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HEAR THE DIFFERENCE



**ClearSpeech® DSP
Noise Reduction**

My RX Audio is Missing! (aka Microsoft Does It Again)

By Sholto Fisher, K7TMG



A slew of recent RIGblaster tech support calls have all been centered around missing receive audio which manifests as a black waterfall (in some programs) or a waterfall which works for about one second before stopping (WSJT-X). Most of these calls were users running Windows 11 OS but a couple were Windows 10.

A while back I purchased an Acer Windows 11 notebook from Walmart so I would be ready to support RIGblaster customers using that platform. When I initially set up the notebook I had no problems with audio in common programs like WSJT-X, JS8Call, FLdigi, and others.

After the first few tech support calls came in I checked out my Acer and indeed I had the same problem with RX audio! The only changes on my notebook were recent Microsoft updates. Now, we haven't made any changes to audio drivers, in fact the RIGblaster Advantage uses the Microsoft USB Audio driver which is part of Windows so it wasn't anything we did that stopped it working.

When problems like this happen it can be very difficult initially to figure out where the problem lies but reading Microsoft's support pages and questions from users it became obvious something had broken with certain audio devices (mainly USB audio) from a recent update (KB5015878).

Microsoft have apparently resolved this issue now and you can read about it at <https://learn.microsoft.com/en-us/windows/release-health/resolved-issues-windows-10-21h2#2887msgdesc>

On my Windows 11 notebook I found the remedy to be to disable audio enhancements on the microphone (input) channel. Go to Windows Settings > System > Sound > Properties then look for the Advanced link in bold at the bottom of the Microphone section. Clicking this brings up the Microphone Properties which has an Advanced tab. Take the checkmark out of "Enable audio enhancements" (See figure 1 for details.)

This worked for me and all my digital mode programs started working again. For one customer however this solution wasn't possible. For some reason the "Advanced" link in bold was missing and the "Advanced" tab was missing from his Microphone properties. I'm at a loss to explain this as he was using the same build of Windows 11 as my Acer and a RIGblaster Advantage. All I can put this down to is perhaps a difference in motherboard hardware on his computer.

Fortunately after trying a number of things we found that installing "Cumulative Update for Windows 11 for x64-based Systems (KB5017383)" solved his problem.

