



ADXA Quarterly

ADXA Minutes



The third quarter meeting of the ADXA was held at home of Ken Blevins, K5ALQ. in Little Rock, Arkansas on September 16, 2017. Those members that signed the sign in sheet included Earl Smith, N5ZM, Dennis Schaefer, W5RZ, J Ferguson, N5LKE, Frank Kollatt, W5BPT, Roger Gray, N5QS, Dawn Gray, N5QT, Glenn Holmes, N5KLE, Pat Patterson, W5VY, David Norris, K5UZ, Ken Blevins, K5ALQ, Joel Harrison, W5ZN, and Glenn Wolf, N5RN. Guests included Ford Ferguson, and Madge Kollatt, W5EFA.

The meeting was called to order by the President, W5ZN at 1:09 PM.

W5ZN thanked K5ALQ for hosting the meeting and taking care of the food.

A motion was made to accept the minutes as

printed in the newsletter by N5QS. N5ZM seconded it and the motion carried.

N5RN gave the treasurer's report. N5ZM made a motion to approve. N5LKE seconded and the motion carried.

Old Business

ADXA's contribution to the Bouvet DXpedition was discussed. The donation is to be made next week, if possible.

N5QS gave an update on the Harding station. It is being moved to a new room and should be completed in the next few months.

New Business

Content for the newsletter was discussed. "Everyone has a story to tell so send it in". N5RN can get it into the newsletter.

The next item discussed

was the December meeting. K4UEE is a possible guest along with K9LA. The current plan is for an evening meal (dutch treat) on December 2. K5UR along with K5UZ are likely speakers as well.

N5LKE gave an update on the ARRL Arkansas section. Membership has taken a downward hit most likely because of the ARRL membership cost increase. J shared some of his Field Day experiences. He really enjoyed the sites he was able to visit. J will soon be making his first trip to ARRL HQ for orientation.

K5UZ gave a Delta Division update. DXCC Integrity is a big concern for many. Remote operators seem to be the main issue and looking at how to handle this situation is still being looked at.

(Continued on page 2)

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Items of Interest

[ADXA 50th Anniversary Convention](#) — Wyndham Riverfront Hotel, North Little Rock, AR—9:00 AM to 3:00 PM

The recent DXCC rule changes for Kosovo are an example of where the League needs to move more slowly and seek the input from the DXAC which seems to be ignored as a resource as of late. Many other sections are expressing concern about the DXCC program.

LOTW is a selling point for ARRL membership. It has significantly lowered the cost of QSLing.

Other Business

W5RZ mentioned that there will be a K5BAT workday on June 30th.

It is time to select a slate of officers for next year. N7FF has asked to be excused from the Executive committee. After some discussion the following slate of candidates are nominated to serve as officers and board members:

W5ZN—President

W5VY—Vice President

N5RN—Secretary/Treasurer

N5ZM—Executive committee member

N5QS—Executive committee member (taking N7FF place)

These will be voted on at the December meeting.

Webpage item: W5VY is going to look at creating an area on the ADXA webpage that has more sensitive information and will require a password.

N5ZM made a motion to adjourn. K5UZ seconded. The motion carried and the meeting was adjourned at 2:10 PM





50th Anniversary Convention

**Wyndham Riverfront Hotel
North Little Rock, AR
December 2, 2017**

Agenda

0900-0910	Welcome Joel Harrison, W5ZN, ADXA President
0910-0950	Solar Topics & Propagation Carl Luetzelschwab, K9LA
1000-1050	3Y0Z Bouvet Island DXpedition Bob Allphin, K4UEE
1100-1150	Planning & Financing Top 10 DXpeditions Bob Allphin, K4UEE
1200-1315	Luncheon Special Guest Speaker Rick Roderick, K5UR, ARRL President
1330-1400	ADXA Business Meeting
1400-1450	Understanding Disturbances to Propagation Carl Luetzelschwab, K9LA
1450-1500	Wrap up - Adjourn

Luncheon Menu

Garden Salad

“Grilled Breast of Chicken Rosemary” or “Roasted Pork Loin”

Twice Baked Potato

Broccoli & Carrot Medley

Apple Pie

From the President Joel Harrison—W5ZN

50 years is a point in time that is recognized and celebrated in various ways from birthday's and wedding anniversaries to historic moments in time. In Amateur Radio circles we have seen recent recognition of 100 years of existence that demonstrates our importance to humanity through public service, technical innovation and personal development.

So it is of no surprise to me that 50 years ago five radio amateurs in Arkansas decided to formalize their specific area of interest in DX'ing with a desire to promote the fine aspects of personal development. Make no mistake about it, the Arkansas DX Association has been one of the most respected amateur radio groups not just in the U.S. but around the world as evidenced by our thriving existence now 50 years later. Sure, we've had our ups and downs over that time, every group and individual does however the ability to persevere and mature through time is what permits organizations to celebrate such occasions rather than complain on your favorite rag chew frequency about a now defunct organization and how things "used to be" and who did or did not do something about it.

My greatest honor and privilege was to have been elected and serve as ARRL President. It is an extremely difficult job! Only 16 radio amateurs in ARRL's 104 year history have done so. Next to that has been my honor and privilege to serve as ADXA President. I remember well my first ADXA meeting.....I don't recall the date but it was in Little Rock back in the early 70's. Why did I have a desire to be involved with this group?

