TAPR #112 SUMMER 2010

PACKET STATUS REGISTER

President's Corner

By Steven Bible, N7HPR, President, TAPR

Each year, TAPR has two big shows: the Dayton Hamvention and the TAPR-ARRL Digital Communications Conference (DCC).

The Hamvention occurs in May and is always in Ohio, whereas the DCC is a traveling show and moves between the left and right coasts of the USA on an annual basis giving hams all over the country a chance to attend at least one of TAPR's big shows.

This year, the DCC is in the Great Northwest, in Vancouver, WA, to be precise and it occurs later this month on September 24-26.

The DCC is a gathering of the digital hams who are on the cutting edge of the Amateur Radio; they come to the DCC to show and tell what they are doing on that edge. Perusing the list of papers that the attendees will present in Vancouver, this year will be no different.

So if you are anywhere near the upper left corner of the lower 48, then I recommend that you spend a few days during the last weekend of the month attending the DCC and soak in all that cutting edginess that the conference has to offer.

By the way, if you do attend and arrive on Thursday, stop by at the biannual "in the flesh" meeting of the TAPR Board of Directors (observers are always welcomed). I say "in the flesh" because the Board is in session 24/7 via the Internet, but only meets twice each year in person (at the DCC and Dayton), where we discuss present and future projects.

The TAPR Annual Meeting occurs Saturday afternoon, which will include presentations to the membership, the Treasurer's report, and a question and answer session where your Board of Directors fields questions from the membership.

As always, we will look forward to hearing your input regarding the future of TAPR, so make your plans now to attend TAPR's real big show in the Pacific Northwest.

– Steve, N7HPR

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2010 TAPR-ARRL DCC in Vancouver, Washington

Vancouver, Washington is the site of the 2010 installment of the TAPR-ARRL Digital Communications Conference (DCC). More specifically, the Heathman Lodge at www.heathmanlodge.com, photo right, will host the DCC on September 24 through 26, 2010.

Vancouver, Washington is located on the southern border of Washington, just across the river from Portland, Oregon.

The Heathman Lodge, Vancouver, WA, conference hotel for the DCC has extended the room reservation cutoff date to September 8th. After this date rooms will be subject to space and rate availability. You can make your room reservations online at http://www.tapr.org/dcc. Scroll down to Hotel.

Transportation from the airport to the hotel - The nearest airport is the Portland International Airport (PDX). The Heathman Lodge will provide a complimentary airport shuttle service as a part of the DCC (this is not normally a free service). Shuttle service is available from 0600 to 2300. A 10-day minimum advance reservation is required. Same day shuttle requests cannot be guaranteed but will be accommodated on an

availability basis. For reservations please contact shuttle reservations at shuttle@heathmanlodge.com.

In conjunction with the hotel extending its cutoff date, TAPR will also extend its earlier bird conference price to September. 8th. Please sign up early as it helps with conference and meal preparations.

Tentative DCC Schedule

Friday, September 24, 2010

8:15 AM Conference Registration and Demonstration Room Open

9:00 AM Welcome and Introductions

9:30 AM Technical Presentations

Noon Lunch

1:00 PM Technical Presentations

6:00 PM Break

7:00 PM Social

11:00 PM Demonstration Room Closed

Saturday, September 25, 2010

7:15 AM Conference Registration and Demonstration Room Open

8:00 AM Welcome

8:15 AM Technical Presentations

Noon Lunch

1:00 PM Technical Presentations

3:15 PM TAPR Membership Meeting

6:00 PM Break

7:00 PM Dinner Banquet

11:00 PM Demonstration Room Closed

Sunday, , September 26, 2010

8:00 AM to Noon Sunday Seminar

Visit http://tapr.org/dcc.html for updates and registration information concerning the DCC.

Technical Papers

The following is a list of the DCC technical

papers and their authors. Many of the authors will be present at the DCC to present their papers:

Codec2: an Open Future for Digital Voice; Bruce Perens, K6BP

Mobile Fading; Sachin Dubey and Kanchan Cecil

RF to Video Converter for Timex/Sinclair Computers; John M. Franke, WA4WDL

Robotic Radio and CW Robot, a Building Block for Robotic Radio; Rob Frohne, KL7NA

SDR Cube: A Portable Software Defined Radio Utilizing An Embedded DSP Engine for Quadrature Sampling Transceivers; George L. Heron, N2APB and Juha Niinikoski, OH2NLT

A Simple SDR Receiver; Michael Hightower, KF6SJ

Testing a Digital-ATV Station using DVB-S; Ken Konechy, W6HHC and Robbie Robinson, KB6CJZ

Demand and Transmission of E-mail Reception Report in Digital Modes; Patrick Lindecker, F6CTE

Technical Aspects of RS ID and Call ID and Use; Patrick Lindecker, F6CTE

Simulation & Synthesis of Five Port Router; Swati Malviya and Anurag Jaiswal

Five Port Router for Network on Chip; Swati Malviya and Anurag Jaiswal

V4 and V4Chat: A Protocol and Client Optimized for Keyboard Radio QSOs; Rick Muething, KN6KB, AAA9WK

WINMOR Phase 2: Demonstration to Deployment; Rick Muething, KN6KB/AAA9WK

RMS Express – A Multimode Winlink 2000 User Client Program; Victor Poor, W5SMM/AAA9WL

Introducing APRSSpeak: An APRStt implementation; Douglas D. Quagliana, KA2UPW/5

A Comparison of Different TCP/IP and DTN Protocols Over the D-Star Digital Data Mode; John Ronan, EI7IG and Cathal O'Connor

Bidirectional Low Frequency Transverter (Bi-LIF) Computer Interface for Demodulation and Modulation of Radio Signals; Alex Schwarz , VE7DXW

An FPGA-Based Transceiver Module; John B. Stephensen, KD6OZH

Terrestrial Link Budgets for Digital Communications; R. Swenson, KF4DII

The Effects of Authentication on AX.25 Packet Radio Data Transmission Time; Paul D. Wiedemeier, Ph.D., KE5LKY

In addition to the presentation of papers, the TAPR Annual Meeting occurs Saturday afternoon featuring Q&A between the TAPR membership, and the TAPR Board of Directors.

Banquet

The Saturday evening banquet speaker is Chip Cohen, W1YW, the CEO of Fractal Antenna Systems (http://www.fractalantenna.com/).

In addition to the speaker, there will be a drawing for the array of door prizes contributed by TAPR, ARRL, and various radio manufacturers and distributors.

Sunday Seminar

DSP Tools, Techniques, and Tricks by Rick Muething, KN6KB, is the Sunday Seminar at this year's DCC.