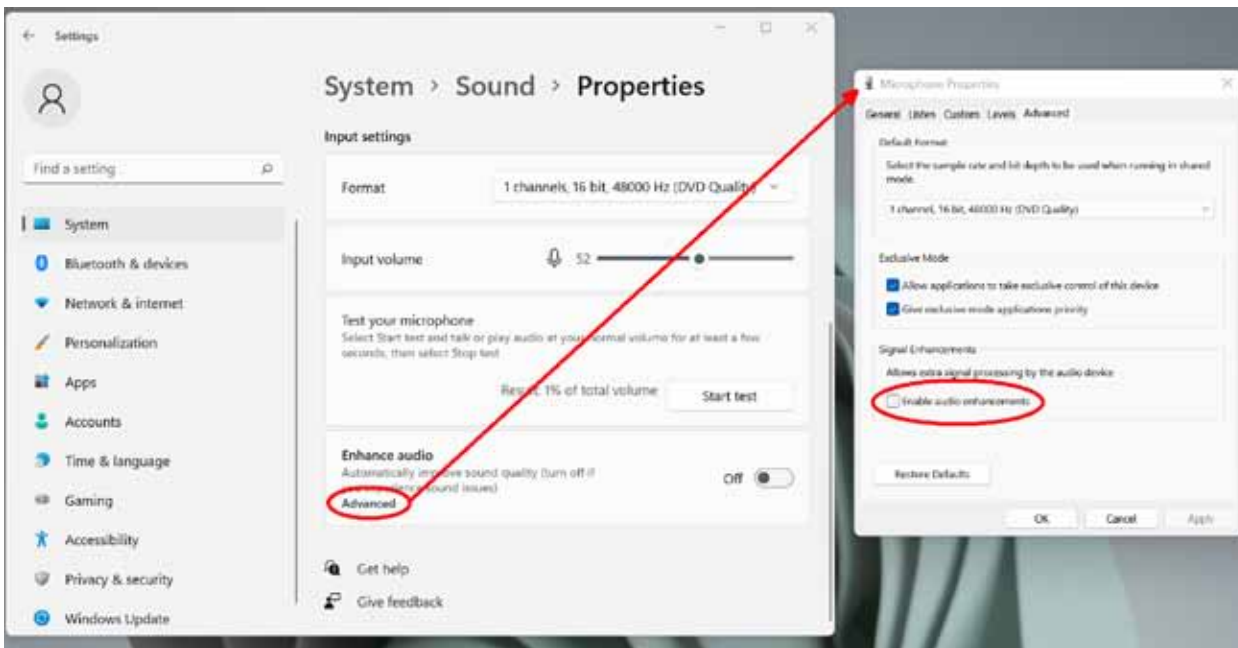


Figure 1

If you have similar audio issues on Windows 10 or 11 then it's definitely worth checking the "Advanced" tab of the Microphone properties page. Another way to reach this is through Sound Control Panel

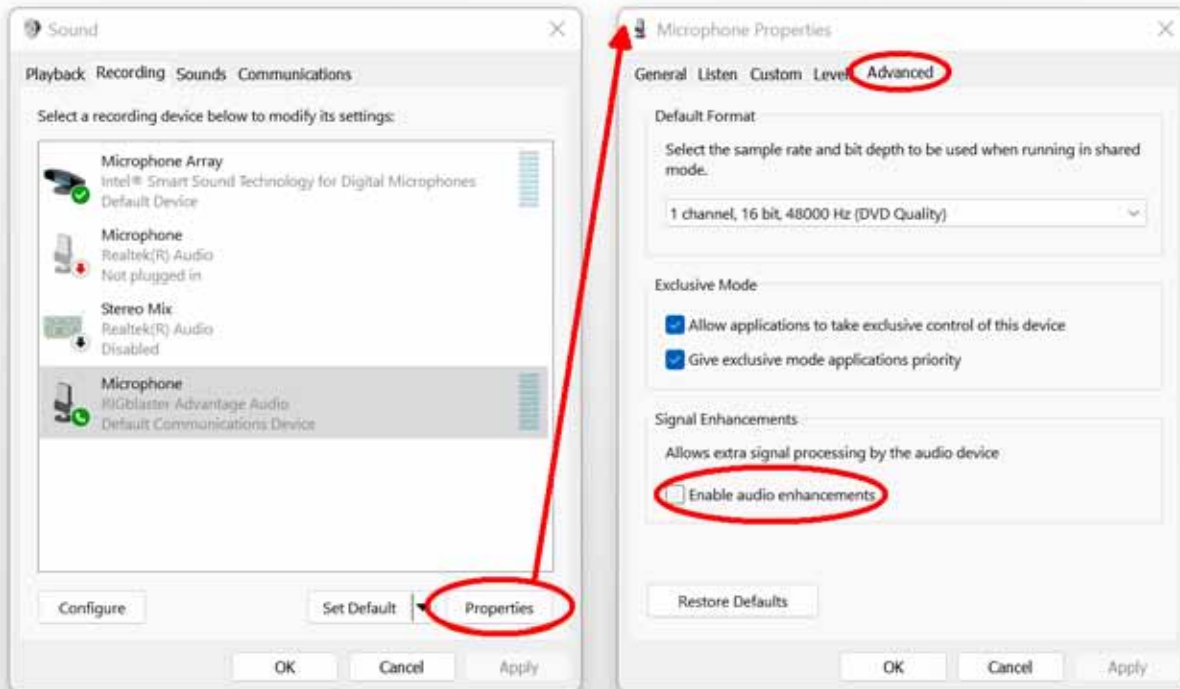


Figure 2

Changes to High Power Battery Testing Systems

By Mark Siegesmund



The very popular CBA works well for most of the typical batteries used in Amateur Radio. There is however a 100W (CBA II) to 200W (CBA V) limit on the discharge power. The West Mountain Radio solution to this limit is to use what we call an Amplifier. This article covers some changes to how the Amplifier works and how it will affect older and newer systems.