Because my buddy K5GK convinced me we needed to get involved with ADXA as they were the folks who had a wealth of knowledge gained from real experience about everything a ham must know; antennas, operating techniques and simply how to do things the right way! I was welcomed to the meeting and I listened and learned from every word spoken and presentation given....I even took notes to keep and review time and time again about how to do things that not only worked, but were the right way to do things!

Times change, technology changes, people and personalities change and they most certainly have since those early days of the ADXA. What has NOT changed, though, is the desire of the ADXA to continue to promote the pursuit of DX in addition to encouraging, mentoring and developing the technical skills of our members by promoting first class operator talent and efficiency. To do things the right way!

I do not expect to live to be 110 years old so I won't be here for ADXA's centennial celebration when we turn 100, however being here for our 50th is a special treat we should all cherish for the rest of our lives.

Please join me on December 2 for our day event in North Little Rock.

73 Joel W5ZN
ADXA President

Portable, Standby & Emergency Power Supply

Ken Blevins, K5ALQ

Portable, Standby & Emergency power supply:
Designed & Constructed by K5ALQ: 2004

How many times per year have you "wished-for", or "wanted" your own lasting power source that is also capable of operating your radio equipment at home or in the field, without commercial power being available, or to maintain for "emergency" operations?

Your vehicle is a ready source of 14VDC, but becomes somewhat "overkill" during extended operations as well as an unnecessary fuel-hog, even if you might already have a good mobile station installed in it. This simple construction project is easily capable of Jumpering onto a mobile installation to keep it operational, without having to wear the vehicle engine or get in line at the gas pump on extended uses. but the major utility is easily for remote/emergency operations & being able to access operating sites that you can't easily get to in the vehicle as well as possible "contest" sites.

This unit furnishes a sound, 13.8 VDC on a minimum of fuel consumption & can be a lot of fun and satisfaction to build, besides the utility of many other uses. such as when your vehicle won't start on a cold morning.

I designed and constructed my own unit, because I have a deer-hunting RV that operates on 12VDC, but requires me to hook up to my vehicle to provide a battery charge about every 2-days and does NOT provide continuous operation, such as with an operational Ham radio installed in the RV and sometimes desired to make use of, when WX precludes any hunting activities for a peticular day. My portable generator, allows a quick & efficient battery recharge for the RV, but also allows me to operate a typical 100Watt HF radio, during the charging, or for extended radio operations, when the RV battery alone is not capable of furnishing the peak power required for the radio.

I started this project with a surplus, throw-away, little 2HP Briggs/Stratton engine, which was little-used, outside of the worn-out & beat-up lawn edger that it was on & that is the typical case of lawn edgers and some garden plows. (You see them awaiting a dumpster all over the place, with a good-as-new engine sitting on them and they all have a horizontal output drive shaft, which is perfect for this re-birth, besides usually "give-away"!

My engine is a "little small", however, and a 3.5-4.5HP would be a recommendation for all future builders! My engine is immediately de-rated to 1.7HP for mfg. purposes and at normal speeds. The following is a listing of my design parameters & notes:

1. 1-HP = 746 Watts.
2. Engine designed to operate at 1800RPM-3600RPM.
3. Engine designed to operate at 1750 RPM (in "Idle".
4. Engine designed to operate 3600 RPM for 1492 Watts & porportional to speed setting.
5. Engine "LOADING" should NOT exceed 85% of max.-rating & be de-rated for Alt./Temp.
6. My engine is manual set to approx. 1800RPM, which should equate to 600-Watts.
7. I set the pully-ratio at .66 (the generator turns at 1200RPM.)
8. Gen. output is a normal/typical 14VDC.
9. Current output is a typical "43-Amps.w/engine at just a fast-"idle".

The skid/mounting was built at a machine shop from aluminum "I-stock" and 1/4" Aluminum. at a cost of \$43.

The alternator was purchased at a salvage yard for \$53. and was identical to my Ford, 2002, F-150 PU, at the time. I "pulled"it & made sure to take 3' of the connected wiring with it (which was enough to construct my entire project.

I took the alternator to a very active vehicle electrical rebuilding shop, had it tested and also had the "surpettine" pully removed and a standard pully installed, while selecting a replacement pully of the desired diameter.

The alternator is just a standard, Ford one & is rated at 100Amps. of output, but is easy to deduct that even the vehicle wiring would NOT support this current for over a couple of seconds, My engine wouldn't handle this load, AND I only wanted 25-30Amps. anyway, so I researched the typical vehicle alternator's to find that they have an efficiency curve that approximates "43-Amps of current output at the pulley-ratios I decided on, which only required my engine speed at a little over 1800 RPM, which is both "quiet" as well as very "economical" to easily feed a 100 Watt Ham Transceiver while recharging an RV battery.

