



JULY MEETING

19:30, WEDNESDAY, JULY 12

NORTHERN LIGHTHOUSE CHURCH, 6131 NORTH 14TH STREET, LINCOLN, NEBRASKA

JULY CLUB MEETING

Lincoln Electric Systems will do a presentation on electrical safety and how it applies to Amateur Radio. They will have their power safety demonstration trailer with them — imagine blown up hot dogs.

There will also be a special awards presentation you don't want to miss.

—Ed Holloway, KØRPT

EVENT CALENDAR

July

Th	07/06	18:30	VE Exams	Northside Café	2701 N 48th St
Sa	07/08	11:00	HPQRP Homebrewers	Bredeaux Pizza	1425 Silver St, Ashland
W	07/12	12:00	QCWA Luncheon	The Eatery	2548 S 48th
W	07/12	19:30	LARC Meeting	Northern Lighthouse Church	6131 N 14th St
Sa	07/15		Cornhusker State Games (Adventure Race)		
W	07/19	19:00	LARC Board Meeting	Red Cross	220 Oakcreek Dr
Th	07/20	19:30	SATERN Meeting	Salvation Army	2625 Potter St
F	07/21		Cornhusker State Games Begin		
Tu	07/25	23:59	LOG Deadline	Email articles & ads to log@k0kkv.org	
Su	07/30		Cornhusker State Games End		
M	07/31	19:00	LOG Folding	Red Cross	220 Oakcreek Dr

August

Th	08/03	18:30	VE Exams	Northside Café	2701 N 48th St
Th	08/03		County Fair begins	Lancaster Event Center	
W	08/09	12:00	QCWA Luncheon	The Eatery	2548 S 48th
W	08/09	19:30	LARC Meeting	Northern Lighthouse Church	6131 N 14th St
Sa	08/12	11:00	HPQRP Homebrewers	Bredeaux Pizza	1425 Silver St, Ashland
Sa	08/12	11:59	County Fair ends		
W	08/16	19:00	LARC Board Meeting	Red Cross	220 Oakcreek Dr
Th	08/17	19:30	SATERN Meeting	Salvation Army	2625 Potter St
Tu	08/22	23:59	LOG Deadline	Email articles & ads to log@k0kkv.org	
Sa	06/26		Mud Run		
Su	08/27		Heat Stroke 100		
M	08/28	19:00	LOG Folding	Red Cross	220 Oakcreek Dr

Lincoln Amateur Radio Club, Inc.

PO Box 5006

Lincoln, NE 68505

Club Repeater KØKKV 146.760 (-)
 Packet APRS KØKKV 144.390
 DX Packet Cluster telnet://cluster.k0gnd.net

LARC Web Site k0kkv.org
 Facebook www.facebook.com/LARCLincoln

2017 BOARD OF DIRECTORS

President	Ed Holloway	KØRPT	402/326-1139	k0rpt@arrl.net
Vice President	Bryan Leavitt	WØBCL	402/310-1686	w0bcl@arrl.net
Secretary	Dale Douglas	KDØWVD	402/629-4543	kd0wvd@gmail.com
Treasurer	Marlene McLaughlin	KDØHYM		kd0hym@gmail.com
	Greg Brown	KTØK	402/937-3540	gwbrownx@inebraska.com
	Mike Arter	W9LG	402/770-6460	w9lg@yahoo.com
	Mike Lauver	KØLVR	402/580-4602	mlauver@neb.rr.com
	Mike Long	KØSHC	402/770-2427	k0shc13@yahoo.com
Executive Director and Club Station Trustee	Reynolds Davis	KØGND	402/488-3706	reynoldsd1@aol.com

