

CQ CHATTER

FEBRUARY 2022

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WOOD COUNTY AMATEUR RADIO CLUB

President	KG8FH/W8PSK	Jeff Halsey/Loren Phillips
Vice President	WE8TOM	Tom Leingang
Secretary	N1RB	Bob Boughton
Treasurer	KD8NJW	Jim Barnhouse
Board Member	WB8NQW	Bob Willman

Kick-off Successful

After a gap of one year due to the pandemic, the annual kick-off banquet was held on January 10th. The location was the Country Farmhouse restaurant in Wayne. The weather was frigid and a number of people stayed home due to illness. Nevertheless, 9 hearty diners showed up and enjoyed an excellent meal provided by the efficient staff of the Farmhouse.

Because the new officer slate had already been approved at the December business meeting, there was no official business to transact. The smaller group allowed us all to gather in kind of a large “meeting in the round” to swap stories and anecdotes after dinner. A good time was had by all. ■

Radiation Safety Compliance

Last year, the FCC changed its RF-exposure rules, eliminating service-specific exemptions (such as we enjoyed as amateur radio operators) from the need to do a routine RF-safety evaluation, and replacing those exemptions with a set of rules that apply to all radio services. See the [FAQ on the ARRL RF-Exposure page](#) for more information. The rules did not change the exposure limits nor the two-tiered exposure environments for controlled and uncontrolled exposure. The controlled limits generally apply to amateurs and members of their household if those people have been given instructions by the amateur about

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Net Check Ins-I

Jan 4

Traffic: 0

KG8FH (NCS)

KE8CVA

KD8NJW

WB8NQW

KD8RNO

KA8VNG

WE8TOM

N1RB

WD8LEI

KC8EKT

WD8ICP (11)

Jan 11

Traffic: 0

WB8NQW (NCS)

KD8NJW

KD8RNO

N1RB

KE8CVA

KG8FH

KA8VNG

KC8EKT

WE8TOM

WD8JWJ

KD8WCB (11)

Jan 18

Traffic: 0

N1RB (NCS)

KD8RNO

KC8EKT

KE8CVA

KG8FH

WD8LEI/M

KD8NJW

WB8NQW

WE8TOM

Brain Teasers

1. What is the effect of a terminating resistor on a rhombic antenna?
 - a.) it reflects the standing waves on the antenna back to the transmitter
 - b.) it changes the radiation pattern from bidirectional to unidirectional
 - c.) it changes the radiation pattern from horizontal to vertical polarization
 - d.) it decreases the ground loss
2. What is the physical length of a parallel conductor feed line that is electrically one-half wavelength long at 14.10 MHz? (velocity factor is 0.95)
 - a.) 15 m
 - b.) 20.2 m
 - c.) 10.1 m
 - d.) 70.8 m
3. What is the term used to describe the operation of an amateur station that is more than 50 km above the Earth?
 - a.) EME station operation
 - b.) space station operation
 - c.) downlink station operation
 - d.) ionospheric station operation

February Contests

The contest lineup for the month of February is given below. Please note that the WARC bands (60, 30, 17 and 12 m) are never open to contesting.

Feb 5-6	<i>0000 to 2359 Z</i>	160 m to 10 m
Vermont QSO Party		all modes
Feb 5-6	<i>0001 to 2359 Z</i>	10 m
10-10 Winter 'test		SSB
Feb 5	<i>1400 to 2359 Z</i>	160 m to 10 m
Minnesota QSO Party		all modes
Feb 5	<i>1600 to 2359 Z</i>	160 m to 10 m
British Columbia QSO Party		all modes
Feb 12-13	<i>1200 to 1200 Z</i>	160 m to 10 m
Dutch (PACC) 'test		CW/SSB
Feb 12-14	<i>1400 to 0200 Z</i>	160 m to 10 m
YLRL YL-OM 'test		all modes
Feb 14-18	<i>1300 to 2359 Z</i>	160 m to 10 m
ARRL School Club Roundup		all modes
Feb 19-20	<i>0000 to 2359 Z</i>	160 m to 10 m
ARRL Int'l DX 'test-CW		CW
Feb 26-27	<i>0600 to 1800 Z</i>	80 m to 10 m
REF (France) DX 'test-SSB		SSB
Feb 26-27	<i>1300 to 1300 Z</i>	80 m to 10 m
UBA (Belgium) DX 'test-CW		CW