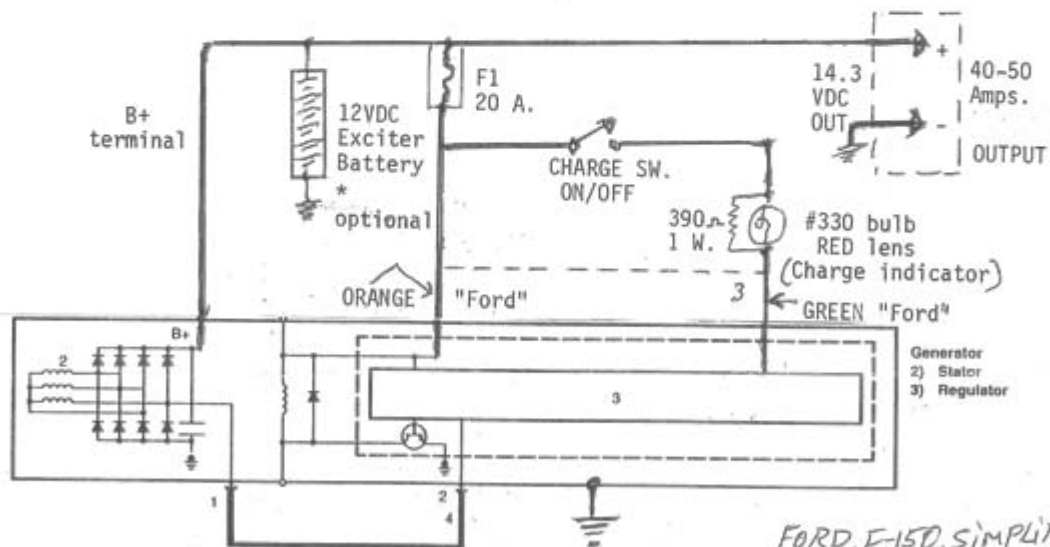
An initial hook-up should be made with the "charge switch" in the Off/Open position. The "charge light" will light, indicating the lack-of-same, but are supplying excitation to the alternator! Start the engine, giving it 30-seconds or more to warm-up a little & then close the "charge Sw. to "ON", which will begin supplying excitation to the alternator & producing output current to the output poles where-in the light should go "OUT" (And remain OUT which indicates normal output is being delivered. (RE: the "charge switch" essentially is taking the place of your vehicle's switch-key, if the alternator was installed in a vehicle & you were allowing the engine to immediately assume the load of recharging by itself, without manually controlling it yourself, which would make the engine-generator have to start under Load and much harder to manage.) The included "battery" is shown on the included schematic as the actual vehicle battery, because you MUST have a few volts of excitation to begin with, in order to start the alternator's operation, but which, almost all-ways can come from the battery that is needing the charge & which is "external" to the unit.

In most cases a good, clean-running and suitable engine can be found at NO charge, but even a brand-new one is available at approx. \$100. even though want-ads are abundant with an array of availabilities at give-away prices.

GOOD LUCK to anyone that has found interest in this item and they are welcome to call me for any assistance, clarification, or explanation that they might have, should they decide to build their own?

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3
ENC: (4)



FORD, F-150, SIMPLIFIED
SCHEMATIC: EMER. GEN.

Comparison of the HiZ-8 & BSEF 8 Vertical Arrays

For Low Band Receiving

Joel Harrison, W5ZN

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For several years I have been passionately driven to improve my 160 meter receive capabilities and I continually strive to gain whatever advantage I can in order to hear DX stations with improved signal to noise.

Over the years I have gained considerable experience with receiving loops, Beverages and Beverage arrays. In 2008 Bob McGuire, N4HY, told me about a vertical array system he had worked with and conducted extensive modeling on and was anxious to see it put into service. As a result I constructed a broad side - end fire (BSEF) 8 vertical array for 160 meters in the fall of 2008 and placed it in to service. The details of that project were thoroughly documented in a paper published in July 2009¹, later published in QEX², and revised as a Second Edition in March 2017. The array provided stellar performance over anything I had previously used, including Beverage arrays, and inspired me to make significant improvements to my Beverage system but the vertical array continually outperformed all of my receiving antennas.

During this time the HiZ antenna systems were becoming very popular among low band enthusiasts and reports of excellent performance were presented. Could these reports suggest a system superior to the BSEF array was now available? My passion for continual improvement of my low band receiving antennas drove me to purchase a HiZ -8 system in the fall of 2014 with the objective of comparing the array to the BSEF array. This paper documents those results recorded over three 160 meter seasons in the winter of 2014/2015, 2015/2016 and 2016/2017.

Geographical Differences in Antenna Comparisons

Low band receive antennas cannot be properly evaluated without taking into consideration geographical differences. The propagation characteristics for a station located on the east or west coast near a salt water environment will be much different than those for a station located in “fly over country” in the middle U.S.

Comparing one antenna at a location 1000 miles away on the east coast with a similar antenna located in rural Arkansas will not give an accurate comparison. By the same token, the exact same antenna may perform differently in those two locations for a variety of reasons.

In contrast, I use three stations for propagation comparison to my location. W0FLS in Iowa is 425 miles north of me at 344 degrees azimuth, W5UN in northeast Texas is 200 miles W/SW at 235 degrees azimuth and K5RK in south Texas is 450 miles S/SW at 205 degrees azimuth. The propagation differences of what we each can and cannot hear is significant! Even close to home, K5UR is 25 miles SW of me and WD5R is 20 miles north. We compare notes frequently and the differences between signal-to-noise ratios for the three of us that close is sometimes eye opening.

