

DELAWARE LEHIGH AMATEUR RADIO CLUB Inc.
FEBRUARY 2020



W3OK

CORRAL

**Club Meeting February 6th, 7:30PM At the
Bethlehem Township Community Center**

FEBRUARY MEETING PROGRAM

**"CBD and You"
Larry / AB3TY**



JANUARY MEETING PROGRAM

**"I Remember Ray"
Pete / NL7XM**



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FEBRUARY QUICK CHECK CALENDAR

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SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2 SUPER BOWL LIV	3	5	5 DLARCC Net (K3PDL)	6 DLARC Meeting 7:30 PM	7 NO VE Session	8
9	10	11	12 DLARC Net (W3NAM)	13	14 Valentine;s Day	15
16	17 President's Day	18 DLARC BOARD MEETING	19 DLARCC Net (ND3JJ)	20	21	22
23	24	25 Mardi Gras	26 DLARCC Net (KC3MKPI)	27	28	29

CLUB TREAUER

Mike / KB3LOD will be stepping down following this term as treasurer. Mike has been treasurer for many years. We thank him for his excellent service. Any member interested in this office contact any Executive Committee member. This will allow time for Mike to explain the ins & outs of the DLARC finances.

FEBRUARY CONTESTING AT THE OK CORRAL

- February 1 & 2 – Mexico RTTY International Contest
- AM Ralley
- 11 & 12 – RSGB 1.8 MHz Contest
- Asia -Pacific Spring Sprint - CW
- February 15 & 16 – Russian PSK WW Contest
- ARRL International DX Contest - CW
- February 22 7 23 – REF Contest - SSB
- CQ 160 Mtr Contest - SSB



JANUARY MEETING MINUTES

A General Meeting of the Delaware-Lehigh Amateur Radio Club was held on November 7, 2019 at the Bethlehem Township Community Center, Bethlehem, PA.

President, Stephanie Koles, WX3K, called the meeting to order at 7:30 p.m.

President's Report:

Stephanie opened the meeting by discussing the challenges amateur radio is facing with the FCC auctioning off RF spectrum, specifically 3.5GHZ that is in the sweet spot for cellular carriers. Stephanie stressed the importance of contacting one's representatives to voice concerns. In addition,

Stephanie mentioned that on January 8, there will be a contest on VHF, UHF and microwave.

Also, the AM Rally will occur February 1-February 3 on 160M and 75M.

Stephanie said the Club is in need for a chairperson for both the prospective Hamfest and the Youth Committee. In addition, Stephanie said she notified the PA QSO Committee that the Club is interested in having W3OK as a bonus station.

Announcements:

1. Stephanie asked if any member received any new toys as gifts from the holidays or purchased them themselves. Pete / NL7XM said he has a new ICOM 7610. Barry / KU3X said he has been working with a Nano VNA. Stephanie told that she is the proud owner of a Kenwood 2000 X.
2. George / N3SQD said that to continue to be in ARES one has to sign up with ARES Connect.
3. Bob / KE3AW said new classes would begin on March 3 at the 911 Center. There are 9-10 signed up.
4. John / NT3P gave a recap of the VE testing for 2019:
 - 9 Test Sessions
 - 44 Candidates (Average of 5 per session. The largest number 13 on November 5)
 - 52 Exams
 - 35 License/Upgrades
 - 16 Tech
 - 16 General
 - 3 Extra

Guests: Donna Acerra--- National Museum of Industrial History

Mike Hood---N3TNM

Clayton Faulkner Sr.---Associate Member

Clayton Faulkner Jr.---Associate Member

Mark

Lou N3OL

Mike---Tech

Secretary's Report: Larry / AB3TY, announced the Minutes for the December 2019 General Meeting. Dean / AB3BD motioned to accept. It was seconded by Pete / NL7XM and so moved.

Treasurer's Report: Mike Gower / KB3LOD, reported on the Club's financial status for November 2019. Dean / AB3BD motioned to accept; it was seconded by Steve / W3NAM and so moved.

Committee Reports:

Membership: Membership Chair Terry Swinney / KC3JHT was not able to attend.

