

Vol. 22 No. 2

www.mvus.org

February, 2008

MVUS Sunday Net at 14:30 UT (currently 10:30 AM local time, EDT).

The net frequencies are primarily 144.280 Mc and 28.960 Mc.

February Meeting Fri 22nd of February

At the Hometown Buffet near SR 725 and Yankee Rd. in Centerville

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Upcoming Events

Moorehead, KY, Space Center Trip.....5 April (See next page)

Tech Session at N8UR, John's place*.....April 19,*

HF Frequency Measuring Contest.....Apeil 19 at Night (See next page)

***IF RX measurements, + the usual tuning, frequency, power, etc stuff. (see next page)**

Dayton Hamvention.....16, 17, 18 May

Miscellaneous

Hamvention presentations sought Submit Abstract & Bio to: Mike Schulsinger, 1002 Woodlawn Ave, Springfield OH 45504-2140, e-mail N8QHV@ARRL.net or to Red Dakin, W8ULC 4519 N Rt 123, Franklin, OH, 45005

2006 Microwave Update Proceedings still available

\$ 14 (includes postage). Send check to Gerd Schrick, 4741 Harlou Dr, Dayton, OH, 45432-1618

De N8ZM

Got to get down to it...**the visit to the Morehead Space Center is scheduled for April 5th**. I am researching the motel choices and prices, but it might help me to negotiate a better rate if I can say how many rooms we'll need. Sooo...please let me know via e-mail or phone call (don't tell me at the next meeting, I'll forget it!). The e-mail is n8zm@mvus.org, and the phone number is 937-667-5990. Do it TODAY please so that I can get started on the reservations. And let me know if you are willing to share a room or need your privacy.

We also need to organize the carpooling arrangements, if only to save a few barrels of oil and reduce the number of parking spaces we'll occupy. I can take three people with me, and still have room for a fair amount of treasure from Jeff's warehouse. First come, etc. But let me know if you are willing to drive, or if you would like to share a ride so that I can help you get a group together. Even if you organize yourselves without my help, please let me know how many of you are going so that I can give Jeff a heads up on how many to expect.

We are planning to have Tech Session on April 19th, and expect to be able to make IF receiver measurements, as well as the usual tuning, frequency, power, etc stuff. John, N8UR, has graciously invited us to use his lab for the day. Parking is tight there, so ride sharing is recommended. Let either John or me know what you plan to test.

Also on that day we will have our 2nd FMT exercise, either late in the afternoon, or in the evening. We have scaled back a little since it takes a lot of time and effort to put on two runs on the same day. This time the bands will be 80, 40, and 20 meters. There will be a link to the details on John's febo.com web site.

On another subject, I was looking at the MVUS roster the other day, just out of curiosity and noticed that about one third of our members do not live in the immediate area. I think that is pretty cool, but it raises the question of what value can we provide to that group. Obviously they must see value in Anom Prop, thanks to Gerd and Steve (I'd guess most have learned to skip the President's column by now). But what other value can we provide to those of you who live too far away to attend the meetings, or even stop by our booth at Hamvention? Please let me know, via e-mail, or even a phone call (info above). I'd like to hear what we are doing well, and not so well. And it would be really cool if each of us would take the time to recommend MVUS membership to a friend who might be interested in our eclectic (and electric) organization.

One last reminder: The meeting comes a bit early this month, as the 4th Friday is the 22nd. DON'T MISS IT!

Tom, N8ZM

Digital TV Pitfalls

...Even if your TV can receive over-the-air digital signals, that does not guarantee you can see the pictures. Analog offers what is called "graceful degradation"; people in fringe reception areas can at least see something, even if the picture ghosts or fades in and out. DTV is not as forgiving. You either get it, or you do not...

...And you do not have to be living in a valley 80 miles from the broadcast tower to feel abandoned by a DTV signal. Multipath reflection continues to be a problem within the city; the receiver gets multiple versions of the same broadcast because it bounces off buildings. The US uses a transmission standard called 8-VSB (for 8 level vestigial sideband), which is more susceptible to signal woes than the European standard COFDM (coded orthogonal frequency division multiplexing)....

