



Official Publication of the
West Allis Radio Amateur Club

Hamtrix

[click here to go to web site](#)

Volume 66, Issue 8 August, 2019

AUGUST CLUB HAPPENINGS

Club Meeting

. This month's meeting is going to be our "In-the-Park" get together. Just like last year, we will meet at Pro-Healthcare Park, 2950 S Sunny Slope Rd, New Berlin, WI 53151. It is located on Sunnyslope between National and Cleveland. Nice pavilion with all sorts of power outlets. Kind of a quiet park, which is good for us. I'm bringing a portable HF radio and certainly hope others will too. We've invited the Miller Valley folks and of course will publicize through Facebook. Should be a lot of fun. **MORE INFO PG 16**



NUT NET
3.985mhz
Monday-Saturday
8:15am CT
NUT NET
Breakfast
8:30am fourth
Tuesday
of the month

New club address

**West Allis Radio Amateur
Club**
P. O. box 511381
New Berlin, WI 53151-1381

See Page 9 for 2019 award's dinner info

Skylar Dannhoff
KD9JPX 2019
Scholarship winner
thank you on page 5

Milwaukee-Florida Net

Every Day on 14.290 Mhz
7:00AM - 9:15AM ET
6:00AM - 8:00AM CT

Sunshine Committee

If you know of a member who could use a bit of cheer or support, Barb Garnier (KD9HPS) is now the Sunshine Committee Chair. Contact her: 414-529-3536 or barbsewsblue@gmail.com.

WARAC 2-meter net

Every Wednesday at 8pm

SEWFARS W9TJK Repeater 146.820 standard (-)
offset

127.3 Hz CTCSS

if repeater down try 146.55 simplex

Index

President's shack	2	DX/contest update.....	8
Editorial.....	2	Awards Dinner.....	9
Minutes	3-4	MRAC announcement.....	10
Skylar Dannhoff KD9JPX		Overview of WSPR.....	11
thank you letter.....	5	PI in the sky.....	13
		July meeting location.....	16

The President's Shack August 2019

The summer sizzle is in...and it's cooking.

Lot to cover this month. It has been fun and I will not be looking forward to it coming to an end. So...

Let's do the easy part first. This month's meeting is going to be our "In-the-Park" get together. Just like last year, we will meet at Pro-Healthcare Park, 2950 S Sunny Slope Rd, New Berlin, WI 53151. It is located on Sunnyslope between National and Cleveland. Nice pavilion with all sorts of power outlets. Kind of a quiet park, which is good for us. I'm bringing a portable HF radio and certainly hope others will too. We've invited the Miller Valley folks and of course will publicize through Facebook. Should be a lot of fun.

And it starts EARLY. 6:30 PM until they throw us out!!! This meeting negates the gathering at Johnny V's. So NO Johnny V's this month. Got it?

Next up: We had our quarterly Board meeting in July. No big surprises, but a couple of club leadership issues came up. We are looking at some big openings on the board. I'm going to be doing some call arounds prior to the September meeting, but we do need some folks to step up. It isn't hard work, but it is necessary. Think about what you can contribute.

One of the Board Committee's is the Scholarship Chairman. Howard announced the winner at last month's meeting. But now we've heard back from Skyler Dannhoff and she has a great story to tell. She's from LaCrosse and is all in on ham radio via her university's club station. We are thrilled and hope she can make the Award's Dinner so we can meet and congratulate her in person.

Speaking of the Award's Dinner, we had our big

Awards Dinner Coordination Meeting and are full speed ahead with this years Fall Gig. The date is October 20th and we will have a sign up sheet in all Hamtrix editions through October. Jump on in. We need you to sign up early this year as we need both head count and menu preference. This is a very nice evening. Will be a lot of fun.

I think I'm running out of space here, better pick up the pace:

WARAC in the Park: Well the July attempt was a bust due to weather. But fear not, another attempt will be made later in August or early September. Howard, WA9AXQ is the designated host. We'll be leaning on him to pick a time and place.

ISS SSTV Event: Did you catch it last weekend? It was really fun and the good news is it did not require a single sunspot to make it work.

Change of Address: That's right, WARAC has changed it's address. No longer are we calling a Milwaukee PO Box home. We've switched to New Berlin.