2017 COMMITTEE CHAIRS

COMMITTEE	LIAISON	CHAIR/CO-CHAIR
Activities	KDØHYM	Bruce Wood, WAØRIM
Bylaws	KØRPT	Jeff Bennett, WØWKP
Christmas Party	KØRPT	Heather Chesnut, KDØBXA
Club Awards	KØRPT	Heather Chesnut, KDØBXA
Club Station	KØLVR	Bruce Steyer, KBØKA
Convention 3/11/2017	KDØHYM	Marlene McLaughlin, KDØHYM
Education	WØBCL	Aaron Rogge, NØADR Richard Mulder, ACØLN
Emergency Cord. ARRL	KØRPT	Ed Holloway, KØRPT
Estate Assistance	KTØK	Gordon Trout, WØKBS
Facebook	KDØWVD	Dale Douglas, KDØWVD
Field Day	KDØWVD	John Mardock, KRØP Mike Walsh, KBØQH Larry Frisch, KDØRTK
LOG Editors	KDØWVD	Aaron Rogge, NØADR Jeri Lyn Rogge, NØJLR
Merchandise	W9LG	
Nets	WØBCL	Connie Zehr, NØGMA
Public Relations	KØRPT	Bob Mitchell, WBØRJJ
Public Service	KØSHC	Mike Long, KØSHC
QSL Cards	KTØK	Greg Brown, KTØK
Repeater	KØRPT	Ed Holloway, KØRPT
Transmitter Hunts	KØLVR	
Web Site	KØRPT	Aaron Rogge, NØADR
Equipment Inventory	W9LG	Larry Frisch, KDØRTK



PRESIDENT'S COLUMN



It was a great turnout for the June club meeting at Northern Lighthouse. Joe Eisenberg, KØNEB, gave a fantastic presentation about the Dayton Hamvention. Joe added some great music to his videos, and I thoroughly enjoyed that. There was lots of discussion about 6 meters. Many inquiries followed that may prompt a presentation at a later club meeting.

Join us next month for a great presentation from LES. Many have enjoyed these presentations in the past, and it's great material for those folks who have just gotten their ticket.

Welcome to new Supporting Business Members Brent Mansheim Insurance and College View Dental. Please support these folks and their businesses. See you all next month at Northern Lighthouse.

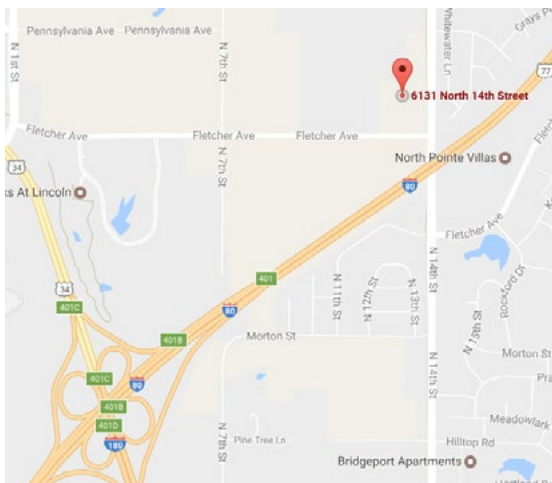
—Ed Holloway, KØRPT

CLUB MEETING LOCATION

MEETING LOCATION THROUGH AUGUST
Northern Lighthouse Church
6131 N 14th St
Lincoln, NE 68521

GOOGLE MAPS

<https://goo.gl/maps/J6jkihgyNq>



—Ed Holloway, KØRPT

LARC PROGRAMS

JULY - LES

AUGUST - TOTAL SOLAR ECLIPSE 2017

SEPTEMBER - GLENN JOHNSTON, WØGJ

JUNE LOG ASSEMBLY CREW



Each month a great crew prepares the LOG for mailing to approximately 800 addresses. Thank you to NØADR, WØBCL, KEØCIY, KDØDIU, NØJLR, KBØKA, KØLVR, and NØVMT for your help prepping the June 2017 LOG!

When prepping the LOG, it's great to have a crew of at least 15 people. The job is easy and everyone has a great time. Check the online club calendar at <http://k0kkv.org> for upcoming prep dates.

—Aaron Rogge, NØADR

VE EXAM SESSIONS



**ARRL
VEC**

This month we had our regular session at the Northside Café on Thursday, June 8. We had two candidates

who passed for a new license listed below.

TECHNICIAN

- ◆ Dustin Dam, KEØNSQ, Lincoln

GENERAL

- ◆ Thomas Reinsch, KEØNSP, Lincoln

Volunteer Examiners (VEs) who participated this month are WØBCL, WØBMB, KCØDHM, NØJWS, KØKPH, KØKTZ, NØLNK, KCØPJR, and KØSIL.



