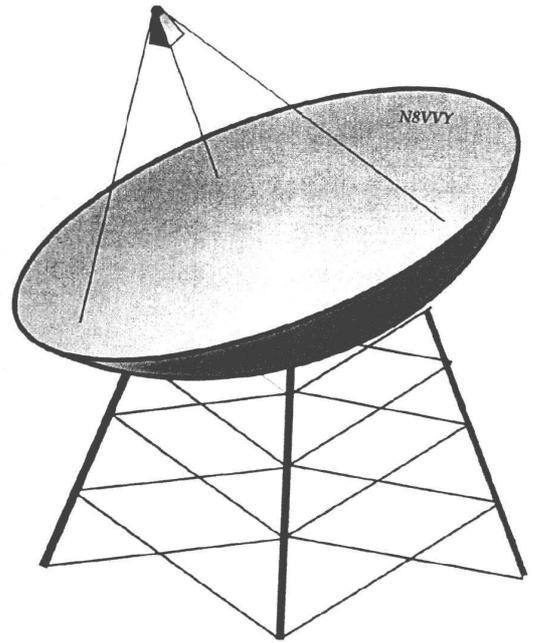
ANOMALOUS PROPAGATION

Newsletter: *The Midwest VHF/UHF Society*

Editors:

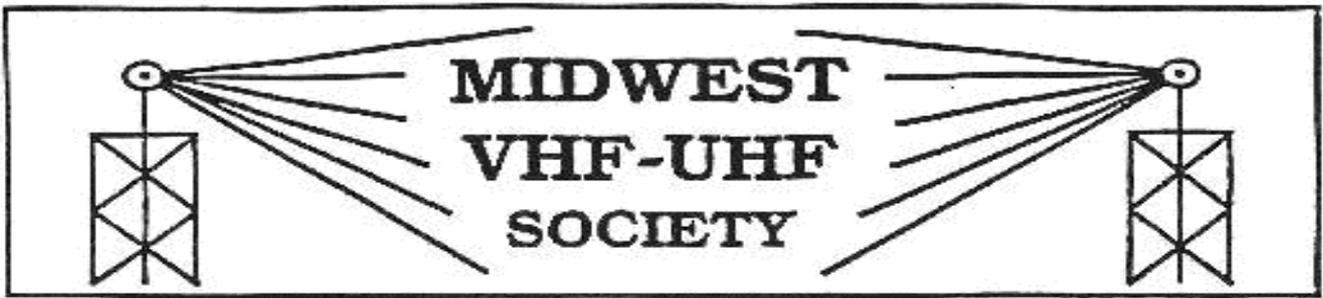
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Annual Society membership is \$ 12.00. Please
make checks payable to Gerd Schrick



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Aug 2011

MVUS Picnic: Sat Aug 27 at N8ASB, Daun's place, 11 AM;

see next page for directions

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Upcoming Events

MVUS Measurements and Picnic Sat Aug 27

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Sun Sept 11 Findlay OH Hamfest

Sept 10-11 ARRL VHF QSO Party

Sept 16-18 TAPR/ARRL Digital Communications Conference, Baltimore, MD.

Sun Oct.2 HAMARAMA Packrats Flea Market (North of Philadelphia)

www.packratvhf.com

Nov 4,5,6 AMSAT Symposium San Jose, CA

DE N8ZM 8-11

So this month we have the MVUS picnic on Saturday, August 27, at the home of Daun and Karen Yeagley. The nominal starting time is 11 AM and we will eat at around 2 PM. As always MVUS will provide the hamburgers and hotdogs as well as soft drinks. Please bring a side dish or dessert but only about enough for 6 to 8 people as we usually have more food than we can eat. Of course, there will be the usual technical session where we will measure anything that you warn us about in advance. Usually that includes antennas, preamps, and oscillators. However if you tell us what you're bringing we will make an effort to have the needed test equipment available.