Prerequisites: An interest in Digital Signal Processing. Some experience in programming may be helpful. The only math you'll need is addition, subtraction, multiplication and division and some idea of what a sine wave is.

Goals: The goal of the workshop is to encourage those peripherally interested in DSP to take the next step to learn what DSP can do and try some DSP design and coding. Each attendee will get a handout CD which will include all slides with links to useful references. The CD will also include some basic Windows VB.NET examples of operational code along with some useful DSP tools (demo versions).

Sessions: Four sessions, 45 minutes each with 15-minute breaks.

1) DSP Intro and Basics: what we are trying to do with DSP. Why is it better/different than analog. The cornerstone of DSP .the Fourier Transform and the FFT.

2) DSP Tools: What you need to see, interpret and understand signals. Basic waveform processing utilities. How do you setup a sound card to capture and play back audio with examples. How to design basic DSP Filters using common tools.

3) DSP Techniques: How do we use DSP to do those things needed in a radio. Mixing, Filtering, Modulation, Demodulation, FSK, PSK, Tone Detection, AGC, etc.

4) DSP Tricks: Tricks of the trade to make the impractical possible. Common and useful tricks to make significant reductions in computer demands, Single tone detectors, decimation, windowing, CIC Filters, IQ sampling.

No seminar or workshop can cover this topic completely in a few hours but this workshop should remove some of the mystery of DSP and motivate those to learn what can be done and get more involved.

###

TAPR Board of Directors Election

Three Director positions on the TAPR board are now open for nomination.

Nominations may be submitted now. Visit www.tapr.org/tapr_elections.html for information about what being a TAPR director entails and also to place your nominations (please use plain text when placing a nomination).

Nominations close with the call for nominations from the floor the TAPR Membership Meeting on September 25, 2010, and an online election will be held at www.tapr.org/tapr_elections.html from October 2 to October 15, 2010.

The three Director positions that are up for election are currently held by John Ackermann, N8UR, Dan Babcock, N4XWE, and Bill Vodall, WA7NWP.

###

Snapshots of TAPR at the Dayton Hamvention

By Stan Horzepa, WA1LOU, e-mail wa1lou@tapr.org

TAPR had a full slate on tap for the Dayton Hamvention weekend (May 14-16, 2010).

The TAPR Digital Forum attracted a full-house on Friday morning as did the TAPR and AMSAT annual banquet on Friday evening. Meanwhile booths 455 through 458 in the Ball Arena of the Hara complex were a beehive of activity throughout Hamvention weekend as TAPR presented the latest in the state of the ham radio arts with an emphasis on software-defined radio (SDR).

Photo above left, *John Ackermann, N8UR, Mel Whitten, K0PFX, and Dan Babcock, N4XWE, left to right, man the booth. (WA1LOU photo)*

Photo below left, *Jeremy McDermond, NH6Z, and John Melton, G0ORX, greet another visitor to the booth. (VE3MM photo)*

Photo above right, *NH6Z checks with John Koster, W9DDD, to make sure his membership is current. (WA1LOU photo)*

Photo below right, *N4XWE, and Dave Larsen, KV0S, take a break to pose for the digital camera. (VE3MM photo)*

###

TAPR Board of Directors Meeting Minutes

Dayton, OH

May 13, 2010

7:25 PM meeting called to order

Attendees: John Ackermann, N8UR; Dan Babcock, N4XWE; Scotty Cowling, WA2DFI; Bill Frazer, our accountant; Tom Holmes, N8ZM; Stan Horzepa, WA1LOU; John Koster, W9DDD; Dave Larsen, KV0S; Jeremy McDermond, NH6Z; Mark Thompson, WB9QZB

Scotty Cowling called the meeting to order and introduced new board member, Dan Babcock, N4XWE. Dan Babcock gave a brief biography.

Tom Holmes introduced our corporate accountant, Bill Frazer, who has been our accountant for 1.3 years. Bill Frazer gave a brief biography.

Scotty Cowling introduced new board member, Mark Thompson, WB9QZB. Mark Thompson gave a brief biography.

Tom Holmes gave the treasurer's report.

Bill Frazer made some suggestions. e.g., a sweep account, to earn some money on the funds in our checking account.

A discussion occurred about why the inventory dropped so drastically. John Koster will double-check the inventory.

John Ackermann moved, John Koster seconded, motioned passed that we delete the reserve member services fund and transfer it to the general fund.

John Koster gave the office report. He passed around an enumeration of our credit card fees and enumerated board, book, and miscellaneous sales.

John Koster reported that membership renewal notices have not been sent this year. A discussion followed about what to do. Jeremy McDermond volunteered to work with John Koster to automate the process.

Membership renewal letter needs updating and Scotty Cowling volunteered to update the letter.

Project Status

John Ackermann reported no progress on timing products during last six months. There may be a mini-TADD by DCC.

Scotty Cowling reported that the toroids for Alex have been shipped by ship. He also reported that Hermes is here, but in the prototype stage.

There was a discussion about the value of OHL.

Old Business

Chicago 2009 DCC Report: Mark Thompson mentioned how the DCC attracted a lot of new interest in TAPR.

Dayton 2010 TAPR/AMSAT Banquet discussion about next year's potential speaker, J. Simmons, and about buying him a ticket for this year's banquet.

Vancouver (near Portland) 2010 DCC planning: we have fliers to distribute at the Hamvention and local Northwest US ham meetings.

New Business

Dan Babcock began a discussion on HPSDR software development support. We have the hardware, but software, not so much. What could TAPR do to promote software development?

Various options were discussed including code

for cash, providing hardware to do software development, offer a bounty for needed software, hardware loaner pool.

The general consensus was to create the Dave Toth memorial prize for the best software to be a merit-based award and not necessarily annually. The matter requires further discussion on the tapr-board e-mail list.

9:45 PM - In-person board meeting concluded.

Respectfully submitted, Stan Horzepa, WA1LOU, TAPR Secretary

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Join TAPR on Facebook & Twitter

By Mark Thompson, WB9QZB, e-mail wb9qzb@tapr.org

We created a new Facebook Fan page called *TAPR* at www.facebook.com/pages/TAPR/116614778354245. The TAPR fan page is linked to TAPR's Twitter account, *TAPRDigital*, so when you post an announcement on the *TAPR* Facebook Wall, a link to the announcement is automatically posted on Twitter.

We encourage everyone to follow TAPR on Facebook and Twitter to learn about:

- What's new at TAPR.
- Upcoming events at the Dayton Hamvention and the Digital Communications Conference.
- Other updates like *PSR*, projects, etc.