Upcoming exams are July 6, August 3, and September 7 at the Northside Café. For testing details, please visit

<http://k0kkv.org>.

—Chris Evens, KCØPJR

PUBLIC SERVICE: THANK YOU

Thank you to everyone who has helped to make these events a success!

MAY 28 – MEMORIAL LINCOLN DUALTHON
KEØBHQ, KEØCJV, KDØDIU, NØDIZ, KEØJBT, KØKPH, KDØPTF, KDØRIY, and KØSHC

JUNE 24 – TRAIL TREK
KEØBHQ, KEØCJD, NØDIZ, KEØERA, KEØJBT, KEØJVS, KØKPH, KØSHC, and NØWLX

—Mike Long, KØSHC

RADIO HUMOR

DEFINITION:

S.W.R. — A term, applied to any part of the antenna system, which means: "Savings-to-Watt Ratio." Based on the inverse relationship of dollars in the bank and effective radiated power.

—Brett Coningham, AB5P

HAVE A GREAT IDEA FOR LARC?

Have you brewed up a great idea for education, social outings, fundraisers, club meetings, or more? Email your ideas to log@k0kkv.org.

WHY GET THE DIGITAL LOG?

What's the big deal about receiving the digital LOG?

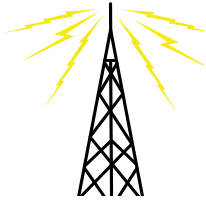
- Saves your club money on printing costs.
- Color photos!
- One less thing to toss, recycle, or use to line the bird cage.
- The LOG prep team says "Thank you!"
- Get the first look at news, estate sales, and event updates when your digital LOG arrives days (sometimes a week) before the print edition!

Sign up for the digital LOG by emailing log@k0kkv.org.

—Jeri Lyn Rogge, NØJLR

LINCOLN REPEATER CLUB

146.850 — KØLNE/R



2017 is a great year for Amateur Radio. The FCC authorized and approved two new bands, 630 and 2200 MHz; however, the bands are not yet available.

It should be interesting as manufacturers start production on radios for these frequencies.

We are going to raffle off two radios this year. One will be a new BaoFeng UV-5R dual band handheld two-way radio (black), and the other will be a new Yaesu FT-2900 VHF mobile radio. Raffle tickets are \$2.00 each or three for \$5.00. The drawing will be held this fall. Good luck!

Please see Chris, KCØAOO, at the LARC meeting to start or renew your 2017 LRC membership. Membership cost is \$10.00/year.

We encourage you to use our repeater as much as you like. It is an open repeater. If your part of the hobby would like to hold nets on the repeater, please contact Lonnie, WDØAOP (wd0aop@arrl.net), and we will get your net reserved, advertised, and on the air.

Lincoln Repeater Club
C/O WØCHV
6705 W Mill Rd
Raymond, NE 68428-4308

Thank you, LARC members, for your support.

—Lonnie Rech, WDØAOP

REVIEW TIME

Which of the following must be true before amateur stations may provide communications to broadcasters for dissemination to the public?

- A. The communications must directly relate to the immediate safety of human life or protection of property and there must be no other means of communication reasonably available before or at the time of the event.
- B. The communications must be approved by a local emergency preparedness official and conducted on officially designated frequencies.
- C. The FCC must have declared a state of emergency.
- D. All of these choices are correct.

Answer on page 14.

BEST CHOICE UPC LABELS



Please bring UPC labels from Best Choice products purchased at Russ's or Super Saver to club meetings.

Get the Word OUT!

**Advertise for as low
as \$15/month**

Email log@k0kkv.org for details!

2017 PUBLIC SERVICE CALENDAR

Month	Date	Event	Location
July	15, 21 – 23		
	29 & 30	Cornhusker State Games	Lincoln/Lancaster County
August	3 – 12	Lancaster County Fair	Lincoln
	26	Mud Run	Lincoln
	27	Heat Stroke 100 Bicycle Ride	SAC Museum
September	9	MS Bike Ride	Lancaster County
	17	Last Blast Y-Tri Triathlon	Branched Oak Lake
	30	Market to Market Relay	Cass Cnty/Lancaster Cnty
October	8	EYE RUN	Lincoln
	21	Oregon Trail Run	Hebron
	29	Good Life Halfsy	Lincoln

All dates are confirmed, so feel free to mark your calendar. Sign up sheets will be available at upcoming club meetings.

