

THE NEWSLETTER OF THE KINGS COUNTY RADIO CLUB

KCRC



July 2020

“NULLUM BENEFICIUM IMPUNITUM”

Volume 7, Issue 7

Minutes of the July 1st 2020 KCRC Meeting

Our July “Pre-Meeting Question and Answer Session” tabled for WebEx small talk.

The monthly meeting was called to order at 8 PM, by our President, Joseph AC2AE. Also present at tonight’s meeting were Vice President Mitch N2RGA, Treasurer Frank KD2QPU, Secretary Roy AC2GS, Executive-At-Large Board Members Berlotte KD2MYF, and Jason KD2LRX, Howard N2GOT, Richard KA2KDQ, William AC2ZV, Howie KD2MSU, Bob KD2NVB, Glenn N4ESU, Joe N2DEJ, Lloyd K2JVX, Andre W2ART, Donni W2BRU, Axel KD2OVM, and Gene KY2MY

The vote to accept the minutes of the June meeting was passed unanimously.

Treasurer Report—Frank KD2QPU reported that our Treasury currently has \$1,514.94 in our bank account as well as 720.00 in our PayPal account for a total of \$2,234.94 in assets. The future of our Club bank account remains up in the air—most banks require more documentation and more fees than our present bank account, although that is subject to change at any time. Frank KD2QPU will investigate options available, such as online banks.

Repeater status was discussed by Joseph AC2AE and Mitch N2RGA - The voice announcements still need to be optimized for the controller’s speech synthesis circuits—this is planned for the next routine maintenance visit to the repeater site.

2 Meter Net Report—Glenn N4ESU reported consistent activity on the Net.

10 Meter Report—Roy AC2GS reported that the 10 Meter Net is doing well, recent propagation on the 10 Meter band has been incredible, with contacts made in Arizona and across the Midwest and the south-east States.

KCRC TechNet—Roy AC2GS reported that activity was low at the beginning of the Net, but tended to become more active over time. We still need people to join in with either questions, topics, or their own observations. As mentioned previously this isn’t a podcast, or a radio show—it is a technical Net, and requires participation in order to thrive.

Fusion Net Report—Jason KD2LRX reported that the FusionNet sees approximately 20-21 check-ins each week. He is looking for suggestions that might entice listeners to email suggestions for future FusionNet episodes.

Old Business: There is no new information, regarding our VE Sessions. Presbyterian-Methodist Hospital has not re-established offering rooms for our Club. Presently those that show an interest via email are being referred to Columbia Amateur Radio Club, that is still performing VE Sessions, in a socially distancing manner, during this

COVID-19 Pandemic crisis.

Our Club presently has 101 members, our new members for June are Dennis N5DWR, Christian K2CVD, Barry KD2ENC, Nick N2HVR, and Jay KD2UCI . 77 members have paid their 2020 dues (a 77% compliance rate).

As was discussed during our May 2020 Meeting, members that have not paid their 2020 year dues will be stricken from our roster and removed from our mailing list, effect August 1st, 2020. Publication of our annual member roster to the general members had been delays, while we gave members the chance to pay their 2020 dues. A request for notification, whether members did not wish to share their information (name, callsign, address, email address, and phone number) on the Roster, with the email of the minutes from this meeting, and two to three days later, the public membership roster will be emailed to all members that are in good standing.

We are still selling Club patches at \$5 a piece and \$1 shipping and handling. You can save the shipping and handling fee by buying them at our monthly meetings (when they are re-established).

Amendment of the Club Bylaws were discussed. The amendment to correct the present dues ratee for “members at a distance” had unanimous agreement. It was decided that rather than change the President and Vice President’s term of office, it would be better than to extend the the term limitations of these offices by no more than two consecutive years, to no more than three consecutive years. The amendment, regarding honorary Club Memberships, will be the responsibility of the Executive Board, by a majority vote. These amendments were unanimously agreed upon and will be finalized in a later General Meeting.

The details of Mitch N2RGA’s shed that has been holding Club property was tabled for a later General Meeting.

New Business: Roy AC2GS discussed the trend that new members seemed to be going around filling out the application, and going directly to the PayPal page to pay for their dues. This limits our understanding of what new members are expecting of the club, and what expertise they may bring to the club, and the website will try to make sure that new members complete their applications before moving on to the PayPal dues paying part of the new membership requirements.

