

THE

PROPAGATOR

The Monthly Newsletter of the South Orange Amateur Radio Association

May 2013

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SOARA Spring Auction!

Notes from AD6OI

It's our favorite time of year again, when you have the perfect opportunity for some Spring Cleaning! We have a lot of new hams in the club and seasoned hams that would be glad to take an antenna or two off your hands. So, please bring in your ham-related items, regardless of how new or old and help your house look a little cleaner, help your pocket-book and also help SOARA in the process!

If you have items to auction bring them EARLY to our regular meeting room at 6:00pm to get them checked in. Be prepared to fill out a tag for each item or lot that you want to sell. An example is below:

(1) Call Sign _____	#
(2) Donate	(3) Minimum Bid
Yes No	\$ _____

Hear ye! Hear ye! May and June are busy months we and we have lots for you. This coming Monday is the auction so please come early and bring money and ham radio related gear.

Then SOARA Saturday May 25 will be in the Mission Viejo radio room at the Norman P Murray Center, and if you have questions or want to work with the radio gear we have the gear and the answers just like Radio Shack.

On Monday May 27 is the Laguna Hills 1/2 marathon and it is not too late to volunteer for that. Contact Sean aj6b@soara.org or Heiko ad6oi@soara.org June 21-23 is Field Day if you are new to amateur radio this is where you can learn more about ham radio in one weekend than in the rest of the year. We are looking for volunteers to help with set up tear down and operation as well as coordinating the various aspects of the event.

Feel free to volunteer. Please see Pierrette k6ptr@soara.org or Heiko ad6oi@soara.org

Meeting

May 20th,
2013

7:00 PM
N.P.
Murray
Center
Veterans
Way
Mission Viejo

SOARA takes a small percentage of the sale price as an auction handling fee or you can donate the item to SOARA in which case the club will receive 100% of the proceeds

It is always fun to see what there is, whom gets into a bidding war with whom, and of course the biggest challenge of all, see if you actually go home with less stuff than what you brought!





**Dayton
Hamvention**
May 17-19

**SOARA
Auction**
May 20

**SOARA
Saturdays**
May 25

**Memorial Day
1/2 Marathon**
May 27

ARRL Field Day
Jun 22-23

VEC License Exams

Next session:
(6:00pm), be-
fore the General
Meeting
Contact Sean
AJ6B for info.

Walk-ins ok.

Extra | General |
Technician
Exams

SOARA T-Hunts

SOARA has had 2 T-Hunts since the last Propagator, due to the schedule change (2nd Sunday of each month now). The turnout was great at both hunts and they were both relatively easy and left plenty of time for chat instead of hiking. Here are pictures from both events. The winners were Team Karl for April and Team Sean (AJ6B) for May. As you can see, it was just a "little" warmer and sunnier for the May hunt!



ARRL Field Day 2013

Objective:

To work as many stations as possible on any and all amateur bands (excluding the 60, 30, 17, and 12-meter bands) and to learn to operate in abnormal situations in less than optimal conditions. Field Day is open to all amateurs in the areas covered by the ARRL/RAC Field Organizations and countries within IARU Region 2. DX stations residing in other regions may be contacted for credit, but are not eligible to submit entries.

Dates:

Field Day is always the fourth full weekend of June, beginning at 1800 UTC Saturday and running through 2059 UTC Sunday. Field Day 2013 will be held June 22-23, 2013.

Bands:

Any Amateur Radio band except 12, 17, 30 and 60 Meters.



SOARA Raffle > Auction

Hal Silverman

The SOARA Raffle is off for the month of May, due to the auction. Please check back again at the June meeting for the next round.

If there are any comments or suggestions for either the \$1 prizes or a future \$5 prize, please contact me at WB6WXO@SOARA.org



From Membership

We heartily welcome our newest SOARA members:

Steve Bachmann, KJ6LHA, a General licensee from Anaheim

Ping Gee, KJ6UJA, a Technician also from Anaheim

Jim Goodfellow, a Technician from Laguna Hills

Butch Miller, KK6DJT, a Technician from Westminster

Vic Ray, KK6DHF, a Technician from Trabuco Canyon

.....

Horst Zitzmann, KD7JHR & Marie Zitzmann, KD7JHS

Membership
Directors
SOARA

The membership application is available on the SOARA website:

[Online SOARA Membership Application](#)

The HF Page CQ DX CQ DX...