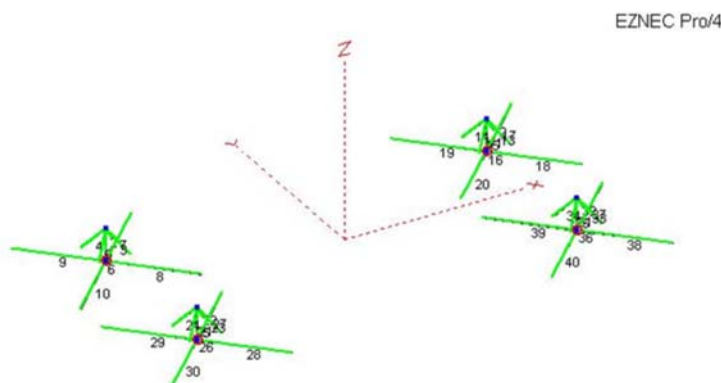
¹ References appear at end

160 meter propagation is beyond the scope of this paper although I encourage you to read the excellent work by Carl Luetzelschwab, K9LA³ on this topic. My desire was to have the two systems erected at my location in order to achieve an as near perfect “A -B” test possible and not rely on comparative readings from another station some distance away.

Differences in 8 Vertical Arrays

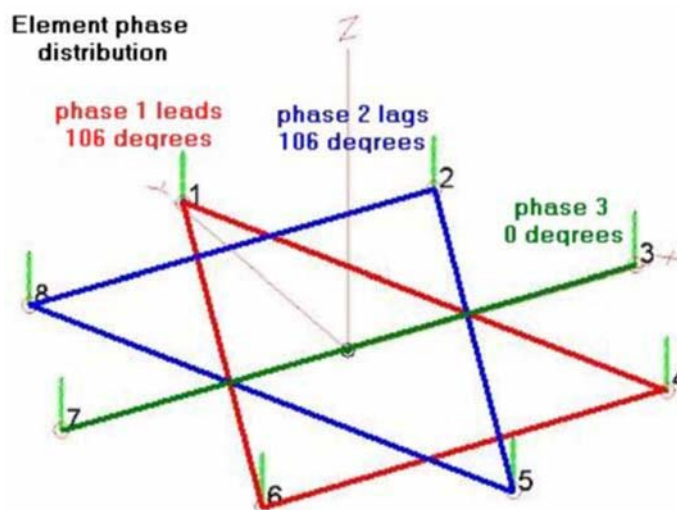
The BSEF-8 and HiZ-8 vertical arrays are not identical and the differences, often confused by radio amateurs, should be understood.

The original BSEF array is a passive array (no active amplification components) designed to have a low input impedance of 75 Ohms that results from intentional radial system losses and a resistive matching network. Only four of the 8 verticals are used for each direction at any one time to phase a broad side pair of end fire verticals.



Please note that an active element version of the BSEF array is now commercially available⁴ however this review and comparison deals only with the passive array originally built at W5ZN.

The HiZ-8 array is an active array utilizing high impedance amplifiers at the feed point of each vertical and all 8 verticals are active for any one direction with three elements in phase 1 leading by 106 degrees, three elements in phase 2 lagging by 106 degrees and 2 elements at 0 degrees as shown below:

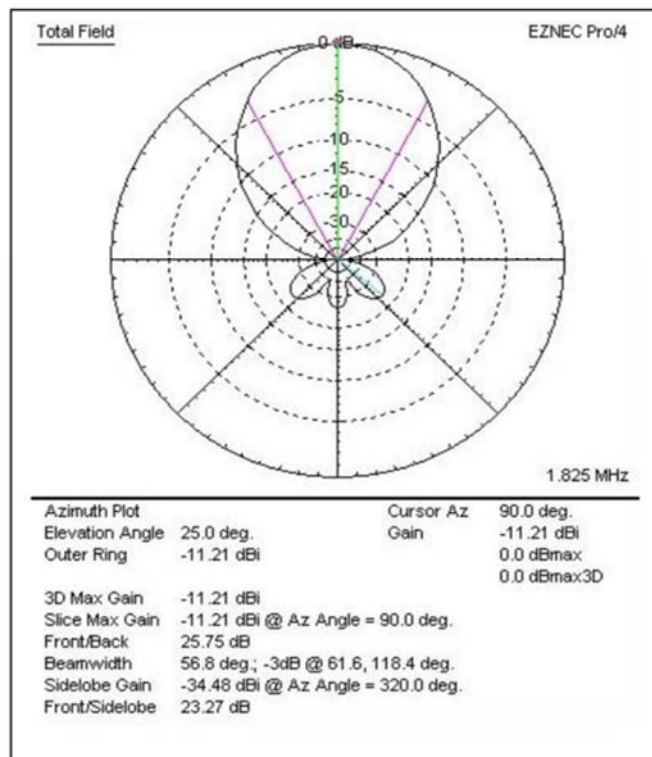
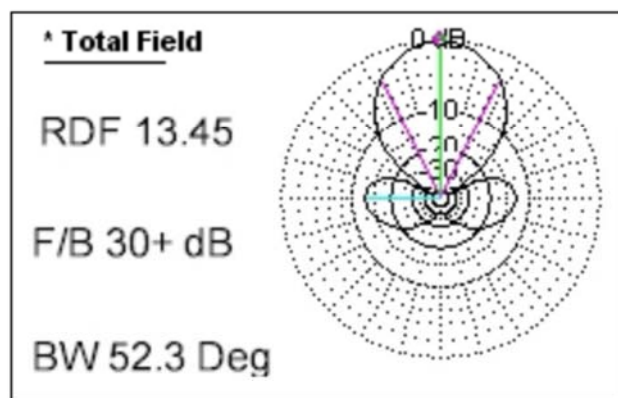


Courtesy HiZ Antennas (hizantennas.com)

Although different, modeling of each array supported by actual on-the-air performance tests prove each design utilizing short vertical elements will outperform any low band receive antenna available today.

