



Zero Beat

October 2022

General Meeting
Wednesday November 9th
At 7:30 pm at the
Hazel Park Library
and on Zoom
With Socializing
At 7:00 pm

President's QRM

We are nearing the last couple of months in 2022, and I definitely have taken advantage of the random spurts of warmer weather that we are still getting nowadays. I did two Parks on the Air activations during a recent warm weekend, and I have also taken to getting the last antenna projects of the year done and installed in my back yard.

The club has been busy with in-person activities before winter comes. We did a Jamboree on the Air event with the Boy Scouts Troop 1702 in Troy earlier this month. The boys certainly had fun getting on the air, and even participating in a few fox hunts. Of course, we also facilitated the contact between the students of Davis Aerospace Technical High School in Detroit and astronaut Koichi Wakata aboard the International Space Station on October 18. It was a resounding success, and hopefully will not only open up some opportunities for the students of Davis, but also raise the profile of Amateur Radio in general.

We had a good meeting in October, too. We watched an informative video about AREDN networking, and we also (as we are probably going to continue doing) spent the last few minutes sharing our recent Amateur Radio discoveries, achievements, questions, and announcements. It's very cool to be able to share that time together, and it's become one of my favorite things to do every month.

Our next membership meeting is happening on Wednesday, November 9 at the Hazel Park Memorial Library. I hope to see you there!

I look forward to continuing to serve the club for the remainder of the term, and remember, no matter what part(s) of the hobby interest you, above all else: Have fun with Amateur Radio!

Thanks and 73,

Mike Phipps, K8WU
 President, Hazel Park Amateur Radio Club

Club Officers

President	Mike K8WU qrz@k8wu.me
1st. VP	Marvin W5DT marvstasak@gmail.com
2nd. VP	Jim W8DPM tenaciousjd@gmail.com
Secretary	Reuven KB3EHW rgevaryahu@gmail.com
Treasurer	Bob N8REL rlau6@aol.com
Parliamentarian	Bill N8QVS n8qvs@arrl.net
Director	Len AD8FK len1perkins@yahoo.com

Reversing Course On Solar Generators.

Chris Warren October 22, 2022 15 Comments on Reversing Course On Solar Generators.

After further review....

I've **trash-talked** "solar generators" before. Besides having a dumb marketing department name, solar generators are underpowered for what they cost. Furthermore, the claims made by some sellers of these devices are fantasy if not outright fraudulent.

At least that's how it used to be. Lately, after further research and hearing from *Off Grid Ham* readers, I've softened my position on solar generators. Yeah, I still have some misgivings, but I'm starting to see at least some limited value to these devices. What changed? What happened?

That was then, this is now.

Technology and economies of scale, that's what happened. As the technology improved and manufacturers rolled out more products, the cost came down. Mind you, these are still pricey devices. But compared to just a few years ago, things are looking better.

Solar generators are becoming more mainstream. Last summer when I was on vacation in Las Vegas, Nevada, the maintenance crew at the resort I was staying at was using several portable battery power units to operate industrial carpet cleaning machines and large fans. I assume they were using portable power because it was easier and safer than stretching extension cords a long distance across a casino floor. I estimate the floor cleaner pulled 15 amps, maybe a little more. It was an impressive and practical use of battery power.

So, it's clear that solar generators are no longer gimmicky, obscure devices for hobbyists, outdoorsmen, and technogeeks.

For this analysis we will examine two similar solar generators from two different manufacturers, Jackery and Goal Zero. I chose these two because both are very well known names you've

probably heard before and are readily available in the United States.



Goal Zero device being used to power an industrial carpet cleaner at a casino in Las Vegas,

Nevada. OFFGRIDHAM.COM ORIGINAL PHOTO ©2022

Jackery.

The **Jackery Explorer 1000** has a 46 amp-hour lithium battery, a built in MPPT solar charge controller, a full sine wave inverter, a status meter, and a variety of DC outputs including USB ports. You also get an AC charger and car charger. At face value, it's a pretty neat package. What can we reveal by picking this one apart?

For starters, there's the \$1099.00 USD price tag. At this price, your "solar generator" does not include a solar panel. A 100 watt solar panel will run an additional \$299.00 USD, and they recommend you have two of them. So, to make

your solar generator generate anything, you'll have to add \$598.00 USD to the \$1099.00 base cost. For those keeping score, we're up to \$1697.00 USD for a fully operational off grid device.



