DELAWARE-LEHIGH AMATEUR RADIO CLUB Inc.

JUNE 2025

W3OK CORRAL

Club Meeting June 5th, 7 pm at the
Nancy Run Firehouse.
3564 Easton Avenue, Bethlehem, PA 18020
Will be also a Zoom meeting.

June's Program

SKYWARN
Sarah Johnson/NOAA

MAY MEETING MINUTES

President, Terry, KC3JH, called the meeting to order at 1901
Pledge of Allegiance was led by Terry.
President's Report: Do not forget that 10 May 2025 is the Barn Cleanup Day. Start time is 9 am. Rain date will be 24 May 2025.
Terry said that he heard that the Open House was a big success. There were at least 18 people there. Most of the visitors were Club members that have not been seen at all or for a long time. There was talk about having it again.
The Club needs volunteers (people) for the following:
Awards Chair – Terry said he will provide more than he got when he took over it.
Program Chair – Terry will also help with his contacts for Programs.
Announcements: Terry ask Doreen, K3PDL, the status of her Field Trip. There is still some coordination to be done. It is a trip to the Marconi Museum in Wall Township, NJ on 31 May 2025.
Guests: Robert Hassay, Jr.,KB3GHU who was a member now plans on rejoining.
Secretary's Report: John, N3IGA, asked if there was any additions or corrections to the Meeting Minutes as printed in the Newsletter last month. Jay, KC3ZFR, said that I had his call sign wrong that there was no "L" in his call sign. It was big fingers on small keys. A motion to accept the Minutes was made by Doug, K6PGH and second by Dave, N3EYT. A vote was taken and motion was carried.
Treasurer's Report: Larry presented the Treasurer's report for the month of March. Jay, KC3ZFR made the motion to accept.

It was seconded by Allan, N3OTP. A vote taken and motion was carried.

Committee Reports:

Membership: I would like to announce two Members. One is Jim Senn, KD3ATQ. He wants to get his General License. The other new member is Joseph Martocci. I would like to make a motion to accept Jim and Joseph as a Voting Members. Carl, AA3IX seconded the Motion. Vote was taken and passed. There are 8 Life Members and 116 voting members. That brings a total of 124 Voting members. There are 4 Assoc. Members. That makes a total of 128 members including the new members just voted in.

Club Station: No Report

Tech Committee: George, N3SQD, said that he and Al had plans on updating the D-Star program which will take time.

Repeater: No Report

Website: Bill, KD3FLY, WebMaster, said that there was some kind of bug on the website. It does something different every once in a while. He said that since the website is made up of a lot of programs, they are always updating at difference times. He said to just be patient. He is doing the best he can. Anyone who has problems, feel free to send him an email and he will do his best to help you out.

New Business

Dave, N3EYT, asked if anyone needs any badges. He has some already made up. If you need a badge, and a member of good standing, contact Dave and he will get one made and bring it to the Club meetings.

Larry, KC3JTK, talked about the Club Satellite Station and how it is going. The progress is slow but moving along. He is planning on having the station up and running for Field Day. He

wants to set up to show it and also make contacts as part as the scores for the Club.
Bob, KE3AW, informed everyone that there is a VE Session tomorrow night and also Tuesday night everyone including the people that took the classes.
Old Business: None
Adjournment: There being no further business, the meeting was adjourned at 1929 hours.
Program: None

John Holmes, N3IGA
DLARC Secretary

2024 PA QSO PARTY RESULTS

On 12 May 2025, the results of the PA QSO Party were posted on their website.

Here are the results as posted of Club Members that operated:

N3SQD **Single OP HP SSB** – 1st in County
N3NVA **Single OP HP SSB** – 2nd in County
N3IGA **Single OP QRP SSB** – 1st in both State and County
KC2ZA **Single OP HP Mix** – 1st in County
N3WR **Single OP LP SSB** – 1st in Carbon County

The DLARC placed 3rd in the Club entries with only 4 logs submitted. Imagine what kind of score the DLARC would have if a majority of Club members participated. The Club Station could be used as well as at home.

