

Northwest Indiana DX CLUB

Volume 5, Issue 7

July 2017

President's Corner

The Club meeting was on June 17th at the Viking Chili Bowl. We had 17 hams and 4 female guests.

Jerry W9KTP displayed and talked about his in-line pre-amplifier that boosts the receive signal and is not affected by the transmitting.

We talked about another place where we can be together and hold a meeting. But it was discovered by a trip there, that Cristo's would not be good for having meetings and the food is more expensive. Thanks Jerry and Steve.

Therefore, we will continue to use Viking Chili Bowl until another place is discovered.

Still looking for artists or designers to create a good Logo. Can anyone create it?

73

John W3ML

Good DXing!

Don't Forget

DXCC CARD CHECKING

Doctor Richard Lochner, K9CIV is our Official ARRL DXCC Card Checker. Contact Rich to schedule an appointment for card checking.

You may email him at k9civ@arrl.net for details on how to mail your cards to him, if you desire to go that route.



INSIDE THIS ISSUE

- 1 President Speaks
- 2- Member News/DX News

NWI DX Club Website

<http://nwidxclub.weebly.com/>

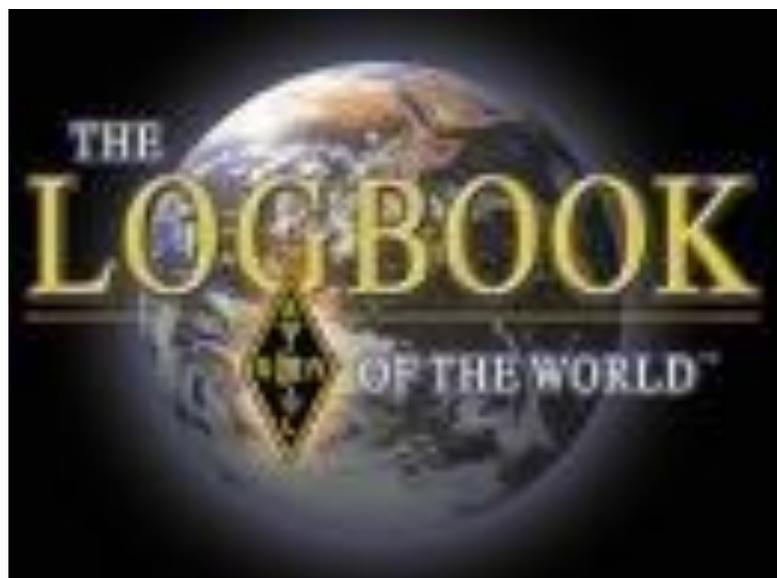
NWIDX Club Members
DXCC Challenge Award Scorecard
(as of June 18, 2017)

1	AG9S	JIM SJOBERG, JR	2938
2	N9FN	DAVE CHASEY	2244
3	K9FN	DAVID BUNTE	2082
4	W8FIB	TOM RUGGLES	1517
5	K9SUH	KENNETH REISING	1356
6	N9RD	JUERGEN NITTNER	1302
7	W9UM	NICHOLAS COMINOS	1249
8	W3ML	JOHN POINDEXTER	1227
9	KD9HL	STEVE MOLLMAN	1193
10	WB9IWN	JOHN SIKORA	1149
11	N9DD	THOMAS FRISZ	1045

The above totals were abstracted the ARRL DXCC Standings lists. <http://www.arrl.org/dxcc-standings>

The ARRL DXCC Challenge award is available to applicants who reach 1,000 band points on the bands of 160 through 6-Meters. This includes only current entities. Deleted entities do not count towards this award. All contacts must be made after November 15, 1945. Once you reach the 1,000-entity level, you are entered into the Challenge listing automatically. An application to request the DXCC Challenge listing is not required. This award is endorsable in levels of 500. There is no certificate for this award. A special plaque is available from the ARRL for the DXCC Challenge award.

The maximum possible points as of June 18, 2017 was 3390 points (10 bands X 339 eligible entities). The current world high point holder is EA8AK with 3251 points.



Hi all,

I thought some of you might like to read about the HamSCI organization and their plans for the upcoming eclipse.