Net Check Ins-II

Jan 25

Traffic: 0

KG8FH (NCS)
KE8CVA
WD8ICP
WD8LEI
KD8NJW
WB8NQW
KE8QGV
WE8TOM
N1RB
KA8VNG
KD8RNO
KE8QWV (12)

Feb 1

Traffic: 0

KD8NJW (NCS)
WE8TOM
KD8RNO
WB8NQW
KA8VNG
N1RB
KD8VWU
KC8EKT
KE8CVA
KE8CUZ
K8DLF
KE8QGV (12)

Cycle 25 May Be Better Than We Think!

It has been widely noted that amateur radio operators have a strange fascination with the Sun and its activity, particularly the number of sunspots on the surface. The reason is that the intensity of the Sun's radiation, particularly in the UV part of the spectrum has an important effect on the Earth's ionosphere, and thus on radio propagation. The ionosphere is of course responsible for the reflection of radio waves back down to Earth. When the Sun pumps out enough radiation to make the ionization density strong, the waves are reflected at a higher altitude with greater efficiency. This makes for excellent DX skip conditions on the HF bands. It also allows for RF energy to be reflected at higher frequencies instead of continuing on out into space. This is manifested by a higher muf (*maximum usable frequency*), so when ionization is strong even 6 meters can provide some interesting DX communications.

The intensity of the Sun's radiation in the UV segment is mirrored by the degree of plasma heating at the surface, and this is measured by monitoring the intensity of the Sun's microwave radiation at a wavelength of 10.7 cm. About 80 years ago, it was discovered that this microwave radiation is correlated with the number of sunspots that are of course observed at optical wavelengths. Sunspots are dark, regions on the surface of the Sun which we now know represent cooler regions with high magnetic field activity. In the early days of radio, it was observed that DX propagation is much better when the sunspot count is near its maximum.

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Brain Teaser answers: (E) 1-b, 2-c, 3-b

WCARC Weekly Net

Tuesdays at 2100 all year

147.18 MHz 67 Hz PL

Net Control Roster

<i>Feb</i>	<i>8</i>	<i>WB8NQW</i>
<i>Feb</i>	<i>15</i>	<i>N1RB</i>
<i>Feb</i>	<i>22</i>	<i>KG8FH</i>
<i>Mar</i>	<i>1</i>	<i>KD8NJW</i>
<i>Mar</i>	<i>8</i>	<i>WB8NQW</i>
<i>Mar</i>	<i>15</i>	<i>N1RB</i>

NEXT MEETING

Business Meeting

Monday

February 14

TIME: 7:30PM/7:00EB

PLACE:

Sheriff's Training Room

S. Dunbridge Rd. &

E. Gypsy Lane Rd.

Bowling Green, OH

10 meter Net

informal group

meets

Sunday

@ 20:30 Z

on 28.335 MHz

Fusion Net

Thursday

@ 19:30 Z

on 442.125 MHz

Wires-X Operators

welcome

Informal net

safety—from p. 1

RF safety. The uncontrolled limits apply in all other circumstances, such as exposure to the general public.

On May 3, 2021, the new FCC rules regarding exposure to RF energy went into effect. Stations operating under the exemption included in the old rules must comply with the rules changes by May 3, 2023, so it is a good idea to get a head start and make the calculations to keep on file. Below is an example calculation to illustrate how to go about performing the calculations.

Radiation Safety Calculations

- Determine length and type of feedline, and calculate power delivered at the antenna – a handy line loss calculator is found at <http://arri.org/rf-exposure-calculator>; click '*Need help with this?*' and then at the link '*Here is an excellent coax loss calculator*' on this site.
- Determine antenna gain (relative to isotropic radiator-dBi) by linking to the bottom paragraph of the above site under '*Antenna gain instructions*'. Some antenna specifications give gain relative to a dipole (dBd); you must add standard dipole isotropic gain (2.2 dBi) to this figure to obtain the isotropic gain for your antenna(s).
- Determine if environment is controlled (you know about the radiation and can use caution) or uncontrolled (unknowing person

passing by your antenna installation). The uncontrolled case is the most stringent (minimum safe distance is greater).