WARAC

P.O. Box 511381

New Berlin, WI 53151-1381

Of course there is all the rest of the club stuff carefully laid out in this Hamtrix. Read all about it, there will be a test later..

See you at the meeting....

73's

MJ,W09B

Check out our Facebook page!!! Start Posting!!!!
<https://www.facebook.com/WestAllisRAC/> • —• —••

From the Editor

Another month has gone by so it's August already! Like Mike W09B I captured some SSTV pictures from the International Space Station last weekend. I hooked

Goto page 17

WARAC General Meeting Minutes

July 9, 2019

The meeting was called to order at 6:59 pm by President Mike WO9B.

Total Attendance of 22, Includes the speaker + 1 Visitor (KD9MFS.)

Club Business:

- ARRL scholarship winner is a WI resident and it's a she! Minimal details at this point, more to follow per Howard Smith.
- Swapfest discussion.
- Park activation is a TBD.
- Awards Dinner is set for Oct 20, 2019.
- Field Day discussion results by Chuck Dellis. Phil's offset center dipole could even do 6 meters. Transmit phase noise from FT8 station was an issue.
- Club turnout was low, even lower for Sunday's tear down. We left the site later than usual. Having the club trailer at with the FD site continues to be a huge asset.

Club Program: Satellite Communications by Ted Carlson, N9KQQ.

- 20+ years experience of working the satellites.
- Linear Transponder Satellites (multi-mode) are easier to work more stations than FM sats!
- Discussion of the satellite carrier frequency shifting due to the doppler effect.
- Sideband inversion (say USB to LSB) depends satellite receiver architecture.
- Recommends the Arm-strong method for satellite tracking.
- Notable web-links: www.amsat.org www.heavens-above.com
- Suggested tracking software is SAT32 available from AMSAT.
- Excellent presentation!

Next general club meeting @ ProHealthcare Park, 2950 S Sunny Slope Rd, New Berlin. Meeting Time will be earlier!

Meeting adjourned 8:44 pm, refreshments followed.

Respectfully submitted,
David Garnier, WB9OWN
(Filling in for Barbara Garnier, KD9HPS)
July 21, 2019

• — • —••

WARAC Board Meeting Minutes,

July 23, 2019

Officers

Mike Johnson, WO9B
Steve Dryja, NO9B
Bill Reed, N9KPH
Barb Garnier, KD9HPS
CC:

Board Members

Tom Macon, K9BTQ
Frank Humpal, KA9FZR
Phil Tollefson, WA9AQL

Guests

Erwin, WI9EV-absent
Dave Garnier,
WB9OWN
Chuck Dellis, W9WLX- absent

Dave Garnier, WB9OWN
 Howard Smith, WA9AXQ
 Chuck Dellis, W9WLX

Meeting Agenda:

1. Swapfest Chairman Report: WI9EV absent.
2. Treasurer's report reviewed and approved. CD that matured was rolled over into another CD along with the interest that was earned. All cash from equipment sales moved to Scholarship fund.
3. Fund raising. Discussed future Sendik's date for September. Barb will check into Oscar's and Blaze Pizza for future fundraisers. Equipment that has not moved at swapfests to be put on QRZ for sale. DMR Hot spots not recommended for club project.
4. Membership data base to be updated and Post Office Box change to New Berlin and notifications to appropriate entities made by Barb.
5. Hamtrx Editor Report: Reminder for secretary to get new member names to Frank.
6. WIQP Chairman Report: Tom noted a correction to points accumulated.
7. No FD report. Chuck, W9WLX absent.
8. Awards Dinner set for Oct. 20, 2019 at New Berlin Hills. Menu options discussed and Mike will check with venue about number of plated dinner options allowed. Group decided on \$22.00 cost per person to deal with increased food costs. Committee needs to meet to discuss speaker and awards.
9. Program Committee Recommendations: September, Frank to present on circular cross-polarized antenna and Bill possibly on something else. October, Elections and AR Trivia.
10. Club Activities: August, Ice Cream Social at Park, starting at 6:30pm.
September, Howard will host park activation, location TBD.
11. Three Board Goals for 2019:
 - a. Meeting location: No progress. Locating PO Box in New Berlin is to our advantage. Mike following up.
 - b. Web page update underway. Roger Heindl about 1 month behind schedule. Set up initially is for Swapfest with PayPal capability, Phase 2 for other update for membership database.
 - c. Presentations for 2019: see above.
12. Miscellaneous:
 - a. SEWARC - No activity
 - b. Elections: Three Board members do not plan on running for reelection. Group discussed possible candidates for positions.