Programs: Stephanie announced Mark / N2MB has filled the Club's Program lineup for 2020. Skip / KD2BDA said the program cards have been printed and one is posted on the DLARC website.

Club Station: Lester / W3LES gave the totals for the PA QSO Party. Out of 40 clubs state wide, DLARC was 19 with 57,340 contacts. In addition to the Club Station there were 6 home stations whose contacts were transferred to the Club's total. Lester also said that this year's WX3MAS 50th Anniversary garnered 500 contacts. He also thanked members who gave assistance during his tenure as Station Manager. As of January 1, Steve / NS3L has assumed the position.

George / N3SQD said the parts to repair the rotator are in and he is waiting to schedule the climber.

Adjournment: There being no further business, the meeting was adjourned at 8:10 p.m.

***** NOTICE *****

The Executive Committee wishes to support the growth of our hobby. They feel that a youth program would be the ideal way to do this. To do this we need a member to step forward and chair and form a committee to get this idea rolling. Any interested member or members should contact any member of the Executive Committee to get details. The Executive Committee member information can be found on the web site or on the back page of the newsletter.

******* NOTICE *******

The Executive Committee is looking for a member to chair the HamFest Committee. Any interested member should contact any Executive Committee member. The contact information for the Executive Committee is located on the web page or on the last page of the newsletter.

VE TEST SESSION

There will not be a test session this month. The next session will be on March 6th, at 7 PM at the Northampton County 911 center. Pretest registration is required. Contact John / NT3P at nt3p@arrl.net

DLARC AMATEUR RADIO LICENSE CLASSES

de Bob / KE3AW

The Spring Series of Amateur Radio Classes for prospective hams and licensed hams wishing to upgrade to the General license, will begin on Tuesday, March 3 at the 911 Communication Center. It is not too early to register for the 9 Tuesday evening classes, 7 pm. – 9 pm.

Please pass the word to family and friends. Anyone interested in registering, or with questions, should contact me at KE3AW@arrl.net or phone 610.432.8286.

We will register people onto the roster on a first-come, first-served basis. If we go over 25 again for the Technician Classes we will offer priority placement on the Fall, 2020 list.

DLARC SHIRTS AND JACKETS

DLARC members, there is available club shirts and jackets. The shirts are short sleeved polo shirts in royal blue with the club logo and your call sign. The jackets are fleece line nylon in royal blue with the club logo and your call sign. Order form and related information is on the DLARC website.

W3OK CLUB STATION

Better known as the "Milkhouse" the W3OK Station is open Wednesdays' 6 PM until ??, and Saturdays' 9:30 AM until ??. Our repeater 146,700 is always on ... So just call W3OK and check. Steve / NS3L is the new manager. Many thanks to Les / W3LES for his tenure as manager.

WEDNESDAY EVENING DINNER CLUB

Don't forget the Wednesday Evening Dinner Club. Club members get together for dinner prior to heading up to the "Milkhouse" for the weekly gathering. Listen to the Wednesday Net for the following weeks location. Each week is a different location. Also it is posted on the club FORUM. A fun get together!

FCC FORMALLY ADOPTS PROPOSALS TO REMOVE AMATEUR 3-GHz BAND, INVITES COMMENT

At its December 12 meeting, the FCC formally adopted a Notice of Proposed Rulemaking (NPRM) in WT Docket 19-348 and invited comments on its plan to remove "existing non-federal secondary radiolocation and amateur allocations" in the 3.3 - 3.55 GHz band and relocate incumbent non-federal operations. The FCC said it's seeking comment on appropriate "transition mechanisms" to make that happen. ARRL has indicated that it will file comments in opposition to the proposal. The amateur 9-centimeter allocation is 3.3 - 3.5 GHz. The NPRM comes in response to the MOBILE NOW [Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless Act, approved by the 115th Congress to make available new spectrum for mobile and fixed wireless broadband use.

The NPRM can be found online in PDF format at,

<https://docs.fcc.gov/public/attachments/FCC-19-130A1.pdf> .

"By proposing to delete the existing non-federal secondary allocations from the 3.3 - 3.55 GHz band, we are taking an important initial step towards satisfying Congress's directives and making as much as 250 megahertz of spectrum potentially available for advanced wireless services, including 5G," the FCC said in the Introduction to its NPRM.