—Mike Long, KØSHC
Public Service Chair

PUBLIC SERVICE

The Cornhusker State Games are just around the corner, and if you haven't signed up for an event, I hope you will consider doing so. We have participated with the games for as long as the games have been played. Our relationship goes way back with the Nebraska Sports Council, so let's not let them down. They really count on our help to make the games safe and fun for all athletes. What a way for us to show our communication skills!

The July club meeting is the last time we can publicly sign you up, but if you don't make it to the club meeting, you can still get your name in. Contact Aaron or me; our emails are located on page 2 in the LOG.

In August is Lancaster County Super Fair. I will have sign up sheets at our next club meeting. Remember, this year you are required to sign a release before you can operate a golf cart. Also, you must work four hours before you are eligible for a free meal. Also in August is the Heat Stroke 100 and the Mud Run. I will have sign up sheets for these events also.

Come on out and get involved in public service. It really is fun working with fellow Hams and gaining skills operating in a net!

—Mike Long, KØSHC
Public Service Chair

PROPOSED BYLAWS CHANGES: VOTE AT AUGUST CLUB MEETING

Bylaw changes are presented by the LARC Board for your review. They are to be voted upon at the August club meeting. [Changes are italicized. ~Editors]

CURRENT

2.01 Annual Business Meeting: The Club's Annual Business Meeting for the election of eligible Directors and other presented business transactions shall be held concurrently with the December regular meeting at a time and place designated by the President of the Board. In the event a quorum is not present, the Annual Business Meeting shall be held at successive regular Club meetings until a quorum is present.

REVISED

2.01 Annual Business Meeting: The Club's Annual Business Meeting for the election of eligible Directors and other presented business transactions, shall be held concurrently with the December Club meeting at a time and place designated by the President of the Board. In the event a quorum is not present, the Annual Business Meeting shall be held at successive regular *Club* meetings until a quorum is present.

CURRENT

3.04.01 Elected Directors' terms shall begin on January 1. The Director's term ends at the end of the day December 31 of the second calendar year. Four (4) Directors shall be elected each year and may serve unlimited terms. A Director, appointed to fill a vacancy, shall serve until the expiration of the term s/he was appointed to fill.

REVISED

3.04.01 Elected Directors' terms shall begin on January 1. The Director's term ends at the end of the day on December 31st of the second calendar year. Four (4) Directors shall be elected each year and may serve unlimited terms. A Director, appointed to fill a vacancy, shall serve until the expiration of the term s/he was appointed to fill.

ADDITION

3.04.02 *In the event a Director's term would end before the Annual Election can be held, said Director's term shall be extended until an election is held. Once the results of this election are final, said Director's term shall end and the elected successor shall immediately begin serving his/her term on the Board.*

CURRENT

3.05.01 - Committee: The President of the Board shall appoint a Nominating Committee to include at least two elected Directors, whose terms are not expiring, and at least two (2) members from the Club at large at the October Board Meeting. This committee shall present

PHOTO ESSAY: FIELD DAY 2017



PHOTO CAPTIONS, CLOCKWISE FROM TOP LEFT:

1. Field Day committee members setting up towers and trailers.
2. The GOTA station, operated from the SATERN trailer, was prominently featured.
3. Jim Shorney, NUØC; Bruce Steyer, KBØKA; and Alan Boldt, KDØRIY, looking for contacts on 6 meters.
4. Ken Cohn, NØYNB, operating on 40 meters.
5. Chuck Bennett, KDØPTK; Brian Leavitt, WØBCL; and Ed Holloway, KØRPT, grill burgers during the Field Day picnic.



Photos 1, 2, and 5 by Joe Eisenberg, KØNEB. Photos 3 and 4 by Jeri Lyn Rogge, NØJLR.

PHOTO ESSAY: FIELD DAY 2017



PHOTO CAPTIONS, CLOCKWISE FROM TOP LEFT:

1. LARC president, Ed Holloway, KØRPT, poses with Lincoln City Councilman Bennie Shobe.
2. Joe Eisenberg, KØNEB, operating on 20 meters.
3. Saturday evening's sunset was spectacular!
4. John Mardock, KRØP, operating PSK31 on 80 meters.
5. Greg Brown, KTØK, assisting with logging CW on 80 meters.