The traditional configuration looks like this:



Configure the software for one Amp. The software will command the CBA to draw a tenth of what it normally draws. For example, when doing a 10A discharge, the CBA will draw 1A. Then the Amplifier senses the 1A draw and it will provide an additional 9A draw. Inside the Amplifier, the CBA battery connection is made both to the battery and to the internal sensor. The Amplifier high power load is also connected to the battery. The CBA 1A and Amplifier 9A then provide the 10A load to the battery. Each Amplifier is good for an additional 500W.

Amplifiers can be connected in parallel to provide even higher discharge power. For example a 2000W system is configured like this:





The original Amplifier was designed with analog circuitry. Around 12 years ago West Mountain Radio redesigned the Amplifier to make it a microprocessor based design. At that time a diagnostic port was added to aid in calibration and to allow for future expansion. You can identify the newer Amplifier that we call Amp2 by the diagnostic port that looks like a modular phone jack.

The firmware was recently updated on the Amp2 to provide better control over the discharge to allow higher power discharges if the room temperature is low enough. At normal room temperature a discharge up to 650W should work.

The new version 2 firmware also supports using the diagnostic port to accept commands to discharge instead of using the CBA sense port. West Mountain Radio is about to start shipping an Amplifier Interface Unit ("AIU"). The AIU connects to a PC by USB cable and each AIU can connect to up to four Amp2 units. The CBA software will detect the AIU and provide an option to use that for a test. The AIU reports how many Amps are connected so the software now knows exactly what to command for a discharge. The older method required the user to enter the correct number of Amplifiers. If entered wrong the on screen, the data was wrong. The accuracy is better because the error in sensing the CBA current is eliminated. There is also less of an opportunity for cable issues from the CBA to Amplifier. For large systems any number of AIU units can be connected to the PC.

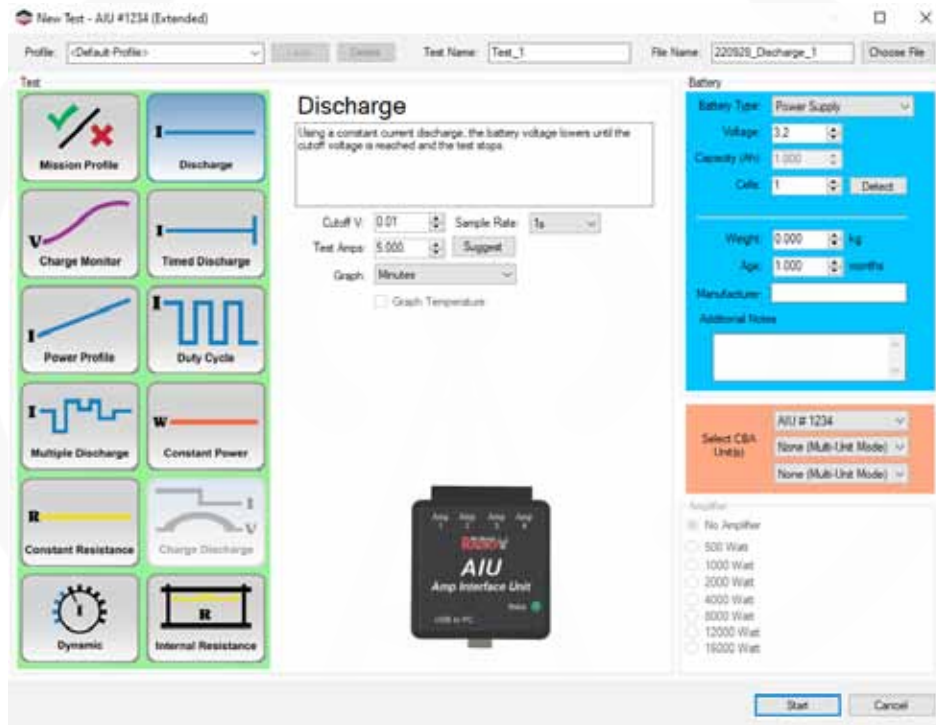


The 2000W system now looks like this:





In the software the AIU selection looks like this when starting a test:



Once the AIU is in stock, new systems will use an AIU instead of a CBA. The AIU will be sold separately, however it will only work with Amp2 units with V2 software. Any Amp2 units can update to new V2 firmware, however they need to be recalibrated at West Mountain Radio because of the new algorithm. (Units purchased before October 1, 2022)

The Amp2 units with V2 firmware will still work with a CBA in the traditional configuration (no AIU). There is no upgrade path for the original Amplifier without a diagnostic port.