[Scientific American Feb 2007]

Having tried over-the-air digital TV now for two years, we can completely confirm the above-mentioned problems. Unless the newer converters take care of the "multipath" it is very likely that the 15% of American households, that still receive over the air TV will eventually abandon this, switch to cable or satellite or go back to reading books and/or watch the fireplace. [Steve, K8UD, & Gerd, WB8IFM]

This and That 2-08

- **Global Warming.** So today, we dumped another 70 million tons of global-warming pollution into the thin shell of atmosphere surrounding our planet, as if it were an open sewer. [Al Gore]
- **Costa Rica** Thieves took fiber optic cable that coordinates traffic signals on Paseo Colón over the weekend. The transport ministry thinks the thieves made a mistake and thought that the cable contained copper. [Newspaper]
- **Cross Wind.** Dr Avruell U. Harnishe from the Gearvakf Scientific Studies Committee summarized findings about the propagation effects of weather on high definition TV: “The distortion is so severe that the HDTV signals are suffering missed and broken pixels whenever the wind is blowing across the signal path between transmitter and receiver.” Harnishe recommended people not purchase new HDTV sets until the FCC fixes the problem. [Gearvakf Bulletin Vol43 No1, 11-17-07]
- **I-Dotters.** The first letter we learned to write in school was i. The teacher would command: “up, down, up... dot on top!” That rhymes beautifully in German and does not sound bad in English. The kids, just starting out in school were called, i-Doetzchen, which translates best as “i-dot-nerds.” [Gerd, WB8IFM]
- **Captains and Mates.** “We used to have wooden ships and iron men; now its iron ships and wooden men.” [Peter Grant, 1895-1930]
- **Ohio River.** The “Ohio River” belongs to Kentucky. The same is true for the part that borders on Indiana, not sure about West Virginia. Consequently all bridges that cross the river are under Kentucky supervision! So why they call it the “OHIO” River?
- **Ultimate Connection.** A company in the UK found a way to install fibre at very competitive cost by using the existing sewer system. Not sure how you get to the cable, whether it terminates at the toilet in your bathroom or what.
[UK homes to get super-fast fibre. By Jane Wakefield Technology reporter, BBC News, 1/23/08]
- **Comment from the Consumer Electronics Show (CES).** ...Finally there is this question of how well things will really work. I find it ironic that in the midst of all the tech optimism at CES, people are constantly complaining that their hotel broadband is deady slow, that the Wi-Fi hotspots on the show floor clash with each other, that the cell networks are overwhelmed with too many connected people. If we can't get today's stuff working smoothly, what does that portend for tomorrows ambitious plans?
[Steven Levy, Newsweek]
- **Chat Room.** Something like a bulletin board where the participants stay on practically all the time. (Ed) In the 24/7 chat room, reality never dawns: the narrative is tweaked, not junked. [Katha Pollit]
- **The Friendly Lid.** I think the time has come for this idea, that didn't go very far when a then young engineer at Drake first proposed it more than 20 years ago. Build the “radio” or whatever other gadget. with all the buttons you like, but hide them under a lid that can be closed and automatically rest the radio (gadget) to a basic essential functions. We all know where we stand now with buttons coming out of our ears such lids would really be appreciated. [The engineer was K9MW, Ed]
- **9V Battery.** How often have you exchanged a 9V battery from a gadget that quit working and found that the “used “ battery still measured 7 or even 8V. The “9V battery” is rated and supposed to be used down to 6V. So that particular design that needs a new battery when the present one reaches 7 or 8V, throws away part of that expensive 9V batery. Design engineers, wake up! [Gerd, WB8IFM]

HAARP* LWA (Shortwave) Moon Bounce Experiment

By Mike, W8RKO

I have placed on my web site two images and a wav file from the event Friday night. They can be found at <http://www.nippynet.com/HAARP/>

The first transmission was on 6.7925 Mhz. We had a slight amount of Doppler on the echo. Spectrum Lab indicated the shift was 2 to 3 Hz. We confirmed that the stronger carrier was the direct transmission from Alaska. The transmission occurred precisely at the 0 and 5 second time ticks. The echo was 2.5 seconds later so it was easy to determine the direct transmission watching an accurate clock. The second ticks shown on the Spectrum Lab display are relative as that PC clock was not synchronized to an accurate source.