Respectfully submitted,
 Barb Garnier, KD9HPS
 Secretary

• —• —••

Skylar Dannhoff KD9JPX 2019 Scholarship winner thank you letter

To the West Allis Radio Amateur Club,

My name is Skylar Dannhoff, KD9JPX, and I'm soon to start my junior year at Case Western Reserve University. I am the youngest of three from La Crosse, Wisconsin, which is luckily just big enough for a pretty alright high school hockey team. After graduating high school, though, I figured it was due time to venture out a bit, which is how I ended up at Case Western Reserve, in Cleveland, Ohio. Still, La Crosse is where I grew up calling drinking fountains bubblers and learned to enjoy fishing without intending to catch anything - not a day goes by that I don't think of home.

It took some trial and error, but I've found a real nice niche studying engineering physics which as the name suggests is a whole lot of physics plus a healthy dose of electrical engineering. This wasn't the natural or obvious path in the beginning, though. I started school mostly content that I'd never get around to knowing how to convert from decimal to binary, let alone solder or program microchips or build AM transceivers. Lucky for freshman me, though, I chanced upon the Case Amateur Radio Club (WB8EDU) at just the right time (Thursday, 8:00pm, mid-October) and just the right place (the roof of the eight-story engineering building). Until then, the club only existed in my peripheral and largely in the same category as decimal-binary conversions, but suddenly I was in a world of antennas and transceivers and wires and trouble-shooting and all the good stuff of practical physics. I went back again later that week, and have been hanging around ever since.

In large part I've been hanging around because of the people - what an amazing, singular group. It's often the case that I run low on confidence or simply don't know what I'm doing, but someone is always willing to re-explain the concept or idea, and as someone starting from square one, the absolute genuine good-naturedness of everyone has made all the difference. That first year I was nudged gently into a contesting-captain role, but this last year I served as treasurer and started getting involved in greater long-term projects. For instance, we've been monitoring station WWV and measuring doppler shifts in the received signal to track traveling ionospheric disturbances. I was even lucky enough to help present some of our measurements at the second annual Ham Radio Science Citizen Investigation (HamSCI) meeting and later travel to California for a CubeSat developer's workshop to investigate the possibility of launching small satellite radio beacons into orbit as a means of measuring ionospheric disturbances. Looking forward, I'll be serving as club secretary this year, continue monitoring (and maybe even visit) WWV, and hopefully upgrade my license to General or even Amateur Extra among other contesting and tinkering activities.

For as amazing of an adventure as this has been so far, however, I certainly appreciate how fragile of a situation it can be in the way of financials. It's a tumultuous time that justifies having 25 contingency plans for every letter of the alphabet after 'a', but luckily, and in large part thanks to your help and support, I haven't even had to yet shift to plan b. It's brought a new level of ease to my experience,

and affirms that for as dedicated as I am to my education and growth, so too are clubs and organizations such as yourselves, which is a level of confidence and reassurance that continually inspires and motivates me. From what I have read, David Knaus was a remarkable Ham, generous in both his time for the amateur radio community and his dedication to this scholarship fund. I don't take that lightly, and I hope to lead my life and pursue my education in a way that honors Mr. Knaus' memory and the West Allis Radio Amateur Club's cause. Thank you truly once more for extending this generosity to me.

73,

KD9JPX, Skylar Dammft

See Dave Garnier WB9OWN to pick up your badge he has the following Badges for Pick Up

KD9LCT Ken Kegley
KC9PQD Ron Clayton
KC9JET Paul Hass
KF9K Jim Nickel
W9DC Conrad Harold
AA9SY Bob Schwigel
KC9REN Dean Berglund
KC9SBN Darlene Berlund
KD9IGO Fred LeMere

DX / CONTEST UPDATE

<http://www.iz5cml.it/dxschedule>

DX: Solar minimums are having their effect. This month's calendar is not the roadmap to exotic locals one hopes for. But, still there are some really fun places. The CY9C and VY0ERC operations are easy to work from the states. The TO5M and KL7RCC ops look like fun to. After all, it's what you make it.

