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Audio file

20230723.newswest.mp3

Transcript

00:00:06 Speaker 1

This is VK6ARN News West. We are a community organisation and we've been serving at the best amateur radio news in Australia since 1931.

00:00:23 Speaker 1

Hi, this is Clinton VK6FCRC and welcome to News West for the 23rd of July 2023. Now over to Steve Kennedy VK6SJ with another episode of did you know?

00:00:36 Speaker 2

Hi, I'm Steve VK6SJ with this week's episode of did you know?

00:00:41 Speaker 2

Last week we did Deep dive into design principles for radio and repeater sight power supplies, but focused mainly on battery backup. This week we will look at how we charge those battery.

00:00:52 Speaker 2

You have a repeater site or a remote HF station and you have batteries. How to keep them charged without access to mains power?

00:01:00 Speaker 2

There are two mainstream methods used, solar and wind powered. I'm not going to go into wind powered simply because I haven't had that much experience with with wind power and I'm hoping someone in the audience might have more knowledge and do an augmentation of this article.

00:01:15 Speaker 2

Solar power. Did I mention last week about understanding the requirements? Our requirements are relatively simple. Recharge the battery from 0% charge to full charge in 10 days.

00:01:28 Speaker 2

Maintain the charge of the system on a day by day basis.

00:01:33 Speaker 2

We know the consumption of the site on average because we all listened diligently last week to how we determine the consumption our system needs to cater for that consumption.

00:01:42 Speaker 2

But in addition, if we're going to also recover the system from an event such as a loss of supply for five days.

00:01:48 Speaker 2

Then we need to add some capacity of the charging system to recharge the system in five to 10.

00:01:54 Speaker 2

This means that the system needs to recharge the existing load plus 10 to 20% more to also start to recharge the battery.

00:02:03 Speaker 2

If you have the funds, I'd recommend using a five day recharge design parameter as this will also allow the system to cope comfortably with excessive use on a given day.

00:02:15 Speaker 2

Now let's look at the design inputs from solar panels.

00:02:19 Speaker 2

There are some important parameters to look at from solar panels.

00:02:23 Speaker 2

They include nominal maximum power. This is the rated maximum power output from the panel.

00:02:30 Speaker 2

Operating voltage. This is the voltage expected at a peak.

00:02:35 Speaker 2

Of a panel when connected to a load.

00:02:38 Speaker 2

Short circuit current. This is the current supplied to the load end is also the current you can expect to measure during the peak of the day when measuring current across the panel on its own.

00:02:50 Speaker 2

If we convert our 34.8 amp hours of consumption at 13.8 volts DC to power, we end up with about 480 watts over a 24 hour period.

00:03:02 Speaker 2

So look around for a fibre to what panel are.

00:03:04 Speaker 2

We're good, right?

00:03:06 Speaker 2

Not quite. For one, we need to add 10 to 20 per cent to recharge the Battery bank after an event.

So that makes 550 to 600 watts.

00:03:15 Speaker 2

The next step is to understand what the maximum power rating of a solar panel means.

00:03:21 Speaker 2

For most of us purchasing new panels.

00:03:26 Speaker 2

New solar panels for a hobby that takes pride in doing more for less dollars means you're most likely repurposing old panels.

00:03:34 Speaker 2

Back in the late 90s, when I first started designing systems with solar power, an 80 Watt panel delivered about 15 volts at 5 amps or so.

00:03:43 Speaker 2

The cost of a panel was in the order of about \$700.00 now, of course, with much increased demand and better technology, the cost has come down to around a dollar or what installed.

00:03:54 Speaker 2

But even cheaper second hand panels from refurbishments of existing domestic solar installations, which can be had for as little as 20 bucks a panel.

00:04:05 Speaker 2

The issue with the domestic solar panels so that they are aimed at being able to produce 240 volts AC after a regulator not 13.8 volts DC. This means that the panel voltage is now in the order of 40 plus volts DC.

00:04:19 Speaker 2

This represents a bit of a challenge when it comes to getting our battery voltage down to 13.8 volts DC.

00:04:26 Speaker 2

The latest variation of solar regulators are called MPT charges. These take strings of panels, typically three, to bring the overall panel voltage to around 150 volts.

00:04:39 Speaker 2

Then converts the charging voltage to something suitable for either a 12/24 or 48 Volt DC bank.

00:04:47 Speaker 2

The advantage of these kind of regulators is that because the panel input voltage is in the order of 100.

00:04:53 Speaker 2

And 50 volts they can easily regulate down to, say, 58 volts DC for more hours in a day than an old older linear regulator.

00:05:03 Speaker 2

Now back to the panels.

00:05:05 Speaker 2

The rating of a panel is related to the power it can deliver per hour. A 300 Watt panel can deliver nominally 300 watts per hour.

