West Mountain Radio

The Beacon

QUARTERLY NEWSLETTER

Winter Edition 2014

INSIDE THIS ISSUE:

Ham Radio on Ice

By: Todd Dugdale, KD0TLS.blogspot.com

One of the things that I really enjoyed in the few months after I got my licence was portable operation. You can generally set up antennae in parks (though I've run into some law-enforcement personnel who would disagree), but that gets more uncomfortable here in Minnesota during the winter. For those living in antenna-restricted situations, there is an opportunity to work HF or set up more-conspicuous antennae.

The solution: Operate out on the lake in Winter.

Once the lakes freeze over, you have a big expanse of unobstructed flat terrain available that no HOA has a claim to. Inside of Minneapolis proper, you can't set up a permanent (overnight) fish-house, but you can use a portable (tent-like) option and a heater. Assuming that an auger can bore a hole in the ice, a pole can be frozen in to the ice, along with a ground (the lake) connected to your radio. You can string up a dipole about as far as you want, though height is the real limitation. Otherwise outside of the city limits, you can attach a mast to a sturdier fish-house. Maybe you could use a tree on shore for an end-fed sloper, or set up a ground-plane antenna. If the ice is thick enough, your vehicle could be your 'fish-house' and you could set up a lot of different HF situations using vehicle DC power and the support of the vehicle for antennae.

Ham Radio on Ice

Cars aren't allowed on the urban lakes, of course, but the suburbs are a different story.

For satellite work, too, lakes offer big areas with much less obstruction on the horizons. While they aren't generally high ground, lakes offer space free of metallic objects and structures that affect SWR. Lakes also offer an ideal RF ground.

As a Minnesotan, it's always fascinated me how frozen lakes are kind of free temporary property. You can go out on any public lake and set up a house rent-free and tax-free. Of course, you need to get (and post) a licence for anything set up overnight. This is just to tie someone's name to the fish-house for legal reasons. But otherwise, you can spend as much time in that structure as you want, as long as the ice can support it. That's obviously why they aren't allowed in the city proper. People would be living in them. Not living large, but living rent-free.

But the lake offers space to run dipoles or set up tall masts. As long as you have power -- from a generator, battery, or vehicle -- you can set up in the middle of nowhere, away from QRM or go over to Medicine Lake in Plymouth (as I did) and set up an NVIS antenna for 40M CW. With a heater in a portable shelter, you can sit around in a sweatshirt, comfortable and dry -- while a snowstorm rages around you -- and "play radio" in the solitude and quiet of a winter evening. The best part is that you can set up in a shallow area away from other people fishing and not bother them.

You aren't required to fish while in a fish-house, but it would be a good idea to have a fishing licence to avoid conflict with any authorities you may encounter. They may be skeptical that you're out on Mille Lacs looking for DX and not muskies. Keep the ice in mind if you have limits to your antenna situation.

Great Ham Apps for iPhone & Android

Great Ham Apps for iPhone and Android

There are plenty of apps out there to choose from for Ham use. These are some of the more popular ones for both iOS and Android devices that are free or low cost.