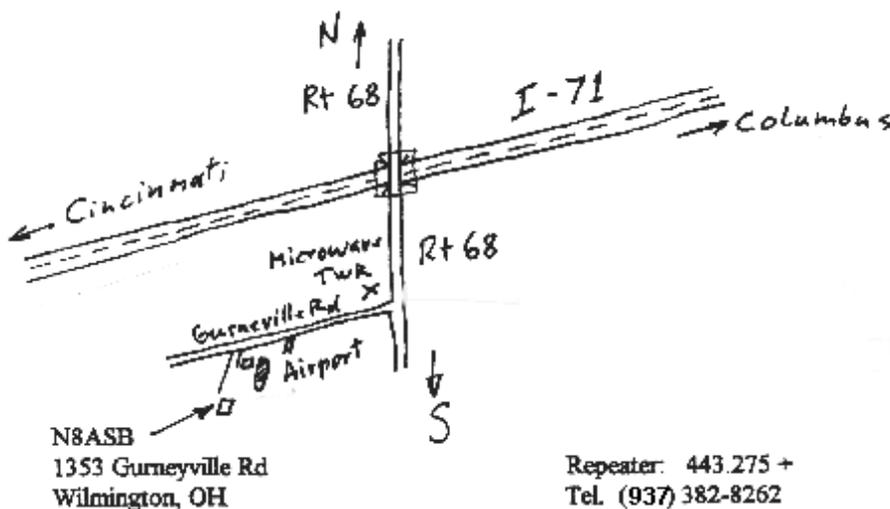
And as a reminder the annual election of MVUS officers will take place at the picnic. No doubt, the usual suspects will be reelected once again despite everyone's better judgment. You have been warned.

Another little bit of good news is that the 1296 Beacon antenna has been installed on channel 16's tower. However the cable has not been connected as it is temporarily needed for one of the repeaters on site. As soon as the coax for the repeater can be repaired the cable assigned to us will be connected to the Beacon antenna and we can start working on getting the ground equipment in place. Mike, W8RK0, tells me that he plans to run some tests from the site as soon as the cable is connected. He is hoping to work some of the local active stations on the band. If you have equipment for 1296 please let Mike know and he will work with you to set up a schedule.

While generating the noise of this column for the month I am reminded that there is a noise source project that needs to be completed. I promised to have at least six working units for you to look at or buy at the picnic. The price for an assembled and calibrated source good to 3 GHz will be \$45. Noise sources good to 10 GHz will be \$55. Note that these sources will provide stable output power with supply voltages from 10 to 30 V, making them useful on the bench or with a traditional noise figure meter.

Recently I was reading e-mails from the microwave reflector when I noticed a tagline beneath the signature of one of the regular contributors which stated that "A closed mouth gathers no feet" to which I felt compelled to add, in the context of amateur radio, that it also gathers no DX. Something to ponder.

See you at the picnic...de Tom, N8ZM.



To make sure we have the appropriate equipment let us (Tom or Gerd) know what you are bringing to measure.

Tom 937-667-5990

Gerd 937-253-3993

Directions to Daun's place

This and That 8-11

Honor and shame from no condition rise; Act well your part, there all the honor lies."

[Alexander Pope, English poet, essayist and satirist]

The purpose of life on earth is that the soul should grow -- so grow! By doing what is right."

[Zelda Fitzgerald, American novelist]

Satellite Communication. "We should seize the opportunity to use satellites to communicate and work towards better understanding of the peoples of the world." [Pres. Kennedy's comment at the first transatlantic live broadcast via Telstar-1]

The Magic of Advertising. The perfect pairing of sweetened real fruit juice pieces, made from a blend of acai berry juice, blueberry juice and other select fruit juices, dipped in our extra smooth dark chocolate to create this decadent taste sensation. Got that?

Summer Camp. "No blow-dryers as the use of them is still prohibited under the terms of an exclusive contract we have for that service with Sun & Wind, which is a wholly owned subsidiary of the highly reputable Mother Earth Inc."

[Mr. Woodman]

Chocolate Printer. Chocolate lovers may soon be able to print their own 3D creations thanks to work by UK scientists. A 3D printer that uses chocolate has been developed by University of Exeter researchers - and it prints layers of chocolate instead of ink or plastic. Although still a prototype, several retailers have already expressed interest in taking on the device.