Modeling Comparison

A comparison of modeling data suggests the HiZ-8 array presents a better pattern, revealing an RDF of 13.45 dB with an F/B ratio greater than 30 dB in a 52 degree beamwidth. The BSEF array exhibits an RDF of 13.0 dB, an F/B ratio of 26 dB in a 52 degree beamwidth. These are excellent numbers for both arrays. It is worth noting that maximum F/B will only be achieved if the arrival angle of the signal appearing opposite the desired direction compliments the appropriate null depth position. This data also suggests the BSEF array produces an improvement in side lobes over the HiZ-8 array.



BSEF-8 Array
N4HY Modeling Data

Locating & Constructing the Arrays

As previously noted, the construction of the BSEF array was detailed in a 2009 paper that was revised in a Second Edition in March 2017. This array is still located in its original location approximately 750 feet south from the shack in an open field.

In order to ensure adequate separation between the two arrays, an area in an open field 750 feet to the east of the shack was selected for the HiZ-8 array. This provided a separation from the BSEF array of approximately 900 feet and a separation of over 1000 feet from the transmit antenna.

The HiZ- 8 vertical elements were constructed to the specification of the HiZ AL-24, 24 foot elements and placed in a 200 foot diameter circle in accordance with HiZ specifications.

Test Objective

The objective for my test after evaluating the similarities and differences in the modeling data was to determine if these would present a noticeable real world difference that could be identified in day to day operation on 160 meters. I had already proven that the BSEF array was superior to any other 160 meter receive antenna at my location and based on the modeling concluded the HiZ-8 array would also provide superior performance compared to those so this comparison was only to the BSEF array. I did, for a brief period of time, compare both vertical arrays to Beverages as noted in Table 2.

Test Setup

The test set up is a simple arrangement comprised of two each of the following:

- Elecraft K3 Transceiver

- LP-PAN 2 SDIQ Panadapter NaP3 panadapter display

An Elecraft XG-3 Signal Source is used to establish and maintain a calibrated display. Prior to the start of each series of measurements a -73 dBm signal was injected into each system to verify calibration. Given that approximately 800 feet of signal cable is used to reach each array the initial cable loss was measured at 2.0 dB and verified daily prior to measurements. The objective was to collect actual on-the-air performance data of signal to noise levels and determine if any performance difference in antennas could be detected.

Test Results

Let me be very clear that I am not in the commercial or professional business of amateur radio and have absolutely no pecuniary interest in any amateur radio product. These results are based on actual on-the-air data recorded at my station location and represent a fair and honest comparison of two very excellent receive antenna systems.

Noise Floor Measurements

The measurement of each array's noise floor must take into consideration that one is an active system and one is passive. As such a direct comparison is not possible except to compare the noise floor pattern over the eight azimuth directions and to note the amplitude differences between the high and low level of each array's variation. The result of this measurement, averaged over the period of three 160 meter seasons is shown in Figure 1.

Front to Back & Front to Side Comparisons

Equating front to back and front to side ratios to modeling data can be difficult in a simple test environment due to multiple factors that include arrival angle of the desired signal, arrival angle of undesired signals, the characteristics of noise generated conditions as well as construction of the array components in relation to the model design.

My objective was to identify what could be detected in an actual on the air real world comparison. As such, a 25 to 30 dB F/B ratio was repeatedly obtainable in comparing multiple signals. If a signal could be placed exactly in a side or rear null reductions greater than 30 dB could be easily achieved. I was not able to identify any rear or side null reduction greater than 30

dB however it is very important to note the fact that 25 to 30 dB represents a significant reduction in undesired signals.

Signal Level Comparison

Over the three 160 meter seasons identified signal levels from 75 DX stations in various parts of the world were recorded. Signal levels from 36 of those stations are depicted in Figure 2 with the tabulated results noted in Table 2. The remaining 39 station results were comparable to those depicted. As can be seen, neither array outperformed the other on a recurring basis. At times the HiZ array provided a 1 to 2 dB increase over the BSEF array and at other times the BSEF would outperform the HiZ by the same difference. Stations recorded included 5W0UU, 9K2HN, V63DX, HL5IVL, ZD8W, DU7ET, JD1BMH, K5P, VP8STI, VP8SGI, RA0FF, 3XY1T, A35T, ET7L, 3DA0IJ 5V7D and FT4JA, 3B9HA, TL8TT, 5U5R & TU7C.

Contest Performance

Specific data was not collected during contest activity although the two arrays were evaluated in the major DX contests during the time frame noted above. Both arrays provide outstanding performance and a significant reduction in undesired adjacent frequency signals, noise and harmonics from areas other than the desired direction.

This has been noted by W3LPL on the east coast, who contends with a large geographical area off the back and sides while focusing on Europe, and at W5ZN in the central U.S. It is important to emphasize that, given the excellent pattern of both arrays, you will most likely be unable to hear Caribbean or South America stations when focused on Europe during times when all of these areas are in darkness as has been experienced multiple times at W3LPL and W5ZN.

Conclusion

Phased receiving arrays of short verticals provide superior performance over other low noise receiving antennas for 160 meters including Beverages and loops.

Both versions of 8 vertical arrays provide stellar performance that is comparable to each other at my location. A decision on which array is best suited for your location must be assessed and include evaluation of the benefits and challenges that exist for each array. These include, but are not necessarily limited to, the notes in Table 1.

The BSEF and HiZ arrays were used together in diversity receive with the Elecraft K3. This performance is nothing short of amazing. During even marginal propagation periods this provided a noticeable enhancement for very weak DX stations.