Currently, the entire 3.1 - 3.55 GHz band is allocated for both federal and non-federal radiolocation services, with non-federal users operating on a secondary basis to federal radiolocation services, which have a primary allocation, the NPRM explains.

The FCC said it is seeking comment on relocating non-federal licensees to another band. With respect to amateur operations, the FCC invited comments on whether sufficient amateur spectrum exists in other bands that can support the operations currently conducted

at 3.3 - 3.5 GHz. The 3.40 - 3.41 GHz segment is earmarked for amateur satellite communication. "We seek comment on the extent to which the band is used for this purpose, whether existing satellites can operate on other amateur satellite bands, and on an appropriate timeframe for terminating these operations in this band," the FCC said. If non-federal licensees are relocated to 3.1 - 3.3 GHz band, the FCC proposes that they continue to operate on a secondary basis to federal operations, consistent with current band allocations.

Some comments began to arrive before the FCC formally adopted the NPRM, as it points out in a footnote. Kevin Milner, KDOMA, the secretary/treasurer of the Ski Country Amateur Radio Club in Colorado, has argued that the club's equipment cannot be re-channelled below 3.4 GHz, and the club is seeking relocation costs. Devin Ulibarri, W7ND, told the FCC that am

ateur networks in the current band cannot move easily into other amateur allocations because there is no readily available commercial equipment to support the bandwidth, the FCC recounted.

In the event the proposed amendments are adopted, the FCC "seeks comment on relocation options and on transition and protection mechanisms for incumbent non-federal operations."

Also at its December 12 meeting, the FCC considered another NPRM in WT Docket 19-138 that would "take a fresh and comprehensive look" at the rules for the 5.9 GHz band and propose, among other things, to make the lower 45 MHz of the band available for unlicensed

operations and to permit "cellular vehicle-to-everything" (C-V2X) operations in the upper 20 MHz of the band. The FCC is not proposing to delete or otherwise amend the amateur allocation, which would continue as a secondary allocation.

This NPRM can also be found online in PDF format at, <https://docs.fcc.gov/public/attachments/FCC-19-129A1.pdf> .

The Amateur Radio Emergency Data Network (AREDN) has offered its voice in challenging the FCC proposals on the two bands, saying their adoption would "eliminate our use of the most-effective resource hams have to build its networks."

"The AREDN Project is able to leverage low-cost commercial devices solely because they are designed to operate on adjacent allocations," AREDN said on its website. "Moving to other allocations would be difficult if not impossible without a complete redesign, manufacture, purchase, and installation of new custom amateur hardware and software..., raising the price out of reach for the typical ham."

Interested parties may file short comments on WT Docket 19-348 via the FCC's Electronic Comment Filing Service (Express). Visit the FCC "How to Comment on FCC Proceedings" page for information on filing extended comments at, <https://www.fcc.gov/consumers/guides/how-comment> .

MONTHLY BRAIN TEASER

"A special prize awaits the first Club Member to submit the correct answer to this month's Brainteaser to the Pete / NL7XM, *only*, at nl7xm@arrl.net The winner must be present at the next Meeting to receive it, or it goes unrewarded. Officers, Board members, Newsletter staff, and Brain Teaser Authors are not eligible to win."

de Pete / NL7XM

JANUARY BRAINTEASER ANSWER

An Arrow

The winner is **Doreen / K3PDL**



FEBRUARY BRAINTEASER.

It took Denise 16 minutes to walk to the library , where she spent 35 minutes choosing a book. Then she walked home, which took her another 11 minutes. If Denise arrived at home at 4:33 pm, what time did she leave school?

REFLECTIONS FROM THE PAST



**Doug / KB3NOW The winner of the loudest Hawaiian Shirt Contest
March 2011**

JANUARY PROGRAM REPORT

The January program presented by Pete / NL7SM, was a tribute to Ray Bilger / W3TDF. Ray and his call sign is something to be remembered for his activities in ham radio.