To fully understand the Amp2 units, be aware that they are currently not fully interchangeable. When sold in a 500W system the Amp2 is configured to multiply the CBA current by 9 to get 10x. When sold in a 2000W system each Amp2 multiplies by 19 for a 20x. The reason is to keep the total CBA draw under 40A. For example a 600A draw in a 2000W system will have the CBA draw 30A, then each Amp2 sees 7.5A and the multiply by 19 adds 142.5 making the draw on each Amp2 150A and for all four the total of 600A. If we used a x9 on each Amp2 the CBA would need to draw 60A and that is over its limit.

This long explanation was given for the understanding why one Amp2 from a 2000W system cannot be used by itself to get a 500W system. This is different with the AIU based systems and Amplifiers with V2 software. There is no multiplying in the Amp2, so the units can be exchanged as long as they use an AIU.



If you do not use the CBA software to control your system, then contact WMR to get information on the new USB interface direct to the AIU. The protocol is similar to the CBA but not the same.

The AIU is expected to start shipping late this Fall. Let us know if you have questions about how this all works or how to upgrade your system.



AIU Unit
58259-1882
\$149.95

CBA V

Computerized Battery Analyzer

- Improved cooling system allowing higher continuous loads for testing
- New remote voltage sensing for higher accuracy
- Fuse blown LED and easy to change fuses
- More detailed LED status indication



Epic Firmware Update

By Mark Siegesmund



The very popular Epic PWRgate is a much more advanced version of the PG40S Super PWRgate. We tried to make the Epic a versatile product that would meet the needs of a large variety of users. This has made the firmware somewhat complex and any changes require a great deal of testing. There were numerous kind customers willing to beta test various releases version 1.30 to verify if their problem was resolved. We believe that it is now time to make a formal firmware update. We now recommend updating to 1.31 version that is available for download on the web site.

http://www.westmountainradio.com/exe/setup_epic_firmware.exe

One issue that has caused us some trouble is the BMS (electronics in the battery) in LiFePO4 batteries does not act the same for all battery packs. It is important that LiFePO4 not be charged further once they are fully charged. That is to say you should not trickle charge a LiFePO4. For this reason the Epic will stop all charging when the battery charging is complete and the battery type is LiFePO4. Because this is so critical the BMS, most batteries will stop accepting a charge when the battery is charged. The problem occurs when the BMS stops accepting a charge before the Epic stops and the charge source is solar. This results in a voltage spike when the BMS disconnects the battery. The combination of the solar panel characteristics and the transient suppressor in the Epic should prevent the spike from reaching your radio. In the case that the voltage source going into the Solar connector is not a solar panel, then the spike could be wider and cause damage.

One fix we made is the 1.31 firmware reacts much faster to this situation. At the same time we are asking users with a LiFePO4 battery to only use a solar panel on the solar input.

Another change is we stop charging a LiFePO4 battery by default based on the charge rate. Older firmware stopped charging when the current draw was below 0.5A. Frequently the BMS stopped accepting a charge before this. This is more true on large AH batteries. We now use 1A when the charge rate jumper is in the 10A position. If your battery size is larger than 20AH it would be best to use the USB port to program in a specific minimum current for charging that matches your battery. Make it a little higher than what the battery specification sheet says. If you do not have that specification, then divide the AH of the battery by 20 and that number should be safe.

Should anyone have any problems with the new firmware it is best to use the USB port to capture a log over the period when the issue happens. Send us the log to review (support@westmountainradio.com) The WMRdiagnostics program (Windows only) has a log option as does the free PUTTY

WE WANT TO HEAR FROM YOU!

Please send pictures from recent Field Days and of your Shacks.

