



THE BRASS KEY



December 2023

A Publication of the Central Louisiana Amateur Radio Club



The BRASS KEY is published monthly as its official journal by the Central Louisiana Amateur Radio Club, P. O. Box 4652, Pineville, LA. 71361. CLARC yearly membership dues (including a subscription to the BRASS KEY), is \$30. Editor/Publisher: Lisa Coleman, KW5LC; (318) 466-5623; clarcsec@yahoo.com. Members may submit texts for possible publication to the editor, Lisa Coleman, KW5LC, by hard copy at a meeting or by email at clarcsec@yahoo.com. Space and printing limitations may affect the appearance of any item submitted. Photo submissions should be sent in either TIFF, JPEG, or GIF formats, by email. All submissions must be turned in to the secretary by the third Tuesday of the month.

2023 CLARC Officers:

President: Kirk Garber, W5KKG
318-729-0733 kirk.garber@usda.gov

Vice-President: Will Butterfield, KI5IPJ
(318) 613-1594 vicepresident@gmail.com

Secretary: Lisa Coleman, KW5LC
(318) 466-5623, clarcsec@yahoo.com

Treasurer: Stacey Sonneland, KG5KGU
clarctreasurer@gmail.com

Board Member at Large: Don Ward, KI5AJV
(318) 418-1133; 610mt1@gmail.com

Past President: John Dempsey, N5CM
(318) 528-0038, johndgex@aol.com

Webmaster: Chris Olivier, KI5LOX
(337) 853 – 1527, chrisolivier2019@gmail.com

Amateur Radio License Exam Coordinator
Terry Bradshaw AG5H – 318-308-4342



The Prez Sez . . .

Words from our President, Kirk Garber, W5KKG

Not available at time of publication.



Prior Public Proceedings

Lisa Coleman, KW5LC , CLARC Secretary

CLARC General Meeting Minutes –
November 7, 2023

Those present: Allen Henderson K5VD, Michael Callahan N5MJC, Houston Polson N5YS, Stephen Peters N5EKC, David Nolan K5TS, Kirk Garber W5KKG, Chris Wright KI5HDW, Jeff Foley KI5HVK, Dona Ward KI5AJV, John Dempsey N5CM, Scott Wren KD5DFL, Lisa Coleman KW5LC, Pauline Jordan K5PIQ, Jim Walters AE5ZE, Alex Daniel AD5MO, Perry Nelson N5PRN, Susan Nelson N5CLZ, Tom Leddy KJ5CZC, Kevin Walker KG5SGI, Kenneth Walker KG5YRN, Stacey Sonneland KG5KGU, Terry Bradshaw AG5H, Erin Huddleston W5FRD, Bobby Roy KB5DOG, Luke Butterfield KI5RTS, Will Butterfield KI5IPJ Richard Lundy WA5CAV, Jack Brossette W5ETL

The welcome was made by president, Kirk Garber W5KKG, reminding everyone to remember our service members overseas, especially those serving in the Middle East.

Health and Welfare:

Prayers were asked for Butch KI5KJM who is having some health issues and is in rehab in Lafayette.

Don Broussard AI4MZ will be having bypass surgery.

Greg N5GSR will be having a stint put in.

The prayer was offered by Jack W5ETL.

Introductions were made around the room.

Kirk suggested the club purchase a walled cargo trailer to store the clubs equipment in. Don KI5AJV has been gracious in allowing us to store the equipment at his house, but Don would like it removed from his property. The board will look into this further.

Kirk announced that Scott Wren KD5DFL has rescinded his nomination for 2024 vice president. The motion was made to accept the rescinding of Scott's nomination as vice president, and that Jeff Foley KI5HVK, the opposing candidate for vice president for 2024, be accepted as the 2024 vice president. This motion was made by John Dempsey N5CM and seconded by Allen Henderson KV5O. The motion passed unanimously by the membership.

Kirk reminded all that the Christmas banquet will be held December 5 at Golden Corral in Alexandria at 6:00 PM. The price will be the regular price of a buffet meal and a drink, \$20. We will be dining in the banquet room.

Kirk W5KKG thanked the 2024 Board of Officers for their service in the upcoming year.

The program this evening was presented by David Nolan K5TS on waterproofing coax.