iOS [List compiled by Bob Witte K0NR (k0nr.com)]	**Android** [List compiled by Sholto Fisher K7TMG]
Simple Utilities:	**Simple Utilities:**
Ham I Am (Storke Brothers/Free) A handy app that covers some basic amateur radio reference material (Phonetic alphabet, Q Signals, Ham Jargon, Morse Code, RST System, etc.) Although I find the name to be silly, I like the app! **Maidenhead Converter** (Donald Hays/Free) Handy app that displays your grid locator, uses maps and does lat/lon to grid locator conversions. **HamClock** (Ben Sinclair/$0.99) A simple app that displays UTC time and local time. This one reads out to the second.	**Ham Radio Tools** (V_Firefighter/Free) A simple all-in-one utility to assist ham radio operators. Callsign lookup; GPS; Wavelength calculator; logging & more. **HamGPS** (Miguel A. Vallejo, EA4EOZ/Free) Maidenhead locator, lat/lon to grid locator conversions, and useful to align antennas in microwave DX activities. **Ham** (Smerty Software/Free) Open Source Ham Radio App for Android. Solar / calculated band conditions, Maidenhead Grid Locator & Callsign lookups via QRZ.com XML subscription. Works great with premium QRZ.com accounts.
Call Sign Lookups:	**Call Sign Lookups:**
CallBook (Dog Park Software/$1.99) Simple ham radio callbook lookup with map display. **Call Sign Lookup** (Technivations/$0.99) Another simple ham radio callsign lookup with map display.	**Ham Radio Call** (Roy Watson, N1ZTL/Free) U.S. based ham radio callsign lookups with maps. **Ham Finder** (KD7UIY/Free) Displays grid locations using maps, does lat/lon to grid locator conversions. Check the DXCC of a callsign. Looks great on tablets.
Repeater Directory	**Repeater Directory:**
RepeaterBook (ZBM2 Software/Free) This app is tied to the RepeaterBook.com web site, works well and is usually up to date.	**Repeater** (ZBM2 Software/Free) Easily find Amateur (Ham) Radio Repeaters across the world.
Mobile Logbook	**Mobile Logbook:**
HamLog (Pignology/$0.99) This app is much more than a logbook because it has a bunch of handy tools including UTC Clock, Callsign Lookup, Prefix list, Band Plans, Grid Calculator, Solar Data, SOTA Watch, Q Signals & more.	**Ham Radio Log** (Talixa Software/Free) Simple logbook for amateur radio enthusiasts with ADIF export.
HF and VHF propagation:	**HF and VHF Propagation:**
WaveGuide (Rockwell Schrock/$2.99) This is an excellent tool for determining HF and VHF propagation conditions at the touch of a finger.	**MyHF_Map HAM Radio MUF maps** (agtim.ch/$2.70) Propagation at a glance. During map view you can switch between HPF, MUF, FOT and each hour of the day (UTC).
EchoLink:	**EchoLink:**
EchoLink (Synergenics/Free) Make EchoLink QSOs directly from your phone! Full featured EchoLink client for iPhone.	**EchoLink** (Synergenics/Free) Make EchoLink QSOs directly from your phone! Full featured EchoLink client for Android.

List Continues on next page...

Great Ham Apps for iPhone & Android

iOS [List compiled by Bob Witte K0NR (k0nr.com)]

APRS:

Ham Tracker (Kram/$2.99)
APRS app, works well, uses external maps such as Google & aprs.fi. "Share" feature allows you to send an SMS or email with your location information.

Satellite Tracking:

Space Station Lite (Craig Vosburgh/Free)
A free satellite tracking app for just the International Space Station. It has annoying ads but its free.

Summits On The Air (SOTA):

Pocket SOTA (Pignology/$0.99)
A good app for finding SOTA summits, checking spots and accessing other information.

SOTA Goat (Rockwell Schrock/$4.99)
This is my favorite app for SOTA activity (finding summits, checking/posting spots and alerts, etc...)

Morse Code:

Morse-It (Francis Bonnin/$0.99)
This app decodes and sends Morse audio. There are fancier apps out there but this one does a lot for $1.

Android [List compiled by Sholto Fisher K7TMG]

APRS:

APRSdroid (Georg Lukas/$4.95)
It allows reporting your position as well as sending and receiving messages. It also conveniently displays nearby stations as a list or on a map.

Satellite Tracking:

ISS Detector Satellite Tracker (RunaR/Free)
ISS Detector will tell you when and where to look for the International Space Station

Summits On The Air (SOTA):

SOTA Finder (ZBM2 Software/Free)
Easily find SOTA Summits near you with complete database across the world.

Pocket SOTA (Pignology/$0.99)
Carry the Summits on the Air (SOTA) summit database with you on your Android device

Morse Code:

Morse Code (PixelCan/Free)
Translate text into Morse and vice-versa. Tidy interface makes it real easy to use. Flashlight, sound, and vibration features as well.

Android™ Apps to use with RIGblaster Blue!

Morse Code:

Morse Decoder (Wolphi/$4.99)
Decode live CW via your Android device's built-in microphone or the RIGblaster Blue interface.

Digital Modes:

DroidPSK (Wolphi/$5.49)
Transmit & receive PSK31 on your Android device. Easy to use and lots of macros make this an excellent app!

DroidRTTY (Wolphi/$5.49)
Transmit & receive RTTY on your Android device. Sensitive decoding of ham and commercial RTTY signals.

Maritime Signals:

HF Weather Fax (Wolphi/$9.99)
Display gray scale live HF weather fax pictures on your Android device.

DroidNavtex (Wolphi/$9.99)
Decode live Maritime Navtex signals on your Android device. Weather forecasts, warnings and other information are shown on the display.

SSTV:

DroidSSTV (Wolphi/$6.99)
Here's a novel way of operating SSTV! Use your smartphone's camera (or existing image) to have fun with SSTV. Full RX/TX capabilities.

Holiday Rebates

Annual Holiday Rebates

November 28, 2014 - December 31, 2014

On Select West Mountain Radio Products

RIGrunners

Up to a **$15** rebate on select Rigrunners!

