

CQ Chatter

SEPTEMBER 2014

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WOOD COUNTY AMATEUR RADIO CLUB

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VICE PRESIDENT

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N1RB

BOB BOUGHTON

TREASURER

KD8NJW

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[HTTP://WCARC.BGSU.EDU](http://wcarc.bgsu.edu)

Minutes

WCARC Meeting

August 11, 2014

Bob-WB8NQW, presiding

Present: John-N8MSU, Bob-WB8NQW, Hoot-WB8VUL, Stan-K8LL, Phil-W8PSK, Jim-K8JU, Jim-KD8NJW, Tom-KC8IGZ, Bill-WD8JWJ, Bob-N1RB

Meeting Called to Order with Pledge of Allegiance at 7:33 pm.

Minutes of June meeting approved unanimously. (JU/JWJ)

Treasurer's Report approved unanimously.

Old Business:

Bob (NQW) announced that the Silent Key plaque is now up-to-date.

Bob was asked by the Wood County Historical Society to write a piece on the Club's Field Day activities for their newsletter--all are invited to peruse on-line.

WA8SCT equipment status: Bob reported that there are still a few remaining pieces available plus a multitude of vacuum tubes. He has alerted neighboring clubs, and is now considering other methods of marketing.

Bill (JWJ) suggested that: 1. WA8SCT's family be sent their share of the proceeds to promote Club's good will (NQW will act on this point); 2. the establishment of a "members only" Classified page on the Club's web site; and 3. questioned whether or not it might be worthwhile to sell the Luna repeater.

Regarding item #2 above, Phil (PSK) said that he rarely gets to read the web site and that publishing in CQ Chatter would be preferable to him. Bob (RB) said the policy is already in effect in the newsletter. JWJ, PSK and RB will get together to work out the wrinkles.

continued---on p.8

Net Check Ins

Aug 5 Traffic: 0

KD8NJW (NCS)
W8PSK
K8OVO
WD8JWJ
WB8NQW
KD8VWU
KD8WZK
WD8ICP
KD8RNO
KD8FRL (10)

Aug 12 Traffic: 0

W8PSK (NCS)
KD8NJW
K8OVO
KD8WZK
KD8LEI
WB8NQW
KD8RNO
WB8JWJ (8)

BRAIN TEASERS

1. What causes tropospheric ducting of radio waves?
 - a.) a very low pressure area
 - b.) an aurora in the north
 - c.) lightning between transmitting and receiving stations
 - d.) a temperature inversion
2. What is the usual input/output separation for repeaters in the 1.25 m band?
 - a.) 600 KHz
 - b.) 1.0 MHz
 - c.) 1.6 MHz
 - d.) 5.0 MHz
3. If an amateur transmits to test access to a repeater without giving any station identification, what type of communication is this called?
 - a.) a test emission; no identification is required
 - b.) an illegal unmodulated transmission
 - c.) an illegal unidentified transmission
 - d.) a non-communication; no voice is transmitted

September Contests

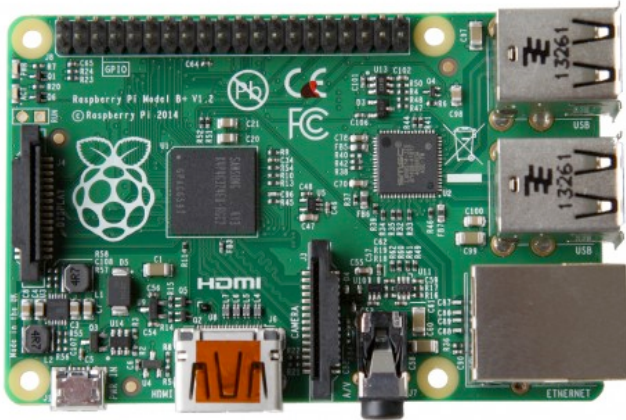
The contest lineup for the month of September is given below. Please note that the WARC bands (60, 30, 17 and 12 m) are never open to contesting.

Sep 6	<i>0000 to 2400 Z</i>	80 m to 10 m
All Asian DX `test		SSB
Sep 6	<i>1600 to 2400 Z</i>	80 m to 10 m
Indiana Parks on the Air		all modes
Sep 6	<i>1600 to 2359 Z</i>	80 m to 10 m
Ohio Parks on the Air		all modes
Sep 7-8	<i>1800 to 0300 Z</i>	160 m to 10 m
Tennessee QSO Party		all modes
Sep 13-15	<i>0000 to 2400 Z</i>	80 m to 10 m
WAE(urope) DX `test		SSB
Sep 13-15	<i>1400 to 0200 Z</i>	80 m to 10 m
Arkansas QSO Party		all modes
Sep 20-21	<i>1400 to 0300 Z</i>	80 m to 10 m
South Carolina QSO Party		all modes
Sep 20-21	<i>1600 to 2400 Z</i>	160 m to 10 m
Washington Salmon Run		all modes
Sep 27-30	<i>0000 to 2359 Z</i>	80 m to 10 m
CQ WW RTTY `test		RTTY
Sep 27-28	<i>1200 to 1200 Z</i>	160 m to 10 m
Maine QSO Party		all modes
Sep 27-28	<i>1400 to 0200;1400 to 2000 Z</i>	160 m to 10 m
Texas QSO Party		all modes