The meeting adjourned around 8:00 PM.

CONGRATULATIONS TO OUR 2024 Board of Officers **Thank you for volunteering to serve our club!**

President: Terry Bradshaw AG5H
Vice President: Jeff Foley KI5HVK
Treasurer: Erin "Fred" Huddleston W5FRD
Secretary: Lisa Coleman KW5LC
Director at Large: David Nolan K5TS
Past President: Kirk Garber W5KKG

CLARC extends its thanks to those who served on our **2023 Board of Officers:**

President: Kirk Garber W5KKG
Vice president: Will Butterfield KI5IPJ
Treasurer: Stacey Sonneland KI5KGU
Secretary: Lisa Coleman KW5LC
Director at Large: Don Ward KI5AJV
Past President: John Dempsey N5CM

CLARC 2023 Christmas Banquet

Tuesday, December 5, 2023
6:00 PM - 8:00 PM

Golden Corral Buffet and Grill Banquet Room
501 MacArthur Dr, Alexandria, LA
(In front of Southerlands HomeBase)

Price: \$20/adult for buffet and drink, price includes tax.

There will be **NO KEES PARK MEETING** in December!



TREASURER'S REPORT

Stacey Sonneland, KG5KGU

Treasurer's Report

Stacey Sonneland, KG5KGU, Club Treasurer

Financial Report for Nov 2023

Revenue

Dues	<input type="text"/>	\$	17.00
50/50			
Misc			
Total Revenues		\$	17.00

Expenditures

Equipment			
Insurance		\$	323.20
Fellowship			
Maintenance and Repairs			
Office - P.O Box Rental			
Winter Field Day			
Summer Field Day			
Utilities			
Web Hosting and domain	Godaddy		
Scholarship			
Legal - Annual Report to Sec of State			
Baofeng Radios			
Misc.			

Total Expenditures		\$	323.20
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Revenues - Expenditures		\$	(306.20)
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(1) annual liability insurance to Mercer

Prepaid 2024 dues \$ 60.00

Stephen Peters and Tom Leddy

Techniques for Successful DXing

John Dempsey, N5CM

October and November, thus far, have been good months for DX. It is an appropriate time to point out and review some DX best practices, especially for new DXers. This is by no means a complete list of best practices. Feel free to add other best practices.

I. The DX Cluster

There are a number of DX clusters available on the internet such as DX Fun, DX Heat, DX Summit *etc.*

DXers who hear a station log in to their preferred cluster and “spot” the station they hear by entering the call sign of the station and the frequency on which they hear the station.

In the past, it was not uncommon, especially on CW frequencies, to see two DX stations spotted on the same frequency at about the same time. This led to confusion. To remedy this situation, on April 31, 2017, the FCC (Federal Communications Commission) mandated the use of an algorithm known as the *Generalized Intelligence Gathering Optimization* (GIGO) for all DX clusters.

GIGO ensures that all entries on the cluster are **always 100% accurate**, so that there is no doubt about what you see. So, when you see P5XYZ spotted, you know that a station in North Korea is on the air. Work the station as quickly as possible, log it, and re-spot it on your favorite cluster. Don't worry if the station doesn't identify. Because of GIGO, you know beyond a shadow of a doubt that you worked North Korea. Congratulations!

When you see 7O8AD and A25R spotted on 14.023 MHz, you know that both stations are on the same frequency, no question! Work and re-spot what you saw. GIGO rules!

II. Listening

A lot of the curmudgeons in the DX community will tell you that listening is a key aspect of DXing. Don't believe it and don't fall for this misinformation. These geriatrics are well past their prime and live in a perpetual fog. Listening is highly overrated.

Deal with listening as you would deal with station identification on 75-meter phone. Do it about once every ten minutes.

As you get into DXing, you will find that a significant proportion of operators aren't listening either, so it's OK.

III. Tuning

When you see a DX station spotted on the cluster, tune to that exact frequency. If you hear a station transmitting, then you are at the right place.

When the frequency of your rig is exactly on that of the DX station, begin tuning the rig and tweaking the antenna tuner. Won't that interfere with the DX station's transmissions? No!