Selected Contests/Links

- CQ WW WPX Contest, CW (May 25-26)
- [DXPeditions](#)
- [NOAA - Space Weather](#)
- [Propagation de K7RA](#)
- [ARRL Propagation Charts](#)



SDR Radio using a DVB-T USB Dongle (RTL-SDR)

by Tak Asami, W6SI (w6si@soara.org)

March 18, 2013



The DVB-T USB dongle that you can pick up from outlets like amazon.com at ~\$20 (search for SDR RADIO) can be used as the front end for the SDR radio applications. There are two ready-to-run public domain software programs available. One is called **SDR#** (pronounced SDR sharp), which is a good general purpose, capable of AM, SSB, CW, FM reception, but (IMHO) more useful as a broadcast receiving. The other, **HSDR**, works more like

your HF communications receiver. Both programs feature a wide spectrum display and waterfall chart, so you can monitor the whole band at any given instance. They also have built-in width adjustable filters and very effective notch filters.

The January 2013 QST includes an article with detailed instructions on how to start this easy and low cost, but effective, SDR project. Below are simplified instructions in case you do not have access to the QST issue:

DVB-T USB dongle is a simple tuner / decoder for European over-the-air digital TV receiver, and though they vary from unit to unit, they are typically capable of receiving 60MHz to 2GHz range. It also has the mode where it can put out 8-bit quadrature audio outputs, and that is what is used for these SDR applications. But as it is, it cannot be used to receive HF frequency range. Fortunately, there are a few up-converters such as NooElec (www.nooelec.com). This one costs about \$50. This board has a 100MHz local oscillator and a mixer on board, converting 3-60MHz signals to 103-160MHz. It has reasonable filters at input and output to suppress unwanted signals and images, and it works surprisingly well. The up-converter output is fed to the antenna input of the dongle. The antenna is connected to the input of the up-converter. The receiver system does require a good external antenna to function properly (if a little whip antenna came with the dongle, ignore it – it's practically useless).

It should be noted that DVB-T dongles usually have **MCX connectors** for an antenna input (check when you buy), which is fairly unusual in US. Amazon does sell a coax cable with the connector, with **SMA** on the other end (which NooElec up converter board requires). Make sure you get a proper cable.

I also had to get me a **SMA to UHF female adapter** (HRO has it), to hook up my HF antenna to the converter. The converter is powered by 5V through the micro USB connector. If you have a smart phone or certain pad devices, you probably have that cable already. Otherwise, get a

Continued on page 4...



Election Results

Thank you for all your votes!

The results for SOARA's bi-annual *director* positions are as follows:

Repeater:

Howard Brown, KG6GI

Publications:

Mike Mahan, K6MSM

Membership:

Horst, KD7JHR & Marie, KD7JHS Zitzmann

Education:

Sean Reagle, AJ6B

Technical:

Brian Roode, NJ6N

Communications:

Spencer Ammermon, NG6K

We look forward to serving you along with the officers and committee members for the next 2 years!

Dayton Hamvention

If you are unable to attend Dayton this year, you are able to see some of the activities live via the Internet at <http://www.w5kub.com>. (Watch for a chance to win prizes too!)

SDR Radio using a DVB-T USB Dongle (continued from page 3)

proper USB cable also. They can be had for fairly low cost (but be careful, if you order them through Amazon, they tend to come from separate vendors and the freight charges add up quickly).

Finally, a warning: **Both SDR# and HSDR are fairly processor intensive applications.** A good performance system is required to run them. My home work station (quad core 2.8GHz, 4GB memory) runs them very comfortably (15~20% load), but they fail to run on my netbook (100+%).



Downloading & Installing SDR#

- 1) Download the sdr# package and RTLSDR plugin (see links below). Download them into a temporary directory, e.g., C:\src.

-> sdrsharp.com/downloads/sdr-nightly.zip

-> sdrsharp.com/downloads/sdr-nightly-rtlsdr.zip

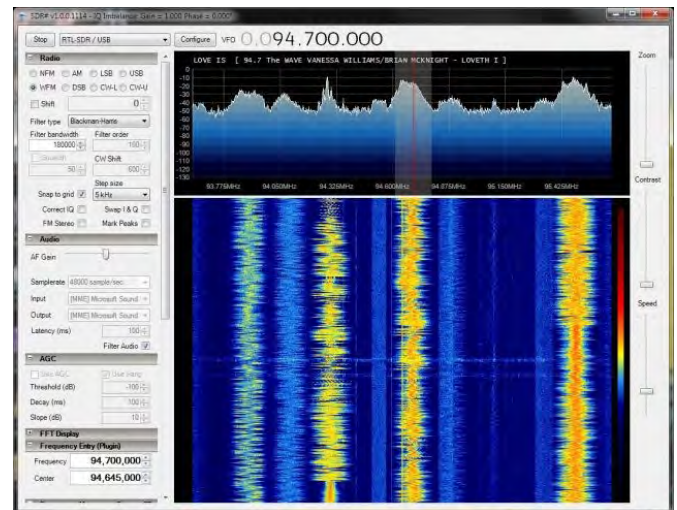
You can delete them later (after the installation).