I no longer use Beverage antennas, relying solely on the two vertical arrays for my 160 meter receive application.

W1FV 9 Vertical Array - Initial Performance Review

Just after installing the HiZ-8 array I became interested in the W1FV 9 Circle Receiving Array detailed in NCJ⁵ and available commercially in kit form from DX Engineering⁶. I constructed and installed this array in October 2016 and compared it to the 8 vertical arrays over this past low band season. I used 20 ft. vertical elements with a spacing of 60 ft., making the entire circle 120 ft. diameter. This array is erected in an open field 300 ft. north of the BSEF array and 300 ft.

west of the HiZ array. On 160 meters, signals were around 2 dB lower than both 8 vertical arrays however the front to back ratio is impressive and outperforms the other arrays in this area. The 60 ft. spacing is perhaps a bit less than optimum for 160 meters (70 ft. was used in the QEX design) however this slight reduction permits 40 meter use while maintaining excellent 160 meter coverage, a very big advantage of the W1FV array. The performance on 80 meters is stellar and performed as well as my BSEF 8 vertical array and my full size 4 square. On all three bands the array performed as well as or better than my 880 ft. Beverages.

If you don't have room for one of the 8 vertical arrays but have adequate space for a 120 ft. diameter array, you will be extremely pleased with this 3-band, 8 direction receive antenna system! Another key feature of this system is you only need three vertical elements in a 120 ft. straight line to focus on one direction (EU, JA, etc.) if you are even further area challenged. I plan to continue to use this array in concert with my other low band receive antenna systems.

Acknowledgement

I want to thank Frank Donovan, W3LPL for reviewing this paper. Frank's sharing of his experience with the BSEF 8 vertical array has been extremely valuable in my continual low band receive antenna pursuit.

References:

- 1 - Design, Construction & Evaluation of the 8 Circle Vertical Array for Low Band Receiving[©]; Joel Harrison, W5ZN and Bob McGwier, N4HY
- 2 - QEX March/April 2010
- 3 - <http://www.k9la.us/html/160m.html>
- 4 - DX Engineering; www.dxengineering.com
- 5 - National Contest Journal (NCJ) September/October 2011 & November/December 2011
- 6 - Available from DX Engineering; www.dxengineering.com, part # DXE-YCCC-9CRCL

Table 1

BSEF		HiZ	
Pro	Con	Pro	Con
No expensive Electronics	Requires short radials to stabilize feedpoint impedance	No element tuning required	Requires 12 Vdc at phasing unit and at all amplifiers
Elements are easily tuned	Requires a large land area (350 ft diameter)	No radials required	Requires expensive electronics
Can verify elements & switching unit is working with simple antenna analyzer	Elements require "top hat" wires	Requires a smaller area (200 ft) than BSEF	Components not easily repairable at home
Only need to erect 4 elements for two directions thus reducing the area required	Requires additional attachment (post or tent stake) for top hat wires	Exceptional RDF and F/B pattern	Must utilize all 8 elements for all directions