Photos 1, 3, and 5 by Joe Eisenberg, KØNEB. Photos 2 and 4 by Jeri Lyn Rogge, NØJLR.

ON THE BANDS WITH NW7US: IT'S ALL ABOUT THE NOISE (PART 2)

Last month, we began to explore the question of noise by addressing local noise sources and how to isolate them. Once isolated, it could be possible to cure the problem. There are many examples on the Internet of helpful resources for curing the problem of local noise. For instance, the ARRL provides a wealth of information at www.arrl.org/radio-frequency-interference-rfi. Using a few Google search phrases like "radio reception and noise" or "radio resources for curing the problem of local noise" yields many links that include resources focusing on AM broadcast reception and the problems of local noise, as well as VLF radio reception.

This month, let's look beyond local noise generation. After dealing with local noise problems, how does noise affect radio signals? There are two other sources of noise: atmospheric and cosmic. Cosmic noise, which originates at points outside of the Earth's atmosphere, doesn't contribute much to the problem of radio signal reception. Atmospheric noise has a significant impact on the reception of a radio signal.

As we begin to learn more about atmospheric noise, it is most useful to look at the problem as an issue of effectiveness. Often, when people talk about radio reception, signal strength is touted as the most useful factor in the effort of getting a signal from the transmitter to the receiver. However, since the problem of reception is more complex than a simple power issue (just pump more watts into the antenna), the better way to get a handle on the problem is to use the Signal-to-Noise Ratio (SNR) measurement of a circuit (the path between, and including, the transmitter and receiver). The SNR is a real measure of effectiveness. With it, we can better understand how effectively a signal can get from point A to point B.

Take a look at the four sample radio circuit analysis graphs (Figures 1, 2, 3, and 4). These are all modeled with isotropic antennas on both ends of the radio circuit, and the transmitter is running 100 watts. Each graph shows the signal to noise ratio (SNR) in dB, on each of the standard Amateur Radio HF bands, at 2000 UT, for February, between Washington state and Alaska.

Figure one models the circuit with a Man-Made (MM) noise level of "remote" at the receiver (164 -dBW-Hz, for 1 Hertz bandwidth at 3 MHz). Note that "propagation" is possible on a number of bands. The green color for a frequency band indicates that the circuit reliability is at least eighty percent. This means that for eighty percent of the month, statistically, the signal will be reliably received on this circuit.



Figure 1: Remote noise

Increase the MM noise by 10 dB, and we see a slight degradation on the bands, but the same bands are mostly usable (Figure 2). Increase noise by another 10 dB, however, and you can note a significant degradation in circuit quality on most bands (Figure 3). Finally, increasing the noise level a full 24 dB over the remote level as shown in figure one, you can see severely limited circuit usefulness on any band (Figure 4).

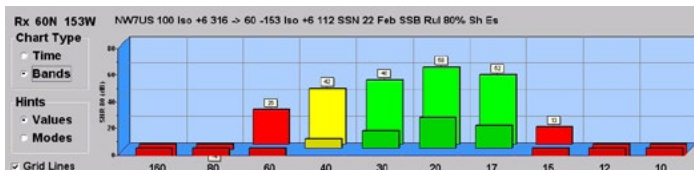


Figure 2: Rural noise

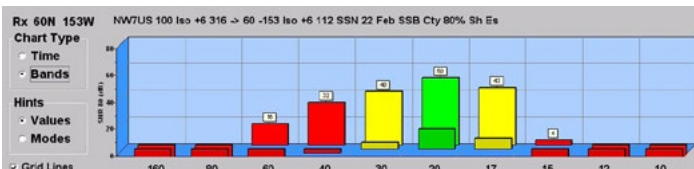


Figure 3: City noise

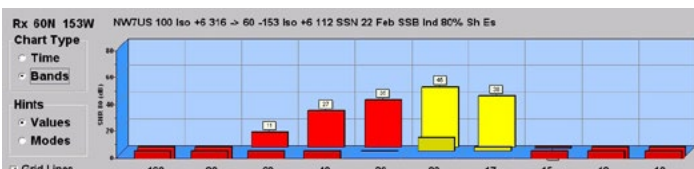


Figure 4: Industrial noise

This means that with all parameters except noise staying the same (power, antenna, solar activity, azimuth, time of day), MM noise makes a very large difference in the quality of a circuit. Be careful not to generalize from that finding, as different circuits and different seasons would yield different data, I'm sure. The noise factor in these examples was based on Man-Made sources. The other source of noise also plays the same way in a circuit's usefulness.