On June 31, 2000, the FCC mandated that all amateur transceivers designed or built after June 31, 2000, include the *Linear Interference Discrimination* (LID) circuitry. The LID circuit distinguishes between tuning and actual transmitting. These rigs know when you

are just tuning instead of actually transmitting. The hundred watts your rig emits *during tuning* cannot be heard by any other station.

If your rig was designed or built prior to June 31, 2000, your tuning signal *will* interfere with or completely wash out the DX station's transmission so that DXers within the range of your signal will not be able to hear the DX station. You may hear others on the frequency saying or sending "LID", encouraging you to get one of the newer transceivers.

Take all the time you need to tune on the DX frequency. No one will hear it. You don't want your rig to produce spurious emissions, and the extra milliwatt you squeeze out will always be needed to make the contact.

IV. Operating

It is vitally important that the DX station hear your call sign.

Record your call sign in your rig's voice keyer or in your CW keyer.

If you are using a CW keyer, adjust your keyer speed on the air for best results. This is like tuning, and the LID circuit will make sure that no one else hears your station. If you are on single side band, turn your microphone gain and compression controls all the way up.

Because you tuned on and are still on the DX station's frequency, begin transmitting your call sign repeatedly, regardless of whether the DX station is transmitting or not. Put a space of one half to one fourth of a second between transmissions.

Once every few minutes, you might listen briefly between transmissions of your call sign. You may hear other operators saying or sending "up". You may hear other encouraging words in addition to "up". Typically, that means that the DX station is listening on a slightly higher frequency than that on which it is transmitting. This is known as *split* operation.

Most modern transceivers are equipped for split operation. Go ahead and configure your rig for split operation.

You will need to re-tune in the range where the DX station is listening. See Item III. Tuning. If your rig has the LID circuit, the DX station that is trying to listen where you are tuning will not hear your signal. Remember, if your rig was designed/built before June 31, 2000, you will interfere with the DX station's reception when you tune where the station is trying to listen.

Once your rig is accurately tuned, begin transmitting your call repeatedly whether the DX station is transmitting or not. After a few minutes of sending your call repeatedly, you might try listening briefly.

In one of the rare instances when you are listening, you may hear the DX station call something like "DL4..." This means that the DX station heard part of a call sign and wants to work a station in Germany. Keep sending your call, W5QRM, repeatedly. Never mind that your call sign does not contain the letters, D or L, or the numeral 4. Never mind that you are not in the same city, grid, county (parish in Louisiana), state,

country, or even on the same continent as the DL4 station, keep sending your call repeatedly.

It is well known among experienced DXers that it is easier to copy a specific signal when there are tens or hundreds of other signals present than if there are only a very few signals present. The presence of all these extra signals has a synergistic effect and enhances the ability of the DX operator and the DL4 station to establish contact relative to a quieter frequency. For *partial* calls, such as "DL4...", this is known as the *Juxtaposed Emission Resonant Kaleidoscopic* (JERK) effect. You will observe that many operators in the pileup subscribe to this mode of operation. Every little bit helps!

You may hear the DX station send a *full* call, something like "KF7XXX 5NN" on CW or "KF7XXX 59" on phone. This means the DX operator definitely heard KF7XXX and is listening for a reply from KF7XXX. Again, never mind that your call, W5QRM, has none of the characters in KF7XXX. In order to help the DX operator complete the contact with KF7XXX in an expeditious manner, make sure you keep sending your call repeatedly.

It is a well-known fact that the more signals there are in the DX operator's ear, the easier and faster it will be for him to hear KF7XXX and complete the contact. For a *full* call, it's known as the *Simultaneous Transmission Unified Phase Integrating Discrimination* (STUPID) effect and is another DXer best practice. Combining the STUPID and JERK effects enables the DX station to work more stations more rapidly. You will hear a significant number of STUPID JERK operators in the pileup during the rare occasions when you're actually listening.

V. Regional Calls

Occasionally, the DX station will call for JA (Japan) only, EU (Europe) only, SA (South America) only *etc.* If you happen to be listening when the DX station makes this request, don't worry. Keep on sending your call repeatedly. See Item IV above for the STUPID and JERK effects.

If the DX station is working primarily U.S. stations, he may call "by the numbers" and may send "zeros only", "ones only" *etc.* As always, keep on sending your call, repeatedly whether you're in the requested call area or not.