- 2) Download the USB driver installer. You can put it in the same temp directory (e.g. C:\src as per above).

-> <http://sourceforge.net/projects/libwidi/files/zadig/> (note that you will need 7-Zip to open the file).

- 3) Download RTLSDR driver from osmocom.org Again put it in the temp directory.

-> sdr.osmocom.org/trac/attachment/wiki/rtl-sdr/ReIWithDebInfo.zip



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Volunteers Needed

As always, we have special events coming up:

- May 27 – Laguna Hills Memorial Day 1/2 Marathon.
- Field Day - June 21-23 - see page 2 for additional information.

We're looking for many operators with hand held radios for the event. Please call or e-mail me if you are interested.

Heiko, ad6oi@soara.org
949-859-3868



Year 2013	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
General Meeting 7:00 PM	28	25	18	15	20	17	15	19	16	21	18	—
Program	Digital Radio	Tropo Ducting	DX Pediton	K6ACJ	Spring Auction	Field Day Prep	TBD	SOARA Fair	TBD	TBD	Fall Auction	—
VEC Testing	28	25	18	15	20	Field Day	15	19	16	21	18	—
SOARA Saturdays (9am)	Feb 2	Mar 2	23	20	25	—	20	24	21	26	23	—
SOARA T-Hunt	6	10	10	14	12	9	14	11	8	13	10	8
Board Meeting	Feb 4	Mar 4	25	22	Jun 3	24	22	26	23	28	25	—
Special Events		Yuma 15-16			Dayton 17-19	Field Day		Picnic				Holiday Party 1
ARRL Field Day						22-23						
SOARA Picnic								4				
Holiday Party												1

SOARA meets at the Mission Viejo Community Center, 26932 Veterans Way, Mission Viejo, the third Monday of every month at 7:00 PM. For the months of January and February the third Monday is a holiday and the meeting is held on the fourth Monday.

License Exams: Amateur License Exams are given prior to SOARA meetings. **Exams are at 6pm.** Prior registration is not required and walk-in applicants are welcome. For further information, email Sean Reigle, AJ6B, at aj6b@soara.org.

SOARA Library:

SOARA has many amateur radio related books such as hand books, books about electrical theory, etc. available to lend out to club members. Contact Heiko Peschel ad6oi@soara.org for more info.

Web Site: SOARA maintains a web site with current club information. The URL is: <http://www.soara.org/>

Repeaters: The Laguna Beach, San Clemente, and Trabuco repeaters are open. The Santiago Peak repeaters are closed. For details or questions on the repeaters contact the Repeater director, KG6GI.

	2m	—	147.645	—	(110.9)	Laguna Beach
	2m	—	146.025	+	(110.9)	San Clemente
	2m	—	145.240	—	(110.9)	Trabuco
D-Star	2m	—	146.115	+	(K6SOA C)	Laguna Beach
	220	—	224.100	—	(110.9)	Laguna Beach
	220	—	224.640	—	(123.0)	Santiago Peak. (C)
D-Star	440	—	445.660	—	(K6SOA B)	Laguna Beach
	440	—	447.180	—	(131.8)	Santiago Peak. (C)
D-Star	1.2G	—	1282.600	—	(K6SOA A)	Laguna Beach

Nets: UHF/VHF (447.180, 147.645 & 224.640): Tuesdays 8:00 PM
D-Star (146.115 C module): Wednesdays 8:00pm
40 meter HF (7.200 MHz +/- for QRM), Sundays 8:00 AM.
Gordo Net (HF 7.250 MHz +/- for QRM), Weekdays 8:30AM

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SDR Radio using a DVB-T USB Dongle (continued from page 4)

- 4) Unzip sdr-nightly.zip files to your designated destination, e.g. C:\sdrsharp
- 5) Unzip sdr-nightly-rtlsdr.zip into another temporary directory, say \src\tmp, so the directory would not be messier than it needs to be.
Pick up the following files and move to your sdrsharp directory.
 - SDRSharp.RTLSDR.dll
 - libusb0.dll
 - msvcrt100.dll
 - libusb-1.0.dll
- 6) Underneath the \src\tmp directory, find the \config directory, where you pick up SDRSharp.config file and move to your sdrsharp directory.
- 7) Now unzip RelWithDebInfo.zip into the tmp directory. Find rtlsdr.dll file and move to sdrsharp directory.
- 8) 7-[Un]Zip zadig.7z into the tmp directory. Pick up zadig.exe and move to sdrsharp directory.
- 9) You can now remove tmp directory and its contents. You can remove or save src directory (Perhaps you can use those files to install on another system if you save them).

