



# WASHRAG<sup>TM</sup>

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VOLUME 17 ISSUE 11  
NOVEMBER 2015

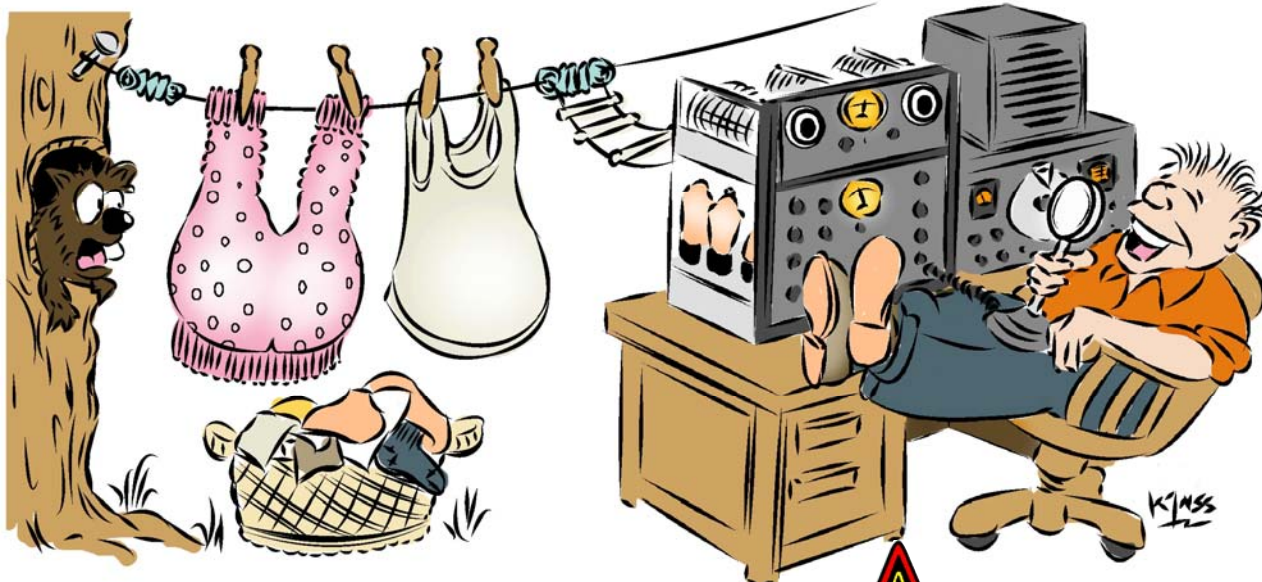
Wireless Association of South Hills



N3SH WA3SH NP2SH/B

[www.n3sh.org](http://www.n3sh.org) [www.washarc.org](http://www.washarc.org)





# WASHRAG™



VOLUME 17 ISSUE 11

NOVEMBER 2015

## Next Monthly Meeting: Thursday, November 5<sup>th</sup>, 2015

The next meeting of the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.** will be on **Thursday, November 5<sup>th</sup> 2015**, in the Conference Room at the **St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park, by South Hills Village & Village Square** (map on the back page). The room is available at 6:30 PM. The meeting will be starting at 7:00 PM.

**Elections for 2016 Club Officers will take place this month!** See you there!

Cover Photo: The new N3FB/R Repeater Building (it is literally no longer a shack, even if it is still a Shack!) under construction as of October 17th. More "in progress" construction photos inside!

*Photo courtesy of & © Copyright 2015 Frank Bobro N3FB & Lori Bobro KB3GMU*

## WASH 2015 OFFICERS

### EXECUTIVE COMMITTEE:

President	Carol Danko KB3GMN
VP / Secretary	Ben Williams KB3ERQ
VP / Treasurer	Mark Stabryla N3RDV

### AND WE COULDN'T DO IT WITHOUT:

N3SH Trustee	Larry Comden K3VX
WA3SH Trustee	Rich Danko N3SBF
NP2SH Trustee	Paul Jordan NP2JF
N3SH WA3SH NP2SH/B QSL Manager	Ron Notarius W3WN
NP2SH 2009 QSL Manager	Carl Schroeder K9CS
VE Team Liaison	Ron Notarius W3WN
Webmaster	Sean Sleeman N3NWR
Asst. Webmaster	Ben Williams KB3ERQ
Quartermaster	Harold Rosenberger K3HCR
WASH FM Net Manager	Glen Roberts KE7FD
WASHFest 2016 Committee	Carol Danko KB3GMN, Chairman
	Bill Hill W3WH, Co-Chair
Activities & Operating Events	Rick Bell KB3IAC
Ways & Means	Carol Danko KB3GMN
WASH 2M Contest Chair	Jim Sanford WB4GCS
Field Day 2016 Coordinators	Larry Comden K3VX
	Rick Bell KB3IAC

### CLUB-AFFILIATED REPEATERS, BEACONS, & DIGIPEATERS:

Mt. Lebanon	N3SH / R	146.955 MHz (-)	PL 131.8
North Side	N3SH / R	442.550 MHz (+)	PL 131.8
Canonsburg	N3FB / R	443.650 MHz (+)	PL 131.8
St. Johns, VI	NP2SH / B	28.276 MHz	Propagation Beacon
Canonsburg	N3SH	144.390 MHz	APRS Digipeater

**N3SH / WA3SH WASHNet, the weekly on-air net of WASH**, meets every **Monday** Night, 8:00 PM ET, on the 146.955 & 443.650 repeaters. All radio amateurs, WASH members or not, are welcome to join in!

## THE LEGAL STUFF

**"The WASHRag™"** (formerly **"The Mariner™"**) is the Official Newsletter of the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC. (WASH)**

Published Monthly with occasional Special Editions as warranted.

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Editor & Publisher: Ron Notarius W3WN

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**"The WASHRag"**, **"The Mariner"**, **SHARCfest**, **South Hills Hamfest**, **WASHfest**, **WASHfest 2015**, **N3SH Net**, **WA3SH Net** and **WASHNet** are <sup>TM</sup> trademarks of the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.**

The **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.** was founded on August 23<sup>rd</sup>, 1993, as the original **SOUTH HILLS AMATEUR RADIO CLUB**, and operated under that name through 1998. WASH was also known briefly in late 1998 as the **N3SH AMATEUR RADIO CLUB**. It is not in any way affiliated with the "South Hills Amateur Radio Club, Inc." and is not responsible for that group, it's members, or it's actions in any way, shape, or form.

As always, special thanks to the owners & operators of both the N3SH/R Repeaters and the N3FB/R Repeater System for permitting the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.** and it's members to use their repeaters for club purposes.

## WASH Amateur Radio Club News Briefs

### Next WASH VE Test February 28<sup>th</sup>

The Next WASH VE exam sessions will be **Sunday, February 28<sup>th</sup>, 2016, 10:00 AM**, at **WASHFest 2016**, 3600 Library Road, Castle Shannon, PA. Talk-in on the 146.955 MHz and 443.650 MHz repeaters. All examiners are ARRL VEC affiliated.

**Pre-registration is required. Walk-ins will NOT be accepted** due to limited available space. If you plan on attending the test session, please contact VE Team Liaison Ron Notarius W3WN:

Telephone (412) 572-6723 or E-Mail: [w3wn@n3sh.net](mailto:w3wn@n3sh.net)

Please bring the following to your test session:

Picture ID or other suitable identification (2 forms of ID required)  
Pen / Pencil / Calculator

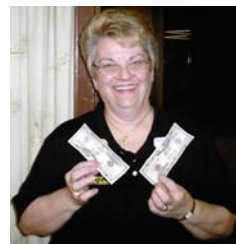
Original FCC license plus a copy of license (if upgrading)

Original CSCE plus a copy of CSCE (if upgrading)

Check or Cash in the amount of **\$15.00** (payable to: ARRL VEC)

Future test dates: 2016 Schedule To Be Announced

### Carol's Comments



I attended the WACOM Hamfest, and although I did not come home with anything, I had a very nice time. I was nice to see a lot of people that I don't normally see. All & all it was a good time.

I hope to see all those friendly faces at **WASHFest**, February 28<sup>th</sup>, 2016. As per last meeting a post office box was discussed which I obtained. We now have an address: **WIRELESS ASSOCIATION OF SOUTH HILLS, PO Box 97884, Pittsburgh Pa 15227-7884**. It will be checked once a week by myself.

Don't forget we will have annual elections at this month's meeting.. Also, Rick KB3IAC will be discussing a kit that he would like us to build at the December meeting.

I can't believe Thanksgiving is knocking at the door! At least the weather is holding up for now. Hope to see all at the meeting.

— 73, Carol Danko KB3GMN

President, Wireless Association of South Hills, Inc.  
N3SH / WA3SH / NP2SH/b

The Breezeshooters have announced that the 2016 Breezeshooters Hamfest will be moving to the Big Butler Fair grounds, 1127 New Castle Road (US 422), Prospect PA.

The 62<sup>nd</sup> Annual Breezeshooters Hamfest will take place on Sunday, June 5<sup>th</sup>, 2016

And... the annual WASH Picnic is scheduled to take place... somewhere to be determined in the flea market!

It was the morning of Halloween, and the ghost, goblins, and assorted creatures... were for the most part still asleep, preparing for the night's usual activities. And speaking of the usual activities, **the WASH Breakfast Gang** gathered as usual at **Suzie B's**, Route 910 at the intersection of Route 519 at US 19 in Canonsburg. Joining the flock... along with quite a few Pa State Troopers, for some strange reason... were WB4GCS, KC4WTT, K3HCR, KB3DCO, N3BPP, N3IDH, N3DFK, N3FB, KB3GMU, KB3YCX and W3WN. Morning conversations covered the new N3FB/R Repeater Building (it's not a shack anymore, though it will always be a Shack), the duplexers for 955 to be pulled and tested to see why the repeater's deaf, using a Raspberry Pi for remote monitoring, home remodeling, antenna modeling, preparing a house for sale, woodshop equipment, moving sales, "Trick or Treat"ing, "It Takes A Village" but "Kids are Kids," the Republican debates, the politics of the Washington County DA's office, how is LMFD doing in school... and much, much more.