By the way, you can access the TAPR Twitter account at www.twitter.com/taprdigital

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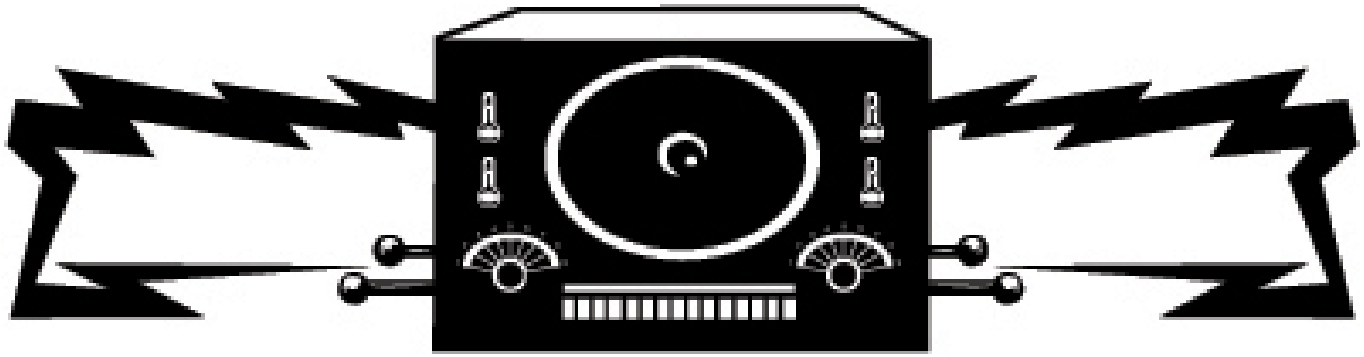

TAPR T-238 Weather Station: Happy 10th Birthday!

By Will Beals, N0XGA, e-mail will@beals5.com

While digging around in some archives a few months back I came across some of the original T-238 design work and realized that the effort for that weather station started way back in 1999. I had met up with Russ Chadwick, KB0TVH, and we got the idea of putting together our own weather station that would be APRS-capable. We spent months looking for the right kind of sensors, toying with both commercial sensors as well as rolling-your-own sensors. My favorite in the latter category were several DIYers who were using old VCR video drums as good mounts for an anemometer. For the microcontroller, the project started off based on the Motorola MC68HC705, an EPROM-based microcontroller that still needed to be put under a UV lamp to erase.

Two things happened about the same time that turned this project from something for just Russ and I into a useful kit. The first was Dallas Semiconductor releasing a series of extremely well made weather sensors based on their new 1-wire sensors and Circuit Cellar magazine hosting a design contest based on the new Motorola MC68HC908GP20 microcontrollers. Russ found the sensors and Steve Bible, N7HPR, and John Koster, W9DDD, found the contest as well as got support from the TAPR board to make this a real project. We were off and running!

With Russ's weather background to make sure were doing this correctly, Steve and John taking care of the board and parts work and me on firmware we had a nicely running machine. I entered the design into the contest and we actually won the second place standing. Our first release of the weather station supported only temperature, wind speed, and wind direction,

A lot has happened since then!

Before we released the kit, Motorola discontinued the GP20 in favor of the GP32 which is still being sold today.

Just as we released the T-238 kit, Dallas quit selling their weather station. We had a minor panic on having a weather station with no sensors, but AAG Electronics picked up the line and continued selling the same extremely reliable sensors. With updates, they have continued making these sensors ever since.

We added support for many more sensors since the initial release. These upgrades included humidity, rain, barometric pressure, battery monitoring, and a real-time clock. In addition, support was needed for newer sensors for wind direction, temperature, and time to replace obsolete sensors with newer ones. Besides basic APRS, support was added for Peet formats as well as displaying metric versions of all data.

After the initial production run of T-238s sold out, we decided to make a newer/better T-238+ instead of just making more T-238s. This new design simplified some of the circuitry, made the main board the same size as the LCD panel, and we added a second board for an MX-614-based modem. This allowed the T-238+ to be a standalone station without the need for an external TNC.

The APRS protocol (and my understanding of it) evolved considerably during the project. The broadcast format has been updated considerably during the releases. With Russ's guidance, the data reported has been as technically accurate as the hardware has allowed. New APRS formats that are better for crowded areas have been

added too.

Since 2006 the software releases have slowed down considerably. There have been just a few releases the past several years, mainly for the new TAI-603 weather sensor from AAG and a replacement 1-wire chronograph, the DS1904 which replaces the DS1994.

With the help of many folk on the wxsig reflector, the T-238s stability has been consistently improved over the years. With the help of data logging from APRSnet and Russ's wxqa.com weather quality website, we had the ability for the T-238 to include diagnostic messaging to track down some of the more problematic bugs. The ability to see raw internal log data from T-238s around the world in near real time has turned out to be a great debugging tool.

For anyone interested, the source code has always been available. It stands at just over 16 KLOCs (Kilo-lines-of-code). It is in assembly language which is a bit of a handicap, but cost constraints made programming in C not practical. For anyone trying to do floating and fixed point arithmetic in assembly language, it is a challenge!

For those that bought, built, participated and continue to participate in any way in this project, thank you much. There are a lot of those kits out there and it still continues to be a great project. I still get a kick when driving around Denver, Colorado, or the western US with my D700 radio and seeing an ëe1wí show up on the tail end of a weather packet.

I still do have visions of a follow-on project, upgrading to a better CPU, adding Ethernet capabilities and a much more fully-featured TNC. Hopefully some day that will come, but until then, Happy Birthday T-238!

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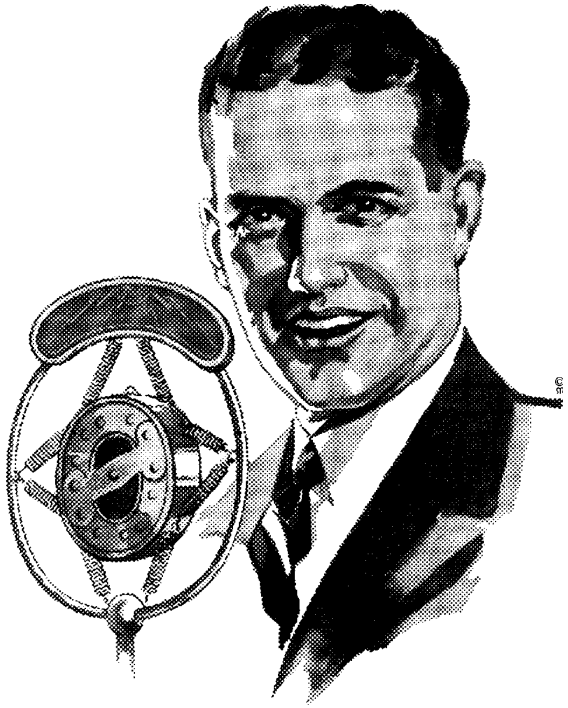

Six DVDs of DCC Released

For the second year, ARVN has covered the DCC, and once again filled six DVDs with technical presentations from the three-day event. Topics include equipment design and construction, Software Designed Radio, AMSAT / ARISSat, Packet and D-STAR networking, advanced APRS, and Digital ATV.