- Determine the MODE carrier duty cycle, i.e. for CW, SSB, AFSK, RTTY, or FM. FM, RTTY and AFSK are 100% (carrier is on all the time).
- Determine the TRANSMIT duty cycle, i.e: 5 min on and 5 min off = 50% (typical for 2m FM work-different on HF since a larger fraction of the time is spent in receiving)
- Determine frequency of transmission (to nearest MHz).

This information is all needed for input to the calculator. The routine will spit out a minimum distance of approach to the radiating element of the antenna.

EXAMPLE:

My personal calculation at N1RB for an *uncontrolled* environment :

Antennas on site:

- dipoles on 40 m (400 W out) and 30 m (200 W out) up about 20 ft (RG-59).
- 3el. Yagi on 20 m, 15m and 10 m up about 45 ft and all with 400 W out (RG-8).
- AEA Isopole on 2m up about 15 ft. with 20 W out (RG-8).
- Diamond X-30 on 2m up about 15 ft. with 20 W out (LMR-400).
- Diamond X-30 on 70 cm up about 15 ft with 20 W out (LMR-400).

(see page 9 for results)

February Contests—cont

Feb 26-27	1500 to 0159 Z	160 m to 10 m
South Carolina QSO Party		all modes
Feb 26-27	1800 to 0559 Z	80 m to 10 m
North American QSO Party-RTTY		RTTY
Feb 27-28	1500 to 0100 Z	80 m to 10 m
North Carolina QSO Party		all modes

February Hamfests

Feb 26 - Livonia ARC Hamfest. VFW Post 345, Redford, MI.

web: <http://livoniaarc.com/larc-annual-swap-and-shop>

sunspots— from p. 4

Although first observed by Galileo, the number of sunspots has been faithfully recorded since the 18th century, and has exhibited a sort of periodic behavior with an eleven year period. A new cycle starts when the magnetic polarity of the sunspots

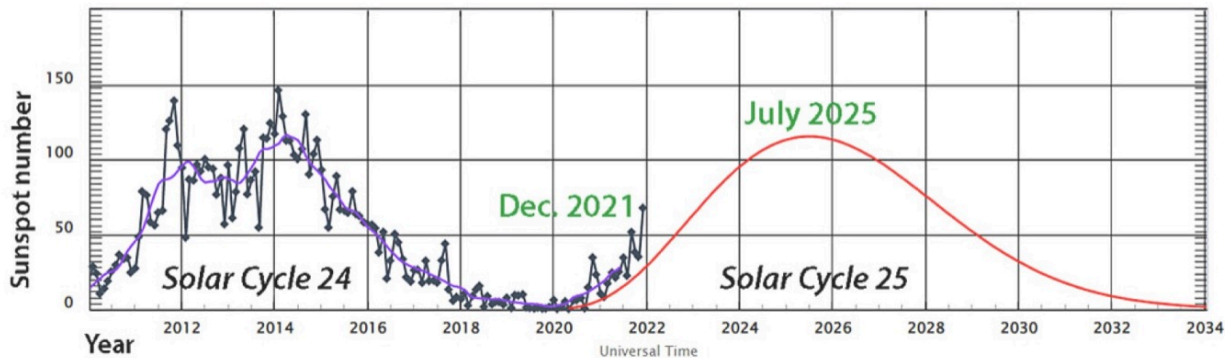


Fig.1 Predicted sunspot numbers for Cycle 25 and data through Dec. 2021

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sunspots— from p. 7

reverses. So far, 24 complete Solar Cycles have been recorded, and we just entered Cycle 25 two years ago in December, 2019. Some Cycles have been very strong (Cycle 19 in the International Geophysical Year of 1957-1958), and some have been almost non-existent.