Our next gathering will be on Saturday, November 28<sup>th</sup>, as usual at **Suzie B's**, Route 910 at the intersection of Route 519 at 19, Canonsburg. (Since this is also Field Day weekend, there may be a "satellite" meeting at the South Park Eat 'n' Park as well.) Our "usual" tables will be reserved, but **please** let Jim WB4GCS know ahead of time, so that Suzie & her crew will have enough space available for us. (We really don't want to fight the State Police for seats... we'd lose!) See you there?

For the first time in quite a few years, we actually **have a race for club officers!** So we are reminding all club members that if there is one meeting you need to be at, the November election meeting is it. (If your dues aren't, ah, up to date, make sure you see Mark N3RDV before the meeting starts!)

You'll notice that the rules for the **2016 WASH 2 Meter Simplex Contest** are in this issue. No significant changes from last year, but please note that Jim WB4GCS has agreed to take over as the contest chair for 2016. Jim is planning some changes to the documents (such as setting up electronic submission forms), which will be posted on the **N3SH web site** shortly. Jim's going to need some help with promoting the contest on other clubs nets and other places, so if you can help, please contact him!

Speaking of which... **WASHFest 2016** will be here before you know it. Can you believe #21 is coming up? There will be more information upcoming in the next few weeks as well. In the meantime, late news just before deadline... Alan Carpenter W8OP has agreed to come up from WV for DXCC card checking duties, again for 2016. More information on the hamfest will be coming up in the next few months as well. Stay tuned!

Rick KB3IAC is putting together a **WASH Club Logo shirt order**. He will have samples at the November meeting. Cost will be \$28 for sizes through XL, 2X and large a little more. Minimum order is 12 shirts. See Rick for more details.

As you can see from the pictures scattered throughout the issue, the **N3FB/R Repeater Building Rebuild** is coming along very well. There's still work to be done, but (especially for inside work) there's only so much room available. So if you can lend a hand, let Frank N3FB know... all assistance is appreciated, as long as there's enough elbow room for all!

In case you didn't catch this on the reflector... **Mike N3BSQ** did not pass his upgrade to Amateur Extra class at the October VE session. That's because... he passed it 10 days earlier at the Steel City VE session! Congratulations Mike!

Speaking of which... if you're a club member and you're not getting emails from the 'new' **N3SH reflector on Google Groups**, please let our webmaster Sean N3NWR know. The 'old' Yahoo Groups reflector has been inactive for close to a year, and is only maintained for archival purposes. (If you send an email to the old one, it WILL bounce). We don't want anyone to miss out on anything important because they're on the old reflector... or none at all.

### WASHNet 2015 NCS Schedule

11/02/2015	Larry K3VX	12/28/2014	Dave N3DFK
11/09/2015	Harold K3HCR	01/04/2016	TBA
11/16/2015	Digital Night	01/11/2016	TBA
11/23/2015	Bill W3WH	01/18/2016	TBA
11/30/2015	Rick KB3IAC	01/25/2015	TBA
12/07/2015	Bob AB3ED	02/01/2015	TBA
12/14/2015	Carol KB3GMN	02/08/2015	TBA
12/21/2015	Digital Night	02/15/2015	TBA

**Join WASH or Renew your Membership Today! Membership Application on Page 19**



## Minutes, October 1<sup>st</sup> Meeting

Ben Williams KB3ERQ, Vice President / Secretary, **WASH**

Bill W3WH called the meeting to order at 19:00 hours. 18 members and guests were in attendance.

A moment of silence was observed for recent silent keys & others deserving.

Motion to waive reading of the minutes based on the minutes printed in the newsletter by Larry K3VX, second by Rick KB3IAC, passed unanimously.

### Committee reports:

Treasurer (N3RDV): A balance on the bank account was read & accepted.

Secretary (KB3ERQ): No Report

VE (W3WN): Next VE Session at WPXI on October 13<sup>th</sup>. Thanks to N3FB for making the arrangements. 2 individuals pre-registered. One or two more VE's needed for the next session.

Repeaters (N3FB): Frame of new building is up, under roof, and currently water tight. Repeater has been down for 3 weeks now. More work will take place on Sunday.

**WASHNet** (KE7FD): Net is now on Monday evenings at 8 PM. Plans are to try some new things.

Contests (K3VX): Pa QSO plans:

- + Club's N3S Pa QSO team will be operating from the BSA Heritage Reservation in Fayette. K3VX is planning some mobile trips. Carol KB3GMU & Rich N3SBF will be returning to Clarion, due to many requests. Randy N3ZK & Frank N3FB will be going to Indiana County.

Public Service (N3RDV): Harry W3YJ is now Allegheny County EC. There is a new format to the Allegheny County ARES Net; there is no longer a roster of calls.

**WASHFest 2016** (KB3GMN): Remains a work in progress.

Ways & Means (KB3GMN): 50/50 tonight, even in Carol's absence.

Newsletter (W3WN): It's out. Several hard copies distributed. Request for pictures from the upcoming Pa QSO Party operations.

President (KB3GMN): Carol sends word for all to have fun in Pa QSO, and Good Luck on the SET drill.

Old Business: Further discussion on the PO Box situation, some confusion as to who was to take care of it. Rick KB3IAC will start on the 501(c)(3) paperwork as soon as the SET and repeater work are concluded.

New Business: None

Nominations for 2016 Officers:

- President: Rick KB3IAC nominated by KB3ERQ, second by KE7FD.  
Carol KB3GMN nominated by K3HCR, second by W3WH
- VP/Treasurer: Mark N3RDV nominated by KB3DCO, second by KB3IAC
- Motion to close nominations by KB3DCO, second by W3WH, passed unanimously.

Good of the Order: Glen KE7FD announced that he and Bob KC3DOF will be operating QRP during a "POTA" event on the 24<sup>th</sup> from South Park.

Motion to Adjourn by Harold K3HCR, second by Larry K3VX and carried.

Meeting adjourned 19:25

Following the meeting, Rick KB3IAC discussed the upcoming SET operation with the volunteer operators, basically a review of procedures and what we believed would be expected of us.



## WASH Spotlight: Sweep!



Randy N3ZK and Frank N3FB celebrating after completing another Clean Sweep in the 2015 PA QSO Party!

Photo courtesy of and © Copyright 2015 Frank Bobro N3FB

Every month we're going to feature a **WASH** club member, something about them, something they're involved in or a club-related activity that we're involved in, in the **WASH Spotlight**. Submissions for the Spotlight should be sent to Ron W3WN at [newsletter@n3sh.org](mailto:newsletter@n3sh.org)

## Monthly WASH Breakfast

Please join us for the next **WASH** Breakfast! We usually get together on the LAST Saturday of every month for a chance to informally sit down, shoot the breeze, compare notes, drink lots of coffee, and just have a good time!



Join us this month at **Suzy B's**, Route 910 at the intersection of Route 519 at US 19, 1 mile North of Downtown Canonsburg. .Start time is about 8 AM until ????. Monitor 146.955 & 443.650 for talk-in or any last minute changes. All are welcome, **WASH** members or not, amateurs or not!

## Wireless Association of South Hills Membership

AA3GM	KB3JHR	N3KFD	WASH FL	WASH SC	<b>Silent Keys</b>
AB3NM	KB3ORO	N3RDV	KA3UPY/M	N3RNX	
AE3DL	KB3PSB	N3RHT	W4ZE	WASH TN	AB3KA
K3HCR	KB3YCX	N3SBF	WASH NE	K3OL	K3EED
K3LGM	KC3DOF	NU3Q	NØPEU	KE3XB	K3LIE
K3SGT	KC3ELA	W3LE	WASH OR	N3YPB	KA3NMG
K3VX	KC4WTT	W3RWS	NØVLR	WASH TX	KB3ENX
KB3DCO	KE7FD	W3VFA	NØWPV	NB3C	KB3FNM
KB3GMN	KI5ZT	W3WH	KB3NVL	K3LGM	KB3FQT
KB3GMP	N1NCZ	W3WN	KB3NVM	KB3IJX	N3CZZ
KB3GMU	N2QIV	WA3PYU	WASH OH	Jane Wagner	N3FZ
KB3GUZ	N3DFK	WA3VSS	N8DPW	WASH VI	N3HKQ
KB3IAC	N3FB	WB4GCS		NP2JF	N3KEH
KB3IVX	N3IDH				N3OBD

*If your call should be listed here & isn't, please contact Mark N3RDV*

Through October 2<sup>nd</sup>, 2015  
List compiled by  
Mark Stabryla N3RDV, Vice President/Treasurer

WA3JPP

# 2015/16 WASH Upcoming Events Calendar

*Club Meetings & Other Significant Events — Subject to Change*

November 1 <sup>st</sup>	WACOM Hamfest	<a href="http://www.wacomarc.org">http://www.wacomarc.org</a>
November 5 <sup>th</sup>	WASH Meeting	St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park
November 7 <sup>th</sup> — 9 <sup>th</sup>	ARRL Sweepstakes CW	<a href="http://www.arrl.org">http://www.arrl.org</a>
November 21 <sup>st</sup> — 23 <sup>rd</sup>	ARRL Sweepstakes SSB	<a href="http://www.arrl.org">http://www.arrl.org</a>
November 28 <sup>th</sup> — 29 <sup>th</sup>	CQ WW DX Contest CW	<a href="http://www.cqww.com/">http://www.cqww.com/</a>
December 3 <sup>rd</sup>	WASH Meeting	St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park
December 4 <sup>th</sup> — 6 <sup>th</sup>	ARRL 160 Meter Contest	<a href="http://www.arrl.org">http://www.arrl.org</a>
December 12 <sup>th</sup> — 13 <sup>th</sup>	ARRL 10 Meter Contest	<a href="http://www.arrl.org">http://www.arrl.org</a>
December 26 <sup>th</sup> — 27 <sup>th</sup>	Stu Perry Topband Challenge	<a href="http://www.kkn.net/stew/">http://www.kkn.net/stew/</a>
December 31 <sup>st</sup>	ARRL Straight Key Night	<a href="http://www.arrl.org">http://www.arrl.org</a>
January 7 <sup>th</sup>	WASH Meeting	St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park
January 16 <sup>th</sup>	WASH 2 Meter Simplex Contest	<a href="http://www.n3sh.org">http://www.n3sh.org</a>
January 30 <sup>th</sup> — February 1 <sup>st</sup>	ARRL VHF Contest	<a href="http://www.arrl.org">http://www.arrl.org</a>
February 4 <sup>th</sup>	WASH Meeting	St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park
February 28 <sup>th</sup>	WASHFest 2016	CSVFD Memorial Hall, 3600 Library Rd, Castle Shannon
March 3 <sup>rd</sup>	WASH Meeting	St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park
April 7 <sup>th</sup>		
May 5 <sup>th</sup>		



The American Radio Relay League is accepting applications for the position of ARRL Chief Executive Officer. The deadline to submit an application is November 15. The complete [position description](#) is available on the ARRL website. The position is at ARRL Headquarters in Newington, Connecticut.