All atmospheric noise is created by weather. More specifically, this noise comes from lightning flashes, with most of the noise caused by cloud-to-ground flashes, because the currents in those strokes are much stronger than those of cloud-to-cloud flashes. However, some energy from horizontal flashes gets converted into vertically polarized energy and adds to the total at the ground receiver. (Horizontally polarized energy doesn't propagate well to the surface, but is an important factor with airborne radio reception, such as used in trans-oceanic flights.)

Worldwide, more than eight million lightning flashes occur daily. That's roughly 100 lightning flashes (with their resulting pulse of radio noise) per second. If your receiver is very far away from most of the storm centers, you'll only experience what is sometimes called "white noise." Atmospheric noise is impulsive, and is not evenly distributed as is true white noise. White noise, when viewed on a scope is pretty well evenly distributed, as would arise from cosmic "background" noise. A Gaussian distribution of most parameters usually follows a "normal" (or Gaussian) probability curve—often called a bell-shaped curve. But Impulsive noise is just that—impulsive. If you view it on a scope, it looks like short-lived pulses rising out of an even bed of background noise.

Atmospheric noise, then, is the combination of many lightning flashes. Radio scientists model each thunderstorm center as a radio transmitter, usually called an "Equivalent Noise Transmitter" or ENT. Such energies then propagate around the world as do international broadcast radio transmissions. At a receiver, we can then add up all of those energies propagated from worldwide storm centers. We find that the amount of that power-sum varies with seasons and with the nearness of the major storm centers.

ATMOSPHERIC NOISE, THEN, IS THE COMBINATION OF MANY LIGHTNING FLASHES.

Starting in the 1960s and continuing through the 1980s, a worldwide effort was made to measure all of this. The result was the CCIR 322 publication, which has been updated several times. The latest version is the [CCIR 322-3](#), which summarizes the vast amounts of raw data on noise. A reader of the publication will quickly note that frequency plays a great part in HF communication from a noise standpoint. Lightning creates a broad-spectrum emission, but in the high frequency range, it is frequency-dependent, with noise power decreasing as frequency increases. In VLF work, atmospheric noise dominates nearly completely (assuming an electromagnetic interference-clean local environment and EMI-clean radio components). At HF, however, Man-Made noise is a large part of the total energy in the high bands.

When the question is asked, "When will good propagation occur?" the reader should look at more factors than just concentrating

on the space-weather disturbed environment. The other factors that affect propagation are radio circuit path length and orientation, frequency, diurnal effects, as well as the transmitter power and antenna gain, and the parameters of the receiving station. Space weather and geophysical (weather, geomagnetic field, and location) factors are not changeable by the average radio hobbyist (but, if you were God, perhaps you could tweak conditions). The rest of these factors are the parts you can control.

The principal effect is always propagation itself, which is the result of ionospheric profiles that vary over the world as the day-night terminator sweeps through — and that cannot be controlled by the radio operator. One might start by running propagation analysis tools to see how different the ionosphere is between steady-state daytime and nighttime, and how that affects reception on simple circuits. When the circuit crosses the terminator and part is in day and part in night the problem gets harder, and using computer modeling to sort out all the variables is about the only practical solution.

So now we have progressed a long way into understanding "when good propagation will occur," and we haven't touched on the disturbed environment. What then about A and K indices, solar flux, solar flares, geomagnetic fields, and so on? I suggest that to emphasize those factors alone is a mistake, because propagation tools that

use the Voice of America VOACAP engine (which is keyed to the CCIR data) have built in compensations for such factors. This is where statistics comes in.