[BBC News, 5 July 2011]

Turn Signals. Buick introduced the first electric turn signals in 1938; 73 years later, a handful of drivers have reportedly been seen using them.

[William Jeans, The Car at 125]

True Sayings: "The best weather instrument yet devised is a pair of eyes" or "Never mind the TV, look out the window!"

Fit for War. During the Civil War there were just two criteria for being admitted into the army, one: you had to be able to make a fist, and two you had to be able to bend your elbow. If you were a farmer this check was not necessary.

[Mary Edwards Walker, 1st woman surgeon in the Army during the civil War]

Choice or Nightmare? Ford engines included a choice of 20 Diesel engines- Caterpillar, Cummins, Detroit- in over 1250 power-train combinations.

[from a Ford ad in 1966]

Bird Complaints. Birds have been perching on W8QYI's close spaced 2 el hf beam. The only complaint the birds have to make is an objection to the "hot foot" they receive every time W8QYI turns on the rig. He says he can get an excellent idea of the voltage distribution on the elements by observing how far the birds jump.

[Radio Mag. Jan. 1939]

Push-buttons have been around! "Now that everything from starting the car to tuning the b.c. receiver and rotating the signal splasher (?) can be controlled by push-buttons, there is an apparent need for an inexpensive arrangement for effective transmitter control by means of push-buttons.

[A.G. Sheffield, VE4SS, in Radio, Feb. 1939]

"Mama mia" exclaimed astronaut Harrison H. Schmitt, excited by an unusual rock he had just found on the lunar surface. Front-page headlines in Rome the next day announced: ITALIAN IS SPOKEN ON MOON.

[AP---1963]

Who is Boss? With every foreign language, you develop a tiny bit of insight into the people who speak it as you study it. As a small example, the Japanese word for "husband" is the same as the word for "boss", if you see what I mean.

[Florence Rome, The Scarlet Letters]

Arrivals. One by one the travelers were straggling out of customs. Who were these people? Sweat suits, T-shirts, windbreakers, tube socks, overalls, warm-up jackets, baseball caps, and tank tops; just in from Rome, Milan, Paris, Brussels, Munich and London; the world travelers; the cosmopolites...

[Tom Wolfe in "The Bonfire of the Vanities"]

Not Quite a Mouse. According to Raymond Kurzweil our computers will be at the level of a mouse brain by the year 2015 and catch up with the human brain by 2023.