RIGrunners provide the most convenient and safest way to connect your equipment to a power source using Powerpole® connectors for all 12 VDC connections. Some models include precision voltage monitoring with visual/audible alarm for any over/under voltage situation.

RIGrunner 4008 Horizontal #58307-1037 $89.95

RIGblasters

Up to a **$20** rebate on select Rigblasters!

Join the fastest growing and most popular way to connect your radio to a computer. The perfect choice for digital modes! Operate any sound-card based digital mode. Preferred for EMCOMM and MARS use!

RIGblaster Blue with Bluetooth® Wireless Technology
#58013-1502 $199.95

DC Power & Accessories

Up to a **$50** Rebate on DC Power Products!

A variety of power management and accessories that protect both the radio equipment and the power systems they are connected to. DC power is used frequently for public safety, commercial and amateur radio applications.

Super PWRgate PG40S
#58403-1046 $139.95

PWRcheck
#58430-1286 $184.95

CLRspkr

Get a **$40** Rebate on the CLRspkr!

An amplified loudspeaker with ClearSpeech® adaptive DSP noise reduction for voice and CW. Ideal for mobile radio operation.

CLRspkr ClearSpeech® DSP Noise Reduction Speaker
#58407-948 $219.95

View Product Rebates at:
www.westmountainradio.com/holiday14

Product Review of West Mountain Radio's CBA IV

By: Joseph Gray W5JG

A few months ago, someone donated quite a few commercial VHF handhelds to the local Amateur community. In addition to the radios, I had about three dozen lithium batteries to deal with. My first inclination was to charge the batteries and let those who received radios take their chances as to battery life. The "good technician" part of me didn't like that solution, so I wound up buying a CBA IV from Ham Radio Outlet. The price of the CBA IV from Ham Radio Outlet was $149.95 and included free shipping.

Taking one of the bad handhelds, I removed the circuitry, leaving me a shell with battery contacts. I soldered some heavy gauge wire to the battery contacts, crimped on some Power Poles and was good to go (the CBA IV has built in Power Poles). One short length of wire with Power Poles attached comes with the CBA IV. At some point, I'll probably build some type of test jig with adjustable contacts that will accept various batteries.

I installed the software from the included CD, plugged in the CBA IV with the included USB cable and I was ready to test batteries. My PC is running Windows 7, 64-bit. The CBA IV software installed and ran just fine for me.

The software as it comes with the CBA IV has several types of tests that it will perform. I won't describe all of them in detail, only what I needed for my initial testing. For more details, go to the West Mountain Radio website. The included tests are Mission Profile, Discharge Test, Charge Monitor Test and Power Profile Test. For my immediate needs, I used the Discharge Test, which I will describe below.

If you pay extra for an Extended Software license, the following additional tests are available in the software: Duty Cycle Test, Multiple Discharge, Constant Power, Constant Resistance and Charge Discharge. For me, as an Amateur, I would find the Duty Cycle, Multiple Discharge and Constant Power tests of use. These three additional tests would let me test batteries in ways that more closely resembled actual usage.

As to the original reason I bought the CBA IV, I wanted to test those lithium batteries that came with the donated handhelds. For that purpose, I just wanted to know how much capacity was in each battery. The standard Discharge Test was perfect for this.

Using the Discharge Test, you start by picking which type of battery you have (just about any type you might have is listed). I selected Li-ion, two cells, and 2.00 AH (the capacity listed on the battery). By clicking on a button labeled "Suggest", a test current draw of 2.00 A was selected for me. Later research told me that Li-ion batteries are rated at a one hour discharge rate, as opposed to lead acid batteries, which use a 20 hour discharge rate. I knew about the lead acid discharge rating, but not the Li-ion. Thankfully, the software showed me the correct value.

The software also allows you to set a Pass/Fail threshold on the Discharge Test. The default of 80% capacity seemed reasonable to me,