Details and a free preview video at www.arvideonews.com/dcc2009/

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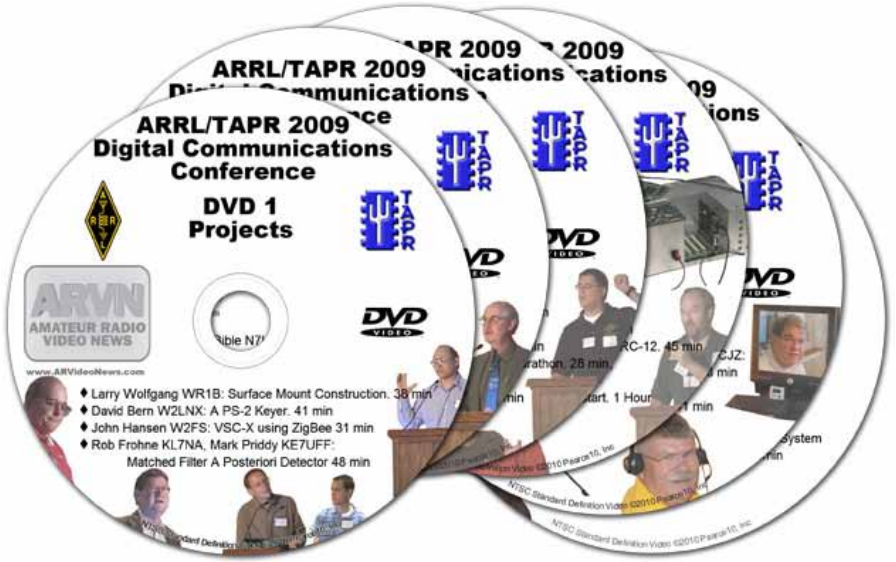

Get a New TAPR Badge

The brand new TAPR Badge with your name, call sign, and the TAPR logo is now available.

The price for the badge is $14 US for TAPR members and non-members plus shipping and handling.

To order online, visit
https://www.tapr.org/tapr_addorder.php?add=316

###

10-MHz OCXO Clock for the hpSDR Transceiver Using Mercury, Penelope, Ozymandias, and Atlas-Eu

By Hans Hartfuss, DL2MDQ and Juergen Sachtleben, DD6UJS, e-mail h-hartfuss@t-online.de

To improve the frequency stability and accuracy of the hpSDR system (1), an external clock source was built up based upon the OCXO model AXIOM30-12-05 made by the German AXTAL company (2). No further software frequency correction is necessary anymore. In General -> Calibration of the KD5TFD or W5WC modified PowerSDR software Set-Up the frequency correction factor has been set to 1.0 resulting in zero beat with Deutsche Welle on 6075 kHz and most commercial broadcast stations received. Comparison with a Rb atomic frequency standard (3) shows that the frequency stability obtained is indeed of the order of several 10-9. Software Set-Up selection: 10 MHz Clock Source: Atlas, 122.88 MHz Clock Source: Mercury.

The hpSDR transceiver consisting of Mercury, Penelope and Ozymandias has been built up in a most compact way on a 3-slot Atlas-Eu board fabricated by Gerd, DJ8AY. Since no space was foreseen for Excalibur (4), the solution described below has been developed to integrate a highly stable clock-source onto the Atlas board.

The AXIOM clock source used is shown in Figure 1. It needs 12 V of supply voltage and has a current consumption of about 60 mA in steady state and about 180 mA during the first 2 minutes of warm- up time. Output voltage is 5 Vpp HCMOS with 50% duty cycle. Slight frequency corrections of about +- 10 Hz are possible using an external potentiometer (see Figures 3 and 4).

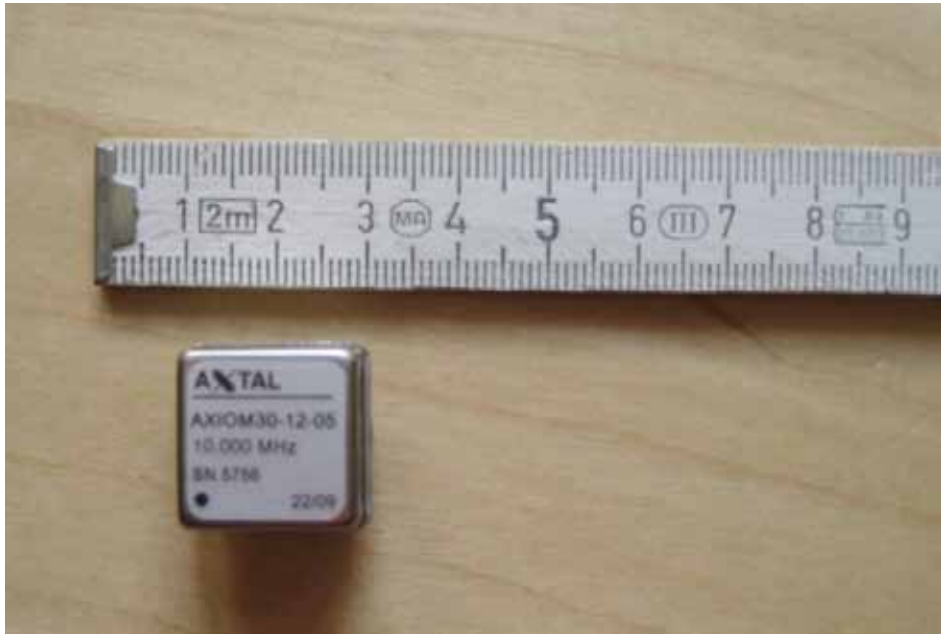

Figure 1. *The oven controlled low phase noise 10 MHz quartz oscillator model AXIOM30-12-05 by AXTAL.Current consumption is 180 mA during warm up, 60 mA in steady state phase. Output is 5Vpp HCMOS.*

The source has a high frequency stability. Expressed in terms of the Allan deviation for 1 second integration time, (=1) = 5x10-12. Phase noise is very low as well. It is plotted as function of frequency in Figure 2.