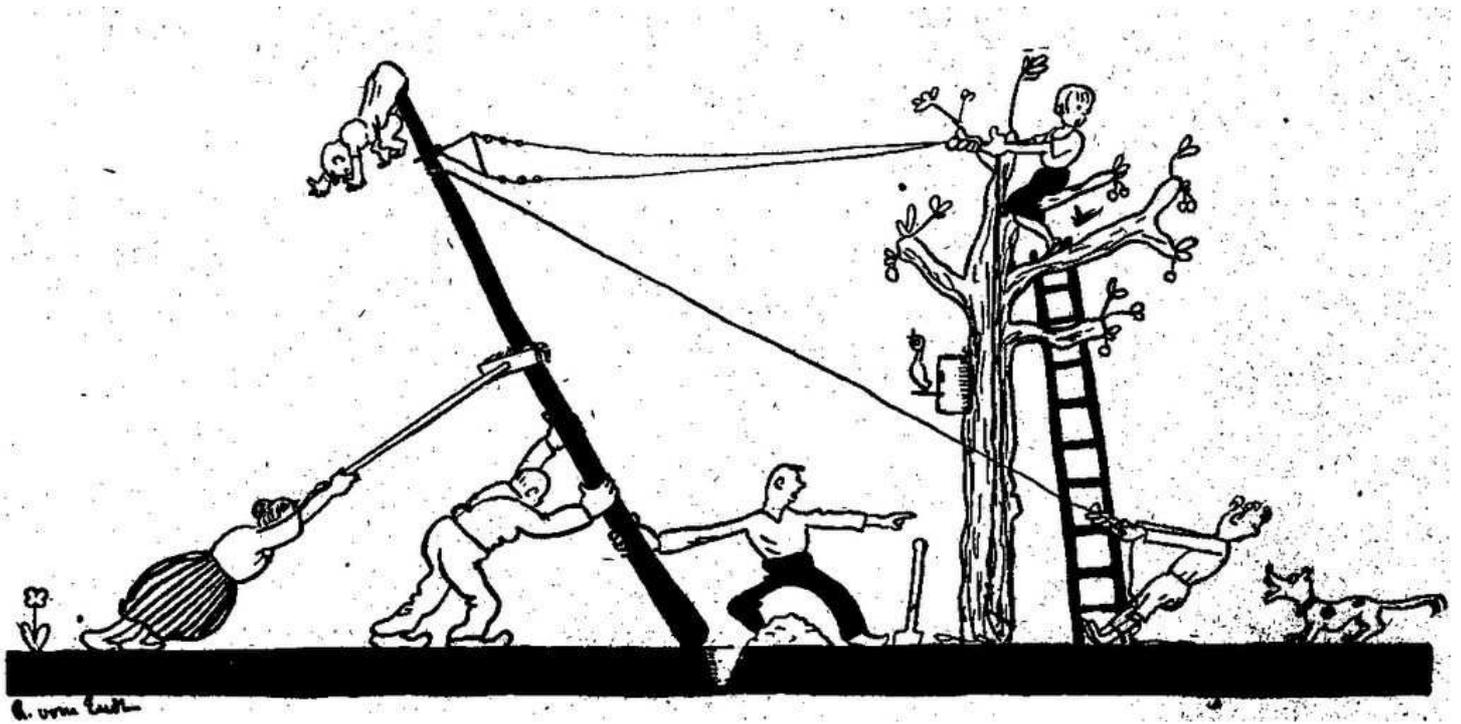
[Lev Grossman, Time, Feb 23-2011]

LED's are Coming! There is a 12W LED lamp now that provides as much light as a 60W incandescent. It costs, however, presently \$ 40. Even so, at the rated life of 25,000 hours that would come to under 1 cent every 6 hours of light. The cost for electricity is about 1 cent also when you figure 10c for per kW-hour.

[Silvie Casanova / Philips]

Food Pollution. The food industry uses 3,000 additives in the convenience foods that consumers demand. Are we injuring ourselves to save 15 minutes at the stove?

[Daniel Zwerdling, Ramparts 1971]



Those were the days

The entire family got involved putting up an antenna. That happened in the roaring 20ties, this was also the dawn of the "wireless age". Broadcast transmitters only ran a few kW. A 10 kW station was "high power!" So a decent antenna was needed.

You also had to think about lightning and a small knife switch was standard equipment. It separated the antenna from the set and connected it to ground. At the

end of the day, when the broadcast station would turn off, the announcer would say "...and don't forget to ground your antenna!"

This cartoon is from the November 1926 issue of the "Bastelbriefe der Drahtlosen". This title translates as "Construction notes for the "Wireless".

Cleaning out the attic I found a whole box with issues of this particular "newsletter". It got

started in 1925 and my "collection goes to the 1940s. I had completely forgotten about those. Must have gotten them from the xyl of a silent key. Many have a name on them but no callsign. So a "Dratloser" (wireless) was not necessarily a ham. BTW, most newsletters have 50 pages and include many drawings, schematics and B+W pictures. There were 6 full pages of ads and a few smaller ads sprinkled within the text.



GALILEO DESCRIBES HIS DISCOVERIES TO THE CHURCH

After WW2

Development of FM-Broadcast in Germany and the US. (88 to 108 MHz)

After WW 2, mid- and long wave radio bands were reallocated in Europe at a conference in Copenhagen in 1947, documented in the 'Kopenhagener Wellenplan.'

As World War II's loser, Germany also lost most of its middle-wave frequencies; the country was not even allowed to send a representative to the conference. As a result, Germany did not have enough available frequencies to satisfy the country's radio listeners, especially in the evening hours.

Dr. Rohde participated in the discussions about possible alternatives and **advocated the idea of broadcasting in the ultra-short wave band, between 87 to 100 MHz**, a frequency not restricted in the international treaty.