The 2025 PA QSO Party will be on 11-12 October 2025. More information will be given as time gets close.

DE John, N3IGA

BARN CLEANUP 2025

Participants:
Andrew - WV1B, Jay - KC3ZFR, Ralph - KC3VII, Adam - N3LSG, Donald - N2LTD, Tim - KC3WMT, Frank - W3WOW,

George - N3SQD, Al - N3OTP, Dave - N3EYT, and Ed - KB3YKS. Pictures by Dave, N3EYT

DLARC Board Meeting Minutes

Monday, 19 May 2025

A meeting of the DLARC Board of Directors was at the Milkhouse, with the following in attendance:

Board Members Present:

President, Terry Swinney, KC3JHT
Secretary, John Holmes, N3IGA - Zoom
Treasurer, Larry Butler, KC3JTK
Dean Guth, AB3BD - Zoom
Bill Carlsen, KD3FLY
Dave Frankenfield, N3LWY
Doreen Grambling, K3PDL - Zoom

Absence:

Vice-President, Diana Lambert, KC3ZGQ
Adam Gauntz, N3LAG
Steve Harper, W3NAM – Arrived late from Wilkes Barre

Proceedings:

A quorum being present, the Secretary called the meeting to order at 1904 hours.

President's Report:

Not much happening this past month.
However, we had 11 members out on Saturday, 10 May 2025, for the Barn Clean-up. KUDOS TO ALL. I fully intended to be there, but unfortunately, I had not one but two emergencies on that day.
Bad news from Mike Gower, KB3LOD, regarding Lester Morrow, W3LES, He has serious cancer in the brain, back, and a lung, with serious pain. He just had surgery to fix the fracture in his leg. He could use a visit if you are up to it.
Our Vice President is also looking after her mother who is recovering from shoulder surgery.

Dean, AB3BD, announced that he should be released soon.
Secretary's Report: John, N3IGA, asked if there were any corrections or additions to the minutes as printed in the Newsletter. Motion to accept the report was made by Dean, Seconded by Terry. Vote was taken, and motion carried.
Treasurer's Report: Larry, KC3JTK, presented said Treasurer's report for the month of April. A motion to accept the report was made by Dean. Second by John. Vote taken, and motion carried.
New Business:
John, N3IGA, talked about the PA QSO Party results that were finally released. There were only 5 Club members participating in it. The Club members were George, N3SQD; Barry, N3NVA; John, N3IGA; Walt, KC2ZA, and Ben, N3WR. The DLARC placed 3rd in the PA Based Clubs – 3 – 5 Entries with only 4 logs submitted. I do not know if someone was operating W3OK during the QSO Party, but there was no log received. There will be a complete information on the QSO Party in the Newsletter. Terry said that there is a need to find what the problem is that no W3OK logs were sent in so it can be corrected for this year's Party. John said he was going to start in August talking about the PA QSO Party to get more members involved. The 2025 PA QSO Party is 11-12 October 2025.
Doreen, K3PDL, said that there is only two people who signed up for the Field Trip on 31 May 2025. George, N3SQD and herself. She said that she has until next week to see if any other Club members will sign up.
Old Business: Larry, KC3JTK, brought up a matter of a new member who became a Silent Key shortly after joining. There was a discussion and it was decided that the dues will be return to the Charity listed in the Obituary. Larry said he will manage it.
Adjournment: Meeting adjourned at 1919 hours.