The meeting was concluded.

Stay Safe!

Disclaimer: The views and opinions expressed in this publication are those of the author and do not necessarily reflect the official policies or positions of the Kings County Radio Club, its Executive Board, nor its General Membership.

These minutes were respectfully recorded and submitted by Roy AC2GS on this day, July 1st, in the two thousandth and twentieth year of our Lord of Propagation.

The Kings County Radio Club is at www.KC2RC.com or
www.KingsCountyRadioClub.com
KCRC is an ARRL affiliated club (see: www.ARRL.org)

Do You Really Know What Your LMR 400 Coax Is Made Out Of?

Most of us own some LMR400, either the actual product from its original manufacturer *Times Microwave Systems*, or a near identical version from one of the many other coaxial cable manufacturers out there, that have jumped onto the LMR 400 'bandwagon'.

Almost all manufacturers list LMR 400 type coaxes in the same way:

A 0.405-inch UV resistant polyethylene jacket covering a tinned braided copper outer shield, covering an aluminum foil inner shield, covering a closed cell foam polyethylene dielectric, covering a solid center wire.

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Solid BCCAI	0.108	(2.74)
Dielectric	Foam PE	0.285	(7.24)
Outer Conductor	Aluminum Tape	0.291	(7.39)
Overall Braid	Tinned Copper	0.320	(8.13)
Jacket	(see table above)	0.405	(10.29)

Yup, it all checks out...

But, wait a minute! What the heck is 'Solid BCCAI'? That seems like a hack of a lot of unnecessary letters to indicate a solid copper metal center wire?

That's because ***it ain't a solid copper center wire!*** BCCAI stands for Bare Copper Clad Aluminum (some sources identify the acronym as Bare Copper *Covered* Aluminum).

Copper clad aluminum means that the manufacturer took aluminum wire and rolled over it a layer of copper.

It is not pure copper. Bonded copper is a little different and entails electroplating copper onto another metal. Cladding indicates that the two metals were bonded together as solid metals.

So, are you being robbed? Have they slipped you some inferior product, in order to profit from buyer's lack of knowledge?

Well, no that is not what is going on here. LMR 400 has always used bare copper clad aluminum as a solid center wire. The more flexible variant with a bit higher attenuation loss uses solid bare

stranded copper

By the way, although stranded wire should have less attenuation, due to the *skin effect* at RF frequencies, there is another '*fly in the ointment*', called *proximity effect*. *Proximity effect* causes RF current to flow in only a portion of the stranded wire's surface, rather than uniformly across the entire surfaces of each strand, as they do when using a single solid center wire.

Like they say, "life is complicated."

So, getting back to the original question: Are you being robbed!?

No, not really. The manufacturers feel that the consumer is getting a less costly, less heavy coaxial cable with performance specs the same as if they used solid bare copper center wires.

Bare copper clad aluminum can have the same power handling capability with RF current, than a bare copper wire, and their attenuation losses can be equivalent.

You can also make a case that the aluminum is less ductal and deforms less than pure copper, but you can also play devil's advocate and opine that a pure copper center wire will tolerate repeated bending, while that central aluminum core might suffer metal fatigue damages much sooner.

This does not mean that all sizes of LMR are bare copper clad aluminum – the real heavy stuff, like LMR900 has a cylindrical bare copper center wire, and the lightest LMR, LMR95 has bare copper clad STEEL center wires.

And some manufacturers make a kind of LMR400 that has a solid bare copper center wire, with no aluminum in the center wire at all.

The best way to know what you are buying is to buy from reputable sellers and review the spec sheet of the cable, that you are considering.

The bottom line is that you have not been robbed. If you want pure bare copper you can find it for more money and it will weight more and work just as well as the less expensive bare copper clad aluminum stuff that we all know and love.

But it is always a good idea to know what you are buying and what you aren't.

- Roy AC2GS

(This article is based on a presentation that was made on a LIMARC TechNet. If you are interested in science and technology (and why would you still be reading this if you aren't), stop by the LIMARC TechNet every Sunday night at 8 PM, and bring questions, or answers, or email your questions to mailbag@AC2GS.com! Or check out my other Technical Net on KC2RC 146.730, at 9 PM on the second and fourth Wednesdays of every month.