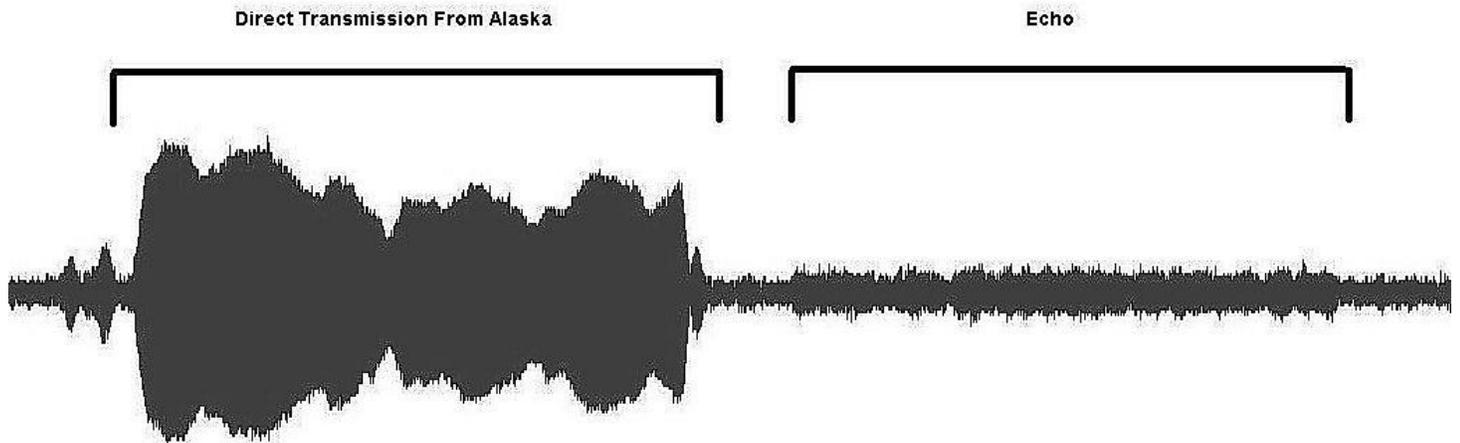
The receiver was an HP 3586C Selective Level Meter; antenna 160/80 meter dipole. Jim Miller also had his 86C running.

The second transmission on 7.4075 was not heard. We had broadcast interference on that frequency.

Present for this experiment down at VOA was Jim Miller, N8ECI, Mike Murphy, KA8ABR, and myself.

On January 20th I attempted to receive the signal from home using a 40-meter inverted V. I was unable to hear any transmission on 6.7925 Mhz. I did not attempt the second frequency.

* High Frequency Active Auroral Research Program, LWA, Long Wave Array, 10 to 88 MHz



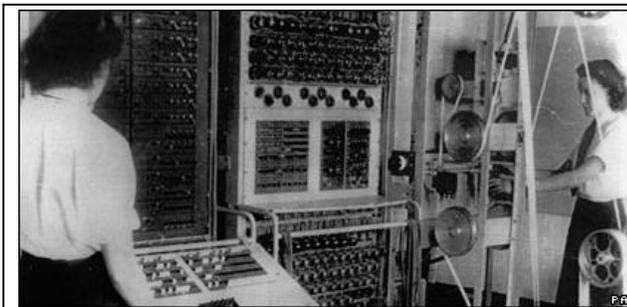
As we understand it, the project, run by the Air Force and the Navy, has two sites: one in Alaska, the other in New Mexico. The Alaska site with its 100m x 100m short wave array transmits with a power in the megawatts, while the New Mexico station acts as a receive site. It consists of a number of 100m x 100m sites far apart, which in combination form a narrow beam desirable for radio astronomy. A very interesting set-up and the occasional bouncing off of signals from a big target, like the moon, gives hams with puny wire antennas a chance to pick-up echoes! As the above report shows, the VOA group was successful, their antenna being a little better than average and nicely out in the open. Congrats! (ED)

Colossus vs Laptop

Computers have come a long way. The word Colossus already is an indication of size. This huge machine was built in WW2 in the UK to decipher German messages that were sent wireless using short wave and Morse code. A group in the UK under Tony Sale completed after 14 years a replica of this computer and they had a cipher challenge last November against modern day PCs. Joachim Schueth won this contest with his laptop and his decipher program in just 46 seconds. Colossus needed 3 hours and 15 minutes. That's a ratio of almost 300 and shows the tremendous advancement that was made in the last 60 years.