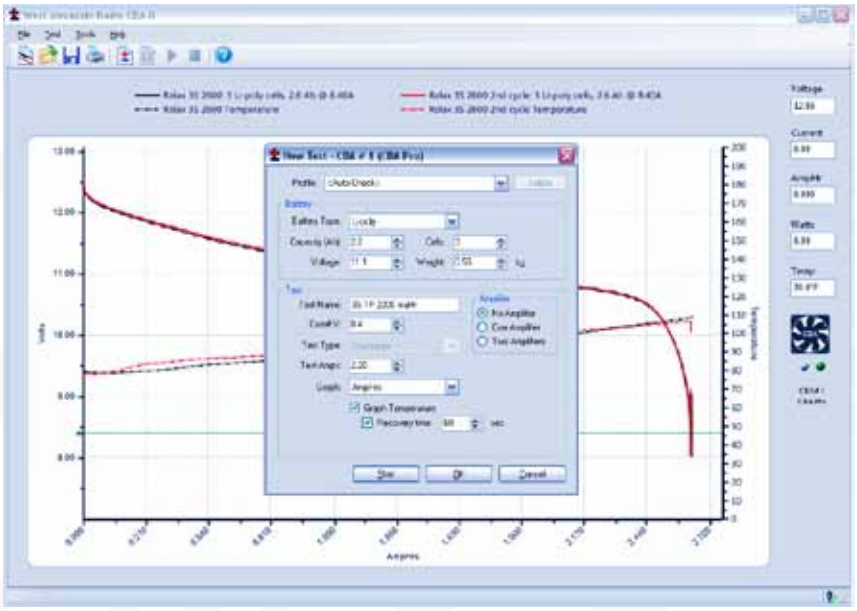
Product Review: CBA IV

so that is what I used. From there, it was simply a matter of inserting each unknown battery into my makeshift holder and starting the test for each one. While the Discharge Test is running, the software graphs a discharge curve. The Y axis shows the voltage. You can change the X axis to display AmpHrs, WattHrs, Minutes and Ragone (this has to do with energy density and requires you to have entered the weight of the battery).

The software is actually quite nice. It allows you to save test results for each battery, overlay multiple battery tests on one graph and even export the data for analysis in other programs, such as Excel. You can also save images of the graphs in several formats. The program help is succinct, but adequate.

If you purchase the optional temperature probe, you can include battery temperatures in the results. Knowing the battery temperature also allows the software to abort a test if a temperature threshold is reached. Not having the optional temperature probe, I could not try these features.

At the end of three days of testing batteries, I clearly knew what the AH capacity of each battery was. I could actually rank the batteries from best to worst. Knowing which batteries still had at least 80% of their full rated capacity left was very helpful.



Screenshot of CBA IV Software

After having tested all of those handheld batteries, I decided to test some lead acid gell batteries that I use for QRP. I like the idea of being able to track a battery's capacity over time, rather than using it until it craps out, as I have done in the past.

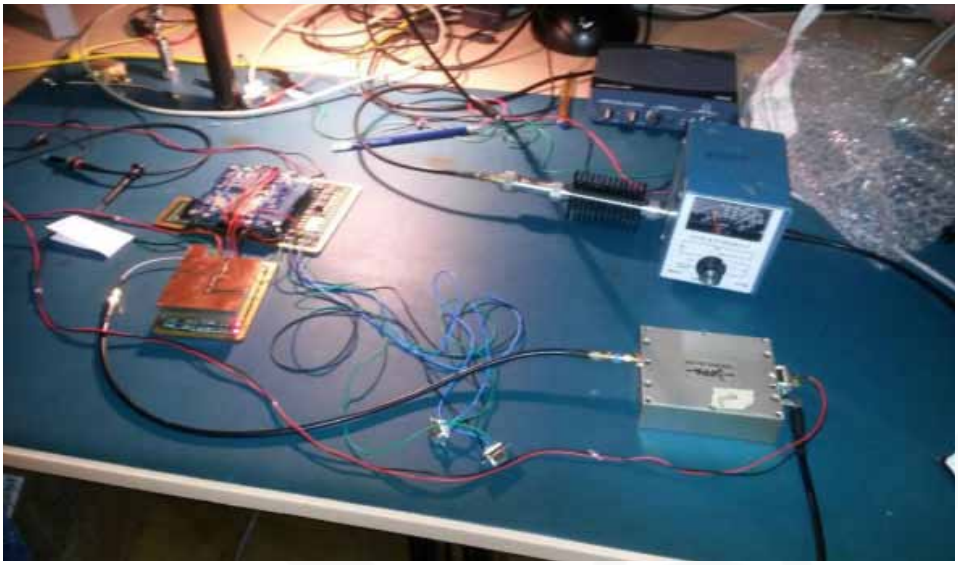
As for the extended tests, I did try two of them. The Duty Cycle and Multiple Discharge tests allow you to more closely simulate how a battery is used in real life. In Duty Cycle, you set a fixed current draw and then on times and off times. The battery is then drained using these on and off periods. Even better, the Multiple Discharge test lets you set up to five different current draws, each with their own time period. Using the Multiple Discharge test on one of the handheld batteries allowed me to come close to simulating a real days usage. Radios used in Commercial or Public Service are typically rated by the manufacturer for 5% talk, 5% receive and 90% standby. Amateurs talk and receive much more than this, on average.