If you would like to submit an article for consideration in future newsletters please contact

marketing@westmountainradio.com

International Lighthouse/ Lightship Weekend

By Fred Schwierske, W9KEY



August 19-21, 2022

Covid interrupted many activities during the past 2 years, including our participation in the annual International Lighthouse Lightship Weekend (ILLW). But things are slowly returning to normal and the LEFROG Radio Club and Ozaukee Radio Club organizations again joined forces to participate in this wonderful event, now celebrating its 25th year.



20 Meter Beam & 40 Meter Dipole Stations at the Port Washington, WI 1860 Lighthouse – ILLW 2022

Held on the 3rd full weekend in August, ILLW is one of the most popular international amateur radio events in existence today. Nearly 400 Lighthouses / Lightships were activated by Clubs this year. It is NOT a contest – there are very few rules, no prizes, no certificates, no power or antenna restrictions, and no cost to participate.

Rather (quoting their website), the “**concept of ILLW is to promote public awareness of lighthouses and lightships and their need for preservation and restoration, and at the same time to promote amateur radio and to foster International goodwill as well as remembering the dedication of those who served as lighthouse keepers.**”

In this spirit, the main rules clearly define what constitutes a valid historic Lighthouse structure and also stipulates the amateur radio station “**must be at, or directly adjacent to**” the light – with visible presence to passing public who may be visiting the lighthouse during the weekend. For more detail, see: <https://illw.net/>

Fully complying with both the intent and specific Event rules, we are most fortunate to have access to the nearby 1860 Light Station in Port Washington, Wisconsin. Located at 311 Johnson Street (up on the hill), this beautifully renovated structure overlooks the western shore of Lake Michigan and is operated as a museum during summer months by the Port Washington Historical Society. <https://www.pwhistory.org/1860-light-station> When contacted earlier this year, museum manager Patrick Curtiss and his volunteer staff offered their enthusiastic support and went out of their way to welcome us.

The Lighthouse event officially ran for 48 hours, starting 7:00 pm Friday evening. But to minimize impact on the quiet residential neighborhood, we decided to operate only Saturday & Sunday daylight hours:



Friday - Setup of 3 HF stations began early afternoon August 19, 2022 – including a 30-foot tower with tri-band beam for 20/15/10 meters, a 30-foot fiberglass mast supporting the far end of a 40-meter wire dipole, and a 3rd frequency agile, end fed multi-band vertical antenna. In addition, we set up a D-STAR station to hit the W9FRG B repeater (442.81875) to work 30C, 1C and other reflectors as noted on our DPLUS Dashboard page (B Module) at: <https://w9frg.dstargateway.org/>



Bill K9GN, Joe KD9RAW, & Gary W9XT
Working on the 30 Foot Tower

Radio equipment, power supplies, and logging computers for each of the 3 HF stations were to be protected by individual pop-up canopies located around the West (40m), North (20m), and East (15m) sides of the lighthouse. The museum kindly provided “shore power” for the event, eliminating need for generators and fuel.



Gary W9XT, Bill K9GN, Joe KD9RAW,
Fred W9KEY, Steve W9MCU, & Loren,
N9ENR Installing the 20 Meter Beam

Thanks to our skilled group of 10 volunteers, antennas were up by late Friday afternoon and Loren, N9ENR verified all were properly tuned for their respective bands. Having free time, we decided to perform a “radio check” with the 20-meter station. Since operations were not starting until early Saturday morning, our protective pop-up canopies had not been erected. During the second test QSO, I was surprised by a huge water drop crashing onto our Icom IC-7600 transceiver. Looking up, a dark overhead cloud spit out a second large drop - again smacking the radio - followed by many more!

Unfortunately, the Lighthouse was not open Friday, our shelters were not up, and only a tiny sliver of overhead roof near the back entrance offered any immediate protection. Everyone grabbed a piece of gear, found whatever cover they could (it was now raining hard) while frantically searching for umbrellas. I’m happy to report, the equipment survived, and everyone eventually dried out – but the weather sent us home earlier than expected.

Saturday dawned foggy, cool, and damp. Arriving at 7:00 am, one fully expected to see the lighthouse light shining and foghorn blaring. Popup canopies were erected, electronics unpacked, Club banners hung, and we were ready to operate by 8:00 am.



