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# St. Paul Radio Club Ground Wave

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## KØAGF

www.stpaulradioclub.org  
Club Repeater: 145.310 MHz  
PO Box 9375  
North St. Paul, MN 55109

## NEWS AND NOTES FOR FEBRUARY 2018 — Volume 78, Issue 2

### Monthly Meeting

February 2, 2018  
UST OWS LL54  
7:00 pm Socializing  
Membership Meeting 7:30 pm

### PROGRAM

### The ARISS Program

On February 22, 2017, there was a successful ARISS (Amateur Radio on the International Space Station) contact between the ISS and John H. Glenn Middle School in Maplewood, Minnesota.

John Dean (KØJDD) will give an overview of the ARISS Program and provide a backstage look into what it takes to be selected for—and to make—a successful contact.

John has been a licensed ham since 2007 and is constantly trying (yet seldom succeeding) to resist the lure of the next bright shiny object in Amateur Radio.

### UST is Tobacco-Free

UST's St. Paul and Minneapolis campuses are tobacco free.

In the St. Thomas policy, "tobacco" is defined as any lighted cigarette, cigar, pipe, clove cigarette, hookah smoked products, electronic cigarettes and any other smoking product, as well as smokeless or spit tobacco, also known as kip, chew or snus. Promotion, sale and distribution of tobacco products and merchandise, including any items carrying tobacco logos, also are prohibited on the campuses or at any university-sponsored events.

### SPRC AUCTION 2018



Seventy-some hams and radio aficionados found their way to the new auction venue, Roseville Lutheran Church, for the annual Saint Paul Radio Club auction on January 27th.

Along with the new venue this year was the "in-the-round" seating with tables on either side of the live auc-

tion.

Volunteers are the backbone of SPRC. In the foreground, above, John Faughn (KDØCAC), SPRC President, stands ready to deliver winning bid information to Ed Jacobson (WBØVHF), George Power (KØGCP),

*(Auction, continued on page 2)*



### All photos in this issue courtesy of Dawn Holmberg, WXØZ

The OWS building is located on the University of St. Thomas (UST) South Campus.

From I-94, take Cretin Ave south about a mile to Grand Ave. Turn right, then park in the ramp on your left or the surface lot on the right. In general, on-campus parking restrictions are not enforced after 6:00 p.m. on Fridays, but do not park in spots with parking meters unless paying or displaying a handicapped placard.

Enter the building just north of the parking ramp and take the elevator (in the hallway to the right) or stairs to the lower level. LL54 is not far from the stairs.

For detailed maps, see [www.stthomas.edu/campusmaps](http://www.stthomas.edu/campusmaps).

OWS: Owens Science Hall

Contact Kim Schumann in Disability Services at 651-962-6315 or [kjschumann@stthomas.edu](mailto:kjschumann@stthomas.edu) for any accessibility requests.

(Auction, continued from page 1)

Past President, and Allan Klein (WØNLY), Treasurer—manning the registration and checkout table.



As has been the case for the last several years, items were sold by both live auction and silent auction. This year it appeared that more sellers chose the silent auction than the live auction.



Our veteran auctioneer crew, below, is Tom Sturm (NØBGO), Ralph Bierbaum (NØAWN), and Dale Maroushek (NØPEY).



The auction is an educational experience—auctioneers share the purpose



and history of relatively common items—and speculate on less common items, such as this possible shipboard radar tube. Could I use it to replace my microwave magnetron?



Here’s Deb Maroushek proving that you don’t need to be a member, or even be a ham, to volunteer at SPRC. Someone is always taking care of our tummies at SPRC.



The club retains 10% of the sales of auction items (and 100% of the sales of donated items) and donates net proceeds to the ARRL Spectrum Defense Fund.

Even if we weren’t supporting ARRL with the auction, it gives us an opportunity to shake the dust off of things we aren’t using and pass them along to someone who will.

And it’s an opportunity to get together and chew the rag with fellow hams (just like the SPRC breakfast—see you on February 17th).