The test was quite realistic. A Lorenz S42 machine, as was used by the German high command in WW2, was used to cipher the message, which was sent out via short wave by German hams. Picked up in the UK the ciphered message was passed on the colossus and the contestants

[Source: BBC News]



Bletchley's code-breaking effort shortened the war by many months

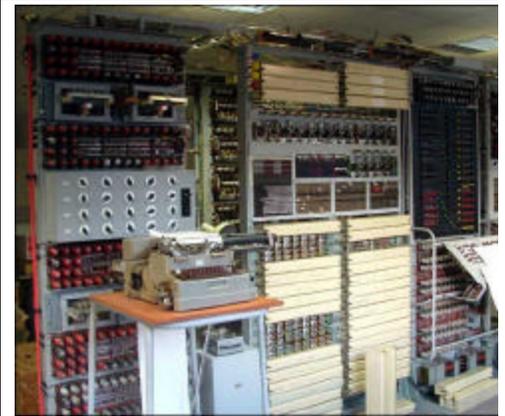
Honour for Colossus code-cracker

BBC-News 1-29-08



Joachim Schueth (L) and Tony Sale (R)

Schueth received a prize from the National Museum of Computing, which included a valve from the Colossus machine. He deciphered the code using a laptop and a program he wrote specifically for the challenge.



The re-built Colossus

Ocean Gliders

From BBC News 8 Feb, 2008

... The machines are already used in oceanography and propel themselves through the ocean by changing their buoyancy to dive and surface. Wings generate lift and a vertical tail fin and rudder is used to steer.

The latest glider has been developed by Webb Research Corporation and WHOI.

It generates its energy for propulsion from the differences in temperature between warm surface waters and colder, deeper layers of the ocean.

Wax-filled tubes inside the craft expand when it is gliding through warmer water. This heat is used to push oil from a bladder inside the hull to one outside, changing its buoyancy.

Cooling of the wax at depth reverses the cycle.

Since December 2007, the prototype machine has been crisscrossing a 4,000m-deep basin in the Virgin Islands of the Caribbean.

The machine traces a saw-tooth profile through the water column as it lazily glides through the ocean, surfacing periodically to fix its positions via GPS and to relay data back to base.

Trickle Charging

By Gerd, WB8IFM

One bad thing about NiMHs is that they selfdischarge faster than other types. That's why you have to keep an eye on them and try to not let the voltage of a single cell drop below .9 V, to be on the safe side.

That is also why you have to watch out when you buy new cells, they may have been languishing in a warehouse too long.

There are three ways to keep cells fresh, keep them cool by putting them in a refrigerator, start a regimen where you keep track of all your cells and recharge when necessary, or apply a trickle charge. I have tried the "icebox" approach and found it not very successful, and keeping track of individual cells is something for an exceptional meticulous person.

So I started thinking "trickle charge". Here the trick is to provide the cells with a small, constant current. Only the better chargers will adjust the current to the proper level, but you wouldn't want to tie up your best and main charger just for this "standby" operation. Also, usually you may have at least a dozen or more cells that are not in use and would require "trickling".

In school I learned to generate a constant current by starting with a high voltage (compared to the cell or cells you want to charge) and use a large resistor in series. I was already looking for a transformer delivering between 50 and 100 V and even thinking of just using the 120V mains, when I thought, there must be a better way. Upon some more checking I found that there is a cheap (~50c)

integrated circuit which does a perfect job and it only requires a slightly bigger voltage than your combined string of cells that you like to "trickle charge".

I settled on charging a max of ten AA cells and picked up a ten cell holder (you can get those holders for different numbers and, of course, you can connect them in series). Per cell you have to figure a maximum voltage of approximately 1,43V; for ten cells that adds up to 14,3 V. Since we only need 10 mA, the recommended trickle current for the AA cells, I tried one of the ubiquitous 12 VDC wall transformers. Turns out it provided a little over 18VDC at the 10 mA. So that's what I used for the supply. After more than a month in use, you can barely feel a slight temperature rise holding the transformer.

Now to the IC, it's the LM334- a 3-terminal adjustable current source. It looks and is packaged like a typical transistor, and requires just one resistor to set the required current, which in our case is:

$$R_{set} = .0677/I_{set};$$

For 10mA this comes out to be $R = 6.77$ Ohms.

I soldered the IC – resistor combination right at the battery holder terminal, you can barely see it. It does a perfect job. It maybe hard to find the exact size resistor, but any will do that gets the current between 8 and 11 mA.



Sunspot Minimum
From Tad Cook, K7RA's Propagation Reports

1-25-08 Sixteen consecutive days with no visible sunspots, and still counting. This is the way it is at solar cycle minimum. Enjoy it now, because there will be a time in the future when solar winds are constant and the geomagnetic field active, and although we will have many sunspots, you may think back fondly on this time. Particularly for operators at high latitudes, geomagnetic instability is a problem. Just talk to anyone who lives in Alaska, the Klondike, Northwest Territories or Nunavut. They'll tell you about other parts of the sunspot cycle, when they tune 20 meters for weeks on end without hearing a signal.