Nancy, KC9FZK and Stan, WB9RQR arrived early both Saturday & Sunday to bolster our 20-meter totals. But the bands were frustrating all day with stations sometimes completely fading during the call sign exchange. 40 meters was tough going, too - and in spite of working hard, Joe, KD9RAW had no activity what-so-ever on 15 meters. We struggled with poor band conditions most of the day, thunder forced a short shut down mid-afternoon, and heavy late afternoon rains finally convinced us to simply give up and go home. In spite of the nasty conditions, we had 14 rugged participants / visitors check-in on Saturday. Everyone who wanted "seat time" had an opportunity to make contacts, but they probably got wet!



Nancy KC9FZK and Stan WB9RQR
Worked 20 Meters Saturday and Sunday

Highlighting that – Scoutmaster Joe Bettencourt, KD9RAW assisted Jake, KD9TRQ (a Scout who just earned his General ticket) to make his first HF contacts with his new license! Watching a new ham having an opportunity to operate a well-designed HF station for the first time, reinforces why we all enjoy Special Event and Field Day stations. All the construction effort immediately becomes worthwhile!



Mentor / Scout Leader Joe Bettencourt
,KD9RAW (left) with new General license
holder Jake KD9TRO at the mic. Jake
made his first HF contacts during the
2022 Lighthouse Event!!

Sunday was even better. Although band conditions remained "dynamic", the weather situation improved. Occasional sunshine allowed both canopies and operators to dry out and overall, it was a very pleasant day. We again had 14 sign-in members / visitors, including several museum staff. Visitor log shows Dan Reed, K0DSC and wife Pam who just relocated from New Mexico; and well-known local hams Jerry, K9FI & Cherri Riedel, K9WOC who stopped by to chat. Sitting around talking with friends is a great part of ham radio – so difficult choices had to be made whenever an operating chair was vacated. But we kept the radios warm until 2:00 pm



Joe, KD9RAW at the End Fed Vertical
Battery Powered Portable Station



tear-down. Our efficient crew had the stations dismantled, trailer & vans packed, and everything safely stored away by dinner time.

So - - - now that I've complained about challenging band conditions and wet weather:
– How did we do??

- Total HF Stations Logged: 281
- Total Lighthouses Contacted: 12
- Total Daily Participants / Visitors: 42
- Total Unique Operators: 10

In closing - A special thanks to museum manager, Pat Curtiss and his dedicated volunteer staff of docent guides who devote their summer weekends to educating visitors on the historical significance of the Port Washington 1860 Light Station. Thanks also to Mr. Comer for kindly allowing access to his adjacent property for our equipment set up.



Nate KC9TSO & Joe KD9RAW struggle with 15-meter band conditions

And of course, none of this would have been possible without our enthusiastic core construction group, including Tom KC9ONY, Loren N9ENR, Will K9OO, Don K9MOI, (and Russ), and LEFROG Radio Club President, Steve W9MCU. Gary W9XT and Bill K9GN also assisted. A pre-event press kit was created and distributed by Markus, KD9UWG, and incoming QSL card requests will be handled by Mike, KD9GCN and Gary, K9DJT. Thanks to everyone who participated!!

What's Next? – We have already been invited back to the 1860 Light Station and look forward to possibly operating next year under protection of their new lifeboat display shelter. Construction is about to begin, with completion scheduled for early 2023.

If you were unable to attend this year – immediately mark your calendar for the 3rd full weekend in August (Friday 8/18 to Sunday 8/20), 2023. You too can have the opportunity to help assemble several state-of-the-art amateur radio stations, watch / learn from experienced operators, log contacts of your own, possibly work another lighthouse somewhere in the world, and maybe even get rained on (well, hopefully not).



Mike KD9GCN Logging Contacts on 20 Meters

53 Clubs have already registered for the 2023 Lighthouse event.

Do you want to participate next year?
If so, let me know.



Cherri K9WOC and Jerry K9FI Visiting
the 40 Meter Station

Bulletin Board

Visit Our Booth!

**Fort Wayne Hamfest
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**Due to COVID-19, production has
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through these hard times over
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