Alternatively, you can download install.bat from sdr.osmocom.org to go through above process automatically (actually recommended).

- 10) Now this is the tricky part; plug in your TLB dongle to your PC. It will automatically try to install the digital TV driver. Suppress it. Or if you couldn't stop the installer, then use device manager to uninstall the driver.
Run zadig.exe. Make sure it says WINUSB in the box in the right hand side. Not LIBUSB or LIBUSBK. The top box should say Bulk-In, Interface (Interface Device 0). If not, check the device manager to see if TLB driver is installed for your dongle. Delete it if it is.
Click on "Install Driver" button. The installation may take a few minutes.
- 11) Once that's done, invoke sdrsharp.exe to start the application. You should see "RTL-SDR (USB)" on the top of the control panel. Click on Play to start the application.
- 12) Play around with the control panel; there is no user manual, but the operation is fairly intuitive.
There are a few plug-in modules, such as frequency manager, that you may wish to install. Download and install.

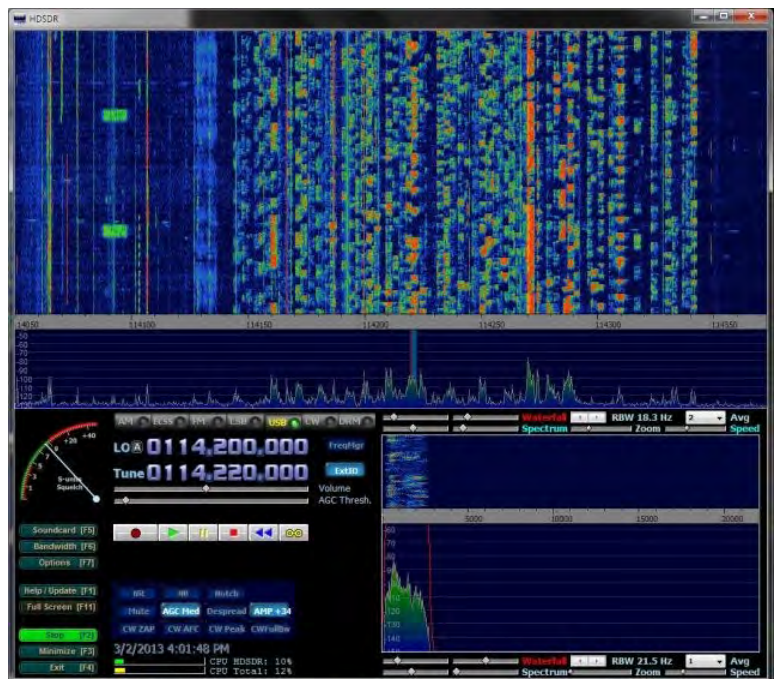
Downloading & Installing HSDR

HSDR is the application (again IMHO) that is more suitable for HF band scan, as it has more switches and buttons more similar to your HF transceiver.

(The picture to the right shows the frequency in "114.200MHz" range, but this is before I managed to set up all options. You can automatically have the software display "14.200MHz" directly).

Here's how you get it.

- 1) If you have not done so yet, install the USB dongle driver using zadig.exe. Follow the step 10) in the above SDR# instructions.
- 2) Go to www.hdsdr.de. You may want to read pages on this site to familiarize yourself for the application.
Click on [Download](#) button to get the latest binary ([HSDR_install.exe](#))
Run the downloaded file to install the application.



...continued on page 7.

- 3) Download [EXTIO_RTL.dll](#) and move the file to the HSDR install directory.
- 4) Run HSDR and select the EXTIO_RTL.dll file, if prompted.
- 5) Click the ExtIO button and adjust the gain, as needed.
- 6) Select start (F2).

Conclusion

Steps to quickly set up the simple, low cost RTL-SDR receiver were presented. This is my first real, practical exposure to SDR and it really got me hooked. These simple hardware devices can deliver surprisingly practical results. And the public domain software described here work with several other experimenter's kit level boards to stand-alone "real" rigs such as those from Elecraft and FlexRadio.

As with often the case with public domain software, they may have gone through major revisions by the time you read this already, and the specifics of the instructions may or may not apply. If you get stuck and don't know what to do, contact me at the e-mail address below.

Why not step into the twenty first century and work the future of radio communications?

73,

de Tak Asami, W6SI

w6si@soara.org