Minutes submitted by
John Holmes, N3IGA
DLARC Secretary

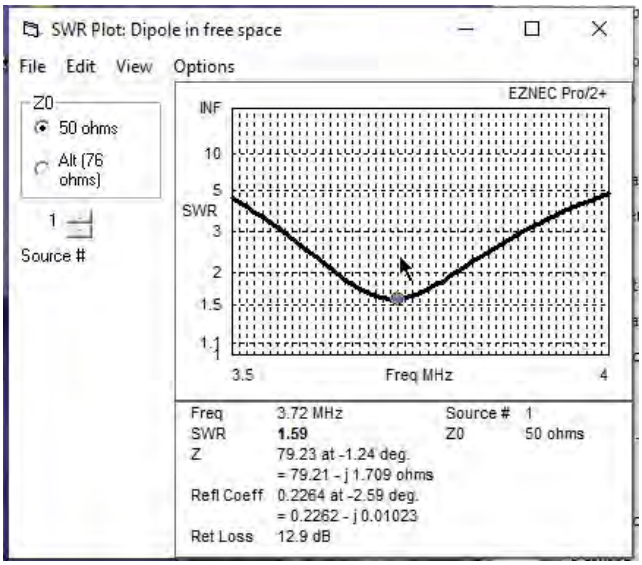
Full Band Coverage for 80 or 160 Meters
by Barry G. Kery
KU3X

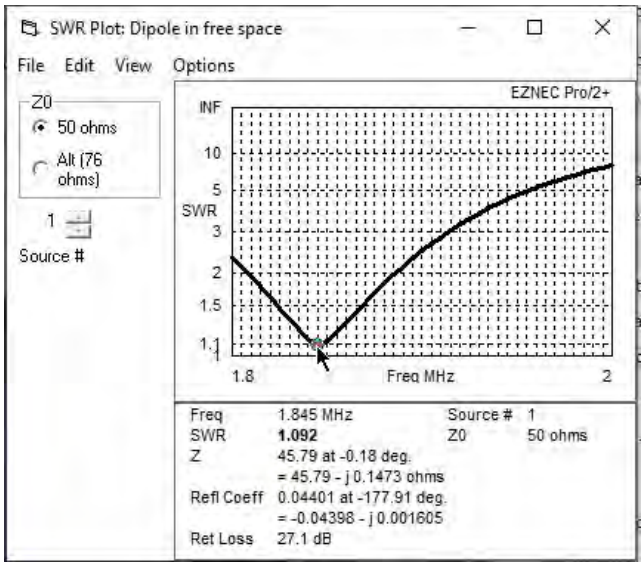
Being able to cover the entire 80- or 160-meter band without the use of an external transmatch hooked to your radio is not an easy task. One way to do it is to make a cage type one halfwave length dipole. That means you have to erect an antenna with numerous wires held apart with spreaders. This type antenna is in fact a particularly good performing antenna but can be a challenge trying to keep it in the air during harsh weather conditions.

First let us start with some facts. An 80-meter halfwave dipole has a 2 to 1 band width of 170 khz. A halfwave 160-meter dipole has a 2 to 1 band width of only 70 khz. Most advertisers reference the 2 to 1 band width when comparing antennas to one another. We can call this a benchmark for comparing antennas to one another, when it comes to band width. Most radios today that have a built in ATU can usually manage up to a 3 to 1 SWR, which by the way was the benchmark for comparing antennas to one another many years ago.

Using just the ATU that is built into today's radios, looking at a 3 to 1 SWR we can increase our coverage. The 3 to 1 bandwidth of an 80-meter dipole is 280 khz. and for 160 meters the 3 to 1 bandwidth is 130 khz. So, by using the internal ATU we can now cover a tad over ½ of each band.

Shown below are the SWR curves of both the 80- and 160-meter antennas erected at 60 feet.





Take notice that the lowest SWR of the 80-meter dipole is not 1 to 1. By either lowering the antenna closer to the ground or changing it to an inverted V, you will see a lower SWR at resonance. Remember, the feed point impedance of a dipole in free space is around 72 ohms.

Our objective is to make the radio happy and see a lower SWR without the use of an ATU. This can be done with the use of different coax cables.

To achieve this, from the feed point of the antenna we first run a ½ wavelength of 25-ohm coax and then attach to the other end of the coax a ¼ wave length of 75-ohm coax. From that point on you can either attach the 75-ohm coax directly to the radio or add some 50-ohm coax to reach the station. But “where do we get 25-ohm coax?” You cannot purchase 25-

ohm coax since it is not made. So, we make our own 25-ohm coax. This is easily done by paralleling two lengths of 50-ohm coax. It is the same principal as paralleling resistors. Put two 50-ohm resistors in parallel and you get 25 ohms.