Jackery Explorer 1000. STOCK PHOTO

The manufacturer data sheet states that the battery will charge 0%-80% from the AC adapter in 7 hours, 200 watts of solar in 8 hours, and the car charger in 14 hours. These are long charge times; the car charger is essentially useless. Add more solar panels to reduce solar charge times.

Goal Zero.

The **Goal Zero Yeti 1000X** has a retail price of \$1299.95 USD. It has the same output options and similar capacity battery as Jackery. An AC charger is included. Goal zero describes their products as “power stations” that can be turned into “solar generators” by adding an optional solar panel. They offer several sizes of solar panels; the 200 watt folding panel is \$549.00 USD (larger panels are available). The entire package with solar panel will cost \$1848.95 USD.

The claimed charge times are: Wall charger (120 watt) 9 hours; Boulder 200 solar panel 6-12 hours. These charge times are unacceptably long. Goal Zero offers a more powerful 600 watt AC charger for \$199.95 and larger capacity solar panels too, but heck, we're already over \$1800.00 USD for this basic setup.



Goal Zero Yeti 1000X. STOCK PHOTO.

Keep in mind that the solar charge times assume you have strong, continuous sun on the panels for the entire charge cycle.

Comparing apples to apples.

It's important to point out that the Jackery battery is 21.6 volts and the Goal Zero battery is 10.8 volts. Although the Goal Zero battery has twice as many amp-hours as the Jackery, it also has half the voltage. To keep the comparison accurate, I went by the watt-hours, which are very similar (1002 Wh for Jackery and 983 Wh for Goal Zero). When doing your own research, make sure you are accounting for any differences in battery voltage.

Battery pedigree.

While we're talking about batteries, not all lithium batteries are the same. Well known names like Panasonic, Sony, Mitsubishi, and others are batteries one can have confidence in. Smaller niche manufacturers such as Bioenno and Dakota Lithium also make very high quality batteries.

The market is flooded with batteries made by a variety of little-known manufacturers of unknown reputation. None of the solar generators I researched for this article specified the brand and origin of the battery. You don't really know what you're getting.

I sent emails to both Jackery and Goal Zero inquiring exactly what brand of batteries are used in their products. I was surprised to get a quick response from both. Here are their verbatim replies:

From Jackery: *“Hello Chris, I am sorry for the delayed response due to many recent consultations. Your understanding is much appreciated. The Jackery products are Manufactured in China and designed in California-US. The Batteries are Li-ion NMC (Nickel manganese cobalt). Thanks for your waiting and patience.”*

From Goal Zero: *“Hello, Thank you for contacting Goal Zero! We do not have a specific brand that we use as they are custom Lithium Ion batteries that we use. But that is all the information that I would be able to provide.”*

You can draw your own conclusions from these meaningless non-answers. Lastly, when contacting them I did not identify myself as a blogger or “influencer”. Jackery did send a follow-up email a few days later asking if my “issue had been resolved”. I didn’t have any additional questions, but I appreciated the effort.

Playing lawyer.

Jackery offers a two year warranty, but the warranty does not include units purchased through an “online auction house” (not clear if this includes Amazon), and more strikingly, the warranty does not cover the battery itself unless you fully charge it within seven days of delivery and then at least every six months after that. How you would prove you followed these instructions is lost on me.

Goal Zero offers the same 2 year warranty, with the same “auction house” and battery exclusions. Furthermore, open-box items are warranted for only six months.

Build vs. buy.

Until now, a valid argument against solar generators was that you could build one cheaper than you can buy one. However not everyone can or wants to build their own equipment. Many people, for whatever the reason, want a plug-and-play solution and are willing to pay for it. You can still save money by going the DIY route, but that argument is getting thinner as commercially made units become more affordable.

Saving money notwithstanding, a big advantage to building your own equipment is that you can hand-pick everything that goes into it. There’s no need to settle for what someone else thinks is good enough. For many hams, and I place myself in this category, having purpose-built equipment made to your own standards is a very high priority.

You do not have to use solar panels sold by the same manufacturer that makes your generator. Even if you decide to buy a ready-to-go unit, it might be worthwhile to shop around and find less expensive panels elsewhere.

So are “solar generators” worth having?

The short answer is yes. I reverse my previous position. The long answer is yes, but there are a lot of serious caveats; any potential user of solar generators should go into this only after thoroughly understanding the details.