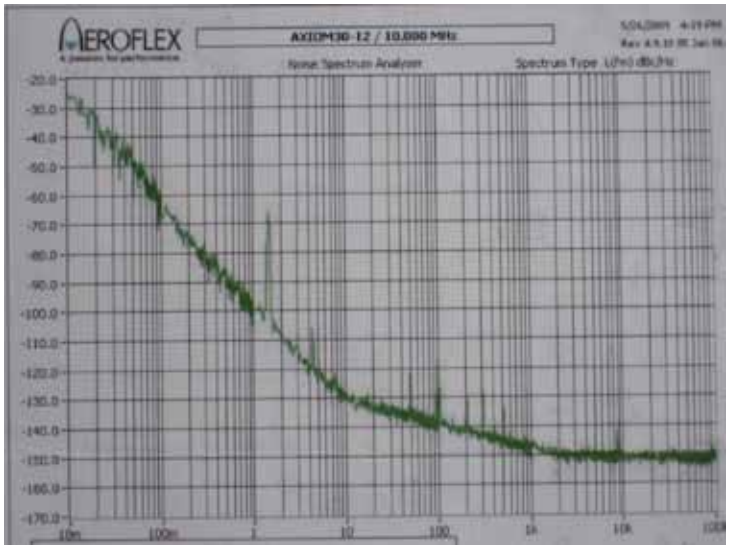

Figure 2. *The phase noise as function of frequency (5) for the 10 MHz OCXO type AXIOM 30-12-05.*

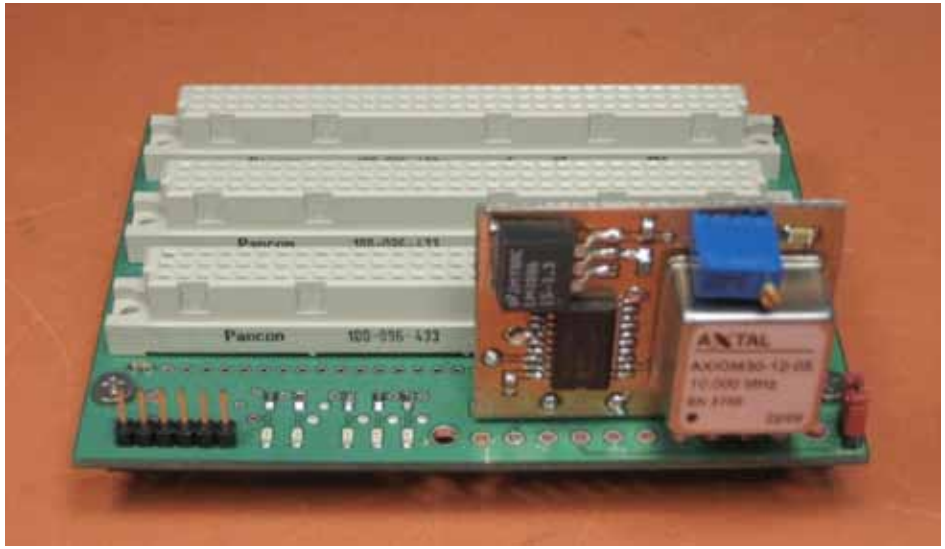

Figure 3. *The print board carrying the 10 MHz OCXO and the 74LVC244A/SO driver amplifier to the left of it. In the upper left is a 3.3V regulator supplying the driver. Connection to C16 on Atlas is made with a short wire right behind the left edge of the board (Fig. 8). The blue trim potentiometer on the upper right allows for frequency control of the OCXO.*

To gain sufficient space for the OCXO together with the necessary subsequent driver amplifier the ATX connector on the ATLAS board has been removed. Placing a small print board carrying these components right on this place, allows for short connections to both pin C16 on ATLAS where the clock pulses need to be fed in and to the 12 V supply voltage. Figure 3 shows the board mounted on Atlas-Eu.

The clock pulses needed at C16 of Atlas should have 3 Vpp with rise and fall times clearly below 10 ns and should be provided by a low output impedance source (6). The integrated circuit 74LVC244 is used. It needs no additional external components. Figure 4 shows the circuit realized on the small board whose layout is shown in Figure 5.

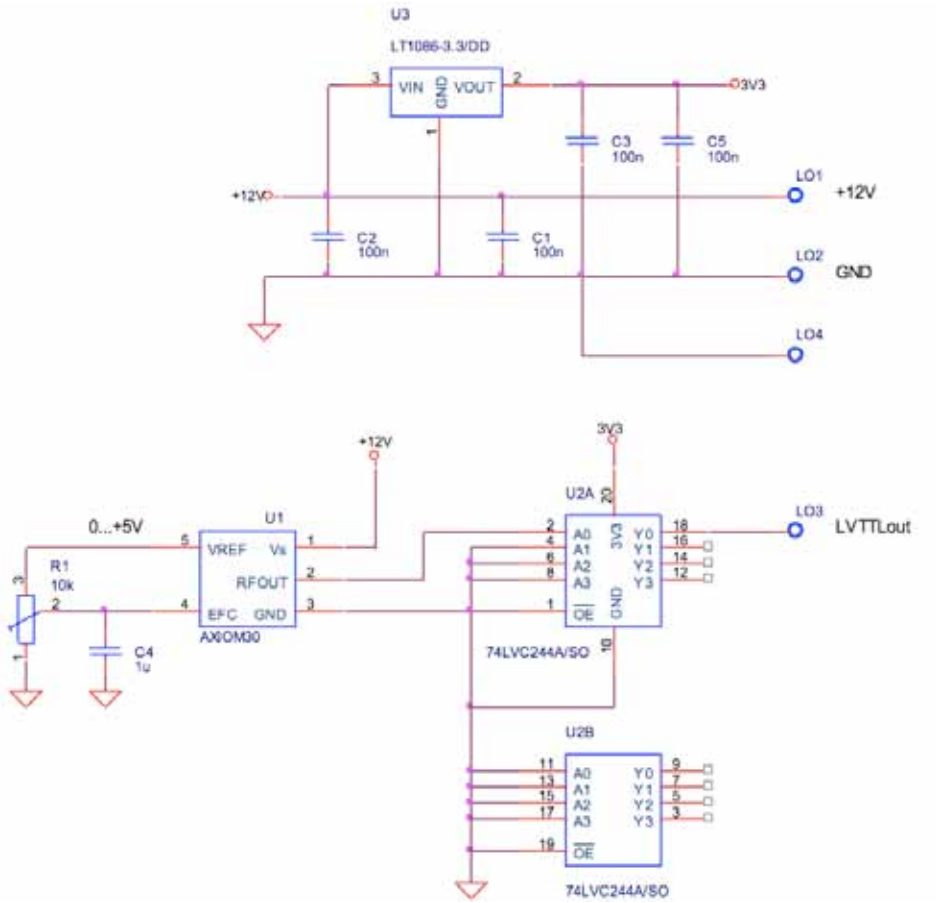

Figure 4. *The circuit of the external clock accessory. Upper half: the 3.3 V regulator; lower half: the OCXO at the left with the external frequency control potentiometer and the 74LVC244A/SO driver stage to the right.*