The CEO ensures the day-to-day management of the League and its fiscal operation. An undergraduate degree and 10 years of management and supervisory experience are required. A candidate who is an active radio amateur is preferred.

To apply submit an [application](#), cover letter, and resume via e-mail to [Monique Levesque](#) at ARRL Headquarters.

Dave Sumner K1ZZ, who has been the long standing CEO of the ARRL, announced in July that he will retire in May 2016

Vibroplex LLC, Knoxville, TN announces the acquisition of International Radio Corporation, Aptos, CA. The sale was finalized on September 23<sup>rd</sup>.

International Radio, commonly referred to as "Inrad", is the leading manufacturer of aftermarket and OEM crystal filters for Amateur Radio transceivers and receivers with some 250 different models currently available for present day equipment and obsolete gear dating as far back as the 1950's.

The former and new owners say thank you to the Amateur Radio community for more than 40 years of Inrad business. Inquiries about Inrad can be directed to the main Vibroplex email address at [vibroplex@vibroplex.com](mailto:vibroplex@vibroplex.com) or [sales@inrad.net](mailto:sales@inrad.net)



## Results from the October 15<sup>th</sup> ARRL VEC Test Session

Our last scheduled ARRL VEC test session of the year, at the WPXI Community Room, brought forth five candidates. All five walked away with new Amateur Radio licenses!

Congratulations to:

KC3FST John Kane	Pittsburgh	General
KC3FSU Patrick Greely	Houston	General
KC3FSV Sean Greer	Cranberry	General
KC3FSW Bryan Noorda	Mars	General
KC3FSX Nick Pappas	Johnstown	Technician

Thanks as always to our VE's: Frank N3FB, Rick N3SBF, and Gary KB3GUZ.

Thanks again as always to WPXI for permitting us to use their facilities!

Our complete 2016 test schedule has not yet been set. Our next scheduled session will be at **WASHFest 2016**



— 73, Ron Notarius W3WN, **WASH** VE Team Liason

Call	Score	Category	QSOs	Power Mult	GOTA Call	Participants	Club
K3VX	3,730	1AB	348	5		3	
AB3RU	500	1B1B	35	5		1	
W9JFK	1,090	1B2B	98	5		2	
KA3KSP	294	1C	72	2		1	
KB3LIX	1,586	1D	385	2		1	
W3SFG	890	1D	226	2		1	
K3VYY	500	1D	125	2		1	
N3VYZ	396	1D	188	2		2	
KE3WN	320	1D	80	2		1	
WO3T	254	1D	102	2		2	
AK3G	250	1D	100	2		1	
K3RWN	208	1D	208	1		1	
ND3R	162	1D	28	2		1	
K3CSF	802	1E	179	2		6	
W3DBB	544	1E	146	2		1	
K3UA	248	1E	28	2		1	
WB3CGY	130	1F	40	2		2	ICARC
W3MIE	3,828	2A	823	2		20	Crawford ARS
W3JL	882	2A	316	2		8	Western PA FD Assoc
N3Q	746	2AC	148	2		28	Quad-County ARC
W3RP	1,228	2E	249	2		3	
W3YA	3,564	3A	2,143	1		30	Nittany ARC
W3CSL	2,182	3A	392	2		21	Monessen ARC
W3BMD	1,988	3A	588	2		8	ICARC
KA3PMW	1,798	3A	739	2		6	
W3OC	1,758	3A	441	2		25	Two Rivers ARC of McKeesport
W3ACH	1,436	3A	237	2	N3TWU	25	Cumberland Valley ARC
N3SH	1,406	3A	357	2		20	Wireless Assoc of South Hills
W3SGJ	1,312	3A	260	2		15	Beaver Valley ARS
N3AQC	6,020	3AB	562	5		3	North American QRP CW Club
W3GV	2,816	4A	811	2		24	RA of Erie - Rae
K3MJW	5,466	4E	1,418	2		9	
K3NQT	1,522	4F	279	2		20	Bedford Cty ARES/RACES
W3UDX	3,854	5A	960	2	AA3YW	13	Butler Cty ARA - PA
WX3SKY	1,838	5A	330	2		8	Skyview ARS
K3SMT	1,616	5A	416	2		20	Somerset Cty ARC
N3NIA	1,454	5A	292	2		16	Elk Cty ARA
WA3COM	4,954	5F	1,207	2	KC3HW	18	WA Amateur Comm
W3ZIC	1,864	6A	358	2		6	Fort Venango Mike & Key Club
W3LIF	9,394	8E	3,788	2		35	



2015 ARRL Field Day  
Results for Western  
Pennsylvania





## *"Seen" at the 2015 WACOM Hamfest*

Photos Courtesy of and © Copyright 2015 Ron Notarius W3WN





## POTA Party

Glen Roberts KE7FD

So on Saturday October 24<sup>th</sup>, KC3DOF and KE7FD got the bright idea to take their portable gear back out to the same site [WASH](#) used for Field Day to work what they could hear. Bob brought his Youkits HB-1B 4(5) band CW rig and Glen brought everything (and then some) needed to work digital. Through a very gracious loan from the Edinburgh Castle of Scotland, a cannon, Mons Meg, was used to lob weights over the tree tops at South Park to support two 53 foot end fed wires which were fed by 9:1 ununs. There were both quite pleased with how well this antenna design worked across all bands tried on. Using two different ununs and tuners both antennas tuned and worked as expected. Thanks to Bill W3WH, for directing us to the Balun Designs site that explained how to best set one of these up. While we called this a POTA Party, it's not connected to the ARRL's NPOTA effort, unless of course we deem it to our advantage to do so.

Despite the bands being open and all the activity, Glen only managed to work two stations, both DX (well sort of). One was EA4DT in Madrid Spain and the other was Bill N3DXE in Whitehall. QRP of 5 watts is still a challenge on digital when most everyone else is running 25 to 35 watts. Bob on the other hand managed to work several stations on the 40m/20m bands. Bob's first contact of the day was K3CKO from NY followed by VE3CGC from Ontario, W3S from the [Monessen Amateur Radio Club](#), then W2ZJ from New Jersey then right before shutting down for the day, Bob got his first real QRP DX contact from OH6KD in Finland, RST of 329, and went very well. Equipment was YouKits HB-1B 4.5 watts into a 53 foot end fed wire into a 9:1 UnUn running MFJ-971 portable tuner.

(Notice his straight key in the picture.)

All in all, we had a great time and by the time you read this we will have gone to the park again to look for all those stations we missed!



## N3S: Close, But No Cigar.. Again

Bill Hill W3WH

Except for the undeniable disappointment that our group in Fayette County missed a clean sweep by two counties, we had a wonderful weekend. Rick Bell, Larry Comden, Gary Robbins, Harold Rosenberger and I spent the weekend at the Boy Scouts of America Heritage Reservation in Farmington Pennsylvania. The altitude there is significantly higher than where we all live and the leaves are a couple of weeks ahead of us here in the Pittsburgh area. This resulted in a beautiful setting for us to enjoy. We set up our station in a modern Lodge which was bright clean and comfortable. In addition the Lodge was surrounded by lots of appropriately spaced tall trees which allowed us to hang our wire antennas high and in the clear.

We all drove up to Farmington on Friday afternoon (except for Gary who arrived Saturday morning) in a driving rain. After we arrived at the Lodge the rain stopped sun came out and it was a beautiful afternoon. In the next hour and a half or so we were able to move our equipment into the Lodge and install our antennas. As soon as the last antenna was up the heavens reopened and the deluge started again. After setting up some equipment during the reign we drove to the casino which is only a couple miles away and had dinner.

Saturday morning dawned beautiful and clear. We all went to Curts family restaurant for a big breakfast. After a few final preparations we are ready to go at noon for the Party. Saturday when well for both the phone and CW seems. By the end of the day we needed 13 counties for a clean sweep and were optimistic that we would achieve it. For me one of the highlights of Saturday was making about a half-dozen contacts on 160 m. We used a 40 m dipole fed against ground with the ground being a fan dipole laid out on the lawn for a counterpoise. I'm sure we didn't have a great signal because John AD8J in North Carolina didn't hear us but we did work a station in New England and in Delaware County Pennsylvania on 160.

On Sunday at 9 AM we fired everything up again. On CW Sunday was a bit of a disappointment. We heard none of the needed 13 counties on CW and by early afternoon we shut down the CW station. On Sunday Larry's Drake TR-7 died. The receiver continue to work but there was no output. Ouch! To make matters worse the TR-7 was the second rigged Larry lost over the weekend. Before we left his icon 706 lost all output as well. When we lost the TR 7 we pressed my 10 Tec scout into service and made a few contacts with it without a hitch.

Rick Harold and Gary really worked hard on Sunday to find all 13 counties that we needed. By little they whittled the number down to two Bedford and Northumberland. Since Harold needed to leave by four and the rest of us were tired we eventually gave in and shut everything down packed up and came home.

We stayed overnight in one of the Scouts Ryan homes. They certainly were not lavish but they were comfortable and clean and had hot showers waiting for us. Thank you Boy Scouts of America. On Saturday afternoon Rick Bell had a QSO with Paul Lusardi, N0VLR/7 who now lives in Oregon. That was fun. Now we are ready to talk and think about next year to decide what we'll do the same what will change etc. The PA QSO party continues to be a highlight of the ham year for many of us and for those of you who have not or did not participate this year you really should try to get in the QSO party next year and join the fun.