Here’s some of the issues you should very carefully consider before you plop down your hard-earned money

- Your “solar generator” will likely not include a solar panel.
- You do not have to buy “their” solar panels. Look for a better deal elsewhere.
- The brand and quality of the batteries is unknown—this is a big one.
- Read the warranty carefully and be aware of significant exclusions.
- The charge times can vary greatly and in some cases are unacceptably long.
- The best way to get exactly what you want is to build your own.

Be aware that some of the claims made by manufacturers regarding battery run times and power capacity are grossly exaggerated.

I’m still not a huge fan of “solar generators”. I will concede that for some hams, they are a reasonable solution. Shop carefully, do your homework, and you’ll be very satisfied with your decision.



New Club Member Devi Gorrepati KE8VTM

2022-10-12 minutes of the HPARC meeting at the Hazel park library

Meeting called to order 7:30pm

Pledge of allegiance
Thank you to the library
New members Jim WD8NVP, Bill KE8VKS

Video presentation of HB9BLA on AREDN digital

Joe- Sean from breakfast was interested in us joining his network. Jay WB8SBI - TAPR conference had a presentation about AREDN. ARDC grants might be available. Suggest it is discussed at a board meeting. Mike - (discussion on VERA modem)

Upcoming activities:
JOTA Oct 15th
ISS contact Oct 18th
Holiday Party - Dec 14th
Swap Jan 22nd
WFD Jan 28/9

JOTA Saturday Oct 15ht Boulanger Part in Troy. Setup at 9:30, event 11-2. Len P and Henry from scouts showed the antenna he built for fox hunting.

ARISS has date/time, 12:30-2pm Oct 18th. Will be live on Detroit public School YouTube.

SWAP Jan 22nd 2023 at the RO farmers market. You can purchase tickets on the website too.

License classes: General/tech Jan, Extra starting Nov 1st

Exams were Oct 5th; 4 folks got licenses. Next is Dec. 5th.

Siren Tests - Done for this year, in March it will pick up again.

Treasurer report - Bob isn't here, will do another time.

Mentoring - Len introduced sole mentors and new members

Mike- Reminder about Sun night net, on both repeaters and echolink

Buddy breakfast on Saturdays 8:30 or 9:00, Cozy Cabin.

Various member discussions took place.

Member intros - Les pointed out that we had missed this at the start of the meeting.

Meeting adjourned 8:44pm

Respectfully submitted,
Reuven Gevanyahu KB3EHW
HPARC Treasurer



Chairmen

Repeater	Joe WB8ADX
W8JXU Trustee	Bill N8QVS
Swap	John KD8NYF
Field Day	John AA8UU
Education	Jerry W9NPI
Sunday Net	Bob N8REL
Zero Beat Editor	Rick KB5OO
Public Information Officer (PIO)	Rick KB5OO
Webmaster	Reuven KB3EHW
Banquet	John W8TOY
Club Picnic	Jim W8DPM

Volunteers

LoTW Manager	Murray KE8UM
Club Cook	Bill N8QVS
Lark in the Park	John AA8UU
Net Control Operators	Len AD8FK John W8TOY Mike K8WU Bob N8REL
HPARC Media Dream Team	Hugh KE8BED Rick KB5OO John AA8UU Mike K8WU John W8TOY

HPARC Nets

HPARC Official Sunday Night 2-meter Phone Net

Every Sunday a 9:00 Pm local time on the DART repeater, 146.64 (PL 1 00), catch up on club news and information, and just to keep in touch. All amateurs are welcome to check in.

ARPSC Thursday Night 2-meter phone net

Every Thursday at 8:00 PM on the W8OAK repeater, 146.90 (PL 100). The Hospital radio check net takes place on the last Thursday each month at 7:30 PM on the W8OAK repeater. <http://www.arpdc.com>

Around Town

HPARC Buddy Breakfast every Saturday at 9:00 AM (or so)

Cozy Cabin Diner, 2129 E. 12 Mile Rd, Warren, MI Come in early for the socializing. Park in the restaurant parking lot.

Oakland County ARPSC Siren Testing, 1st Saturday at 1:00 PM.

March through November. Contact Marsha, N8FE, at n8fe@arrl.net, to volunteer and be assigned a siren to test.

Amateur Radio Licensing Testing

Jerry has announced that license testing will be on the first Tuesday of every even month at 7:00 PM at the Oak Park Community Center.

Next Session December 6th

I wonder, we lazy people go to heaven... or do they send someone to pick us up?

Cool Funny Quotes.com