Within a few months Rohde & Schwarz developed and built Europe's first FM transmitter for the Bavarian radio station Bayerischer Rundfunk. However, only the few people in Germany who had a car radio from the United States with an FM receiver were able to listen to the station.

To promote the new technology in Germany, Rohde & Schwarz developed sample receivers and sent them together with the documentation to electronics manufacturers Grundig and Nürnberg and gave them away to opinion leaders.

The brilliant sound quality convinced the industry, which soon started building FM receivers. Rohde & Schwarz won several new clients for its new broadcasting technology, among them British and American military radio stations in Germany.

In 1937 [W1XOJ](#) was the first FM radio station, granted a construction permit by the [FCC](#). On June 17, 1936, FM radio was demonstrated to the FCC for the first time.^[1] On January 5, 1940, Edwin H. Armstrong demonstrated FM broadcasting in a long-distance relay network, via five stations in five States.^{[2][3]} FM radio was assigned the **42 to 50 MHz** band of the spectrum in 1940.

After [World War II](#), the FCC moved FM from there to the frequencies between 88 and 108 MHz (June 27, 1945). The change in frequency was said to be for avoiding possible interference problems between stations in nearby cities and to make "room" for more FM radio channels.

However, the FCC was influenced by RCA chairman **David Sarnoff**, who had the covert goal of disrupting the successful FM network that **Edwin Armstrong** had established on the old band.^[4] The 500,000 receivers built for the original FM radio band could be retrofitted with converters, but many were just replaced.

The greater expense was to the radio stations themselves that had to rebuild their stations for the new FM radio band. The move of the FM band, an organized campaign of **misinformation** by RCA (a company that competed with FM radio by focusing on AM radio and the emerging technology of television), and adverse rulings by the FCC severely set back the development of FM radio.

As late as 1947, in Detroit, there were only 3,000 FM receivers in use for the new band, and 21,000 obsolete ones for the old band.^[5] On March 1, 1941 W47NV began operations in Nashville, TN, becoming the first modern commercial FM radio station. However, FM radio did not recover from the setback until the upsurge in high fidelity equipment in the late 1950s.

GAU or TUD

By Gerd, WB8IFM

Gau = "Gößter Anzunehmender Unfall" in German = Maximum Credible Accident
What might we call this? I suggest:
Tud - Total Utter Destruction!

RIVERSIDE (5-23-11) -- Many people in Riverside are cleaning up the damage left behind by Monday night's storm. The worst damage was centered near Charlwood Avenue and Harlou Drive. One person thinks she definitely spotted a funnel cloud. "All of a sudden the power went out, it flickered," Michelle Sanchez said. "You could not see outside, wasn't even visible. Everything was flying everywhere. It only lasted a few minutes. There's trees down everywhere in the backyard."

So read the story! There was no watch, warning, nothing! Of course, my QTH is on the NW corner of that intersection. We happened to be in the back part of the house when a huge tree from the front fell with its crown, just a few feet from the 100-foot tower on the roof of the house, basically hitting the entrance and kitchen area. The guy wires absorbed a lot of the trees energy but in the process twisted, bent and broke the tower. Interestingly the wires themselves stayed perfectly in tact. A big, thick branch (est. 10" dia) hit the ground perpendicular to

the tree further ameliorating the trees punch to the house. Nevertheless the roof was penetrated in five locations. Some structural damage also had been done and the roof was declared 95% gone. One smaller branch penetrated into the house and a big chunk of ceiling fell down.

The tree was an about 100-year-old hackberry. We would have least expected this old but healthy tree to come down.

The tower was in bad shape: the bottom 3 sections were still standing, with the third section, however, mangled at the top. The following two sections were badly mangled actually somewhat twisted, and the 6th section had slight damage at the bottom. The rest, the 4 top sections, were ok again.

As for the antennas, the 5el HF beam (TH-5) had lost half an element and other parts were bent and twisted out of shape but looked fine with no corrosion or cracks in the plastic. The wire antennas (inverted Vs) were in bits and pieces. The VHF/UHF & microwave antennas were mostly intact, with repairable damage.