N3S Photos on Pages 8 & 9 are courtesy of and © Copyright 2015 Bill Hill W3WH



## ***N3S Pa QSO 2015 Stats***

Rick Bell KB3IAC

Here are the stats for N3S:

Location: Heritage BSA Reservation, Fayette County

Total Contacts 443

Total QSO points 638

Total Multipliers 103      Total Score 65,714

QSOs: CW 191

Phone 251

Band: 15 1

20 14

40 285

80 135

160 6

Counties Worked: 65 out of 67

Missed: Bedford, Northumberland

Good time had by all!



## ***N3ZK Pa QSO 2015 Stats***

Frank Bobro N3FB

Location: Indiana County

Operators: Randy N3ZK, Frank N3FB

Total Contacts 953

QSOs: CW 77

Phone 876

Counties Worked: 67 out of 67

Total Multipliers 132      Total Score 137,160

Previous IND M/M Record: 87,598 (1997)

Team N3ZK holds the Pa QSO Multi-Multi Record for Cambria, Forest, Venango, and now Indiana Counties





## *St. Clair Hospital SET October 3<sup>rd</sup> Photos*



Above: The K3SCH station at the St. Clair Hospital EOC  
Photo courtesy of and © Copyright 2015 Fred Beighley KB3DCO



Above Right: Field station operated by Rick KB3IAC  
Right: One of the mobile setups in use  
Photos courtesy of and © Copyright 2015 Frank Bobro N3FB



## *N3FB Repeater Building Progress*

Photos courtesy of & © Copyright 2015 Frank Bobro N3FB & Lori Bobro KB3GMU





# N3SH/R 146.955 Work Log 31 October 2015

Jim Sanford PE WB4GCS

**Participants:** KB3GMU, N3FB, WB4GCS

**Mission:** Measure, and if possible, improve 146.955 repeater receive performance.

**Narrative:** Participants arrived at repeater site after breakfast at Suzy B's.

First task was to measure Transmitter performance.

Measuring power to antenna: PO 46 W PR 2W. This equates to SWR of 1.5

Measure Power to Isolator: PO 86 W PR 1 W. This equates to SWR of 1.24

Measure Power from Isolator to Duplexer PO 66W PR 1 W This equates to SWR of 1.28

**All of the above measurements were made with a 100W slug in the Bird wattmeter.**

Losses: Transmitter to Antenna -2.7 db Transmitter to Duplexer (Isolator loss) -1.5db

The Isolator and Duplexer losses seemed high, and they were removed for measurement and adjustment at WB4GCS QTH/lab. The preamp was also removed for measurement.

Equipment used: HP 8714C Vector Network Analyzer

The first parameter measured was the composite receive side of the duplexer response. Minimum insertion loss was -1.67 db at 146.29 MHz. Transmitter rejection maximum was -77.66 db at 146.95 MHz. Return loss at the pass frequency was -22.06 db, acceptable, but not great. We assessed as reasonable, but imperfect. For perspective, a return loss of -20 db is SWR around 1.23 and -30 db correlates to an SWR of 1.07.

The asymmetrical response and return loss curves suggested some improvement might be possible.

We then measured the composite transmitter side of the duplexer. Minimum attenuation was -1.75 db at 146.98 MHz and receiver rejection was -74.55 db at 146.35 MHz. Return loss (an indication of reflected power) was -29.2 db at the pass frequency, which is good.

We then measured each duplexer cavity the same way. Results:

Can	Insertion Loss	Rejection
R1	-1.15 db	-36.48 db
R2	-1.1 db	-36.09 db
T1	-1.12 db	-35.27 db
T2	-1.19 db	-36.02 db

The duplexers being set up for testing



The minimum insertion loss and maximum rejection were near, but not exactly on the receive and transmit frequencies.

Attention was turned to the Cellwave Isolator, which prevents reflected power (or strong pager transmitter signals) from getting back into the amplifier (which is really a non-linear device, AKA, mixer) and helping to generate intermodulation products. It allows power to go from the input to the output; any power trying to get from the output back to the input gets rejected to dummy loads, instead of the transmitter amplifier (AKA intermod generator). This is a two stage unit, with two reject loads. The Isolator is marked with a frequency of 142.350 MHz. Insertion loss was measured at -2db at 146.96 MHz and return loss -50db (corresponding to SWR less than 1.01). The return loss is as expected; the insertion loss is unacceptable, it should be -0.5db or even less. The isolator has limited tuning; one attempt was made, after which the return loss at 146.955 MHz was -1.39. This was declared unacceptable, and the decision made to not reinstall it at the repeater site.

We next looked at the Motorola passband cavity filter, Model TU 312H, S/N D0018U. Its minimum insertion loss was measured at -1.1 db at 146.27 MHz, and insertion loss was -3db at 146.355 MHz, which is absolutely unacceptable. Two rounds of tuning were attempted, and insertion loss measured at -1.2 db. This is still not good, but the test setup had not been calibrated for the test cables, which were different than the calibrated cables used to evaluate the duplexer. Calibration is an automated process by which the analyzer, with standard coupling units and terminations connected to the test cables, calculates the effect of the cables and subsequently subtracts out those effects. After calibration, the insertion loss on 146.355 MHz was measured at -0.5 db, acceptable, but undesirable if the filter is not needed. The filter might be needed if we start getting desense or interference from strong signals, such as "dirty" paging transmitters.

The next target for evaluation was the Hamtronix preamp of unknown vintage. It initially measured at 40db gain and 23 db noise figure, which are terrible and unrealistic. We actually wondered if it was oscillating. Repeated the Noise Figure meter calibration and re-ran the test. Gain came in at 19db, much more realistic, but noise figure was 18 db, which is a disaster. There is either something wrong with the preamp or the Noise Figure meter. Homework assignment: Measure known good preamps on the NF meter and reach a conclusion. In the near term, the decision was made to not reinstall the preamp, due to it's ambiguous performance.

At this point, we stopped and evaluated all the printed responses. We concluded that most were "good enough," but cavity T2 demanded adjustment. The decision was made to adjust it, then look at the composite of T1 and T2. After tuning, T2 had -0.8 db insertion loss at the pass frequency, and -37.125 db loss at the rejection frequency. We put it back in the network and evaluated the composite. We made some "tweaks" at the end of which, insertion loss was -1.35 db on the pass frequency and -77.7 db on the reject frequency.

Of note, return loss was a much more sensitive tuning indicator than transmission loss, which is much more broad. When the insertion loss was minimized, we had two return loss minima. Tuning to obtain symmetrical minima yielded the minimum insertion loss – a classic slightly over-coupled, double-tuned response.

Next, we looked at the composite receive side of the duplexer. We tuned it ever so slightly and obtained insertion loss between 1.29 and 1.33 db. Rejection at the transmitter frequency was 77 – 78 db. Below are the final responses, receive on the left, transmit on the right. Looking closely, several things are apparent:

- Low pass response is sharper than high pass response
- Return loss is much more sensitive tuning metric than insertion loss
- Symmetrical return loss yields near-optimum insertion loss

Are we done yet?



## In-Band SSB Interference During Contests

Jim Sanford WB4GCS

Recent experience/discussions at PA QSO, and some serendipity, have collected a bunch of thoughts I thought I'd share. The issue is SSB interference to the CW station operating on the same band and vice - versa. The former seems to be the bigger issue by all reports.

Seeing Larry's Drake at the contest reminded me of an article I read discussing AGC, which described why many consider that Drake to be the last rig with a really effective AGC until the HPSDR came along. They do the same as the Drake in software, which is why my HPSDR sounds so good. Actually, only part of why.

SO, what can be done? There are several options:

1. Really sharp filters. I have done extensive modeling with some filter design software, and have concluded this is not an option. Any filter sharp enough to separate phone and CW segments of 40 meters would have so many elements that it would be impossible to tune, and the losses would be horrendous.
2. Improve receiver performance. Actually the manufacturers have done pretty well here over the years, although a really great receiver will either be an SDR or much more expensive than, say, an FT-817. Realistically, the 817 was never intended to be part of a multi-op contest station, except maybe as an IF in a microwave contest. One thing you can try is to turn the preamp OFF and the attenuator ON. This will greatly improve the radio's IP3 performance, and, realistically, your receiver's noise figure is most likely well below the atmospheric noise floor at HF, so this would only hurt the weakest of signals, which you're not going to work on top a strong signal anyway, without a lot of work. I encourage you to try attenuator ON as the default.
3. Use antenna alignment and/or polarization to put antennas for the same band in each other's nulls. Larry and Bill have done this with some success.
4. Improve transmitter performance. The manufacturers have done little here. The SDR folks have been achieving some dramatic results by sampling the non-linear amplifier output signal and calculating pre-distortion to compensate. Dramatic means an improvement in IMD products from -16 dBc to -48 dBc, in some cases even better. You can read about this in the presentation here: [http://openhpsdr.org/doc/PacificCon2014/Pacificcon\\_slides\\_Warren.pdf](http://openhpsdr.org/doc/PacificCon2014/Pacificcon_slides_Warren.pdf) Look for the section on pre-distortion. Obviously, this requires an SDR, which I *would* recommend if you're considering purchase of a serious contest rig.
5. Another, much easier, transmitter improvement is to improve the phase noise of the transmitter, which means its master reference oscillator. A rule of thumb that I use for weak signal UHF work (analogous to digging out a weak signal on HF) is -110dBc at a 10 KHz offset from the carrier. When I was contemplating purchase of my IC-910, I was disappointed that its phase noise was worse than the radio I was replacing. Adding the TCXO option made it BETTER than the radio I was replacing. I would encourage you to install the TCXO option if it is available for your radio. I would recommend that *only* radios with TCXO be used in the same band at a multi-op contest station. The TCXO will also improve receive performance (reciprocal mixing issues). I'm writing this because the November 2015 QST has a great article (page 58) on an upgrade for the Elecraft K3 which illustrates.
6. Finally, in shopping for a new HF rig, the specs I would recommend comparing hard are, IMD performance, IP3, and phase noise. I would look for the highest IP3 possible, and great a negative number on IMD as possible. The phase noise plots on page 59 of that QST article are good ones to shoot for; many rigs do not come close. ARRL does a very good job of measuring these parameters in their reviews, so I would look at ARRL review as well as manufacturers specs, which are often not very rigorously bounded. For anyone *really* interested, I have the ARRL lab techniques manual, if you'd like details on their measurements.