Figure 1

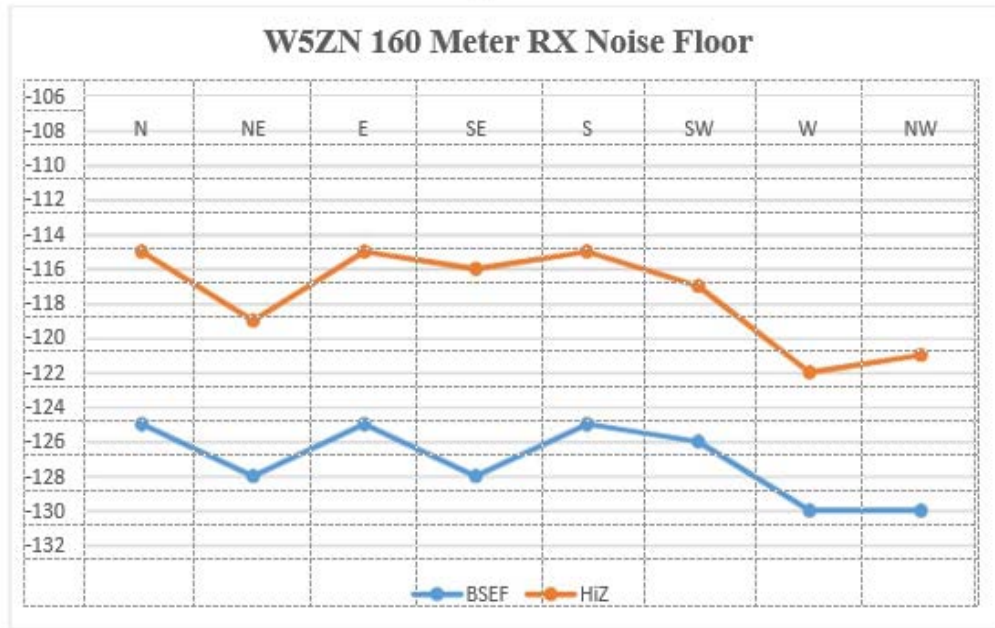


Figure 2

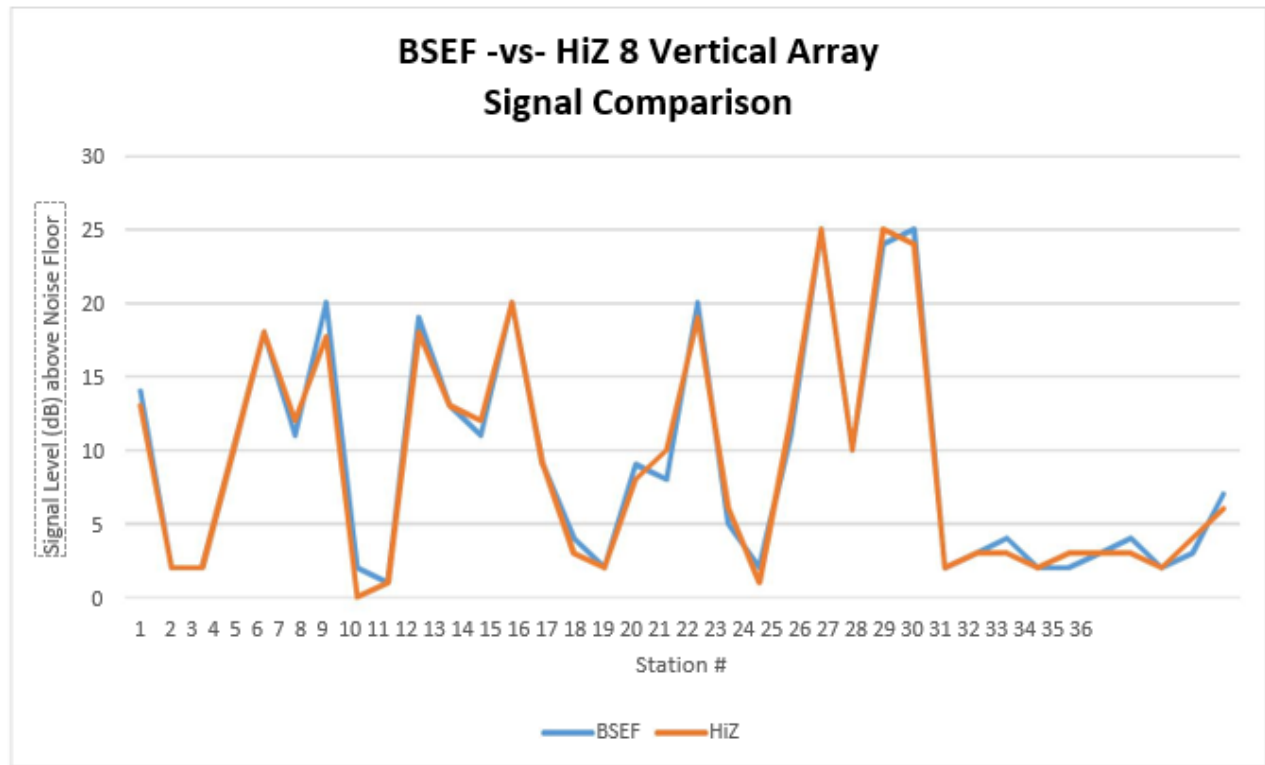


Table 2

Station	Date	Station	HiZ-8	BSEF	Beverage
#			<i>Signal above noise (dB)</i>	<i>Signal above noise (dB)</i>	<i>Signal above noise (dB)</i>
1	11/8/2014	F2DX	13	14	10
2	11/8/2014	FT4TA	2	2	0
3	11/12/2014	E51NOU	2	2	0
4	11/12/2014	W1AW/KH8	10	10	8
5	11/14/2014	F2DX	18	18	15
6	11/15/2014	VK3XQ	12	11	6
7	11/25/2014	5W0UU	17.7	20	10
8	11/27/2014	9K2HN	0	2	0
9	12/4/2014	V63DX	1	1	0
10	12/4/2014	KH6ZM	18	19	15
11	12/20/2014	W1AW/KH6	13	13	8
12	12/21/2014	JE1BMJ	12	11	8
13	12/22/2014	W1AW/KH6	20	20	17
14	12/26/2014	VK3IO	9	9	5
15	1/3/2015	HL5IVL	3	4	2
16	1/3/2015	JD1BMH	2	2	*
17	1/3/2015	VK3IO	8	9	*
18	11/11/2015	ZD8W	10	8	*
19	1/2/2016	JD1BMH	19	20	*
20	1/3/2016	JD1BMH	6	5	*
21	1/3/2016	SP5GPM	1	2	*
22	1/3/2016	DU7ET	12	11	*
23	1/8/2016	HL5IVL	25	25	*
24	1/8/2016	JD1BMH	10	10	*
25	1/8/2016	JD1BMH	25	24	*
26	1/8/2016	K5P	24	25	*
27	1/21/2016	VP8STI	2	2	*
28	2/1/2016	VP8SGI	3	3	*
29	2/10/2016	RA0FF	3	4	*
30	2/22/2016	3XY1T	2	2	*
31	2/25/2016	A35T	3	2	*
32	3/12/2016	ET7L	3	3	*
33	3/13/2016	3DA0IJ	3	4	*
34	3/13/2016	DU7ET	2	2	*
35	4/4/2016	5V7D	4	3	*
36	4/4/2016	FT4JA	6	7	*