The cables, especially the two hard lines were kinked and split open at various places.

The many RG-8 types also had cuts and kinks, so I now have a lot of shorter cable pieces with one connector. The "tree people" liked the rotor cable; it came closest to a rope, which they used to tie branches etc.

When you have a situation like this, the best way to cope is to make the best of it. So initially we had "big plans". The xyl wanted a bigger kitchen, which meant, I could move the tower a little further away from the house. This would keep lightning current more away from the house. But as so often we decided to basically go back to the old: no new kitchen and the tower in its old place,

However, I decided to shorten the tower to 80 feet. That would reduce the three sets of guy wires to two, make climbing easier and extend the "mean time" between lightning hits a few years, although I think, I have lightning protection now under control.

The reduced height would lead to 1.9 dB loss in HF antenna gain according to my own tests and calculation back in the 1970s (see HR mag. Sept 1973). And there is enough height for the higher frequencies. With no high orbit ham satellite available my interest in that area is diminished. Might turn my interest toward "terrestrial" once again!



1972. On the left the brand new 100' tower
On the right the "experimental" 80' tower



After the Storm 6-23-2011
Brown color on the tower is paint not rust
The bent mast is 2" dia thick-wall steel

A few more pictures from this year's Hamvention 20/22 May 2011



Visitors from the Orient --- A million \$\$\$ Booth



Scooters cruising in the flea market.
A convenient way for our Old OMs to get around!



What's wrong with this picture?
How about this hunk of a 60cy Transformer?
Somebody should wake up the manufacturer and remind him
about lightweight switch power supplies!

More Microwave Kits

Kent, NTMS, has a mini kit, no enclosure or connectors. SPF-5043 mmic. 50 to 2,500 MHz 0.8 dB NF. Useable to 4.5 GHz. Tiny board. 1cm x 4 cm. Two versions. One, using PCB connectors. Not supplied. Well, easy to find at Dayton. Or, take a length of UT.085, cut it in half, and attach them. Includes all SMD parts.

Another microwave item was from the VK9NA group. VK3SDK, Graham, brought a PLL LO source board. This had 16 programmed, selectable frequencies. That was \$125 built at Dayton. I believe they have a kit. Also they have a series of transverter kits. Some are still in design. The LO board, is designed with a 10 MHz Ref input. It has 2 outputs: for RX and TX chain. Then 4 switch selection. The VK's like to use 432 MHz for their LO's. To look them up go to www.vk9na.com

73. Lloyd NE8I/r EN74 etc



This really fooled me!
Thought for a moment this was a lot of liquid cooling!
Turned out "Milwaukee" is a well-known brand
of **power tools!**

"Details of the 2011 UK colloquium 30/31st July, at Guildford

<http://www.uk.amsat.org/colloquium-2011>"

Fri 29 July

Beginners Session 15:30-17:30 David Johnson / Carlos Eavis

Day one Sat 30 July

Welcome 10:15-10:30 Prof. Sir Martin Sweeting

Session One Chairman: Dave Johnson, G4DPZ

10:30-11:10 SSTL/SSL Update Prof. Sir Martin Sweeting
11:10-11:50 GENSO Update Phil Beavis, VEGA Space
11:50-12:30 ESMO Update Dr, Susan Jason, SSTL

Session Two Chairman: Graham Shirville, G3VZV

13:10-13:50 AMSAT-DL Presentation Peter Guelzow
13:50-14:30 STRaND "Shaun Kenyon SSTL
" 14:30-15:10 FUNcube Dongle Howard Long

Session Three Chairman: Jim Heck, G3WGM

15:30-16:10 FUNcube Satellite Jim Heck, et-al
16:10-16:50 "The Interplanetary Internet " Lloyd Wood
16:50-17:30 "ISIS-QB50 " Wouter Weggelaar

Day two Sat July 31

Session Four "Chairman: Trevor, M5AKA

"
" 09:30-10:15 AMSAT-NA Presentation "Lou McFadin
" 10:15-10:45 InKlajn-1 Shamai Opfer