It is always fun for the experts to try to predict when a new cycle will begin and how strong its maximum will be. This task is handled by the Solar Cycle Prediction Panel, who stated early in 2021 that Cycle 25 would be much the same as Cycle 24, both in duration and peak value, and that it would reach maximum in July, 2025.

Of course these kinds of predictions are based on a lot of assumptions about solar physics, which is not completely understood at present, so it is not unusual for some scientists to disagree with the Panel. In fact, some have predicted a much stronger Cycle 25, while others have predicted a very weak Cycle 25.

At this point in time, we have two-years' worth of data on Cycle 25. As displayed in *Fig.1*, where the actual Cycle 25 sunspot data is compared with the Panel's prediction, you can see that the existing data seems to indicate that Cycle 25 has a steeper initial slope than the predicted curve. You can also see that the data are very "noisy", so statistics must enter the equation, and it is never a safe bet to make a prediction based on only about one-fifth of the data set.

***IT'S TIME TO RENEW
YOUR MEMBERSHIP***

**Dues Payable to:
WCARC**

P. O. Box 534

**Bowling Green, OH
43402**

Sen/Stu: \$10

Reg: \$15

Fam: \$20

If you tend to the optimistic side, then it seems reasonable to assume that the peak sunspot number will be higher than that of Cycle 24. Many of the DX hounds who obtained their tickets within the last 5 to 10 years have probably been a bit disappointed with the state of DX propagation during Cycle 24. At least the data we have at present for Cycle 25 give us all renewed hope that it will give much better propagation results.

It is appropriate for any DX'er worth his salt to hone his skills in digging out that weak signal from the noise. Good propagation means world-wide contacts on 20m, 15m, 10m and even 40m! ■

Results of radiation safety calculation at N1RB QTH

Band	f (MHz)	Antenna	Pwr@ant	Antenna Gain	Minimum Distance
40 m	7	dipole	382 W	2.2 dBi	4 ft
30 m	10	dipole	189 W	2.2 dBi	4 ft
20 m	14	3 el. Yagi	375 W	10.2 dBi	21 ft
15 m	21	3 el. Yagi	369 W	10.2 dBi	32 ft
10 m	28	3 el. Yagi	365 W	10.2 dBi	42 ft
2 m	147	Isopole	18 W	5.2 dBi	5.7 ft
2 m	147	Diamond X-30	18 W	3 dBi	4.4 ft
70 cm	444	Diamond X-30	16 W	5.5 dBi	4.5 ft

Conclusion: station passes

*Note most stringent direct radiation effects are at VHF and especially at UHF frequencies—this is somewhat compensated by greater coax losses if you have a long run. Please contact [N1RB](#) if you want more details.

Livonia Amateur Radio Club

Talk-in
145.35 with 100 PL
or 146.52 Simplex

51st

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- *Food Concession

Call (734) 941-5043
or e-mail us at k8uns@arrl.net

Saturday, February 26, 2022 9:00am - 1:00pm

HEATHKIT EQUIPMENT FOR SALE

This is being sold as a matching set only. Cabinets are free of any dents or scratches. Everything has been well maintained for many years.

You will not be disappointed in the condition and operation of this station and you would be hard pressed to find this equipment in better shape.

Asking: \$795.00

Images of equipment are available upon request to: W1PDI@ARRL.net

Includes:

- Heathkit HW-101 – Workhorse Transceiver
- Assembled by my dad and me in 1972 / 1973-Recent repairs completed-Copy of report is available
- Tested all tubes and replaced some as well as replacing rubber belts, tested all capacitors & re-alignment in 2/2021-image of test results available on request– “works great”!
- Heathkit HP-23C - AC Power Supply-Matching Speaker
- Includes Power Cable
- Tested in 2/2021-All good
- Includes original assembly manual
- Heathkit HM-15 – Reflected Power Meter & SWR Bridge
- Matches HW-101
- Includes original assembly manual
- Heathkit HS-1661 Speaker
- Matches HW-101
- Heathkit HDP-21A Microphone (Electro-Voice model 638)
- Includes original instructions

**WOOD COUNTY ARC
P.O.BOX 534
BOWLING GREEN, OH
43402**