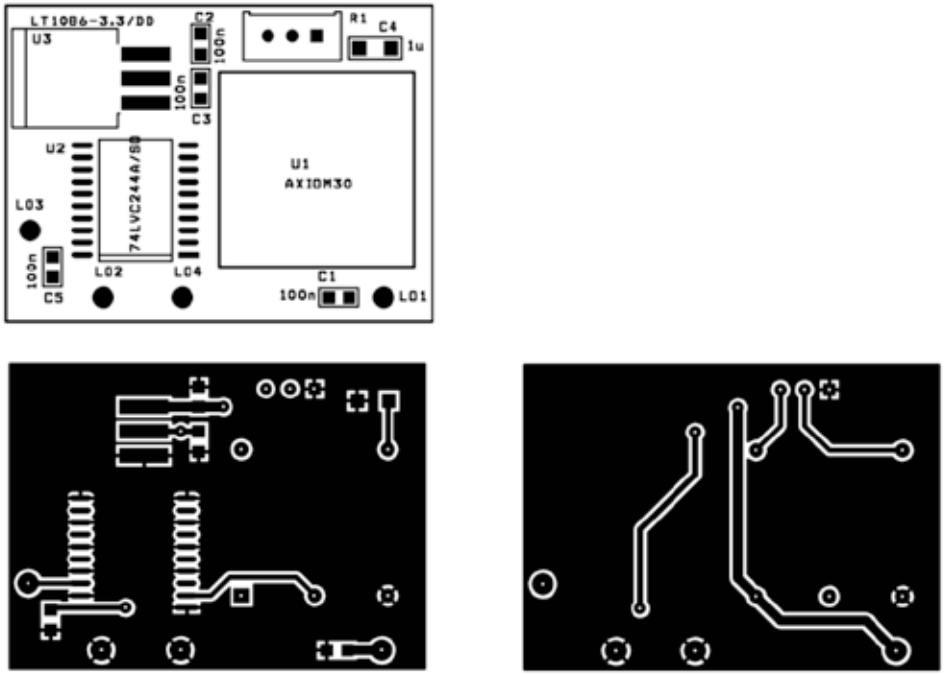

Figure 5. *The layout of the circuit as given in Figure 4.*

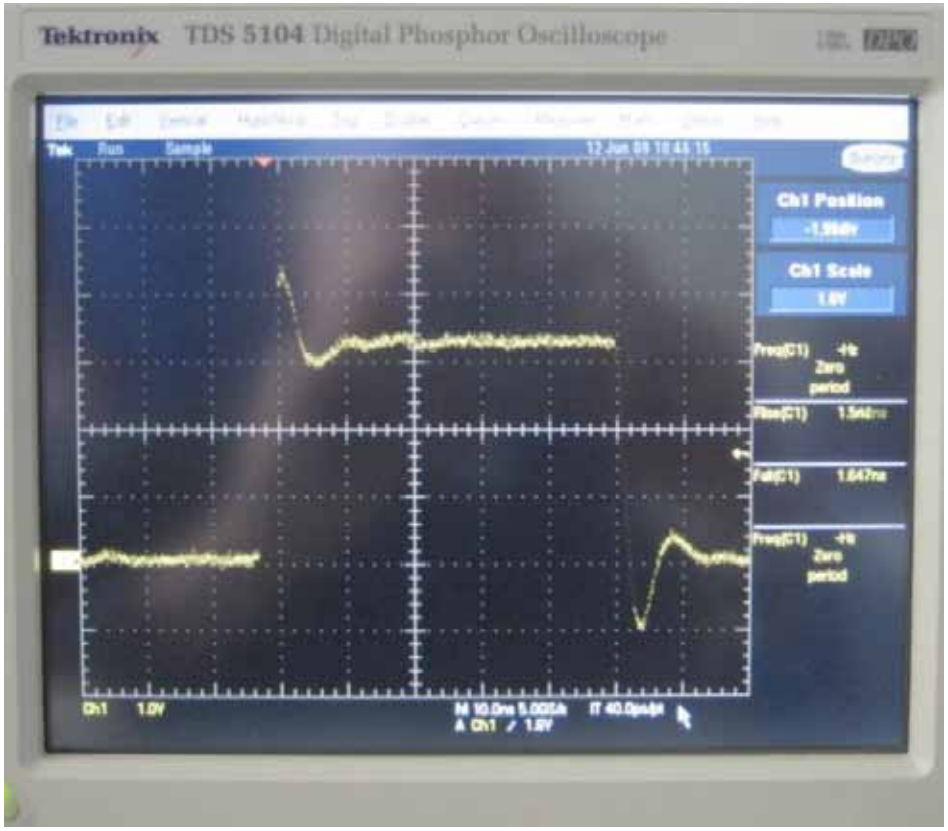

Figure 6. *An oscilloscope photo of the 74LVC244A driver output. Horizontal: 10ns/Div, Vertical: 1V/Div. The overshoot almost completely disappears with the output connected to C16 and the 3 boards installed. Clock pulse 10 to 90% rise and fall times are about 3 ns.*