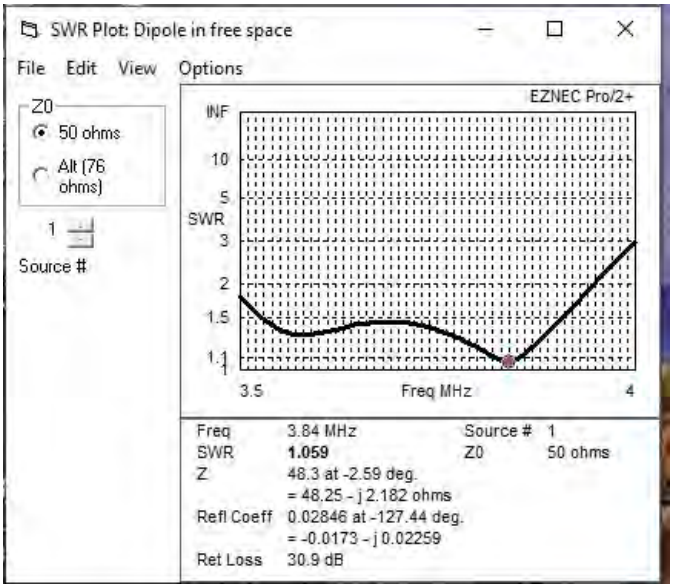
Now let us do a little math and design our 80-ohm broad band array. First, make your dipole and trim it so it is resonant in

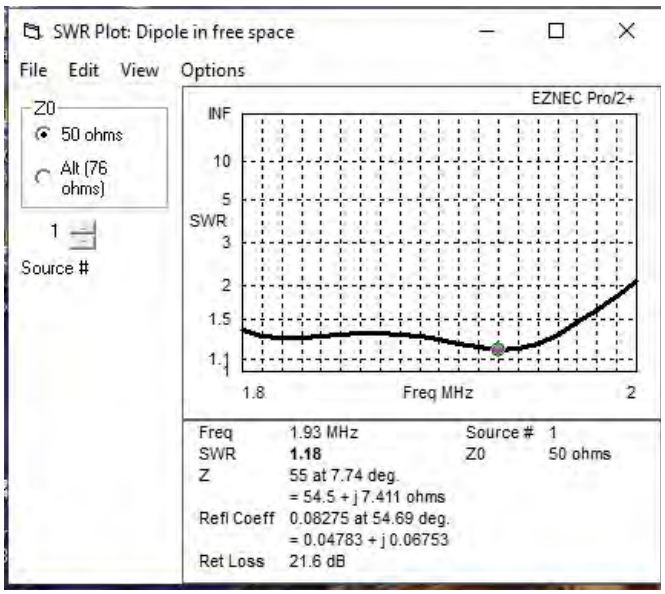
the center of the band. Next cut two ½ wave lengths of RG 8X coax. You can use this coax and it will easily manage legal limit since the power is divided between the two cables. Each cable will carry 750, that will equal 1500 watts.

492/ F(MHz)*VF ...Velocity Factor 492/3.75 = 131.2 * .78 = 102.3 feet. Now we know we need two lengths of RG 8X coaxial cable each cut 102 feet long. Apply PL 259's on each of the ends. You will need two each UHF Tee connectors to be placed on the ends to make one 25-ohm coax run. This gets attached to the feed point of the antenna. Now attach a ¼ wave length of RG 11 coax to the other end of the 25-ohm coax and run that towards the station. 246/3.75 = 65.6 *.83 = 53.8 feet.

If you are only going to run 100 watts or less, you can use RG 174 or RG 316 coax to make your 25-ohm coax and RG 6 can be used for your 75-ohm coax. You may want to use F type connectors on the ends of the RG 6 along with F to UHF adapters.