Check out the calendar below for new ones, but they all seem pretty laid back operations:

DXPEDITIONS & CONTEST SCHEDULE FOR AUGUST 2019 www.hamradioweb.org																																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
CY9C																																
										TO5M (FP)																						
VY0ERC																					OJ00											
VK9APX (LH)																				ZS9V AF-064						KL7RRC/p NA-210						
8Q7SU								WAEDC TEST CW														X N		SCC RTTY TEST								
										CR3EE (CT3)																				F A		
HC2/IZ1HGP UNTIL 1/9_																													3 0			
										5R8PX AF-057																				L 9		
										8Q7GB																				L 0		
										OH0UDG																						

Contests: If you missed the NA QSO Party CW contest at the beginning of the month, fear not, redemption is at hand. The NA QSO Party SSB is scheduled for Aug 17th. These are fast, easy exchange contests limiting power to 100 W's. My kind of contest. The big news is the WW Digi DX Contest on August 31st. This is a FT4/8 contest on its maiden voyage. Might be worth a shot.

August is filled with small State QSO Parties and QRP contests. Give 'em a shot. You'll make a few Q's and meet some nice hams.

NA QSO Party SSB: <http://www.ncjweb.com/NAQP-Rules.pdf>

WW Digi Dx Contest: <https://ww-digi.com/>

And to check on all the contests: <http://www.contes>



WARAC ANNUAL AWARDS DINNER

Sunday, October 20th, 2019
5:00 PM QSO Time – 6:00 PM Dinner



New Berlin Hills Golf Club
13175 W Graham St
New Berlin, WI 53151
(262) 780-5200

WARAC Activities

The year in review

- WIQP
- Swapfest
- Field Day
- Club Contest

Presentation of:

- 2019 Scholarship Award Winner
- Years of Membership Awards
- Contest Awards
- 2019 Member of the Year

Program Speaker TBD

Dinner Menu

Your choice of

Parmesan Crusted Chicken with choice of Bruschetta or Toasted Red Pepper bread served with Wild Rice and Steamed Broccoli and Spring Green Salad

or

Pork Tenderloin Medallions with Cherry Glaze served with Roasted Red Potatoes and Steamed Broccoli and Spring Green Salad

Ticket Price: \$22.00 per person, tax and gratuity included

Sign Up Deadline: October 13th

Sign Up and Payment Options:

Sign Up at any Club Meeting, See Bill, N9KPH

Mail Check Payable to WARAC (address below)

 **PayPal** to warcpp@warac.org (Use Friends and Family Option)

Special Announcement from our Friends at the Milwaukee Radio Amateurs Club (MRAC)

This year, the Milwaukee Radio Amateurs Club (MRAC) is celebrating it's 100th Anniversary of ARRL affiliation. The MRAC will sponsor the ARRL Central Division Convention this year, being held at Ham Radio Outlet's Superfest in Milwaukee on September 27-28. Attending will be Dr. Howard Michel, WB2ITX, ARRL CEO along with other ARRL leadership.

Friday evening September 27, there will be a banquet, held at the Hilton Garden Inn Milwaukee Northwest Conference Center Hotel, 11600 W Park Place, Milwaukee, WI 53224. Tickets are \$25 each, all are welcome to attend. Business casual attire is recommended. Register online at the club website <http://www.w9rh.org/> or download the PDF form and mail to the club PO Box.

Thanks to Icom America, we are sponsoring a raffle of an IC-7300 HF radio. Tickets are \$10 each or 3 for \$25. Only 250 tickets will be sold. The raffle drawing will be held at the banquet, you do not need to attend to win the prize. Contact the club at w9rhmrac@gmail.com if you are interested in tickets.