I have not tried the other available tests yet. The Power Profile and Constant Power tests look to be of particular interest to me. When I have time, I look forward to trying these tests.

Although I resisted buying a battery analyzer for some time, I am glad that I now have one. I can see myself using it even more as time goes by. The West Mountain Radio CBA IV gives me hard numbers for comparing batteries and tracking batteries over time. As with any piece of good test equipment, being able to see the numbers appeals to me. I like having data to go on, rather than just guessing and hoping that my batteries are still good.

4M-LXS Lunar Amateur Radio Payload

by M5AKA for AMSAT-UK.org



4M payload under test from http://amsat-uk.org/2014/09/01/4m-lunar-payload/ Credit due to LuxSpace

Beijing launched a Lunar spacecraft on a journey lasting 196 hours that should take it around the Moon before returning and re-entering the Earth's atmosphere. It will carry a 14 kg payload known as 4M-LXS which was developed at LuxSpace. The launch took place on October 23, 2014 at 1800 UT.

4M stands for Manfred Memorial Moon Mission in memory of Professor Manfred Fuchs, founder and chairman of OHB group, Bremen who passed away on April 27, 2014. The 4M-LXS amateur radio payload will transmit on 145.980 MHz +/- 2.9kHz (-40°C to +125°C), Doppler max: -2200Hz, +1000Hz. The continuous transmissions will start 4670s (77.8 minutes) after launch (-0, +600s). Five successive 1 minute sequences are sent during the 5 minutes cycle. The digital mode JT65B will be used, this can be decoded by radio amateurs using the free WJST software, there will also be 'human readable' tone transmissions. See the transmit sequence description on page 14 of 4M Mission: a Lunar FlyBy experiment.

During the lunar flyby, the range will be 399,636 km at the most and the distance to the Moon will be between 12,000 and 24,000 km depending on the final injection vector. The transmitter produces 1.5 watts to a simple Monopole antenna which should give a Signal to Noise ratio (S/N) comparable to amateur moon bounce (EME) signals at the Earth's surface.

LuxSpace wish to encourage radio amateurs around the world to receive the transmissions and send in data. There will be a number of Experiments and Contests with prizes to the winners in each experiment and category. Details are given on page 19 of 4M Mission: a Lunar FlyBy experiment.

A Java client will be made available to automatically send the WSJT ALL.TXT and the decoded.txt files to a central database.

The orbiter is one of the test models for Beijing's new lunar probe Chang'e-5, which will be tasked with landing on the moon, collecting samples and returning to Earth. The launch is aimed at testing the technologies that are vital for the success of Chang'e-5. The orbiter will be launched into Lunar Transfer Orbit (LTO) then will perform a flyby around the Moon and re-enter the Earth's atmosphere after 196 hours (9 days).

Upcoming Events

Hamfests on our Radar

1/10/15	*Midwinter Swapfest - Waukesha, WI
1/19/15	Mid-Winter Hamfest - St. Charles, IL
1/24/15	Winterfest - Collinsville, IL
2/13/15	*Hamcation - Orlando, FL
3/14/15	Charlotte Hamfest - Concord, NC

*West Mountain Radio will be in attendance

Customer Comments

"I just bought a used CLRdsp from a friend who didn't need it anymore. It's the most effective and easy to use outboard NR unit I've tried. I compared it to a Timewave DSP59+ and a JPSNIR10 and they all work, but yours won!" -Louis K4IIE

"I just wanted to let you know that these ComSpkrs are the best $40 I ever spent! I've had at least a half dozen computer speakers in the shack and these are the first ones that receive NO interface from ANY of my various radios, rotators, & power supplies. Thanks!"

"Thanks for being open to the suggestions. I'm glad to see that West Mountain Radio is receptive to their customers input." -Michael

"I received outstanding technical support from Sholto resolving a technical issue I had in setting up RTTY transmission using the Rigblaster Advantage. He was thorough and approached the problem very analytically whereby each hardware/software part of the system was isolated to find the cause of the problem. Above all he showed a lot of patience and responsiveness. With his help, I was able to pinpoint the problem."

When you talk...we listen!

Make suggestions or comments on proposed new products.

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www.westmountainradio.com/insiders

If you would like to submit an article for consideration in future newsletters please contact marketing@westmountainradio.com.

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TARGETuner

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1. Add any product you'd like to the Wishlist
2. Save Wishlist & Email it to friends & family

RIGrunners

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