VI. Helping the DX Station

On the rare occasion when you are listening, you may hear a station transmitting on the DX station's frequency and interfering with your reception. Quickly disable the split feature on your transceiver so that you are transmitting on the DX frequency and send or call out "up" seven to fifteen times. Also, send or call out "LID" a few times. This will help the offending station to correct the behavior, and others in the pileup will appreciate your efforts. Enable split operation and begin sending your call repeatedly.



FROM THE SHACK



Members are free to submit articles for “From the Shack!” We want to hear about your shack or other things of ham interest! Tell us about your operating conditions and submit your photos to Lisa, KW5LC, at clarcsec@yahoo.com

Proper Use of Antenna Analyzers for Ham Radio Operators

Mark Haverstock, K8MSH, Taken from “*On All Bands*”

Antenna analyzers are generally used during the building and tuning of antennas. It's a tool that helps you physically adjust the length of the antenna and check the entire antenna system, including the feedline. Antenna analyzers have become a very popular accessory—and sooner or later, many hams will add one to their collection of test gear.

The advantage of an antenna analyzer is you don't need a bulky transceiver for a signal source. As a lightweight, self-contained unit, the analyzer has a built-in low-power signal generator which allows testing beyond the edges of the amateur radio bands and doesn't interfere with other stations on the air. With measurement and display systems combined into a small package, plus built-in battery power, they're perfect for use in the field.

OCD about SWR

RigExpert Antenna Analyzer

The most common use of an antenna analyzer is to measure antenna SWR (Standing Wave Ratio), something hams often obsess over. Analyzers can display SWR on a specific frequency, across an entire band, or even several bands at once—especially useful for multiband antennas. They're built to cover a specific range of frequencies (for example, the RigExpert AA-55ZOOM-BT covers 0.06 to 55 MHz).



Once your antenna is constructed, it's time to run a check. It should be off the ground, preferably within your reach, so you can adjust the lengths easily. Be sure that any baluns, ununs, or chokes are installed before you begin your testing. Also, don't stand too close to the antenna—being in the near-field of the antenna will affect your results.

Connect the analyzer to the antenna with a piece of coax to begin your SWR sweep. Based on data from the analyzer, adjust the antenna dimensions to make it as close to

resonance as possible. Some analyzers have graphic displays to make the data easier to understand than a simple meter or digital readout. Models like these can quickly produce multiple graphs for multiband antennas and connect to an external computer. Be sure to take notes on your results.

When building dipoles, wrap the wire over itself to shorten rather than trimming the wire. It's much easier to adjust if needed. Note that the resonant frequency rises as the antenna approaches 0.5 wavelength above ground and then decreases as it reaches one wavelength high.

You can even pretune a beam antenna on the ground before putting it up without the ground affecting SWR measurements. Test the antenna pointing straight up, with the reflector several feet above the ground. This might involve a wooden ladder or post and some ropes. In your quest for a perfect match, trying to reduce your SWR from 1.5:1 to 1:1 is generally not worth the time. From a practical standpoint, an SWR of 1.5:1 is virtually indistinguishable from a perfect match of 1:1. SWR numbers in the range from 1:1 to 1.5:1 mean the antenna is radiating most of the power fed to it.

Vertical Antennas

A 1/4-wave vertical is just half of an antenna—the equivalent of one leg of a dipole. To get an accurate SWR reading, you need to have the antenna in place, complete with radials or counterpoise (the other half).

Vertical antennas present an interesting paradox. Adding more radials will noticeably improve antenna performance but drop the feedpoint impedance to approximately 36 Ohms, causing the SWR readings to increase. A basic 1/4-wave vertical antenna with a good set of radials, fed by 50-Ohm coax, will have an SWR of approximately 1.4 to 1. In this case, antenna performance is preferable to a small increase in SWR.

Multiband antennas are a bit more complex to adjust. Start by adjusting the length of the shortest section for the highest frequency band. Then move to the section of the antenna for the next lower band and so on until you have all sections matched. For example, if you're tuning a Hustler 4BTV, you'd start with the 10m section, followed by 15m, 20m, and 40m. You may need to go back and forth a few times to get it right. Also note that multiband antennas may use coils and capacitors along their length, so these adjustments can be sensitive.