In my next contest event, I will be paying very close attention to that attenuator, and I hope to bring an SDR to Field Day.

Hope this is of some value . . .

## N3SH/R 146.955 Work Log 31 October 2015

Continued from Page 11

At this point, the duplexer performance is *better* than specified. Time to go back to the site and reinstall the duplexer.

We did and then repeated the transmitter measurements.

Measuring power to antenna:  $P_O$  54 W  $PR$  1.8W This equates to SWR of 1.4

This is probably statistical variation; nothing we did should have influenced the antenna and feedline performance.

Measure Power from Amplifier to Duplexer  $PO$  89W  $PR$  0.3 W

This equates to SWR of 1.12, consistent with the improved return loss after tuning and much better than specified. This also equates to insertion loss of -2.17 db.

**The above measurements were made with a 100W slug for the forward power and a 10 W slug for the reverse power – much more precise than the “before” measurements.**

The next test was on-the-air on the drive home. Dave, N3DFK was on and gave us signal reports as we headed South. The qualitative conclusion was that the repeater is hearing better, but still talking better than it is hearing. At the WB4GCS QTH:

- Hear it Q5 in the back yard (1260' ASL) on the HT but cannot key.
- Hear it Q5 in the shack on the Alinco rig on 30' omni vertical, but cannot key.
- Hear it Q5 in the shack on the IC-910H on 30' vertical, and can talk through it running 100W transmitter power.

**Conclusion:** The repeater is hearing better, but is still talking better than it is hearing.

Next actions:

- Pursue preamps with reasonable gain and very high input third-order intercept performance.
- Take metering panel and signal generator to the repeater site and evaluate/tune the receiver.
- Re-examine preamp performance after checking NF meter on known, good preamps.

Photos by Lori Bobro KB3GMU, courtesy of & © Copyright 2015 Jim Sanford WB4GCS



The 2 M bandpass filter & the results (on the analyzer, top right)



# Announcing the Sixteenth Annual WASH 2Meter Contest!

This January will mark the Sixteenth Annual **WASH** 2 Meter Contest. We've already had a lot of interest in it, and this year promises to be even more exciting!

Everyone who participated in it the last thirteen years had a blast, and we hope to continue the tradition again this year!

**Please review this year's rules carefully.** After evaluating feedback from participants, **we made some changes and additions in the last few years** that we hope will really generate some interest! We also have a **new contest chair & mailing address** for 2016! There may be some additional "tweaking" of the rules between now and January, so keep an eye on this column in the next few newsletters, and we'll look forward to seeing you on the 16<sup>th</sup>!

**Date & Times:** Saturday, January 16<sup>th</sup>, 2016 from 7 to 11 PM EST.  
(That's January 12<sup>th</sup> 0000-0400 UTC to the purists!)

## Objectives:

- To make as many contacts as possible
- To have fun!

**Band, Mode & Frequencies:** The contest will take place solely on 2 meter band.

- **FM** : FM simplex only, no repeater contacts. The FM frequencies are all standard 2 Meter simplex frequencies, as per the ARRL 2 Meter Band Plan, every **15 kHz**, from **146.505 to 146.595 MHz**, and **147.450 to 147.580 MHz**. Use of simplex frequencies in the "FM Experimental Simplex" band of 145.510 to 145.670 are not recommended. See list of recommended simplex channels at the end of the rules.
- **CW**: 144.05 to 144.1 MHz Only. (See ARRL 2 Meter band plan)
- **SSB & AM**: 144.2 to 144.275 MHz Only. (See ARRL 2 Meter band plan).
- **Digital (including RTTY)**: 144.51 to 144.55 MHz. (See ARRL 2 Meter band plan) Multiple digital modes may be used, and participants are free to use any generally accepted Digital mode, but only ONE Digital QSO with a given station regardless of mode

→ *Note: Listen for CW QSO's around 144.1 MHz 15 minutes after the hour*

→ *Listen for SSB & AM QSO's around 144.2 MHz 30 minutes after the hour*

→ *Listen for Digital QSO's around 144.51 MHz 45 minutes after the hour*

In the event of accidental QRM with nets and non-contest QSO's in progress, please respect their right to the frequency and QSY.

**Power Limit:** Maximum 100 watts output.

**Exchange** : Callsign, contact number, ZIP Code.

For the purposes of the contest, the 5 Digit ZIP Code for your location is sufficient — do not use the "Zip +4" code. Mobiles and portables should use the ZIP code of their location as determined to the best of their ability. Canadian stations will use their 6 digit postal code

**Example 1:** "N3ZCG from W8XK, please copy Number 3, 15347."

**Example 2:** "K3VX from K3CM, please copy Number 21, 16801"

**Example 3:** "W3WH from W3OC, please copy Number 7, 15137"

**Contacts** : Work as many different calls and locations as possible, giving Exchange as noted above. Work each station **once** per mode, and **once** per ZIP Code — Mobiles can be reworked whenever they change locations. Remember hilltops work best!

**Disqualification:** Remember, this is a friendly "for fun" contest. Stations may be disqualified for infractions of the rules and for unacceptable operating practices. While not an inclusive list, stations may be disqualified for:

- FM signals transmitted on simplex channels below 146.505 MHz.
- Intentional interference to non-contesters, nets, & QSO's
- Intentional interference to other contest operators
- The committee reserves the right to verify QSO's. QSO's that can not be verified may be removed from the log without penalty.

**Scoring:** Each Contact: **Phone** (FM, SSB, AM): 1 point  
**CW**: 2 points  
**Digital** (any mode): 2 points

**Multipliers:** Locations (Number of different ZIP Codes)

**Power:** Stations running 10 watts output or less: 3  
Stations running over 10 up to 30 watts output: 2  
Stations running over 30 watts output: 1

**Final Score:** Total Points x Locations x Power

**After the Contest:** Fill out all the log information. In the upper left corner check whether "base" or "mobile." In the upper right corner be sure to enter your callsign and club affiliation (or "none" if not a member of any club). Please number all log sheets consecutively. Log sheets can be downloaded from the **WASH** web site, [www.n3sh.org](http://www.n3sh.org), no later than January 1<sup>st</sup>.

**Submit Log Sheets:** Check your log sheets carefully for dupes. Verify that all information is entered.

Send the logs to: WASH 2 Meter Simplex Contest  
c/o Jim Sanford WB4GCS  
10 Sugar Run Road  
Eighty Four, PA 15330

Enclose a #10 SASE for return of results.

Entry Deadline: February 1<sup>st</sup>, 2016

**Each log submitted on or before the deadline will receive one (1) main prize ticket to WASHFest 2016 on February 28<sup>th</sup>**

Logs submitted with an SASE will have their ticket mailed to them, otherwise, the tickets will be available at the **WASH** Club table

## Recommended FM Simplex Frequencies:

After the first year of the contest, we found that the limited number of frequencies suggested in the rules were insufficient for the activity level. In subsequent years, we permitted use of any recognized simplex frequency, as per the ARRL recommended guidelines published in the annual ARRL Repeater Directory and other sources, above 146.520 MHz.

You will note that many of these frequencies are listed as potential dual use, with a "local option" for them to be used for repeater inputs and outputs.

After discussions with Frank Bobro N3FB, Repeater Coordinator for the Western Pennsylvania Repeater Council (WPRC), we have determined that the following simplex frequencies are recommended for use. Use of those that are "dual use" are not expected to cause issues for any known repeaters.

Remember that good amateur practice indicates that should a contest participant be notified that they are inadvertently causing interference to a coordinated repeater that is using a recognized simplex channel, they should immediately cease use of that frequency in favor of, and out of respect for, the existing repeater.

The following list of recommended frequencies are recognized as standard simplex channels and should not suffer from co-channel problems with any existing repeaters:

146.505 MHz	146.580 MHz	147.510 MHz
146.520 MHz (*)	147.450 MHz	147.525 MHz
146.535 MHz	147.465 MHz	147.540 MHz
146.550 MHz	147.480 MHz	147.555 MHz
146.565 MHz	147.495 MHz	147.570 MHz

Simplex channels below 146.505 MHz are not to be used, as many of these are in use in WPA as repeater input frequencies.

(\*) The National Simplex Frequency, 146.520 MHz, **may** be used. However, many stations use 52 for casual conversation or as a calling frequency. If the frequency is in use or becomes used by non-participants, please permit them to use the frequency unimpeded.

To avoid interference to other contestants and other users of the bands, please do not operate on 5 or 10 kHz "offsets" from these recognized FM channels.

Bottom line: Enjoy the contest, but do so responsibly.



**Paul NØVLR/7 sent in this "selfie" taken while he was QRV from the Left Coast during the 2015 Pennsylvania QSO Party**

*Photo courtesy of Frank Bobro N3FB, © 2015 Paul Lusardi NØVLR*

## Stacking UHF Antennas (Part 2)

Jim Sanford PE WB4GCS [wb4gcs@amsat.org](mailto:wb4gcs@amsat.org)

So, the next task, is the cross supports which clamp to the mast and then support the yagis – 902 MHz on one side, 1296 MHz on the other. I purchased heavy aluminum angle bracket from a local aluminum shop, now that Dillsburg Aeroplane Works, whence I got my aluminum for over 2 decades, has shut down. To make the cross supports stiff and easy to drill, they are a solid 90 degree angle (as opposed to the rounded angle on the original) and 3-inches on a side.

Photo 1 (right) shows the jig for the cross support. Although the holes have to be drilled in two different faces, I put all the holes in one jig; just have to remember which holes to drill in which face. The photo below shows the jig and first cross support clamped up for drilling. At the near end are the reference holes for supporting the 902 MHz antenna, the far end the holes for the 1296 antenna, and in the center, the holes for the U-bolt which will mount the suport to the mast. The setup shown is just prior to drilling the holes for the U-bolt; the antenna support holes will be drilled in the vertical face. As before, note the tabs which are pin-nailed to the oak to ensure registration; there is also a tab on the far end to ensure identical registration in all three planes.

Photos 2 & 3 show the result; although the U-bolt holes look to be at an angle, that is because the horizontal plane of the camera was not quite parallel with the horizontal plane of the aluminum. The photo on the right shows all four supports to be pretty close to identical.