<http://hamsci.org/projects/2017-total-solar-eclipse/2017-eclipse-experiment-description>

On a second topic, I attended the North West Indiana DX Club meeting on Saturday in Valpo, and Mike WB9NOO came along. At the meeting Jurgen N9RD mentioned an HF antenna array just northeast of the junction of US 30 and US 421 in Wanatah. He said it was pretty impressive.

So, Mike and I stopped there on the way home. Mike took a picture of it (attached). As you can see, it's in the middle of a field. The cylindrical poles are likely to be 50 meters high as that's what the Antenna Structure Registration (ASR) application says.

We're sure they're HF log periodic dipole arrays, each with 15 elements. All four are fixed to the northeast. I sent an e-mail to the name listed on the ASR application asking what they're for and by whom, but I have not heard back yet (if ever). Larry W9QR opines that they may be Air Force or FAA.

Who knows - maybe I'll get a visit from guys in black suits in a black car.

Carl K9LA



This was submitted by Tom W8FIB.

Impressive if not very intimidating. A 10' x 15' balun and transformers bigger than a man.

<https://www.youtube.com/watch?v=rKlic5e47ek&feature=youtu.be>

160 Meter RBOG PRE-AMP

At our meeting last Saturday, Carl Luetzelschwab, K9LA, mentioned that he used a pre-amp on his 160 Meter RBOG (Reversible Beverage On Ground). Carl was good enough to send me a complete article he wrote about KD9SV's RBOG system which includes the preamp. The preamp and other components for the RBOG are available at DX Engineering. If you are going to do some 160 Meter DXing, this system offers some amazing results.

Many thanks to Carl,
Jerry Hess, W9KTP

NCJ Product Review – Sep/Oct 2015
KD9SV Reversible Beverage-On-Ground
Carl Luetzelschwab K9LA k9la@arrl.net

In the fall of 2013 I acquired a Shared Apex Loop array from Array Solutions to help with my contesting (and DXing) efforts on the low bands. I would have preferred to install four (or eight) long Beverages around the compass, but our property won't allow that. So, I settled for the SAL-20 model (the model with a 20-foot horizontal length for each triangular loop) due to its small footprint (40-foot diameter). It was a compromise in RDF (Receiving Directivity Factor), but it fit our property and it opened up a new layer of QSOs for me. See the April 2014 QST for my review of the SAL-20.

Recently Beverages laying on the ground (BOGs) have gained popularity with the low band crowd due to the ease of installation, very respectable performance and shorter length. The shorter length aroused my interest, as I may be able to install a pair of two-direction Beverages to cover NE-SW and NW-SE on our property. So, when Gary Nichols KD9SV offered me his 200-foot long RBOG for evaluation, I jumped at the chance.

The KD9SV RBOG consists of a feed transformer, a reflection transformer, two-conductor wire and a control box. For two-direction performance, you need to provide two RG-6 coax feed lines that run from the feed transformer at the antenna to the control box in the shack. The control box (see Figure 1) includes a 160-Meter band pass filter, a 20-dB preamp and a termination for the coax on the unused direction. The preamp and filter are bypassed for operation on frequencies higher than 1.8 MHz. A 12 VDC source is also needed for the control box.



Figure 1 – Control Box

I originally planned to install the RBOG in our neighbor’s field to the west of us. But we had so much snow last winter that the pond in the field was considerably expanded. Thus, I had to go to Plan B – install it along the north property line that runs partially along and partially in the woods. I cleared a path with the lawn tractor, raked the debris down to dirt level, and laid the two-conductor wire along an ENE-WSW line. The installation, with everything at (literally) ground level, was easy and went smoothly.

Prior to the installation, I measured the preamp compression characteristics and the response of the 160-Meter band pass filter. Figure 2 shows these results. The preamp has an input 1 dB compression point of -20 dBm (with a gain of about 20 dB, the output P1dB is around 0 dBm). The 160-Meter band pass filter has a typical response for a parallel-resonant LC circuit.