Mobile antennas should always be tuned in place on the vehicle. You should park the vehicle as far from any buildings, light posts or metallic objects as possible. Always take your measurements with all doors or hatches closed. Most VHF/UHF mobile antennas are already pretuned from the factory and only require basic assembly and mounting. With magnetic mount antennas, get as much metal under the antenna as possible—the roof is an excellent choice.

The rubber duck antenna by itself does not have a built-in counterpoise/ground plane, making it difficult to determine an accurate SWR. When you connect the rubber duck directly to the antenna analyzer, don't be surprised when you get high readings. When the antenna is connected to the handheld radio, the radio itself acts as a counterpoise. They use the metal parts of the chassis as the ground plane, so it has a relatively good match when installed on the radio. However, it's not as efficient as having a true 1/4-wave ground plane under the antenna.

If you're determined to measure SWR on a rubber duck, try adding a single 1/4-wave wire attached to the ground side of the connector on the rubber duck antenna. Stretch it out straight and angled down a bit and measure again. SWR readings should improve. Remember that the "duck" is in a sealed assembly and isn't meant to be tuned.

Tips and Tricks

Antenna analyzers can do many other useful things that could have you utilizing such a tool more often. Learn some of the additional functions and it might become one of your favorite pieces of ham gear. The information listed here is based on the RigExpert AA-55 antenna analyzer. Specific directions may vary among different brands, but the procedures are similar.

Display All Parameters: This screen displays values for series as well as parallel models of the impedance of a load.

SWR on Multiple Bands: This mode can be useful for tuning multiband antennas. You can see SWR readings for up to five different frequencies. Pressing the OK key will calculate the SWR values. New frequencies can be added or changed as needed. You can also choose to view mini SWR graphs for each band.

Cable Length Measurement/Velocity Factor: Maybe you have a cable running through the wall and need to know its length, but only the ends are accessible. In the Tools section of the menu (F, 8), enter the coax velocity factor to find the cable length. When you enter the cable length, it will calculate the velocity factor.

Cable Fault Location: To locate the position of a fault in a cable, just use the same method as when measuring its length. Watch the behavior of the reactive component (X) near the zero frequency. If the value of X is moving from $-\infty$ to 0, the cable is open-circuited; if the value of X is moving from 0 to $+\infty$, the cable is shorted.

Intermittent Connection: For a rotatable antenna, the rotor loop feedline is often the first component to cause trouble. Any significant variation in the SWR sweep display while the antenna is being rotated could indicate an intermittent connection or water in the coax.

Feedline Loss: All feedlines have some loss; bad feedlines exhibit more loss than others. We can measure feedline loss between the shack and an antenna without climbing a tower. In the Tools section of the menu, you'll find a loss vs. frequency chart. There are two steps: connecting an open circuit cable followed by a scan, and by shorting one end of the cable followed by a scan.

Dip Meter/Tuning Traps: An antenna analyzer can work as a dip meter—it has an oscillator and a detector. Select the SWR chart function and attach a small coil to the analyzer using a short patch cable. Place the coil near a tuned circuit, such as an inductor or antenna trap. The maximum amount of energy is coupled to the tuned circuit at its resonant frequency, producing a dip on the chart. Tuning the circuit moves the dip, allowing you to tune the circuit to the desired frequency.

NOTE REGARDING MEMBER CALL SIGN CHANGES:

Reminder to members: Please let us know if you change your call sign! We need that information for our records and the other members would like to know as well!



Amateur Radio License Exam Coordinator –Terry Bradshaw AG5H – 318-308-4342

**** December 5 – CLARC 2023 Christmas Banquet – No Kees Park**
Meeting this month!

Tuesday, December 5, 2023

6:00 PM - 8:00 PM

Golden Corral Buffet and Grill Banquet Room

501 MacArthur Dr. Alexandria, LA

(In front of Southerlands HomeBase)

Price: \$20 for buffet and drink. *We will be dining in the banquet room.

****December 15 – Friday Fellowship Lunch – TIME:11:00, LOCATION:**
TBA

****January 27 - 28 – Winter Field Day Association WINTER FIELD DAY**
2024 - <https://winterfeldday.org/>