Shown below are the expected SWR curves for both the 80- and 160-meter ham bands once we add the coax.





Using this system, your radio will see full band coverage on 160 meters and 497 khz. of band coverage on 80-meters with an SWR of less than 2 to 1. Using the ATU in your radio you get full band cover on 80 meters.

If you do not have any type of matching network or are running a solid-state amp, you want to see a maximum SWR of 1.5 to 1. In this case, the 1.5 to 1 SWR band width of the 80-meter band will be 380 khz. and for 160 meters you will have a band width of 197 khz. On 160 meters, that is only 30 khz. shy of working the entire band.

Disclaimer: You are not changing anything with the antenna. Where it had a 3 to 1 SWR at the feed point of the antenna on a given frequency, you will still see the same SWR at the feed point of the antenna using the matching coax to create a broader band width in the primary station. Instead of using an ATU to make the radio happy, you are now using

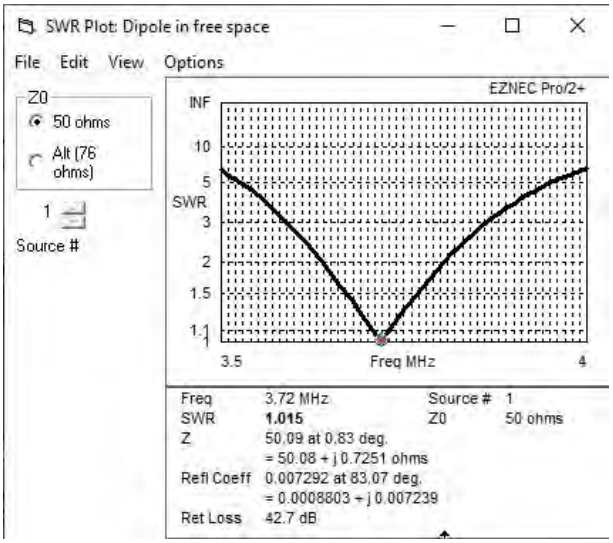
coax to make the radio happy. So, operating on the band's edges, using an ATU or the coax matching system, your ERP (effective radiated power) will be the same.

The 6-meter band is 4 MHz wide. If you want to work the entire 6-meter band, using this method will work fine.

Antenna theory notes:

Looking at the feed point impedance of the two antennas shown in the two plots in the beginning of this article, you will see that the feed point impedance of the 80-meter dipole is much higher compared to the 160-meter dipole. Both dipoles are at the same height of 60 feet. So why are they different? The answer is, "the heights are not the same." We have to look at this in wavelengths, not feet. Mechanically they are both at the same height but electrically they are different. The 160-meter dipole is erected 1/8 wave length above the ground and the 80-meter dipole is erected ¼ wave length above the ground. The height that an antenna is mounted above ground directly effects the feed point impedance and we can now see the difference.

Changing the height of the 80-meter dipole from 60 feet, that is ¼ wave length above ground to 30 feet that is 1/8 wave length above ground, we lower the feed point impedance, as shown below.



As you can see, the height above the ground can affect the overall band width of the antenna but it also effects the radiation pattern.

When making any simple dipole, the average 2 to 1 band width of the antenna is around 3.5% of the design frequency. This is a variable since the feed point impedance is also a variable.

If you really want to create a true broad band antenna that is actually efficient over a wide frequency range, here are three choices.

1. A cage type dipole. The bigger the cage, the wider the band width.
2. A log periodic antenna. The length of the elements and number of elements will dictate the coverage. Do not expect to get a perfectly flat 1 to 1 SWR over the entire frequency range of the antenna but you will get an exceptionally low SWR and it will be very efficient over the entire frequency range that the antenna is designed for. A log periodic designed to operate from 7 MHz to 28 MHz is an exceptionally long antenna but you do get to efficiently cover every frequency from 7 to 28 mhz.
3. A disk cone antenna. Again, do not expect to get a flat 1 to 1 SWR but you will get an SWR low enough that you should not need an ATU. A disk cone antenna offers a low take off angle for working DX over a three to one ratio range of its design frequency. If the antenna’s design frequency is 40 meters, it will have a low take off angle on 20 and 15 meters. The antenna can be used over a frequency range of a ten to one ratio. A disk cone designed to operate on 7 MHz can be used up to 70 MHz which is a ten to one ratio.