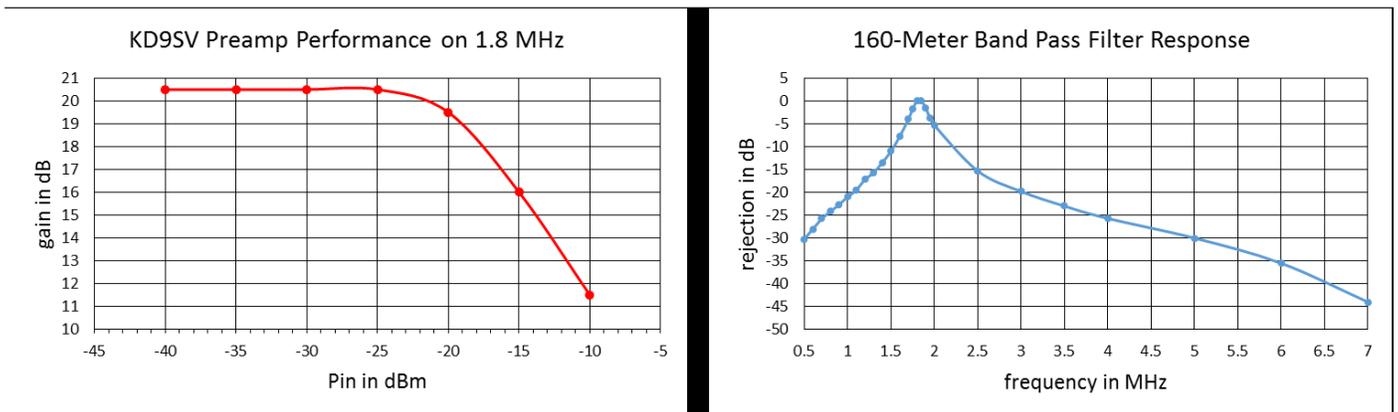


Figure 2 – Preamp and BPF Performance

The measured P1dB of the preamp is about 20 dB lower than the specification on the FET data sheet. It is lower because the FET in the RBOG preamp is lightly biased (lower quiescent current) compared to the data sheet condition. With 160-Meter aficionado John Goller K9UWA only 2.3 miles to the northeast of my QTH, I wondered if his transmit signal via ground wave could cause the preamp to go into compression. So, we set up a test – when K9UWA keyed his radio at 1.0 kW, his signal on my inverted-L (maximum gain around 0 dBi in the main lobe) was

around -23 dBm (that's about S9 + 50 dB). With the maximum gain of the BOG in the main lobe around -20 dBi, I don't expect any problems with the lower P1dB.

I had planned to do an extensive on-the-air evaluation of the RBOG system with European signals, but unfortunately 160-Meters has not been cooperative. My back-up plan was to listen to W1AW on 1802.5 KHz in the evenings (a path distance of around 1200 km). The signal-to-noise ratios (SNRs) of W1AW in Table 1 are representative for three different nights (with two nights at two different times) for my transmit inverted-L, the SAL-20 pointed NE and the 200-foot RBOG running ENE-WSW. I should point out that you must calibrate your S-meter to do these measurements.

Date	Time (UTC)	Transmit Inverted-L	SAL-20	RBOG
7 May 2015	0025	5 dB	11 dB	19 dB
7 May 2015	0040	24 dB	33 dB	35 dB
13 May 2015	0020	14 dB	10 dB	12 dB
13 May 2015	0030	9 dB	7 dB	11 dB
4 June 2015	0056	17 dB	21 dB	32 dB

Table 1 – SNR Results with W1AW on 160-Meters

Note the interesting results on 13 May – at the early time the SNR was actually higher on the inverted-L than on both the SAL-20 and RBOG. I don't believe I screwed up the measurements, as I've experienced the Inverted-L every once in a while beating the SAL-20. I believe this is due to how noise arrives at your location in terms of azimuth and elevation angle – the directional characteristics of noise can vary day-to-day and hour-to-hour, as do the arrival elevation angles of the desired signal. In fact, I believe two antennas with the same RDF could perform differently because RDF assumes noise arrives from all directions – but it doesn't.

In addition to the SNR measurements of Table 1 and listening at other times, the RBOG is really impressive when using your ears and the signal is near the noise. Most of the time the RBOG beat the inverted-L and the SAL-20. Nothing against the SAL-20 – most of the time it beat the inverted-L. As stated earlier, the SAL-20 is a good choice for space-limited QTHs – it will offer QSOs that you may otherwise not be able to complete.