2-1-08 Sunspots have returned. After nearly three weeks with nothing visible (January 9-28), sunspot group 982 emerged on January 29. The very quiet geomagnetic conditions of the past week may be ending with some moderate to unsettled activity. US Air Force predicts a planetary A index for February 1-6 at 12, 10, 15, 10, 8 and 5. The next active period could be around February 9-10, with a planetary A index of 15. The period of February 16-26 is likely to see no spots, and for February 27 through March 1 we may see sunspots reappear.

The big news now is that a new sunspot, positively belonging to the next sunspot cycle, cycle number 24, appeared, Read all about it in the March issue of QST (page59) Ed.

They keep coming.

From "Space Weather"

Statistically it is more likely that you get hit by an asteroid than by a terrorist. But, who cares. Spaceweather.com keeps track Below their list as of Jan 28, There is a 400m object flying by at a distance of 1.4 times earth moon that can come closer to Earth than 0.05 AU. None of the known PHAs is on a collision course with our planet, although astronomers are finding new ones all the time.

Near Earth Asteroids

Potentially Hazardous Asteroids (PHAs) are space rocks larger than approximately 100m On January 28, 2008 there were 921 potentially hazardous asteroids.

Jan. 2008 Earth-asteroid encounters:

Asteroid	Date(UT)	Miss Distance	Mag.	Size
2005 WJ56	Jan. 10	10.9 LD	11	1.2 km
2008 AF3	Jan. 13	1.0 LD	14	27 m
1685 Toro	Jan. 24	76 LD	13	6.2 km
2007 TU24	Jan. 29	1.4 LD	10	400 m

Notes: LD means "Lunar Distance." 1 LD = 384,401 km, the distance between Earth and the Moon. 1 LD also equals 0.00256 AU. MAG is the visual magnitude of the asteroid on the date of closest approach

True Dedication!

Posted on MAMS, Dec.-11- 07)

Good evening to all,

In spite of being two days into a sinus infection, I could not resist the good weather conditions this afternoon. I climbed to the 185-foot level (slowly) and found the AC power plug rusted on one of the power cords going to one of two boxes of stuff I have mounted there. Fortunately it was the six and two meter amp box and the microwave box was unscathed. I unplugged the offending plug and left it dangling until I get well and the weather gives me another good day. In the meantime, I have 2304, 3456, 5760 and 10368 mhz working again.

See you on the bands. 73, Dave, K4TO

Not a bad day for "microwaving". Not a good one either, but 2-2-08

As Brad K4EFD said in a posting on Saturday, it was "challenging".

It was 29 degrees F when I set out, but there was no wind. When I got to my site (the VOA Park, EM79tf), I found the road closed by a gate. I wound my way in through the back way and started to set up. The IC-706 2 meter liaison rig didn't work. Got it going after removing the cable that connects the head to the main body. The wind was picking up.

K4EFD in EM77gw responded right away on 2 meters. WE got set up in the next few minutes on 10 GHz and easily worked the 115 mile path. Tried 903 MHz next. Not as good as 10 Gigs, but an easy copy. Tried 1296 next. Could hear Brad, but not well enough to copy. He reported the same. Expecting my fingers to freeze solid at any time, I wasn't willing to try lots of back-and-forth attempts to make it on 1296. I still had the rear seats in the van, so I wasn't able to bring the other dishes along.

Bill K9AYA (EM79qk) came on 2 m while we were setting up for 1296. Bill and Brad worked 10 Gigs, apparently with weak but adequate signals. I could hear Bill 599 from 15 miles away and 90 degrees off the side of his beam, so we also easily made the 2-way when he and Brad finished.

By now, the wind was steady about 8-10 mph, and my fingers were complaining big time. I've learned a new appreciation for how fast the heater comes on in my van.

Thanks to Brad and Bill for turning out this morning. 73 ... Rich, W2RG

Error Report (We are a big company and here to help you!)

Ring a Bell? Are they all like this?

Help Center (We are here to help you!)