DLARC NET AND EVENTS CALENDAR

JUNE 2025

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	2	4 7 pm DLARC NET	5 CLUB MEETING 7PM	6	7 International Digital Contest
8 International Digital Contest	9	10	11 7 pm DLARC NET	12	13	14
15	16	17	18 7 pm DLARC NET	19	20	21
22	23	24	25 7 pm DLARC NET	26	27	28 FIELD DAY VE SESSION
29 FIELD DAY	30					

WEDNESDAY NIGHT NETS

Additional Net Controls are needed for the Wednesday Night ARES, RACES & DLARC net. If we have enough interested operators, it will only be necessary for each operator to have only one net session in each three-month period. 13 weeks in a period, then 13 net controls would be ideal, and some extras to fill in if needed.

This would give us a pool of experienced controls, for any emergency which would arise. Interested operators should contact George, N3SQD at george@bioserv.com. The NIMS IS-700 and ICS-100 courses are not needed to be a net control, but should the need arise, and we do supply controls and operators for real emergencies, then the courses requirement will be in effect and EMA issued IDs will need to be on the scene of an emergency.

NORTHAMPTON COUNTY ARES, RACES AND DLARC NET

All Radio Amateurs are welcome to take part in the ARES, RACES and DLARC net. This net meets Wednesday at 1900 hours local time, on the W3OK Repeater 51.76, 146.70 and 444.90 (pl 151.4). With an alternate frequency of 147.135 + DPL 315) W3OI Repeater.

QCWA Chapter 17 holds a net Monday evening at 7:30 PM on 3958 +/- depending on conditions.

Other inputs are the 146.85 repeater, (151.4 PL) and Echolink at K2PM-R.

Mid-Atlantic D-Star Net meets each Tuesday at 7:30 PM. The following repeaters Dstar repeaters are available in the Lehigh Valley. W3OK -145.11000MHz -0.600 Port C – W3OI -147.16500MHz +0.600 Port C, – W3OI - 445.02500MHz -5.000 Port B

All repeaters on the net are linked through **Reflector 020 port A**, so all stations checking into the net should make sure that they have *their local repeater call sign followed by the letter "G" in the eight positions of the RPT2 field***.** Otherwise, you will only be heard locally and not over the Reflector. Dongle users wishing to check into the net should Log On by connecting directly to Reflector 20, port A, rather than through your local repeater to conserve local bandwidth.

EXECUTIVE COMMITTEE 2023–2024

OFFICERS

President – Terry Swinney / KC3JHT ---------- president@dlarc.club
Vice President – Diana Lambert / KC2ZGQ ---------- vicepresident@dlarc.club
Secretary – John Holmes / N3IGA ---------- secretary@dlarc.club
Treasurer – Larry Butler / KC3JTK ---------- treasurer@dlarc.club

BOARD of DIRECTORS

Dean Guth / AB3BD
Bill Carlsen / KD3FLY
Adam Gauntz / N3LAG
Dave Frankenfield / N3LWY
Steve Harper / W3NAM
Doreen Gramling / K3PDL (Past Pres.)

PHONE NUMBERS FOR THE EXECUTIVE COMMITTEE OF THE DLARC CAN BE FOUND ON THE WEBSITE / MEMBERSHIP LISTING CLUB MEETINGS.

All regular meetings of the D.L.A.R.C. Are held on the first Thursday of each month at 7 PM at the Nancy Run Firehouse. TALK IN ON 146.700 (PL 151.4) Club Station Telephone Number **484-291-1527** Email Address – W3OK@arrl.net

THE W3OK TRUSTEE --- Barry Vogt / N3NVA

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