Ray was a ham radio operator for over 70 years, and can be remembered climbing antenna towers well into his 80s. A member of the Delaware Lehigh Amateur Radio Club since 1984, and active in many activities as such. He was also a past president and member of the executive committee. He was also active at every club meeting until his health began to fail. His "NAY" was expressed often when voting on the acceptance of the club meeting minutes and the treasurer's report to the delight of the membership.

Ray was active in the annual Pennsylvania QSO party, and held many County records scores to this day. He would load his trailer and head for a County that had low numbers of operators, and set up his station there and attempt to establish a new record score. All this was done alone including setting up his beam antenna. This activity too, continued until his health began to decline.

Ray was active in the QCWA Chapter 17, there also he was a president and board member. Chapter 17 honored his memory by petitioning the FCC for Ray's callsign. With the assistance of Pete / NL7XM this was accomplished. So now the "TIRED DIRT FARMER" call will be heard again.

Our thanks to Pete for this presentation and insight into one of our late member's life and times in amateur radio.



TWO SOLAR CYCLE SUNSPOTS APPEAR

New Solar Cycle 25 is on the way, but just when the transition from Solar Cycle 24 to Solar Cycle 25 will take place is not entirely clear.

On December 24, two new sunspots - one in each hemisphere - emerged on the face of the Sun that exhibit the reversed magnetic polarity marking them as belonging to Solar Cycle 25. According to Hale's Law, sunspot polarities flip-flop from one solar cycle to the next, the National Center for Atmospheric Research explains.

"The Sun is currently in solar minimum - the nadir of the 11-year sunspot cycle," Tony Phillips said in his article, "Reversed Polarity Sunspots Appear on the Sun" on the Spaceweather.com website. "It's a deep minimum, century-class according to sunspot counts." The remarkable sunspot scarcity has prompted discussion of a possible "extended minimum" akin to the Maunder Minimum in the 17th century, when no sunspots appeared for decades, Phillips said. "Such an event could have implications for terrestrial climate."

This article can be found online at, <https://spaceweatherarchive.com/2019/12/25/reversed-polarity-sunspots-appear-on-the-sun/>

"Today's new-cycle sunspots (along with isolated new-cycle spots earlier this year) suggest that the solar cycle is, in fact, unfolding normally," Phillips wrote, adding that a new Maunder Minimum does not appear to be in the offing.

Earlier this month, the NOAA/NASA-co-chaired international Solar Cycle Prediction Panel released its latest forecast for Solar Cycle 25. The panel's consensus calls for a peak in July 2025 (+/- 8 months), with a smoothed sunspot number of 115 and the solar minimum between Solar Cycles 24 and 25 occurring in April 2020 (+/- 6 months). If this solar minimum prediction is correct, it would make Solar Cycle 24 the seventh longest on record at 11.4 years.

The forecast can be found online at, <https://www.swpc.noaa.gov/news/solar-cycle-25-forecast-update>.

Climate scientist David Archibald speculates that the Solar Cycle 24/25 minimum could occur as late as March 2021, and that Solar Cycle 25 maximum might not happen until 2027.

"We are well into the Solar Cycle 24/25 minimum but [Cycle] 24 may not have ended yet," Archibald said in a December 22 update on the "Watts Up With That?" website. "A solar cycle isn't over until the heliospheric current sheet has flattened. And that could be as late as March 2021. Solar cycle amplitude does matter with respect to climate and the amplitude of Solar Cycle 25, from projecting trends from the last three cycles, looks like being about 80 in 2027."

The Solar Cycle Prediction Panel agreed that Solar Cycle 25 will be of average intensity and similar to Solar Cycle 24.

In an article posted on NOAA's Space Weather Prediction Center site, Scott McIntosh, the Director of the High Altitude Observatory at National Center for Atmospheric Research (NCAR -<https://ncar.ucar.edu/>), stresses that Solar Cycle 25 will happen, "but a sunspot cycle could be small."

Predictability comes with some physical understanding of the underlying process, McIntosh asserts. "The sunspot cycle is erratic," he said in his presentation, "provocative of a chaotic, turbulent solar interior where sunspot progressions with time and latitude are the only tracers..."