More information on all of these items can be found at the club website <http://www.w9rh.org/> or email the club at w9rhmrac@gmail.com

• — • — •



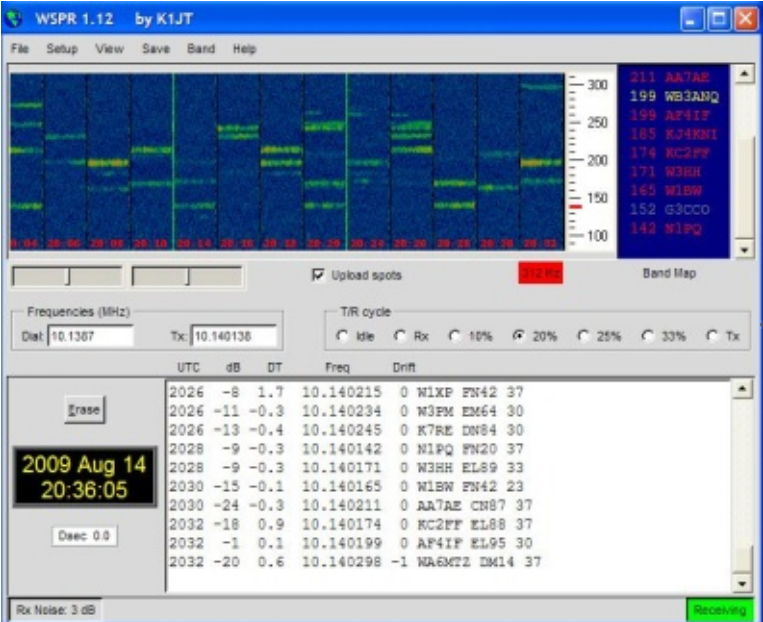
An Overview of WSPR Reprint from Dec 2009 Hamtrix by Chuck Dellis, W9WLX

WSPR (pronounced whisper) is Weak Signal Propagation Reporter. It is a unique digital sound card mode because it does not support QSOs. WSPR was developed by Joe Taylor, K1JT and is part of a suite of weak signal communication software, a cousin to WSJT used in EME and meteor scatter modes. WSPR is designed for sending and receiving low-power (QRP/QRPP) signals to test propagation.

WSPR modulation is continuous phase 4-FSK with a 1.46 Hz tone separation occupying about a 6 Hz bandwidth. The data transmitted is highly structured, consisting of call sign, 4 character locator, and power level in dBm. For example, W9WLX EN52 37. Forward error correction is employed and minimum S/N for successful decoding is around -28 dB on a 2500 Hz reference bandwidth. The protocol is very robust, regularly decoding barely distinguishable signals from noise.

Most amateur stations that are set up for digital sound card modes will accommodate the WSPR program with little or no hardware modifications. The only additional requirement is an internet connection for the PC interfaced to the transceiver. WSPR software is downloaded from K1JT's website at <http://www.physics.princeton.edu/pulsar/K1JT/wspr.html> and easily installed. The convention is to set your transceiver to USB and use the standard VFO dial frequencies selected from the user interface on the Band pull-down menu. Don't forget to configure the software for your station! 2019 update—In addition to the WSPR program, the WSPR mode has been incorporated in the WSJT-X program as well. If you're an FT8/FT4 user, the mode is available through the WSJT-X software too.

WSPR will begin a transmit or receive sequence at the beginning of each UTC even minute. The operator selects an average percent of cycles (two minute intervals) to transmit and the program decides whether to transmit or receive during any given two-minute interval. The transmit/receive pattern is randomized in order to prevent multiple WSPR stations being in a synchronous transmit cycle. At the end of each receive sequence, the waterfall is updated, the signals are decoded, and the spots are uploaded to the database.



Received spot waterfall
 2 min receive sequences
 Vertical line – 2 min TX sequence
 % cycle TX selection

The upload database is the central repository of station reports. It is readily accessible on the public internet at <http://wsprnet.org/>. The WSPR Net website has 6 main areas:

Activity: A list of stations being heard and/or reporting by band. Typically most activity is on 30 meters; however special activities are run each Wednesday from 0000-2359 UTC. Daytime and nighttime bands are paired to maximize opportunities. 2019 update--WSPR has migrated well beyond 30m over the last 10 years. Activity is found on all bands.

Map: A map demonstrating WSPR propagation. A zoom option is available to better see specific areas of interest and parameters may be set to limit results to a specific band, call sign, and time period.



Database: A list of WSPR activity being reported. Database query parameters may be set to limit results to a specific band, transmitting station, reporting station, etc.