Next, I rotated the angle and clamped it up for drilling of the antenna support holes (Photo 4 below right). As before, the tiny pilot holes were drilled by hand, the needed size holes were drilled on the drill press (Photo 5). The pilot holes nicely centered the larger drill bit.



Not much more to say. Photo 6 is a finished cross support on the floor of the barn, and Photo 7 the first support installed on the mast. (For the shutterbugs in the audience, in Photo 7, I took manual control of camera aperture and used the maximum, to limit the depth-of-field to just the support of interest.)



So, that's it. Woodworking jigs helped me get four nearly identical assemblies to optimize performance in stacked arrays of four microwave antennas. While I doubt anyone will be wanting to duplicate what I've done here, I hope I've stimulated some ideas.

Finally, what's left to get this thing in the air? Quite a bit, and probably won't happen before next spring:

- Mount all eight antennas (this week).
- Check out the phasing harnesses.
- Check out the 4-way dividers.
- Build the larger cross support which will attach to the main mast and support these arrays on one end and the 222, 2304 and 3456 MHz arrays on the other end.
- Attach the weatherproof box(es) which will house the preamps for 222, 902, 1296, 2304 and 3456 MHz, along with the T/R relays and the 6-way switches. (The 2m and 70cm preamps are separate and have dedicated feedlines.)
- Connect to the hardline.
- Bring in a crane to get it all in the air.

I'll be looking for help next spring . . .



(All photos courtesy of & © Copyright 2015 Jim Sanford WB4GCS)



Left:  
Our other  
two  
candidates  
from the  
October 15<sup>th</sup>  
VE Session



Right:  
Seen at the  
WACOM  
Hamfest



N3FB/R Construction

October 4<sup>th</sup>



# The Key To Dealing With HOA's

Nick Proy WT30

**Disclaimer:** I am a lawyer, but I am not **your** lawyer. This is **not** legal advice.

The key to negotiating with someone is having leverage. Generally, HOAs have the majority of the leverage in negotiations because they are in a position of power and homeowners are not (they are subservient to the HOA and its bylaws). The key to dealing with an HOA is to get leverage, legally, and use that leverage to negotiate to get what you want. This means thinking outside of the box.

Here in Maryland, we are a "Right to Dry" state, which means that we have a right to dry our clothes outdoors. The law is written as follows:

Real Property, Section 14-130: § 14-130. Installation and use of clotheslines on residential property.

(a) Definitions. --

(1) In this section the following words have the meanings indicated.

(2) (i) "Single-family property" includes:

1. A single-family detached home;

2. A townhouse; and

3. A property that is subject to:

A. Title 11 of this article;

B. Title 11B of this article; or

C. Title 5, Subtitle 6B of the Corporations and Associations Article.

(2)(ii) "Single-family property" does not include property that contains more than four dwelling units.

(3) "Townhouse" means a single-family dwelling unit that is constructed in a horizontal series of attached units with property lines separating the units.

(b) Section inapplicable to historic property. -- This section does not apply to a restriction concerning the installation or use of clotheslines on historic property that is listed in, or determined by the Director of the Maryland Historical Trust to be eligible for inclusion in, the Maryland Register of Historic Properties.

(c) Property instruments may not prohibit installation or use of clotheslines. -- A contract, deed, covenant, restriction, instrument, declaration, rule, bylaw, lease agreement, rental agreement, or any other document concerning the installation or use of clotheslines on single-family property may not prohibit a homeowner or tenant from installing or using clotheslines on single-family property.

(d) Installation or use of clotheslines not prohibited by existing property instruments. -- Notwithstanding any other provision of law or the terms of any contract, deed, covenant, restriction, instrument, declaration, rule, bylaw, lease agreement, rental agreement, or any other document concerning the installation or use of clotheslines on single-family property, a homeowner or tenant may not be prohibited from installing or using clotheslines on single-family property.

(e) Reasonable restrictions permitted. -- This section does not prohibit reasonable restrictions on:

(1) The dimensions, placement, or appearance of clotheslines for the purpose of protecting aesthetic values; or

(2) The placement of clotheslines for the purpose of protecting persons or property in the event of fire or other emergencies.

(f) Meetings regarding adoption of restrictions. -- Before adopting any restriction concerning the installation or use of clotheslines on single-family property, a landlord or the governing body of a condominium, homeowners association, or housing cooperative shall:

(1) Hold an open meeting on the proposed restriction for the purpose of providing affected homeowners and tenants an opportunity to be heard; and

(2) Provide advance notice of the time and place of the open meeting by publishing the notice:

(i) In a community newsletter;

(ii) On a community bulletin board;

(iii) By means provided in the lease or governing documents of the condominium, homeowners association, or housing cooperative; or

(iv) By other means reasonably calculated to inform the affected homeowners and tenants.

In short, this relatively recent (2010) law provides that everyone, regardless of local ordinances or HOA restrictions may erect and use an outdoor clothesline for drying their clothes. I would say that (non-scientifically) 100% of HOA bylaws prohibit outdoor clotheslines, but this law says those prohibitions are unenforceable. Think of this as the OTARD rule, but instead of TV antennas it allows for clotheslines.

Now how is this useful? You want a ham radio antenna, not a clothesline. Well, you now have leverage. You install a clothesline, which is prohibited by the bylaws, but that prohibition is invalidated by this law. The HOA legally has to allow you to keep your clothesline, else you can sue them and collect damages (and possibly attorney's fees). Now you can negotiate with the HOA because you are in a position of power (not much power, but some is better than none) - they hate the sight of your clothesline, but they can't do anything about it unless you voluntarily take it down. Now you can negotiate the removal of your clothesline for the approval of your ham radio antenna.

Is this easy? No, you have to physically install the clothesline, comply with your state's law (note that this enactment of a "Right to Dry" law does allow an HOA to make "reasonable restrictions"). You may have to get a lawyer to draft correspondence to the HOA stating your position. The point I'm getting at is that you need to negotiate with an HOA to get what you want. If you have something they want (removal of the clothesline), they may be more apt to give you what you want (a ham radio antenna).

Now, I know you are thinking "great, this may help people in Maryland, but what about me?" Apparently 19 states have enacted "right to dry" laws throughout the country ([http://www.abajournal.com/news/article/20\\_right\\_to\\_dry\\_states\\_outlaw\\_clothesline\\_bans\\_is\\_yours\\_among\\_them](http://www.abajournal.com/news/article/20_right_to_dry_states_outlaw_clothesline_bans_is_yours_among_them)). I cannot verify them independently,

but the American Bar Association lists them as: Arizona, California, Colorado, Florida,

Hawaii, Illinois, Indiana, Louisiana, Maine, Maryland, Massachusetts, Nevada, New Mexico, North Carolina, Oregon, Texas, Vermont, Virginia and Wisconsin.

Hopefully someone can find this information of use. I don't live in an HOA (I'm not rehashing the "don't live in an HOA" argument), but I have explained this to a few locals more than once, so I thought it would be helpful to those of you who aren't local.



## UK To Auction Former Amateur Radio Spectrum

Radio Society of Great Britain



Spectrum at 2.3 and 3.4 GHz that once was allocated to Amateur Radio is going on the auction block in the UK. Telecommunications regulatory agency Ofcom [announced](#) the steps it will take in selling off the shared spectrum it took back after the military no longer needed it. Ofcom [announced](#) in April 2014 that it was ending Amateur Radio access to significant portions of the 2.3 and 3.4 GHz bands following a year-long [consultation](#) — a rule making proceeding — that involved the release by the Ministry of Defence of 40 MHz of spectrum at 2.3 GHz and 150 MHz of spectrum at 3.4 GHz. Amateur Radio was secondary on both bands.

"We expect the award frequencies to be of interest to mobile network operators (MNOs) and others involved with mobile broadband," Ofcom said in its [Public Sector Spectrum Release](#) document released on October 26. "The particular characteristics of the spectrum to be released, in terms of propagation and the penetration of signals, make it especially suitable for the latest long-term evolution (LTE) mobile technologies."

Amateur Radio lost privileges on frequencies in the two bands that overlapped with the 190 MHz of spectrum that Ofcom now has put on the block — 2350 to 2390 MHz and 3410 to 3475 MHz. Amateur Radio will retain access to the adjacent bands, but Ofcom has put procedures in place to remove even those frequencies from Amateur Radio access, if necessary in the future.



Ofcom said in 2014 that, with military and other government use of the 2.3 and 3.4 GHz spectrum ending, it believed that "an award of the spectrum for high power use is likely to deliver greater benefit to UK consumers and citizens than continued amateur use."

The MoD plan is part of a government commitment to release 500 MHz of spectrum by 2020 for new civil uses "based on growing demand from UK consumers for spectrum-hungry devices such as smartphones and tablets."

Ofcom has said it would make 2300-2302 MHz available for amateur use, but licensees first must obtain a *Notice of Variation* to their licenses. Hams in the US have access to 2300-2310 MHz, 2390-2450 MHz, and 3300-3500 MHz (Amateur Radio in the US is primary at 2390-2417 MHz). Neither the affected 2350-2390 MHz segment nor the 2310-2350 MHz that may be removed down the road in the UK has been available to US amateurs for many years. In the international *Table of Frequency Allocations*, the 3.4-3.6 GHz band is designated for future mobile wireless broadband in many countries, including the UK, but not in the US. Germany and Israel are the only ITU Region 1 countries with amateur allocations at 3400-3475 MHz.

The ARRL Programs and Services Committee earlier this year unanimously adopted a recommendation from its VHF and Above Revitalization Committee to [remove the rule prohibiting the use of 146.52 MHz simplex for making contest contacts](#). That change will go into effect starting on January 1.

The VHF and Above Revitalization Committee had concluded that the restriction was no longer necessary. The committee felt that permitting the use of 146.52 MHz would allow new/curious contesters possessing only FM-mode radios to stumble upon more contacts, increasing their chances of being drawn further into VHF+ contesting — the primary aim of the Revitalization Committee.

Advance notification of the rule change now has been communicated to the full Board, and the [change becomes effective in 2016](#), starting with the ARRL January VHF Contest.

The change also will be incorporated into the [ARRL Field Day](#) rules. This change eliminates Rule 1.8 in the [General Rules for ARRL Contests Above 50 MHz](#), with subsequent Rule 1 sections renumbered accordingly.