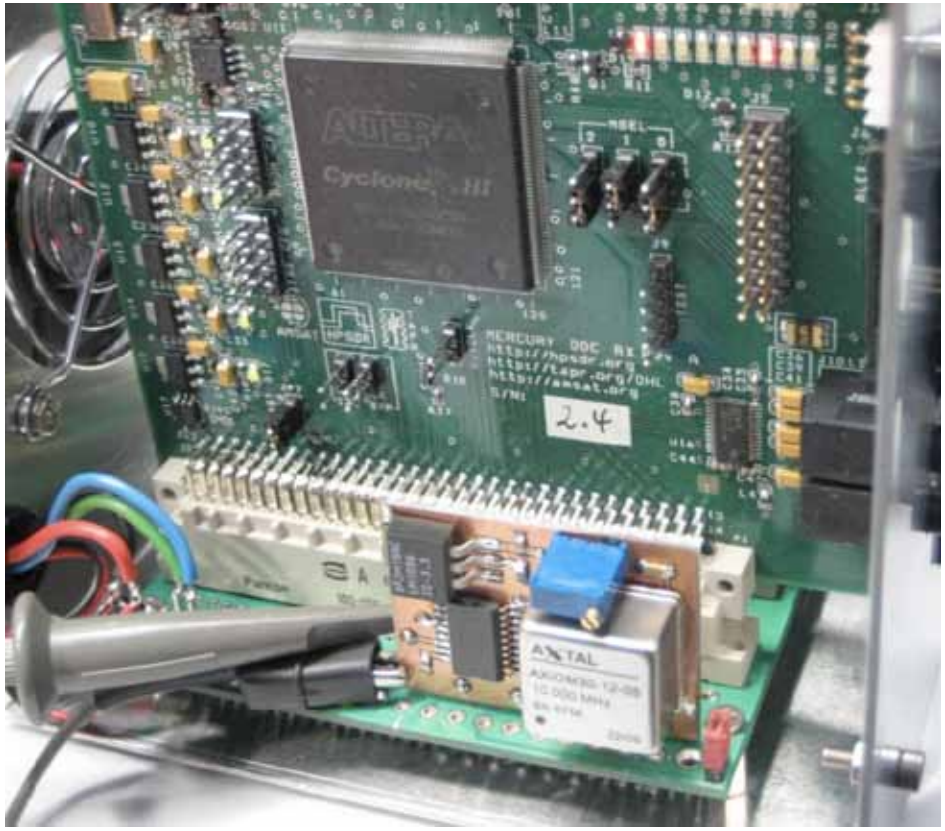

Figure 7. *The clock board on Atlas and all other boards assembled (MERCURY in the background)during clock pulse measurements with the probe tips connected to the output.*

Figure 8. *All boards installed into the hpSDR cabinet which contains in addition the linear regulated necessary power supplies (+12V, -12V, +5V) and a 10W class-A driver amplifier following Penelope. Connection to C16 of Atlas is done with the non-isolated wire at the lower right of the small print board.*

References

(1) DL2MDQ, "Assembly of hpSDR transceiver", psr109, 4 (2009)

(2) AXTAL, Wasemweg 5, 74821 Mosbach, Germany

(3) Rb-standard used: LPRO-101 module from DATUM/Efratom DL2MDQ, DD6UJS, "Rb Frequency Standard in the Ham Shack", psr110, 16 (2010)

(4) See: http://openhpsdr.org/excalibur.html

(5) Individual phase noise measurement of the purchased unit provided by company

(6) Graham, KE9H, private communication

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AT Golden Packet Report

By Bob Bruninga, WB4APR, e-mail bruninga@usna.edu

Several teams report successful long haul APRS text messaging along the Appalachians during the annual Golden Packet event. APRS, not on the national channel was used. See www.aprs.org/at-golden-packet.html

APRS text messaging communications were good from Springer Mountain in Georgia, through Clingman's Dome in the Smokies to Roan Mountain, NC. Like last year, the Comer's rock site near Wythville, VA was not activated.

Then starting again on Apple Orchard Mountain near Roanoke, VA, going north through the station on White Rock Cliffs on the VA/WV line and through the Maryland Mountain station, links were solid to GD Hill in SE Pennsylvania. From there north, apparently, none of the New England mountains were manned this year.

Lessons Learned!

Don't carry 52 AH worth of batteries up the mountain, when the D700 digi/voice rig can operate just fine for four hours on only 3 AH at medium power!

Also don't carry a laptop and all those batteries, when you can do all the messaging from the radio front panel. Plan on 105F temperature/humidity going up, and then thunderstorms, hail and wind while up there.

We didn't carry the table and chair this year and will be even further trimmed down next year. Our plan will be:

D700 digi and UHF simplex coordination voice

APRS HT for 144.39 all-site communications using CQSRVR messaging

Dual band HT for local coordination/monitoring local repeater

Dual band HT for monitoring repeater of next station N and S

The HT's ran all day on their own batteries and I think a good 4 AH battery will do for the digi if only the four hours are active. All this will easily fit in a single day pack.

For next year, we need a committed team in SW Virginia and other teams throughout the Northeast sites north of Pennsylvania to Maine. The Pacific team didn't have time to fully prepare and are starting planning for next year's attempt along the Pacific mountains.

My site was www.aprs.org/hamtrails/GD-hill.html

Other reports still coming in.

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OpenHPSDR Project Software

By Ken Hopper, N9VV, e-mail n9vv@wowway.com

The OpenHPSDR project consists of some wonderful hardware that TAPR has graciously sold at various times. We look forward to a future filled with new boards and ideas that can all be shared by the OpenHPSDR experimenters.

Another fertile and busy part of the OpenHPSDR project is the software that we use to make the hardware do amazing things. Here is a quick summary of the current software that is available for anyone who wishes to experiment with it in Windows, MAC and Linux:

The software repository for all the source and executables is located here: svn://64.245.179.219/svn/repos_sdr_hpsdr/trunk/

[1] K.I.S.S. - VK6APH and now 3 other authors with published and not published versions. Phil Harman - VK6APH <phil@pharman.org>

[2] PennyMerge transceiver by KD5TFD PowerSDR 1.10.4 on Windows libusb; Bill Tracey KD5TFD <bill@ewjt.com>

[3] PowerSDR transceiver 1.19.3 by Doug W5WC on Windows with libusb; Doug Wigley W5WC <w5wc@windstream.net>

[4] WinRad receiver by Alberto I2PHD with WinUSB driver; Alberto I2PHD <i2phd@weaksignals.com>

[5] WinradHD receiver by Mario DG0JBJ with WinUSB driver; Mario DG0JBJ - WinradHD <winradhd@hdsdr.de>

Ghpsdr is an amazing collection of examples from the software magician John G0ORX/N6LYT <john.d.melton@googlemail.com> John's server, dspserver, and various monitors are written for 4 active independent simultaneous channels running on a single Mercury receiver.

[6] ghpsdr - linux only full transceiver (now deprecated)

[7] ghpsdr3 - linux/windows Rx with server and dspserver and Windows by WA8YWQ

[8] ghpsdr3 - linux/windows with jmonitor Java GUI (and WA8YWQ version)

[9] ghpsdr3 - linux with gnuradio-companion flow-graph GUI

[10] ghpsdr3 - linux/windows with qtMonitor in C++/Qt as the GUI

[11] ghpsdr3 - linux/windows with qtMonitor in C++/Qt GUI with a knob for tuning.