I'm really interested in seeing what happens to the performance of the RBOG this fall and winter. Since it's on the ground and near many trees, it will be covered up with leaves – both dry leaves and wet leaves after a rain or snow. If the wet leaves introduce more loss, then the performance could suffer. The solution, as mentioned by several on the topband reflector, would be to keep the two-conductor wire clear of leaves (and other debris). Also, two other evaluators (K3UL and K2CUB) of the KD9SV RBOG report that snow last winter didn't appear to affect the performance – that's not too surprising as the density of snow can be low, and the conductivity and relative permittivity of not-too-dense snow at 1.8 MHz is not prohibitive.

I'm always interested in antenna modeling, so Jim Wolf KR9U and I modeled a BOG close to ground using NEC 4.1, which uses the GN2 ground code. This effort was spurred on by the work last spring (to eventually be published in QEX) of Rudy Severns N6LF. He used NEC 4.2, which uses a more complex ground code – GN3 – and compared simulated results to measured results of four antennas: a 300-foot center fed dipole that was moved from 4 feet above ground to 1 inch above ground in several steps, a 40-foot dipole buried 1 inch below ground, a tall vertical wire with one ground rod and his 450-foot long BOG. With all four antennas, his simulated results agreed very well with measured results as long as he paid attention to the modeling rules in NEC, paid attention to the insulation on the wire and used measured values of his ground conductivity and permittivity (as opposed to the canned 'poor', 'average' and 'good' values).

Our first modeling exercise was to compare the NEC 4.1 results to N6LF's NEC 4.2 results on the 300-foot dipole (remember, it was always above ground). The modeled results from 4 feet above ground to 1 inch above ground were extremely similar to Rudy's results, giving us confidence to model a BOG at 0.25 inches above ground using NEC 4.1.

Some interesting trends we saw with our modeling efforts with BOGs:

- 1) Just like normal Beverages several feet above ground, BOGs appear to have preferential lengths for best F/B
- 2) BOGs can be too long – on 160-Meters, a good length appears to be 200 feet
- 3) The decreased BOG gain will benefit from the use of a preamp

In spite of the limitations of the model (for example, how well does NEC model the transition from air to ground?), broad trends were discerned. Figure 3 shows the modeled results for a 200-foot long BOG at 0.25 inches above average ground (we used average ground as at the time of this writing we don't know our ground characteristics) with a 240-ohm termination. These results should be regarded as PRELIMINARY. The RDF is decent (9.3 dB) for a "short" antenna, but the F/B at expected elevation angles (about 11 dB) isn't spectacular.