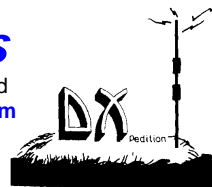
— Dan Henderson N1ND  
Regulatory Information Manager/Acting Contest Manager, ARRL

## Silent Keys



Bob Berry N3CZZ, 59, Bethel Park, PA, August 7<sup>th</sup>

## DX News Briefs



Polish radio amateur Dom Grzyb 3Z9DX, has indicated that he's moving forward with his plans to [operate from North Korea early next year](#). Earlier this year Grzyb announced that he had secured written permission to operate from North Korea in January or February 2016 and that he would be going to the capital, Pyongyang, for a final meeting to discuss guidelines for the operation. Grzyb now has [informed DX News.com](#) that he will head to North Korea in December, radio gear and GP7 vertical antenna in tow, to pin down the details of his ham radio plans.

Grzyb is said to have already procured a license to operate as [P5/3Z9DX](#) on three bands with 100 W. If he succeeds in being allowed to operate from North Korea, the [P5/3Z9DX](#) operation would be for 5 days, SSB only, on 20, 15 & 10 meters from a secured location with 24/7 government supervision. He has said he plans to concentrate on 20 meters.

The last DXCC-approved operation from North Korea took place more than a decade ago. Ed Giorgadze 4L4FN, of the Republic of Georgia operated on SSB and RTTY as P5/4L4FN in 2001 and 2002, making more than 16,000 contacts before being asked abruptly to cease transmitting and pack up his gear. Giorgadze, who was not on a DXpedition but working for the UN World Food Program in Pyongyang at the time, had tried for more than 2 years before obtaining permission from North Korean authorities to operate.

The Democratic People's Republic of North Korea remains the most-wanted and elusive DXCC entity on the globe — ARRL News

OZ1BII will be QRV as [9H3EE](#) 24—30 November, including the CQWW CW contest. Look for him 160—10, with an emphasis on 30 17 & 12 CW. More information at <http://www.oz1bii.dk> QSL via OZ1BII or ClubLog. — OZ1BII

N2TTA will be QRV as [NP2P](#) during the CQWW 28—19 November. QSL via Logbook of the World — OPDX

WP3C will be QRV as [NP4A](#) during the CQWW 28—19 November. QSL via W3HNK — OPDX

W2GD will be QRV as [P4ØW](#) during the CQWW 28—19 November. He will also be QRV on 160, 80, 30, 17 & 12 CW outside the contest as time permits. QSL via N2MM direct only — OPDX

OH2KI will be QRV as [ZB2X](#) during the CQWW 28—19 November, primarily on 40 meters. QSL via OH2KI — OPDX

The January 2016 Palmyra DXpedition will be using the call [K5P](#). The team will be QRV from Cooper Island in the Palmyra Atoll 11—26 January. More information at <http://palmyra2016.org/> — Pacific Islands DX Group

The Italian DXpedition Team will be QRV as [3XY1T](#) 18 February—4 March, 160—6 CW SSB & RTTY. More info at <http://www.i2ysb/idx> QSL via I2YSB direct only; OQRS via the web site is pending — I2YSB

## QSL Routes

3D2YA via JA1NLX -- JA1HGY	ED8X via RN3RQ — ED8X
4U7ØUN via HB9BOU -- 4U1UN	ED9K via EA7LS -- ED9K
5TØITU via ON8RA -- JA1HGY	EF8R via EB7DX -- EF8R
6Y9X via KQ1F -- 6Y9X	KL7NWR via KL2HD -- W3AWU
9H3EE via OZ1BII -- OZ1BII	M4A via MØBLF — OPDX
9J2HN via JR2KDN -- JA1HGY	NP2X via K5WW — NP2X
C4A via 5B4KH — C4A	NP4A via W3HNK -- WP3C
C91B via ZS5J — ZS5J	P33W via UA3DX — OPDX
CR2X via OH2BH — OH2BH	P40W via N2MM -- W2GD
CQ8Z via AC7DX -- AC7DX	TO4K via G3NKC — TO4K
DXØP via WA6LOS -- K7ZO	V73YL via JP3AYQ -- JA1HGY
E6GG via G3TXF -- E6GG	VYØM via VE3LYC -- VYØM
ED1R via EC1KR — ED1R	ZB2X via OH2KI -- OH2KI
ED5O via EA5URS — ED5O	ZF2SC via KA9P — OPDX

Thanks to the NJDXA DX News & DX Chat Reflectors, the DX-QSL Reflector, 425 DX News, OPDX News, DX World.Net, ICPO Bulletin, & ARRL DX Bulletin for our DX News information. Thanks also to Bill Moore NC1L / ARRL DXCC Desk, & Bernie McClenny W3UR / The Daily DX for confirmations & additional information.





## WASH Classifieds

Information shown here is as supplied to the **WASHRag**. Condition as stated, and all sales should be considered "as-is" unless otherwise noted. All subject to prior sale or withdrawal from sale at the owner's discretion. All responsibility for this information lies with the source and not the **WASHRag** or the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.**

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Antenna Zoning or PRB-1 Issues?

Contact: **Michael S. Lazaroff K3AIR, Attorney at Law**

The Cingolani Building

300 North McKean Street, Butler PA 16001

Phone: 724-283-0653

The **WASHRag** Masthead is courtesy of Jeff Murray K1NSS creator of DASHToons & Dash the Dog Faced Ham!!

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The ARRL has told the FCC that there is "an urgent need" for improved labeling requirements for certain Part 15 and Part 18 devices. "Necessitating change, notably, is the fact that there are many industrial Part 18 devices sold that are neither intended nor designed for use in residential environments, but because there is no external labeling...the end user consumer is left without guidance," the ARRL said, noting that, in most cases, equipment retailers are not providing any either.

In July, the ARRL complained to the FCC about the marketing practices of various "big box" retailers, where non-consumer-rated lighting ballasts have been mixed in with consumer ballasts and other consumer products on display with no explanatory signage. Ballasts intended for industrial applications have higher permitted conducted emission limits in the Amateur Radio HF spectrum. The League called on the FCC to include a definition in Part 18 for the term "consumer RF lighting device," to provide a way to differentiate consumer devices from those intended for industrial or commercial environments.

The League also said the FCC should consider reducing its Part 15 limits for lighting devices to correspond with the Part 18 lighting device limits between 3 and 30 MHz to reduce the RFI potential of LED bulbs now being widely marketed, "before they become an aggregate problem." LED lamps operate under Part 15 rules.

The ARRL said the FCC should adopt the League's new equipment-labeling proposals with respect to certain Part 15 and Part 18 equipment "in order to stop the flood of such devices intended for commercial or industrial areas only into residential areas."

## FCC FCC News

Courtesy of the American Radio Relay League

Newington, CT, October 13<sup>th</sup>, 2015 — The ARRL has asked the FCC to make clear that Amateur Radio licensees may modify non-amateur equipment for use on Amateur Radio frequencies. Some hams have expressed concerns that recently proposed rules would inhibit post-sale modification of Wi-Fi equipment, now sometimes altered for use on Amateur Radio frequencies. The ARRL made its point in [comments](#) filed on October 8 on a *Notice of Proposed Rule Making (NPRM)* in ET Docket 15-170 and RM-11673. The proceeding mostly addresses proposed amendments to FCC rules regarding authorization of RF equipment.

"The Commission should clarify...that the ability of licensed radio amateurs to modify and adapt non-amateur equipment for use in the Amateur Service is beneficial, is permitted, and is not restricted by any rule of general applicability adopted in this proceeding," the League said in its comments. The ARRL said proposed rules requiring manufacturers to include security features to prevent network devices from being modified were "problematic," to the extent that they would preclude hams from adapting network equipment for ham radio applications.

"The Amateur Radio Service has a very long tradition of modification and adaptation of commercial communications equipment," the ARRL's comments pointed out. Amateur licensees should be permitted to modify any previously authorized equipment for use under Amateur Service rules, the League asserted. The proceeding attracted many comments regarding this aspect of the proceeding, although the proposed rules differ only slightly from the current rules.

The ARRL also urged the FCC not to apply any limitations proposed for Software Defined Radios to SDRs intended for use exclusively in the Amateur Radio Service, "as has been the policy for the past 10 years."

The League also has called on the Commission not to combine the Declaration of Conformity (DoC) and Verification equipment authorization procedures into a single, self-approval program. The League said the proposal could lead to abuse by unscrupulous importers and manufacturers of unintentional emitters. Under the proposed rules, the FCC would do away with its DoC authorization program by combining it with equipment Verification to form a so-called "Suppliers Declaration of Conformity" category of equipment authorization. Testing in an accredited laboratory would not be required, nor would database registration or third-party review. The ARRL expressed concerns that the new regime would encourage and facilitate the introduction into the US of "non-compliant unintentional emitters" and offer no oversight.

The ARRL's comments said, "the only opportunity to preclude widespread sale and deployment of non-compliant RF devices, including unintentional emitters, is via the equipment authorization process." The League said hams and AM broadcasters have been victims of interference from such unintentional emitters as RF lighting ballasts "that routinely exceed the Commission's conducted emission limits." The ARRL said the solution is "not to loosen but to tighten the procedural controls over the testing and affirmative confirmations of compliance" to ensure greater compliance in conducted limits and other technical parameters that determine how much such devices contribute to ambient noise levels.

The League said some RF devices, such as RF "grow lights," now subject to the more informal Verification process should be subject to Certification, owing to their substantial interference potential. The ARRL noted that it has received and investigated "numerous reports of interference" from devices subject only to Verification. "A number of interfering devices, when tested by the ARRL Laboratory, have been found to exceed the FCC limits, sometimes by an alarming amount," the League said.

**Has Roadway found the tower yet?**

As part of an ongoing research and design project "to dramatically improve the usability and functionality" of its website, the FCC has debuted a new [prototype website](#) and wants to know users think about it. The FCC's 2011 website re-design was not well received, and the Commission has continued to maintain its previous, much-older website design in tandem with the newer one.

"You spoke, we listened," FCC Chief Information Officer David Bray said in an October 9<sup>th</sup> [blog post](#). "[W]e built a new beta (ie test) version of FCC.gov based on your input, and we need your feedback again. Building upon the foundation of extensive user research done earlier this year — and coupled with additional input we will receive during this beta period — the new FCC.gov will be more useful and accessible to FCC stakeholders."