[12] One of the most amazing bits of experimental code is the "CUDA" code by Hermann DL3HVH <hvh.net@gmail.com> which runs inside the hidden processors on an Nvidia Video card. CUDA is state-of-the-art parallel programming. No one understands how Hermann can do this. It is a brilliant piece of the project. Please contact Hermann directly if you are ready to try CUDA parallel processing in its' infancy.

[13] MacHPSDR - On the MAC side of things we have a dedicated software engineer "Jeremy McDermond (NH6Z)" <mcdermj@xenotropic.com> who is studying for his bar examination to become a licensed Attorney. We think his I/Q is measured in 4 digits!! You can find the MAC version of code here: https://www.xenotropic.com/ham-svn/MacHPSDR/

There are *many* other contributors to the OpenHPSDR firmware and software. Please review the SVN trunk to see the individual folders where members have stored their unique versions and development ideas.

svn://64.245.179.219/svn/repos_sdr_hpsdr/trunk/

In the future, the OpenHPSDR group may follow the latest "Athena" software architecture designed by Dave KV0S <kv0s.dave@gmail.com> You can find Athena documentation here:

http://openhpsdr.org/wiki/index.php?title=ATHENA

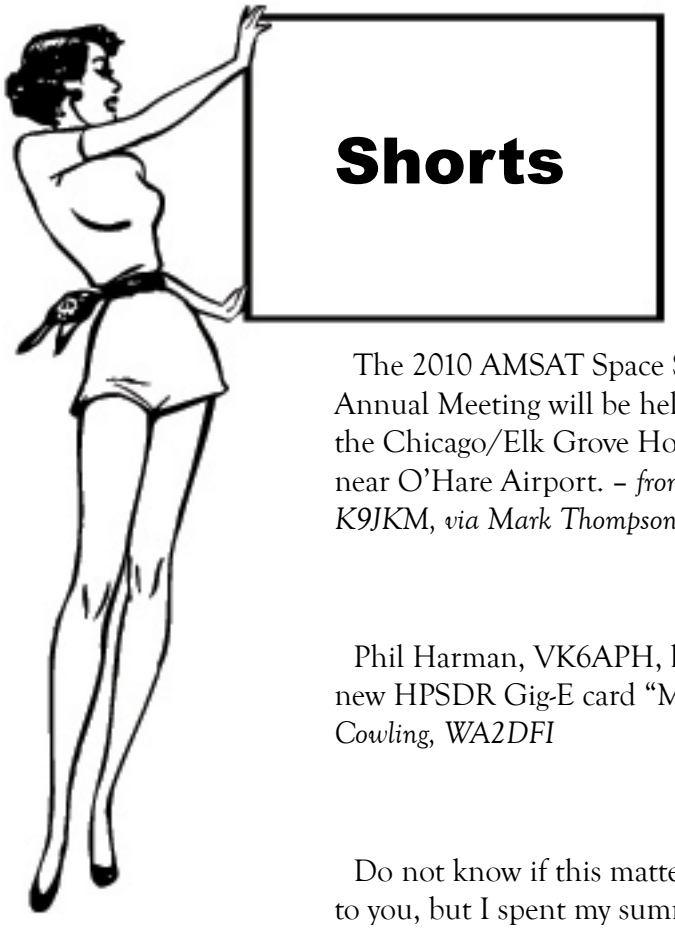
We are all eager to learn more about the Alpha testing of the new "OZY-II" control board that will communicate over Gigabit Ethernet instead of the tired old USB 2.0 channels we are currently using.

The small single board transceiver called the "Hermes" was first shown at Dayton 2010 and is expected to be a huge success when it comes to life as a production system later this year.

Stay tuned for the exciting developments by reading the main OpenHPSDR website page: http://openhpsdr.org/ maintained by Dave KV0S.

Thank you TAPR for your support and helping OpenHPSDR bring the Atlas system to a reality.

###



Shorts

The 2010 AMSAT Space Symposium and Annual Meeting will be held October 8 - 10 at the Chicago/Elk Grove Holiday Inn which is near O'Hare Airport. – *from JoAnne Maenpaa, K9JKM, via Mark Thompson, WB9QZB*

###

Phil Harman, VK6APH, has dubbed the new HPSDR Gig-E card "Metis." – *from Scotty Cowling, WA2DFI*

###

Do not know if this matter might be interesting to you, but I spent my summer vacations in Prague, Czech Republic, where I performed a 2-hour tutorial related to promoting packet radio to the technical conference participants. Although the school room was not full of audience, I would be satisfied if at least 1-2 persons decide to join ham packet in years to come. – *from Miroslav "Misko" Skoric, ex-YT7MPB*

###

CODEC2: Development Continues

By Mel Whitten, K0PFX, e-mail mel@melwhitten.com

David Rowe's (VK5DGR) development of a new codec for digital voice applications continues to show progress. Codec2 will fill the need for a low bit rate speech codec with an open source codec for HF/VHF DV applications. David's goal is to provide a codec with speech quality performance between LPC and MELP/AMBE without infringing upon any of their patents. A challenging task, to say the least, but David believes it is doable. Milestones to mark the progress of the development have been set. Milestone 1 has been completed and the alpha 2550 bps has been released.

For more information on his work, go to www.rowetel.com/blog/?page_id=452. David is looking for volunteers to help support this project. Bruce Perens, K6BP, will be presenting a paper on CODCE2 and demonstrating the alpha release with sound bites at the upcoming ARRL/TAPR DCC in September.

Hope to see you there!

###

Write Early and Write Often

Packet Status Register (*PSR*) is looking for a few good writers, particularly ham radio operators working on the digital side of our hobby, who would like to publicize their activities here.

You don't have to be Vonnegut to contribute to *PSR* and you don't have to use Microsoft Word to compose your thoughts. The *PSR* editorial staff can handle just about any text and graphic format, so don't be afraid to submit whatever you have to wa1lou@tapr.org.

The deadline for the next issue of *PSR* is October 15, so write early and write often.

###

TAPR is a community that provides leadership and resources to radio amateurs for the purpose of advancing the radio art.

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Submission Guidelines

TAPR is always interested in receiving information and articles for publication. If you have an idea for an article you would like to see, or you or someone you know is doing something that would interest TAPR, please contact the editor (wa1lou@tapr.org) so that your work can be shared with the Amateur Radio community. If you feel uncomfortable or otherwise unable to write an article yourself, please contact the editor for assistance. Preferred format for articles is plain ASCII text (Microsoft Word is acceptable). Preferred graphic formats are PS/EPS/TIFF (diagrams, black and white photographs), or TIFF/JPEG/GIF (color photographs). Please submit graphics at a minimum of 300 DPI.

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