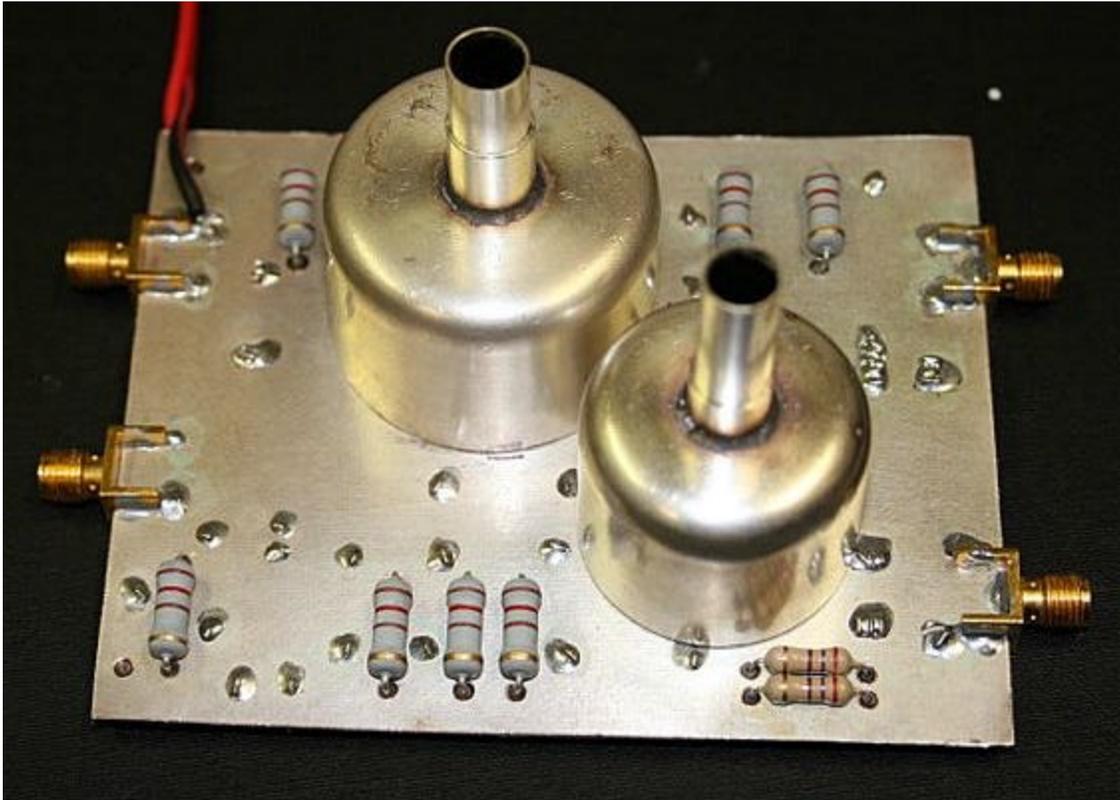
I can tell a tale of 7 hours (not exaggerating) talking to AOL trying to get febo.com off their spam blacklist. Three separate help centers, with no communication between them and no way to get back to where you were -- i.e., if you had made it to helpdesk number 3 (the one that could actually help you) and got disconnected, you had to start back at helpdesk number 1 and go through the whole routine again, then to helpdesk number 2 and go through that whole routine again..

John, N8UR.

I'm not defending AOL, but pretty much every customer service operation is like that. AOL is just a big kid on the block so gets a lot of the bad PR. Time-Warner and DirecTV are two others that I really don't like to call. For the same reasons.

Tom, N8ZM

This is the high multiplier and output stage. The output of the low multiplier stage filters feeds this one. One side takes 571 MHz and outputs 2855 MHz at +15dBm. The other side takes 738 MHz and outputs 3690 MHz at +15dBm. (W8KRO)



Stable Power Supply

By Zack, W9SZ [MAMS - 12-8-07]

I think I mentioned a while back that I was doing some testing with my transverters and a weak-signal source across the yard and I noticed that when I switched from transmit to receive and back, my LO's would jump a bit even though they are phase-locked. It appeared to be because the supply voltage from the battery was pulled down a few tenths of a volt when transmitting. It was most noticeable on 10 GHz.

I built some small DC-DC inverters using the Linear Tech LT1072 chip so I could generate a stable 18 volts and then use a 7812 to bring it back to 12 volts again. This is used to supply the LO circuitry.

I just tested all the transverters and the modification is a success. The LO's do not pull under any circumstances. The circuitry requires maybe an extra 120 mA from the 12-volt battery source because of the mod but I can live with that.

I thought I'd mention it in case anyone else has a similar problem or wants to do a similar mod.