Timestamp	Call	MHz	SNR	Drift	Grid	Pwr	Reporter	RGrid	km	az
2009-08-16 01:44	DL0TFK	10.140210	+3	0	JN48xj	5	EI7GL	IO51tu	1358	293
2009-08-16 01:44	DH8SA	10.140169	-25	-1	JO63bt	1	EI7GL	IO51tu	1389	269
2009-08-16 01:44	K1JT	10.140249	-20	0	FN20qi	5	NN6RF	CM87uw	4069	282
2009-08-16 01:44	N1MMY	10.140159	0	0	CM87uv	5	NN6RF	CM87uw	5	0
2009-08-16 01:44	DL6NL	7.040075	-10	0	JO50cb	0.05	G3JKV	IO91uf	751	284
2009-08-16 01:44	K1JT	10.140243	-18	0	FN20qi	5	K7LG	DM04se	3898	274
2009-08-16 01:44	W1BW	10.140162	-23	0	FN42hl	0.2	K7LG	DM04se	4154	273
2009-08-16 01:44	N1MMY	10.140154	-17	0	CM87uv	5	K7LG	DM04se	537	139
2009-08-16 01:44	K1JT	10.140227	-18	0	FN20qi	5	IQ5AE	JN54kb	6721	55
2009-08-16 01:44	DL0TFK	10.140185	-19	0	JN48xj	5	IQ5AE	JN54kb	487	171
2009-08-16 01:44	DH8SA	10.140144	-22	0	JO63bt	1	IQ5AE	JN54kb	1088	185

Stats: Graphical and tabular display of WSPR spot activity is available under this option.

Forum: An internet forum for registered WSPR users to exchange WSPR related experiences and information.

Downloads: Monthly .csv files of the WSPR database are available for download.

Timing is of the utmost importance. The computer clock needs to be accurate to within ± 1 second. If the PC clock slips, a 3rd party program may be needed or perhaps a registry tweak to initiate clock synchronization

more often. WSPR signals in the waterfall that fail to decode may likely be a timing problem.

WSPR can be fascinating, demonstrating just how well weak signals propagate. On March 23, 2009, from 0052 to 0446 UTC, DP1POL and I were reporting each other's WSPR spots on 40 meters. DP1POL was not located in Europe, but a German research station in Antarctica. My 5 watt signal was being spotted in Antarctica and DP1POL's 50 watt signal was being spotted in Milwaukee, WI. All this was possible with weak signals originating 14,110 km apart, being copied and decoded at the bottom of a solar cycle, and with CW and RTTY QRM in the passband.

So if you want to put your station to the test, give WSPR a try and evaluate its weak signal propagation.



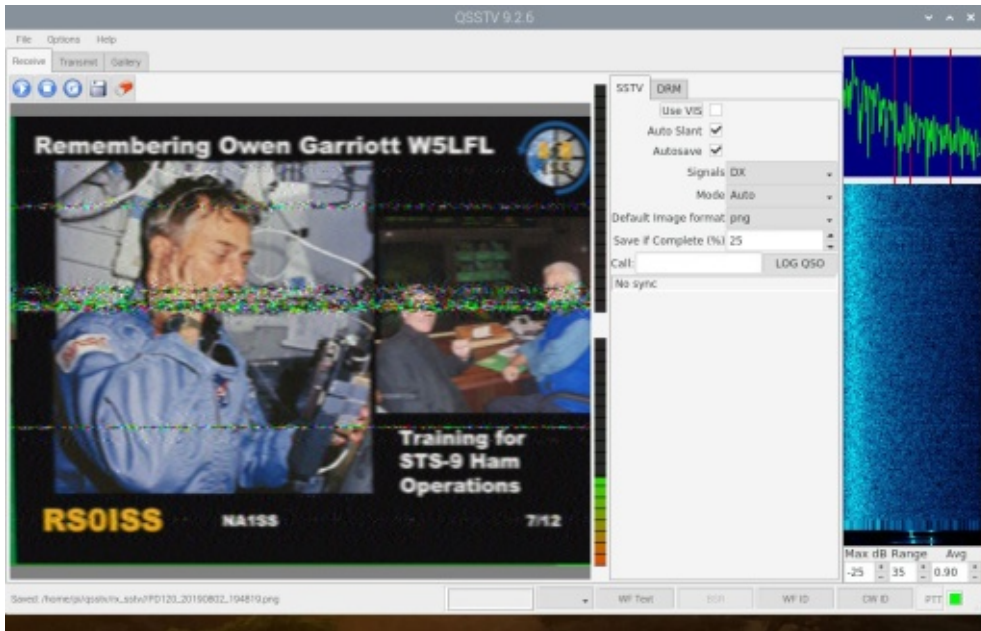
• - - • - - •

PI IN THE SKY

By Mike Johnson, WO9B

The ARISS folks gave us a real treat over the weekend of Aug 1st thru Aug 4th. They declared this 4-day event to be the Owen Gariott W5LFL weekend and began continuously sending SSTV images for all to copy. These are fun listening events that don't require a whole lot of equipment or talent.