Dongle Bits - IV

contributed by Jeff Kopcak, K8JTK

Before we begin talking about the RTL-SDR dongle as promised, some big news broke. The Raspberry Pi Foundation released the Raspberry Pi Model B+.



They point out this is not a "Raspberry Pi 2" but an evolution of the model B board. Price is the same at \$35. Key improvements are:

- More GPIO: 40 pins with the first 26 pins the same as the Model B.
- More USB: 4 USB 2.0 ports with better hot-swap and over-current behavior.
- Micro SD: SD card socket has been replaced with a micro SD version.
- Lower power consumption: Reduced power consumption by 0.5W to 1W.
- Better audio: The audio circuit incorporates a dedicated low-noise power supply.
- Neater form factor: Aligned the USB connectors with the board edge, moved composite video

onto the 3.5mm jack, and added four squarely-placed mounting holes.

For more details, diagrams, and videos, please visit [Introducing Raspberry Pi Model B+](#). Because of the new configuration layout many accessories for the B board will not work with the B+ board.

Now, RTL-SDRs: RTL-SDR is a term used to describe a very cheap software defined radio. Other names for this device are: RTL2832U, DVB-T SDR, or "\$20 Software Defined Radio." RTL refers to Realtek Semiconductor Corp most widely known for their computer IC network controllers, card readers, and very popular High Definition Audio codec used in many laptop and desktop computers.

SDR refers to "software defined radio." Typically radio components like mixers, filters, amplifiers, modulators/demodulators, and detectors are implemented in hardware level components. In SDRs these components are implemented by way of software running on a PC or embedded system. The most widely known SDR in ham radio is [FlexRadio](#).

The RTL-SDR is a DVB-T TV tuner dongle based on the RTL2832U chipset. DVB-T stands for Digital Video Broadcasting – Terrestrial used in the eastern hemisphere (Europe, Asia, Africa, and Australia)

continued---on p.6

WCARC Weekly Net

Tuesdays at

2100 EDST/EST

147.18 MHz 67 Hz PL

Net Control Roster

Aug 26	K80VO
Sep 2	WB8NQW
Sep 9	KD8NJW
Sep 16	N1RB
Sep 23	W8PSK
Sep 30	K80VO
Oct 7	WB8NQW

NEXT MEETING

BREAKFAST MEETING

Saturday, Sept. 6th

TIME: 9:00 am

PLACE:

Frisch's Big Boy North
E. Poe Rd. & N. Main St.
Bowling Green, OH
Foxhunt afterwards

DON'T FORGET!

10 meter informal net meets Sunday
@ 2030 EST/EDST on 28.335 MHz

September Hamfests

Sep 14 Adrian ARC. Annual hamfest. Lenawee County Fairgrounds, Adrian, MI. Contact Mark, NU8Z, (517) 423-5906.

e-mail: cgnu8z@comcast.net

web: <http://www.w8tqe.com>

Sep 28 Hamfest Assn. of Cleveland. Annual hamfest. Cuyahoga County Fairgrounds, Berea, OH. Contact Glenn, AF8C, (440) 835-4897.

e-mail: af8c@arri.net

web: <http://www.hac.org>

Net Check Ins *continued*

Aug 19 Traffic: 0

N1RB (NCS)
W8PSK
K8OVO
N8VNT
WD8LEI/P
KD8RNO
WD8JWJ
WB8NQW
KD8VWU
KC8IGZ (10)

Aug 26 Traffic: 0

K8OVO (NCS)
KD8NJW
W8PSK
KD8RNO
N1RB
WB8NQW
WD8LEI
KD8VWU
KD8WZK
WD8JWJ (10)

dongle---from p. 4

as their over-the-air broadcast standard. In contrast, North America uses ATSC (Advanced Television Systems Committee) standard for digital television transmission over-the-air, cable, and satellite networks (sources: [DVB-T](#) and [ATSC](#)).

Antti Palosaari, Eric Fry, and Osmocom were hackers playing around with these receivers and found the signal data could be accessed directly. This allowed a cheap DVB-T TV tuner to be converted into a wide band software defined radio via a new software driver and used as a computer based radio scanner. Add in software packages to expand the capability and you have a system that would cost hundreds or even thousands of dollars.