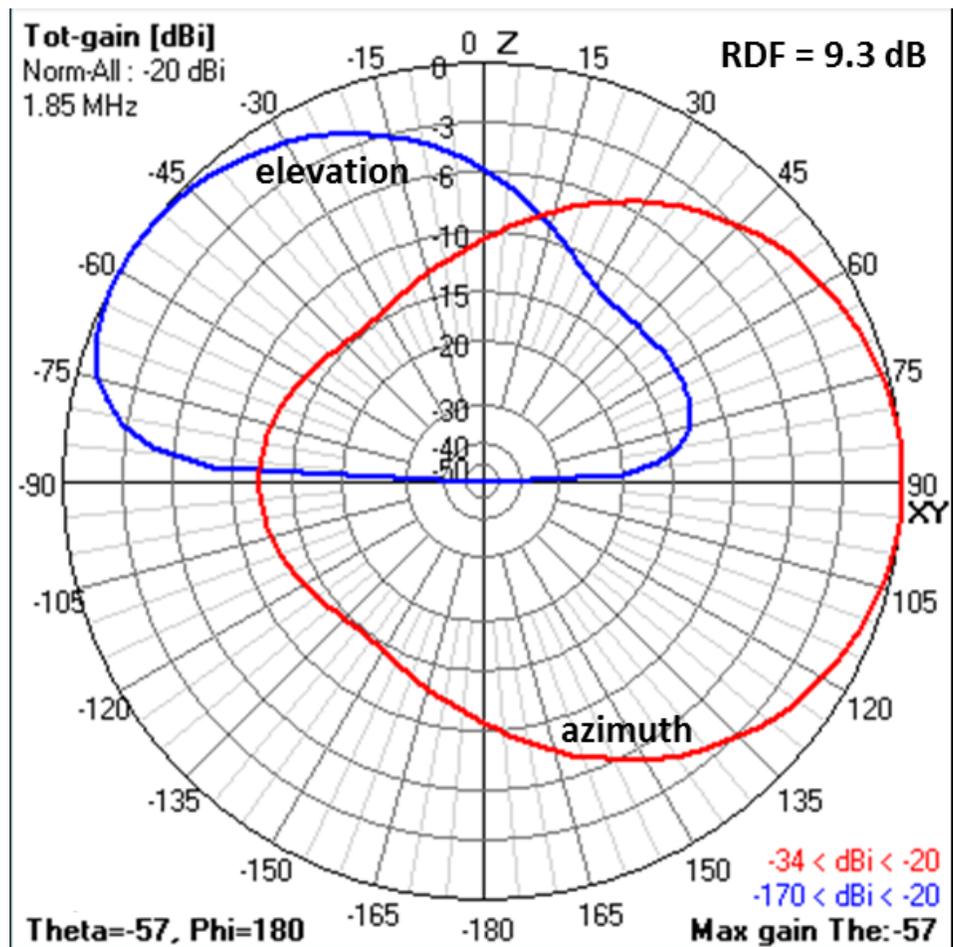


Figure 3 – Preliminary Simulated Results

In summary, the KD9SV RBOG performed well under my limited evaluations, and most of the time it should give very respectable results. But the RBOG takes up more space and you need at least one more two-direction system to have the minimum “around-the-compass” coverage. Having said that, I have no plans to take down the SAL-20, as I believe in the old adage “you can’t have too many antennas on 160-Meters”.

The KD9SV RBOG is sold through DX Engineering, and details about it can be found at <http://www.dxengineering.com>. When you visit the DX Engineering web site, do a search on KD9SV Products.

Submitted by Rich K9CIV

<http://www.dailymail.co.uk/sciencetech/article-4648214/NASA-says-solar-minimum-way.html>

Have asked Carl how this effects low band propagation.

Hi Rich,

I saw that article. The author is well known in the solar community.

The low bands should get better due to less absorption, but to some extent that gets balanced out by more geomagnetic field activity due to coronal holes. Historically solar minimum has been pretty quiet in terms of geomagnetic field activity, and the initial rise of a solar cycle is the quietest.

20m and 17m should still offer DX opportunities at solar minimum. But 15m and above will not be very productive (except for Es in the summer).

Carl

Pictures from the Last Meeting.

I would like to thank Steve Mollman KD9HL for the pictures and captions.



AJ9C Mike Kasrich



W8FIB Tom Ruggles, Sherry Hill (KC9OYE-XYL), AJ9C Mike Kasrich



W3ML John Poindexter and KC9OYE Chuck Hill



Front Row- W3ML, W9DZ Alan Jones, AG9S Jim Sjoberg

Second Row- KQ7E Steve Vukusic, W8FIB Tom Ruggles, AJ9C Mike Kasrich

Third Row (wall) – W1PIT Alan's shoulder, WA9JNO Earl Gumm, N9RD Jurgen Nittner,
WB9NOO Mike Stein, K9LA Carl Luetzelschwab

Thanks again Steve.

K9CIV Richard Lochner had to leave early as he had a meeting where he received the *Governor of Indiana York Rite Sovereign College Award*.



NORTHWEST INDIANA DX CLUB

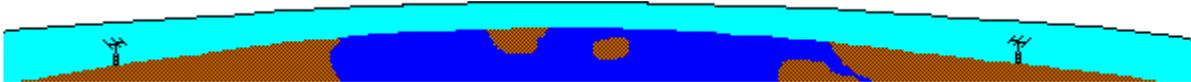


Radio	Confirming QSO				PSE QSL <input type="checkbox"/> TNX QSL <input type="checkbox"/>		
	DAY	MONTH	YEAR	UTC	RST	MHz	MODE

www.cheapqsl.com

I want to thank those that have been sending in articles for the newsletter. All items are appreciated.

Don't forget to send in any information you would like to share with the Club members.



Until Next Time,

73

John

W3ML

<http://nwidclub.weebly.com/>





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