The reason is that VOACAP was calibrated through measurements made during a wide range of environmental conditions, so that the resulting SNR distributions implicitly include the effects of a range of disturbed conditions. The range of environmental effects is built into the model, and shows up in the statistical factors. Since VOACAP was validated through so many years of testing, and is generally acknowledged to be the "gold standard" of propagation models, it's a relief to know how easy it is to use with confidence. From a radio hobbyist standpoint, it is much easier to use tools based on VOACAP, like ACE-HF, than other models where such factors must be laboriously worked out and inputted.

HF PROPAGATION FOR JULY

Many DX hunters view July as the least exciting month of the year. With generally lower summertime Maximum Usable Frequencies (MUF), the highest of the amateur HF bands are mostly unusable for long-distance F-layer propagation. Added to this seasonal change is the lower solar activity of the ever-declining cycle. We are only a year or two away from the solar minimum.

While F-layer propagation of the highest HF frequencies will be poor, radio signals near the Best Usable Frequency (BUF) will be stable over paths that could remain open for longer periods than during the winter and early spring season. In addition, July's sporadic-E ionization is near the

year's seasonal peak. This should result in a considerable increase in short-skip openings on almost all of the High Frequency Amateur bands and on 6 and 2 meters as well.

PEAK SPORADIC-E PROPAGATION

Optimum short-skip propagation conditions are expected during July because of a seasonal peak in sporadic-E ionization. Expect an increase in the number of short-skip openings on HF, and often on 6 and 2 meters. During the daylight hours, considerable short-skip openings are forecast for 10 and 15 meters over distances ranging between approximately 400 and 1300 miles, with openings occasionally extending out to beyond 2000 miles. Around-the-clock short-skip openings should be possible on most days on 20 meters, with the skip often as short as 300 miles and as long as 2300 miles. Short-skip conditions on 20 meters should peak during the late afternoon and the early evening.

Good daytime openings on 40 and 30 meters should range between 100 and 750 miles, increasing to between 250 and 2300 miles after sunset. Look for openings up to about 300 miles on 80 meters during the day, extending out to the one-hop limit of 2300 miles during the hours of darkness. However, these bands could be quite noisy.

While no short-skip openings are likely on 160 meters during the daylight hours of July, expect some openings between sunset and sunrise for distances up to approximately 1300 miles, if the static levels are low.

THE NUMBERS, PLEASE

The Royal Observatory of Belgium, the

world's official keeper of sunspot records, reports a monthly mean sunspot number of 11.3 for May 2017, a significant drop from April's 19.6. The mean value for May results in a 12-month running smoothed sunspot number of 17.9, centered on November 2016. Following the curve of the 13-month running smoothed values, a smoothed sunspot level of 19 is expected for July 2017, plus or minus 14 points.

Canada's Dominion Radio Astrophysical Observatory at Penticton, British Columbia reports a 10.7-cm observed monthly mean solar flux of 73.5 for May 2017, a drop from April's 80.9. The twelve-month smoothed 10.7-cm flux centered on November 2016 is 81.1. A smoothed 10.7-cm solar flux of about 78 is predicted for July 2017.

The geomagnetic activity as measured by the Planetary-A index (A_p) for May 2017 is 9. The twelve-month smoothed A_p index centered on November 2016 is 11.6. Geomagnetic activity this month should pick up a bit over the level seen in June 2017. Refer to the Last-Minute Forecast for the outlook on what days we might witness degraded propagation (remember that you can get an up-to-the-day Last-Minute Forecast at SunSpotWatch.com on the main page).

Please check out my educational tweets on Twitter.com; you can follow @hfradiospacewx ([Twitter.com/hfradiospacewx](https://twitter.com/hfradiospacewx)) for hourly updates that include the K index numbers, as well as @NW7US ([Twitter.com/nw7us](https://twitter.com/nw7us)) which will provide the daily dose of educational tidbits about the Sun and propagation. You can also check SunSpotWatch.com for the latest numbers.

Your thoughts, questions, and experiences regarding this fascinating science of propagation are welcome. E-mail or write a letter; if you are on Facebook, check out www.facebook.com/spacewx.hfradio and www.facebook.com/NW7US.

Happy DX! 73

—Tomas Hood, NW7US

REVIEW TIME

Answer: A. [97.113(b)]

The communications must directly relate to the immediate safety of human life or protection of property and there must be no other means of communication reasonably available before or at the time of the event.