Bray stressed that "old content and features" remain available on the current [FCC website](#) "while we perfect the new site. Bray explained that the new beta website is [Drupal](#)-based and responsive, and the display will optimize based upon the device being used to view the site.

Users can submit their comments and suggested bug fixes by using a [web form](#) or [e-mail](#).



# WASHfest 2016

The South Hills Hamfest — Now in our **TWENTY FIRST** big year!

Sponsored by the WIRELESS ASSOCIATION OF SOUTH HILLS AMATEUR RADIO CLUB, INC.

Sunday, February 28<sup>th</sup>, 2016  
8:00 AM until 3:00 PM Rain or Shine (or Snow!)  
Castle Shannon VFD Memorial Hall  
3600 Library Road (State Route 88), Castle Shannon, PA  
Talk-In on 146.955(-) and 443.650(+) 131.8 PL



**(800) 545-8881**

Breakfast & Lunch will be available!



*FREE Coffee* for the entire Hamfest  
courtesy of HAM RADIO INSURANCE ASSOCIATES  
of Canonsburg, PA

## MAIN PRIZES — You've Got to Play to WIN!



- 1<sup>st</sup> Prize: Yaesu FT-991 100 W HF/6M Transceiver  
2<sup>nd</sup> Prize: TBA  
3<sup>rd</sup> Prize: TBA

**Additional Hourly Door Prizes! Special Black Box Prize (Separate Drawing)!**

Main Prize tickets are \$2.00 each, 3 for \$5.00, 7 for \$10, 15 for \$20

**All Prizes Subject to last-minute changes**

For Table Reservations, or More Information, Please Contact:

Carol Danko KB3GMN at (412) 884-1466 [n3sbf@comcast.net](mailto:n3sbf@comcast.net)

E-mail us directly at [washarc@yahoo.com](mailto:washarc@yahoo.com) Check out our website too! [www.n3sh.org](http://www.n3sh.org)

**Please Note:** Early Table Reservations must be paid in full on or before January 31<sup>st</sup>, 2016. Reservations received after February 1<sup>st</sup>, 2016 must include payment in full. Reserve now... we have sold out in advance six years running!

Hamfest Table Reservation Form—Please PRINT LEGIBLY ALL INFORMATION

Name: \_\_\_\_\_ Email: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_ - \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Call Sign: \_\_\_\_\_

Tables WITH Electricity: \_\_\_\_\_ X \$15.00 = \_\_\_\_\_

Tables WITHOUT Electricity: \_\_\_\_\_ X \$12.00 = \_\_\_\_\_

**5 Or More** Tables w/o: \_\_\_\_\_ X \$10.00 = \_\_\_\_\_

Please make all checks payable to:  
WIRELESS ASSOCIATION OF SOUTH HILLS  
PLEASE MAIL RESERVATION TO:  
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We reserve the right to resell any tables not occupied by 8 AM, unless prior arrangements have been made!





# WIRELESS ASSOCIATION OF SOUTH HILLS, INC.

## Membership Application, New or Renewal



I would like to join WASH! I am interested in the following type of membership: ☐ **New Membership** ☐ **Membership Renewal**

(check quarter \_\_\_\_\_) →  
(check one ) ↓

	<input type="checkbox"/> 1st Qtr Jan-Mar	<input type="checkbox"/> 2nd Qtr Apr-Jun	<input type="checkbox"/> 3rd Qtr Jul-Sept	<input type="checkbox"/> 4th Qtr Oct-Dec
<input type="checkbox"/> (F1) Full Membership:	\$20.00	\$15.00	\$10.00	\$5.00
<input type="checkbox"/> (F2) Full Membership < 18 or > 65 yrs of age:	\$10.00	\$7.50	\$5.00	\$2.50
<input type="checkbox"/> (A1) Associate Membership:	\$10.00	\$7.50	\$5.00	\$2.50

☐ (FM1) Family Membership (\$3.00 x No. of household family members): \$ \_\_\_\_\_

Name(s): \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State: \_\_\_\_\_

Home Phone: \_\_\_\_\_

Email Address: \_\_\_\_\_

New Members Only:

☐ I do NOT want to be added to the Club E-Mail Reflector

☐ I do NOT want to be added to the Electronic Newsletter Mailing List

[If you have an Email address, you Will be added to both lists UNLESS you choose to Opt-Out]

Signature: \_\_\_\_\_

Call Sign: \_\_\_\_\_

License Class: \_\_\_\_\_

Expires On: \_\_\_\_\_

Work Phone: \_\_\_\_\_

Birthday: \_\_\_\_\_

ARRL Member? ☐ Yes ☐ No Family ARRL Member? ☐ Yes ☐ No

Date: \_\_\_\_\_

Amount Enclosed: \$ \_\_\_\_\_

**N3RDV has requested that all membership requests and renewals include an application so that his information is up to date**

Please make your check or money order payable to the club treasurer, Mark Stabryla.  
The Wireless Association of South Hills, Inc. reserves the right to accept or reject new memberships or renewals.  
Please return completed membership form along with check/money order to the club treasurer or mail to:

WIRELESS ASSOCIATION OF SOUTH HILLS, INC.  
c/o Mark Stabryla N3RDV, VP/Treasurer  
1120 McKnight Drive  
Bethel Park, PA 15102-2456



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Benefits for you: Joining and participating in everything the League has to offer, including a QST subscription.  
Benefits for the club: A few more shekels for our coffers.

Just fill out the form below, include a check or money order made out to WASH/ARRL, and return all to the club treasurer or mail to:

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c/o Mark Stabryla N3RDV, VP/Treasurer  
1120 McKnight Drive  
Bethel Park, PA 15102-2456

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Address: \_\_\_\_\_

City, State, ZIP: \_\_\_\_\_

Please Check the Appropriate One-Year Rate:

- ☐ \$39 in US  
☐ Age 21 or younger, \$20 in US (only if you are the oldest licensed amateur in your household)  
☐ Canada \$49  
☐ Elsewhere \$62  
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Date of Birth: \_\_\_\_\_

Total Enclosed: \$ \_\_\_\_\_

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Name & Call Sign: \_\_\_\_\_

Name & Call Sign: \_\_\_\_\_

Name & Call Sign: \_\_\_\_\_



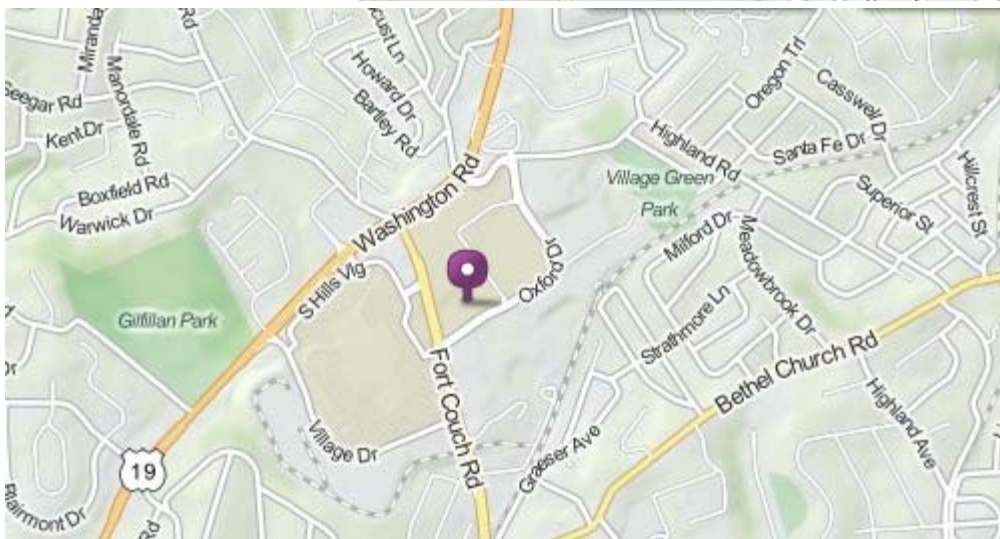
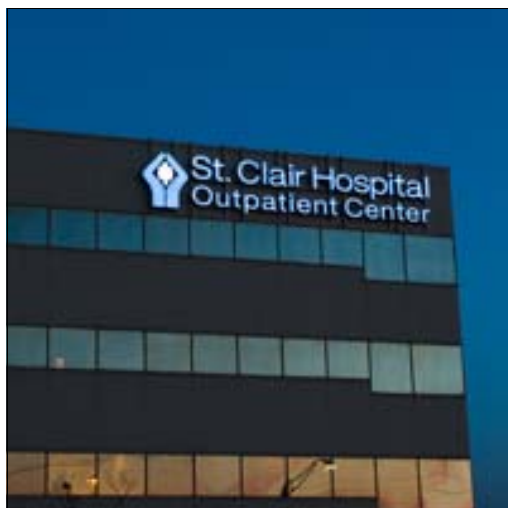
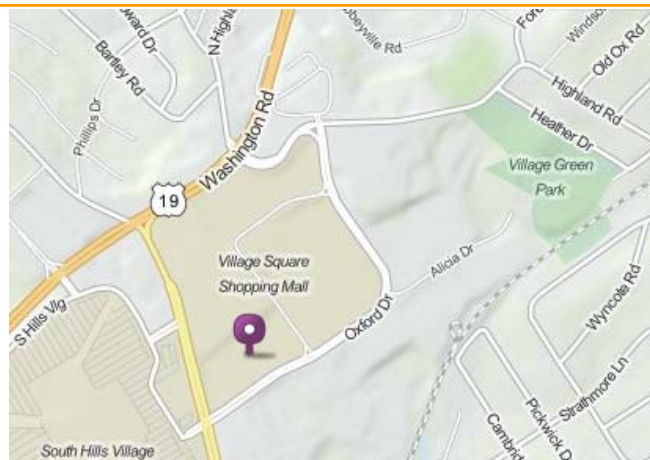
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## Location

### St. Clair Hospital Outpatient Center Conference Room

2000 Oxford Drive, Bethel Park PA 15102

Adjacent to Village Square Mall, across Ft. Couch Road from  
South Hills Village Mall, just off of US Route 19



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Ron Notarius W3WN, Editor

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