## Building Blocks Jay Maher NJØM

Last month I told you I ordered 10 copies of the NorCal 40A printed circuit board (about 4” square) from Allpcb.com in China which with DHL shipping cost a grand total of \$5.49. They arrived in five days and look great. I was amazed at the speed and low cost and yet a little dismayed. As someone who enjoys making my own boards in the basement, their service made me feel like an idiot for doing so. I see now that the price was a temporary special and the same order would now be 29.00 delivered (23.00 if you decreased to their minimum 5 board order). I feel better about my board making efforts though. I’ve slipped back from feeling like an idiot into my comfort zone of just a little crazy.

We’ll come back to PCB making in the future but now I need to put together a Colpitts oscillator to sort some crystals for the NorCal 40A build. The 40A uses six 4.915 MHz crystals. The transmit oscillator and the BFO each have one and there are four in a ladder filter which all should be matched within 20 Hz. Chuck Adams (K7QO) laid out a circuit and etched a pcb but I’m going to be lazy.

Solderless breadboards are one of the quickest ways to lay out a circuit but they can be unpredictable at radio frequencies. Manhattan construction is almost as fast and well suited to rf. It is one of a family of methods where circuits are built over a copper clad board that acts as a ground plane. Another is “ugly” or “dead bug” construction where components are supported by soldering

(Building Blocks, continued on page 3)

**VOLUNTEER WITH SPRC**  
<http://tinyurl.com/SPRCheroes>

**Support the League**  
[www.arrl.org/join](http://www.arrl.org/join)

*(Building Blocks, continued from page 2)*

one to the next and held away from the ground plane of the board by high value (Mohm range) resistors or ICs glued to the board with their “legs” sticking up in the air. Others cut isolated islands in the copper with small hole saws for a round island or hacksaws for grids.

In Manhattan construction, small pads are cut out of copper clad board and then super glued to a larger copper clad board to create spots to solder components. Some of the same tools you might have for working with chassis sheet metal or enclosures will work to make pads. A nibbling tool will yield small square pads and a sheet metal punch like a Roper Whitney (or Chinese equivalent) will give you several sizes of discs. Before I had a sheet metal shear, I used a heavy-duty paper cutter to cut copper clad to size and make pads. It is still faster to use it to slice up a thin strip from the shear into small squares. The paper cutter should be one with a wooden base and heavy metal blade/handle, and they can sometimes be found in thrift stores or second hand for cheap. Before you use your pads, make sure the cutting process hasn't left any “whiskers” of copper on the edges which will short your pad to the ground plane. Pads are most often around 1/8” – 1/4” in diameter but can be any size you need with one caveat. At about 3/16” diameter a normal pad made of copper clad pcb material probably shows up as under 1pF to ground and will not be of any concern. Keep the capacitance to the ground plane in mind with larger pads and more sensitive circuits.

Now that you have your pile of pads and components and schematic – have at it! For simple circuits, not much planning is needed. As they get more complex, drawing it out on paper can help you keep things orderly and not run out of room. If you make a mistake in pad placement, they can

be twisted (not pulled) off the board with pliers. Bend a short 90 degree foot in your component leads and solder them to the pads or ground plane as needed. Desoldering from a pad is much easier than from a perfboard or normal pcb connection too. To incorporate a through hole IC, cut a pad to fit the outline of the IC and legs when flattened and make a grid in the pad with a hacksaw blade to isolate each lead. If you need a surface mount part, you can use a breakout board in a similar fashion. Google or search Amazon for the package type (ex. TSSOP or QFN) and breakout board. Building this way is a lot of fun and can be an outlet for your more artistic side. My Manhattan builds generally have a bit of sprawl to them though they may tighten up on rework or revision. I saw a Manhattan build last summer by Craig Johnson (AAØZZ) with such tiny pads and tight construction that it had a bit of “ship in a bottle” quality to it. Give it a try and see what you can make.



### Your email Bounced

Well, maybe yours didn't—but some of them do. If you haven't been receiving email every month from SPRC, make sure that we have your correct email address. Send it to: **NOPEY at comcast.net**

### Membership Meeting January 5, 2018

7:31 p.m. Tom Sturm (NØBGO) called the UST Radio Club meeting to order. There was a discussion regarding attracting UST students to the Radio Club.

7:45 p.m. The UST Radio Club meeting was adjourned.