The current popular dongle is the [NooElec NESDR Mini SDR & DVB-T USB Stick \(R820T\)](#). It comes with an antenna that only works well for very strong signals. Yes, it does come with a Remote but you don't

need it for SDR. They guarantee the NESDR will have an electrostatic discharge diode (ESD) in their dongles. This is useful when handling the dongle or traveling where the possibility of frying it is greater. However, as I

found out, if you drop one of them upon returning from Dayton you're better off getting another because it just won't work the same!

Let's dive into some specifics:

- **Frequency range:** depends on the device and chipsets used. The NooElec NESDR has a receive range of 24 - 1766 MHz. The previ-



dongle---from p. 6

ous Elonics E4000 hotness covered 52 – 2200 MHz. However, that company went out of business making the dongle rare and more expensive.

- **Sample rate:** maximum theoretical sample rate is 3.2 MS/s (mega samples per second). The optimal sample rate (without any dropped samples) is 2.4 MS/s.
- **Analog-to-digital conversion resolution:** 8 bits.
- **Input impedance:** 75 Ohms. The mismatch loss when using 50 Ohm cabling is minimal.
- **Connector type:** most use an MCX connector. The E4000 uses a PAL connector.

These \$20 dongles only receive. Other dongles offer better performance but come at a higher price. The [FunCube Dongle](#) is an example of this. [HackRF](#) (10 – 6000 MHz) and [BladeRF](#) (300 – 3800 MHz) are SDR radios that will transmit over their given frequency range. That's right, wide band transmit! These are even more expensive at \$300 - \$650 (sources: [About RTL-SDR](#) and



[Buy RTL-SDR Dongles](#)).

What about HF? The dongles themselves don't cover HF.

There are two options for reception: use an up-converter to receive the frequency and convert it up to a

frequency the RTL-SDR dongle can receive. Make a hardware modification to allow "[direct sampling mode](#)." HF up-converters are anywhere from \$50 - \$100 (cheaper if you build your own) and offer better performance over the hardware mod. KF7LZE has a [round-up of HF up-converters](#).

This [quick-start guide](#) shows how easy it is to setup and start receiving signals. Windows users will probably start out with [SDRsharp](#) (also written SDR#) to receive signals. [Linux users](#) have a couple of options; [GNURadio](#) being the best though it is unwieldy because you build out the SDR from scratch.

These make it easy to receive FM broadcast (WFM), NOAA weather radio, amateur radio, or public service frequencies that are still analog. I will show uses and applications of these SDR receivers including a reason you might want to get two (or more) dongles. Hint: it's not to replace one after Dayton! ■

Repeater Down

The K8TIH repeaters are out of commission until further notice. In early July, the Technical Committee responded to reports of erratic behavior and discovered that ventilation at the penthouse site had been severely curtailed. Estimated temperature at the site was over 100°F. Plans are to clean and rehabilitate the controller. An announcement will be e-mailed when complete. ■

minutes---from p. 1

Regarding item #3 above, Jim (JU) remarked that the repeater is operational and "ready to go".

New Business:

Phil (PSK) reported on the K8TIH repeater status. In mid-July, the controller became erratic. Jim (JU) had made some repairs and it was replaced, but began acting erratically again. After a second look at it, it was decided to send it back to the manufacturer. This has been done and return is expected in a week or two. Phil mentioned that this is a good time for the Club to consider replacing the transceivers as well as the controller since we will be relocating the unit within a few years. He quoted some prices on used Kenwood equipment and new ArCom equipment, at around \$400 to \$800. New duplexers would be needed for single site operation, and would cost several thousand dollars.

Bob (NQW) mentioned that Eric (LEI) has both UHF and VHF Motorola transceivers that he is willing to donate to the Club.

Bob (RB) moved that the Technical Committee meet with Eric to consider the specs and accept the donation if agreeable. Motion passed unanimously.

John (MSU) commented that the K8TIH APRS digipeater is not working and requested that the power to the APRS be restored. Phil (PSK) said he would turn the APRS power on the next day.

It was remarked that there is no "audit" function of the Club Treasury. Steps such as double endorsing checks, etc., were discussed. The Treasurer, Jim (NJW), remarked that he averages less than one check per month so double-signing might be overkill.

Bob (RB) moved that the Executive Committee audit the Treasury once per year. Motion was passed unanimously.

Bob (NQW) and Bill (JWJ) will look into selling the remainder of the WA8SCT equipment at the Findlay hamfest in September.

Bob (NQW) announced that there will be a foxhunt after the September breakfast meeting (Sept. 6). Bob (RB) will act as the fox.

Meeting Adjourned at 8:23 pm.

A very interesting program was presented by Jeff-KG8FH, who demonstrated how he constructed his own high speed computer. Jeff detailed many of the pitfalls and considerations that go into "rolling your own". ■

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