The ISS transmits SSTV images on 145.800 receivable by virtually any HT or base station 2-Mtr gear. Literally, hold your HT speaker into your cell phone mic and you can download ISS SSTV. That assumes you've got your orbital passes all worked out and are ready to go. That, however, would not be playing to my strong suit. I needed to set up a more automatic approach. Enter the Raspberry Pi.



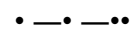
Turns out the RPi does a great job of encoding and decoding SSTV. I used my Pi at Field Day for the FT8 digital station and SSTV is just another digital mode to the Pi. Keep in mind, my Pi is a RPi-2, so it is ancient tech in the RPi world. I downloaded the QSSTV package and was literally up and running in 15 minutes. Once setup, it runs and catalogs the pictures automatically. It ran all weekend without a hiccup. That's pretty cool.



For those wondering just how well downloading works, below is the whole collection, warts and all. As the old saying goes, it takes a lot to get a few good ones. By the way, I was using my Yaesu 7900 piped through a Signalink USB to the RPi. With the squelch turned way down and the volume off, all I needed to do was check the operation from time to time to see what goodies showed up. 37 images were captured (and may have deleted a few false starts).



Given the popularity of this type of event, I'm sure another will be held in the future. So if you've got digital capabilities, it really doesn't take much to make this work. The first time I tried it several months back, I setup my laptop in front of my 2-Mtr radio speaker and was successful. Here was my best copy with that method:



WARAC AUGUST MEETING CHANGE

WHERE: ProHealth Care Park, 2950 S Sunnyslope Road, New Berlin



Very easy to get to. It is located on Sunnyslope Road between National Ave and Cleveland Ave.



WHEN: Tuesday, August 13th from 6:30 PM to Sunset

NOTE: Due to this being an outdoor event we are starting a little earlier than normal.

The What of the Event:

- This is the same park we met in last year!! Worked out wonderfully.
- If you can set up a radio, please do. I'm going to go for a HF digital setup. There are power outlets located throughout the pavilion. Word of warning, the adjoining trees are pretty small. We are planning on using Buddi-poles and vertical antenna's. The more RF...the Better!!
- The park has a large covered pavilion with plenty of picnic tables. You can bring a chair if you wish, but for the most part we should be just fine.
- Refreshments: A cooler with water and soda will be provided. As usual, a summertime outdoor treat will also be on hand. No need to bring anything else. Just yourselves.

What about the Weather????

In the event of a weather cancellation, the alternate plan for the night is to meet at the New Berlin Ale House, 16000 W Cleveland Ave, New Berlin, WI 53151. Plenty of room, good burgers and brews. An email notice will be sent out by 3:00 PM if we are canceling the event.

Hope to CU at the Park.

Editor from page 2

my Yaesu FT-817 to my computer though a Signalink I picked up at a hamfest and loaded MMSSTV onto the computer and was good to go.

When you think how far we have come I find it amazing. For it to be that simple to receive a signal from space just seems like magic. It would be magic to people not that many years ago.

Lots going on for Hamtrix to report. New PO box address. Last year was our first park meeting we are going to try it again this year. If the weather cooperates it will be a good get together.

Sign up for the awards dinner.
Frank

• —• —••

Officers and Board

President

Mike Johnson WO9B

Vice President

Steve Dryja, NO9B

Secretary

Barb Garnier KD9HPS

Treasurer

Bill Reed N9KPH

Directors

Frank Humpal, KA9FZR

Phil Tollefson, WA9AQL

Newsletter Editor

Frank Humpal, KA9FZR
fhump@milwpc.com

Webmaster past president

Tom Macon, K9BTQ

West Allis Radio Amateur Club
P. O. box 511381
New Berlin, WI 53151-1381

**West Allis Radio Club
PO Box 511381
New Berlin, WI 53151-1381**