NOAA/NASA PANEL CONCURS THAT SOLAR CYCLE 25 WILL PEAK IN JULY 2025

The NOAA/NASA-co-chaired international Solar Cycle Prediction Panel has released its [latest forecast](#) for the coming Solar Cycle 25. The panel's consensus calls for a peak in July 2025 (± 8 months), with a smoothed sunspot number of 115. The panel agreed that Cycle 25 will be of average intensity and similar to Cycle 24. The panel additionally concurred that the solar minimum between Cycles 24 and 25 will occur in April 2020 (± 6 months). If the solar minimum prediction is correct, this would make Solar Cycle 24 the seventh longest on record at 11.4 years. In its preliminary forecast released last April, the scientists on the panel forecast that Solar Cycle 25 would likely be weak, much like the current Cycle 24.

"Solar Cycle 25 may have a slow start, but is anticipated to peak with solar maximum occurring between 2023 and 2026, and a sunspot range of 95 to 130. This is well below the average number of sunspots," the panel said last spring, adding with "high confidence" that Cycle 25 "should break the trend of weakening solar activity seen over the past four cycles." The panel said the expectation that Cycle 25 would be comparable in size to Cycle 24 suggests that the steady decline in solar cycle amplitude seen from Cycle 21 through Cycle 24 has ended and that there is no indication of an approaching "Maunder-type" minimum. Cycle 24 peaked in April 2014 with an average sunspot number of 82.

The Solar Cycle Prediction Panel forecasts the number of sunspots expected for solar maximum, along with the timing of the peak and minimum solar activity levels for the cycle. It is comprised of scientists representing NOAA, NASA, the International Space Environment Services, and other US and international scientists.

A 600W BROADBAND HF AMPLIFIER USING ECONOMICALLY PRICED LDMOS DEVICES

Razvan Fatu, M0HZH/YO9IRF, has designed and built a [600 W broadband HF amateur radio amplifier](#) that uses a pair of low-cost MRF300 [LDMOS](#) (laterally diffused metal-oxide semiconductor) MOSFET devices. LDMOS devices are widely used in RF power amplifiers. Fatu's model A600, now at version 1.2, was designed to demonstrate the capabilities of MRF300s as linear broadband devices in the 2 - 50 MHz range.

"The announcement of the MRF300 and MRF101 transistors by NXP in 2018 has generated quite a spark of interest in the amateur radio community, and as soon as I learned about them, I wanted to get some on my workbench," Fatu said. He has entered his project in the NXP Homebrew RF Design Challenge 2019.

"To achieve the target of 600 W output while also minimizing the level of even-number harmonics, a push-pull configuration of two transistors is used," he explains. "Luckily, the manufacturer made it easy to design the PCB layout for such a thing by offering two versions -- the MRF300AN and MRF300BN -- that have mirrored pinouts." The individual transistors are specified at 330 W output and come in a TO-247 package, with the source connected to the tab. The recommended supply range is 30 - 50 V dc. "By studying the specifications, it looks like with correct broadband matching and some operational safety margin, we can get close to 600 W output at a voltage of around 45 V across a reasonably large bandwidth; the aim is to cover 1.8 to 54 MHz," Fatu said. "Main challenges when designing this amplifier are related to achieving good input and output matching over the entire frequency range as well as maintaining high and flat gain. Good linearity and a low level of harmonic products are mandatory. As the TO-247 is not a package specifically designed for high-power RF, there are some challenges with thermal design and PCB layout as well."

The circuit uses a 4:1 transformer at the input.

He used surface-mount devices wherever possible, to minimize stray inductance, and designed the circuit board power traces to be thick enough to support the high current. Traces also were sized for the right trace impedance where possible, he explained. Fatu installed an intermediary 3-millimeter-thick copper plate between the transistors and the aluminum heatsink. He used a liquid metal product called Galinstan which, he said, offers exceptional thermal and electrical conductivity and doesn't require much pressure to achieve best performance.

During testing, he found that the amplifier will put out about 580 W at 3.7 MHz and works most efficiently in the higher bands. "The highest output power I've measured was 840 W in the 10-meter band, but the wave was distorted and the harmonic levels were high," Fatu said.