7:45 p.m. John Faughn (KDØCAC) called the SPRC membership meeting to order

**Auction:** It was announced that everything is in place for the auction. The church will be open at 8:00 a.m. for SPRC volunteers, 8:30 for bidders and sellers.

**Secretary's Report:** There were no changes to the minutes of the December meeting printed in the January Ground Wave.

**Treasurer's Report:** Treasurer Allan Klein (WØNLY) reported that all is well with the club finances. Education fund \$982, Repeater fund \$602, and general fund \$7,168.

**Introductions:** 37 introduced themselves, including two guests.

**7:53 p.m. John adjourned the Business meeting.**

8:02 p.m. Orcy introduced Chuck Stroud (KA8HDE).

9:17 p.m. The door prize drawing followed the program.

**Find us on Facebook  
“St. Paul Radio Club”**

### Board Meeting January 2018

In an email poll, the board decided it was not necessary to have a January board meeting. It was informally acknowledged that the tradition of sponsoring the Minnesota Multi-Operator Plaque for the Minnesota QSO party should be continued. The treasurer will forward a check for \$75.00.

**Looking for contributions to the Ground Wave.**

**It's nice to have the “regulars,” but it would be even nicer to include tales, advice and whatnot from other St Paul Radio Club members (or non-members!).**

**Send your contributions to  
WA6ZMT@ARRL.net**



St. Paul Radio Club, Inc.  
PO Box 9375  
North St. Paul, MN 55109

## ADDRESS CORRECTION REQUESTED

- Fri Feb 2 7PM Socializing followed by 7:30 PM SPRC Membership meeting. UST classroom OWS LL-54. See Page 1.
- Sat Feb 3 10AM VE testing. Ramsey County Library, 3025 Southlawn Dr., Maplewood. Contact Leon Dill, WØCOE@arrl.net or 651-688-9964
- Sat Feb 3 9AM Circuit Builders. OSS 415 UST Campus\*
- Fri Feb 9 7PM SPRC Board meeting, OSS 121 UST campus (Alternate location is OSS 415) \*\*
- Sat Feb 10 9AM Circuit Builders. OSS 415 UST Campus\*
- Sun Feb 11 Don Kelly's Birthday
- Sat Feb 17 9AM SPRC Breakfast. Denny's, 1664 University Ave, west of Snelling.
- Sat Feb 17 After Breakfast. Circuit Builders. OSS 415 UST Campus\*
- Sat Feb 24 9AM Circuit Builders. OSS 415 UST Campus\*
- Fri Mar 2 7PM Socializing followed by 7:30 PM SPRC Membership meeting. UST classroom OWS LL-54.
- Sat Mar 3 10AM VE testing. Ramsey County Library, 3025 Southlawn Dr., Maplewood. Contact Leon Dill, WØCOE@arrl.net or 651-688-9964
- Sat Mar 3 9AM Circuit Builders. OSS 415 UST Campus\*
- Fri Mar 9 7PM SPRC Board meeting, OSS 121 UST campus (Alternate location is OSS 415) \*\*
- Sat Mar 10 9AM Circuit Builders. OSS 415 UST Campus\*
- Sat Mar 10 8AM – 2PM Eau Claire ARC 31<sup>st</sup> Annual Equipment Auction, Saving Grace Lutheran Church, 2124 East Ridge Center, Eau Claire, WI
- Sat Mar 17 9AM SPRC Breakfast. Denny's, 1664 University Ave, west of Snelling.
- Sat Mar 17 After Breakfast. Circuit Builders. OSS 415 UST Campus\*
- Sat Mar 24 9AM Circuit Builders. OSS 415 UST Campus\*
- Sat Mar 24 8AM – 1PM 37<sup>th</sup> Annual Midwinter Madness Hobby Electronics Show, Buffalo Civic Center, Buffalo, MN
- Sat Mar 31 9AM Circuit Builders. OSS 415 UST Campus\*

\*Circuit Builders is each Saturday morning if someone is available to open the lab and there is no conflicting activity. Check the SPRCCB Google Group to confirm that the lab will be open.

\*\* Depending on business to be considered, Board Meetings are sometimes held electronically. Check with an officer or board member to confirm that the meeting will be at UST.