* Beverages were not used in 2015 and 2016

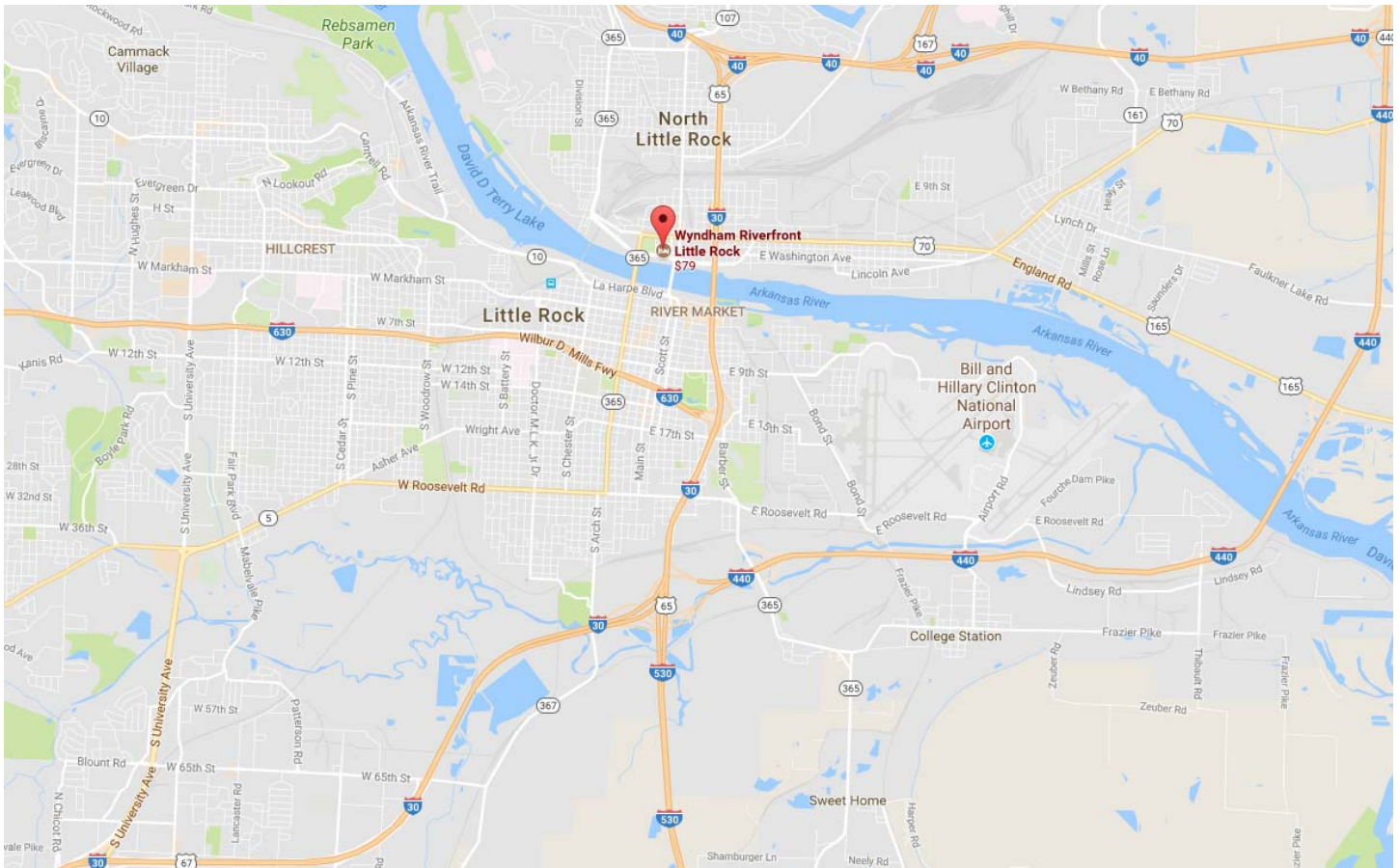
Directions To Next ADXA Club Meeting—December 2 , 2017

Wyndham Riverfront Hotel
11983 Rivercrest Drive
North Little Rock
GPS: 34.7262379,-92.2637413

ADXA convention starts at 9:00 am

ADXA business meeting starts at 1:30 pm

[Google map link](#)



ARKANSAS DX ASSOCIATION

MEMBERSHIP/RENEWAL APPLICATION

BUSINESS NAME

President: Joel Harrison, W5ZN
Vice President: Pat Patterson, W5VY
Secretary/Treasurer: Glenn Wolf, N5RN

Club Mailing Address:

E Glenn Wolf Jr
210 S Estates Cove
White Hall, AR 71602



We're on the web
Www.adxa.org

CALL: _____

LICENSE CLASS: _____

APPLICATION: ☐ NEW ☐ RENEWAL

NAME: _____

PHONE: () _____

ADDRESS: _____

CITY: _____

STATE: _____

ZIP: _____

EMAIL: _____

DXCC MEMBER? _____

ARRL MEMBERSHIP EXPIRES: _____

SPONSOR'S CALL _____

ARRL MEMBERSHIP REQUIRED

(ADXA IS A 100% ARRL AFFILIATED CLUB)

VOTING MEMBERS MUST HOLD DXCC

VALID INTEREST IN DX REQUIRED FOR ASSOCIATE (NON-VOTING)
MEMBERSHIP

YEARLY DUES **\$25.00**, Family membership **\$35.00**

Dues can also be accepted via PayPal:

Using your PayPal account send your dues payment to

n5rn@adxa.org

**Make sure you select the personal tab and identify this payment as a gift
or there will be a surcharge.**

MAIL APPLICATION TO:

E Glenn Wolf, Jr., N5RN
210 S Estates CV
White Hall, AR 71602 -8216