He has posted a video in addition to an online article.

58 GREAT THINGS ABOUT HAM RADIO

1. It works when nothing else does
2. It makes you part of a worldwide community
3. The opportunity to help neighbors by providing public service and emergency communications
4. Some of the nicest people you'll ever meet
5. Some of the smartest people you'll ever meet
6. Some of the most interesting people you'll ever meet
7. Some of the most generous people you'll ever meet (along with some of the cheapest!)
8. Lifelong friendships
9. Friends around the world (including those you haven't met yet)
10. The opportunity to go interesting places you might not otherwise go to
11. The opportunity to do interesting things you might not otherwise get to do
12. The opportunity to expand your knowledge of geography
13. The opportunity to expand your knowledge of earth and space science
14. Practical uses for high school math
15. Practical uses for high school physics
16. A good way to practice a foreign language
17. A good way to keep in touch with faraway friends and relatives
18. A good way to get driving directions when visiting someplace new (with or without GPS)
19. A good way to find the best places to eat when visiting someplace new (with or without GPS)
20. Finding "non-touristy" off-the-beaten-path places to stay, eat, visit, etc.
21. A good way to learn about virtually any topic
22. A good way to bridge the generation gap
23. A good way to keep tabs on elderly/infirm people
24. People named Joe (Walsh, Rudi, Taylor)
25. How many of your non-ham friends have actually talked to someone in some remote place such as Cape Verde or the Seychelles?
26. How many of your non-ham friends might have talked to an astronaut aboard the space station?
27. How many of your non-ham neighbors might have a satellite uplink station in their basements—or in the palms of their hands?
28. How many of your non-ham neighbors might have a TV studio in their garage?
29. What other hobby group has designed, built, and had launched its own fleet of communication satellites?
30. Where else can you play with meteors?
31. Moonbounce
32. Informal way to improve technical skills
33. Informal way to improve communication skills
34. Introduces a variety of career paths
35. Offers unparalleled opportunities for career networking
36. Opportunities for competition in contesting and foxhunting
37. A good way to collect really cool postcards from around the world (despite the growth of electronic confirmations)
38. Nearly endless variety of different things to do, on and off the air
39. Hamfests
40. Dayton
41. Field Day
42. Working DX
43. Being DX
44. DXpeditions
45. Contesting
46. Award-chasing
47. Double-hop sporadic-E
48. Worldwide DX on 6 meters (once or twice every 11 years)
[The current extended sunspot minimum has shown that mechanisms other than F2 propagation can offer intercontinental DX]
49. Tropospheric ducting
50. Gray-line propagation
51. TEP, chordal hops, etc.
52. Getting through on CW when nothing else will
53. Unexpected band openings
54. Building your own gear
55. Using gear you've built yourself
56. Operating QRP from some remote location
57. Experimenting with antennas
58. Working DX while mobile or while hiking

F.Y.I.

The D.L.A.R.C. meets the "FIRST" Thursday of each month. Membership, friends and interested persons meet at the Bethlehem Township Community Center, 2900 Farmersville Road, Bethlehem, Pa. 18020 at 7:30 PM. Committee reports and announcements of all present and future activities will be presented at that time. Followed by that month's program.

NORTHAMPTON COUNTY ARES, RACES AND DLARC NET

All Radio Amateurs are welcome to participate 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 147.350 (DCS 315) W3OI Repeater.

QCWA Chapter 17 holds a net Monday evenings at 8:30 PM on 3960 +/- 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 position 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 in order to conserve local bandwidth.

The OK Corral is an organization publication for the purpose of informing members of the D.L.A.R.C. of educational and training opportunities, club events, relevant news articles and a monthly calendar of daily activities, meetings and dates.

**EXECUTIVE COMMITTEE 2018 – 2019
OFFICERS**

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Vice President – Steve Harper / W3NAM ----- vicepresident@dlarc.org
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**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 7:30 PM at the Bethlehem Township Community Center
TALK IN ON 146.700 (PL 151.4)

Club Station Telephone Number – 484 291-1527 Email Address – w3ok146700@gmail.com

THE W3OK TRUSTEE --- Barry Vogt / N3NVA

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