Session Five "Chairman: Jules Thomson, G3PJL

"
" 11:00-11:30 A Multipurpose Portable Setup Ivo Klinkert
" 11:30-12:00 "UKube-1 Update " "Mike Willis, Science and Technology Facilities Council
" 12:00-12:30 "Watching Earth from Space" "Pat Norris FBIS FRAeS FRIN
"

Session Six "Chairman: Chris Weaver, G1YGY

"
" 13:00-13:40 QB50 Update Lars Mehnen / Neil Melville
" 13:40-14:20 Radio Museum Bletchley Park Update "Carlos Eavis
" 14:20-14:55 "FUNcube Telemetry Warehousing
" "Dave Johnson
" 14:55-15:00 Formal Closure of Colloquium Graham Shirville

AMSAT-UK A.G.M.

15:15 Doug could not attend in person Eyes on the Solar System Doug Ellison, JPL

We welcome Our Newest Satellite, ARISSAT 1

by K8UD, Steve Coy

By now, most of you are aware that the satellite has been deployed from the ISS. Since the first week of operation, everything has been nominal. All functions are working with the assigned parameters. This is good news. We have had several reports from all over the world. Recently, however, it appears that the batteries are experiencing degradation and lower than expected voltages are being observed. Here is a quote from the Amsat website, "*The ARISSAT-1 Team*" is closely monitoring the situation and is pleased with how well the power management software is controlling the battery usage to prolong the lifetime of the battery and the satellite as much as possible."

Here is a snapshot of the functions that are available:

145.950 MHz FM Downlink - Operational

FM transmissions cycle between a voice ID as RS01S, select telemetry values, 24 international greeting messages in 15 languages and SSTV images. Links to download [SSTV decoding software](#) are the main ARISSat.Org web page. Visit the [ARISSat SSTV Gallery](#) to view the pictures and to upload the images you receive.

435 MHz - 145 MHz Linear Transponder - Operational

The linear transponder operates in Mode U/V (70 cm Up, 2m Down). It is a 16 KHz wide inverting passband with the convention to TX LSB on the 435 MHz uplink and RX USB on the 145 MHz downlink.

145.919 MHz CW Beacon - Operational

The CW transmissions include the callsign ID RS01S, select telemetry, and callsigns of people actively involved with the ARISS program. You may also use the Morse Code Decoder window in the ARISSatTLM software to read the CW message.

145.920 MHz SSB BPSK-1000 Telemetry - Operational

The BPSK transmissions feature a new 1kBPSK protocol developed by Phil Karn, KA9Q to be readable in low signal level conditions. The BPSK data will transmit satellite telemetry. Visit the Official ARISSat.Org website to [download the ARISSatTLM software](#) and follow the instructions in the Software User Guide also available at this site.

ARISSat-1/KEDR Reception Report Certificates

When you receive the downlink signal from ARISSat-1/KEDR you are invited to send your report. Visit the ARISSat-1 [Reception Certificate page](#) for all the details.

If you have some time to check out the satellite and give your own report. As always, for up to date information please check out Amsat's home page, www.amsat.org

AMSAT- AR-ISS Latest Assessment, Aug 16, 2011

The ARISSat-1 battery performed as expected during the first week of operation. Lower voltages during eclipse began to show up in the telemetry on 10 Aug 2011. The voltages during eclipse have continued to decline causing the satellite to reset and go into Emergency power mode on 12 Aug.

After reset the satellite MET (Mission Elapsed Timer) goes to 000, waits during the 15 minute TX delay, the power management software checks the current voltage and power values and determines what power mode to operate the satellite. The power mode is re-determined at fixed intervals, especially during illuminated periods to provide the most transmitted signals while protecting the battery.

High power mode provides continuous transmission when sunlight is charging the battery. If the satellite has entered low power mode it will transmit for 40 seconds and remain idle for 2 minutes when in eclipse, or when the battery voltage is low.

The ARISSat-1 team is closely monitoring the situation and is pleased with how well the power management software is controlling the battery usage to prolong the lifetime of the battery and the satellite as much as possible.