—General Exam Question Pool
2015–2019



"BYLAWS" CONTINUED

to the Members, at the November Club meeting, a slate of nominees at least long enough to fill the Board vacancies created by the retiring elected Directors plus one (1).

REVISED

3.05.01 Committee: The President of the Board shall appoint a Nominating Committee to include at least two elected Directors, whose terms are not expiring, and at least two (2) members from the Club at large at the *September* Board Meeting. This committee shall present to the Members at the November Club meeting, a slate of nominees *sufficient* to fill the Board vacancies created by the retiring elected Directors plus one (1).

CURRENT

Nominations: Nominations from the floor by Members will be accepted only at the November Club meeting.

RADIO SPORT

JULY

- ◆ 8-9 IARU HF World Championship

AUGUST

- ◆ 5-6 222 MHz & Up Distance Contest
- ◆ 19-20 10 GHz & Up – Round 1
- ◆ 20 Rookie Roundup – RTTY

SEPTEMBER

- ◆ 9-10 EME - 2.3 GHz & Up
- ◆ 9-11 September VHF
- ◆ 16-17 10 GHz & Up - Round 2

—ARRL Contest Calendar

REVISED

3.05.02 Nominations: Nominations from the floor by Club Members shall be accepted only at the November Club meeting *except in the event there are fewer than Five (5) nominees prior to an election. Then nominations from the floor presented by Club Members shall be accepted prior to the election.*

—LARC Board

SUPPORTING BUSINESS MEMBERS

NORTH CREEK CAR WASH

6000 Telluride Dr, Lincoln, NE 68521

BOB'S TAVERN

6212 Havelock Ave, Lincoln, NE 68507

BRENT'S FLAT WORK

1525 N 58th St, Lincoln, NE 68505

HEIDELBERG'S SPORTS BAR

4620 Bear Ave, Lincoln, NE 68504

COLLEGE VIEW DENTAL

3933 S 48th St, Lincoln, NE 68506

BRENT MANSHEIM INSURANCE

4848 Normal Blvd, Lincoln, NE 68506

ABOUT

Supporting Business Members help offset the cost of producing this LOG and maintaining the LARC website, KØKKV.org. So check them out and let them know you appreciate their support.

ABOUT THE LINCOLN AMATEUR RADIO CLUB

The Lincoln Amateur Radio Club, Inc. (LARC), is a nonprofit organization devoted to the promotion of Amateur Radio. The club sponsors activities and programs to promote growth in Amateur Radio, as well as furthering the experience of those already licensed, and to create international good will.

The *Lincoln LOG* is mailed monthly to all paid members of LARC and to all Lancaster County, Nebraska, Hams.

If your label says, "COMPLIMENTARY," please consider joining the club and supporting its activities. Even if you are not currently active, your contribution will help to ensure the future of Amateur Radio. Annual dues are only \$20. For your convenience, please join by completing and mailing in the form below or visit k0kkv.org and use PayPal.

The *LOG* solicits your input. If you have an idea for an article, wish to contribute an article or photo, or want to place an ad in the *LOG*, contact the editors at log@k0kkv.org. The deadline for each issue is generally the last Tuesday of the previous month.



The *LOG* and other Lincoln Amateur Radio Club information are available at k0kkv.org and at facebook.com/LARClincoln and may be used freely. Permission is granted to other publications to reprint articles, provided that source credit, author, and previous print source appear in the reprint.

Lincoln Amateur Radio Club Registration Form

Personal Information

Name: _____ Call Sign: _____

Address: _____

City: _____ State: _____ Zip+4: _____

Phone: _____ Email Address: _____

License Class: Novice Tech General Advanced Extra

Membership Information

LARC (\$20 / Calendar Year: Jan - Dec) Year: _____

ARRL: National Association of Amateur Radio (\$49 / year)

New Renewal

Optional Donations

Equipment fund \$: _____

Social activities \$: _____

Make checks to: Lincoln Amateur Radio Club, Inc.

Lincoln Amateur Radio Club, Inc

PO Box 5006 • Lincoln NE 68505-0006

Administrative use only:

- Cash
- Credit Card
- Check
- Data Uploaded

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