00:05:14 Speaker 2

This doesn't mean it will deliver 300 watts per hour while the sun is in the.

00:05:18 Speaker 2

Air typically around Perth. The panel would deliver the equivalent of around five times the rated power per day as long as the panel is facing north and angled around 35 degrees from horizontal.

00:05:32 Speaker 2

This means that if you string three panels in series, it will deliver 300 watts at around 45 volts, or roughly 6 1/2 amp hours or 33 amp hours per day at 48 volts DC.

00:05:45 Speaker 2

Convert this down to 12 volts DC and you'll have 133 amp hours per day, which will recharge your battery bank in two to three days, so it will be a very robust design.

00:05:57 Speaker 2

Few other tips for building a solar power supply for a repeater or HF remote site.

00:06:03 Speaker 2

Use the same panel types for your array. This is why there are often plenty of panels. On the second hand market an upgrade on a domestic system usually ends up with a total replacement of panels.

00:06:15 Speaker 2

As solar panels only seem to be in production for a couple of years for each model.

00:06:20 Speaker 2

For maximum efficiency from the panels, face them north and at an angle from horizontal, roughly equivalent to your latitude.

00:06:29 Speaker 2

Choose a solar regulator that is already supplying DC voltage, not AC, and look for brands from Coms wholesalers.

00:06:36 Speaker 2

Some good brands include Morningstar, Victron and Plastron Tronics, and all are all reputable RF quiet brands of regulators.

00:06:46 Speaker 2

Oh, thanks for listening. This has been VK 6 SJ, Steve with another episode of did you know?

-00:06:54 Speaker 3

Greetings all amateur radio operators. Please be aware that the Northern Corridor Radio Group will

be holding its annual Ham Fest on Sunday morning the 20th of August.

00:07:04 Speaker 3

2022 at the Cyril Jackson Community Hall in Bassendean. Please make note of the date change with the HAMFESTS being held one week earlier than usual.

00:07:14 Speaker 3

The Ham Fest will start at 9:00 AM and finish at around lunch time. As always, suppliers can set up from 7:30 AM.

00:07:21 Speaker 3

And the NCG will be staging A raffle with tickets available on the day and online before the event. There are some fantastic prizes on offer this year.

00:07:30 Speaker 3

'S first prize is a Yaesu FT-710 HF 50 megahertz radio, valued at 1695 dollars.

00:07:40 Speaker 3

Second prize is an ICOM ID 52A handheld with D Star 2 and 70 Sims valued at \$849.

00:07:49 Speaker 3

Third prize is an MFJ enterprises 991 B HF antenna tuner that's valued at \$400.00 and 4th prizes are Raspberry Pi model 4B with 8 gigabytes of RAM.

00:08:03 Speaker 3

This is a do it yourself kit with a few bits and pieces in that's valued at 320.

00:08:08 Speaker 3

Dollars tickets. They're on sale from the 20th of June, so that starts a few days and it's available to people in New South Wales, NT, Queensland, SA, Tasmania, Victoria and of course WA. \$5 per ticket is the charge as always, and the raffle will be drawn on the day.

00:08:29 Speaker 3

At the finish of the Ham fest at 12:00 o'clock. So please come along, catch up with your friends, check out the new and secondhand wares that will be on sale, and of course dine out on some of the yummy snacks that will be available from the canteen.

00:08:42 Speaker 3

If you want to book a table to sell or exhibit at the HAMP Fest, please be aware that the tables will run out fast.

00:08:48 Speaker 3

There's no charge for the table, just an entrance fee. On the day of \$5 per person, NCG members included.

00:08:55 Speaker 3

Additional details will be posted on the NCG website, so please look for those if you would like to book a table.

00:09:01 Speaker 3

Or ask a question about the harvest. Please contact myself, Brad Peters, vsix BAP on 0427401513. Looking forward to seeing you all there.

00:09:17 Speaker 1

Hi, this is Clinton V K6 FCRC back with you in that last segment from the NCRG. I noticed that they mentioned that the hemp fest was on the 20th of August 2022.

00:09:29 Speaker 1

2022 It should actually be the 20th of August 2023
anyway. Now over to VK4SN.

00:09:36 Speaker 1

With information on last week's.

00:09:39 Speaker 1

Trans Tasman contest.

00:09:44 Speaker 4

Since 1931, News West has provided amateur
radio news for WA and Beyond. This is VK 6 ARN.

Hi This is Alan VK4SN, Trans Tasman contest manager.

Last Saturday night saw many stations taking advantage of the excellent
conditions on the low bands. Even QRP stations were loud, and VK6 and
8

were able to work ZL with ease.

I'm extending log submission time by an extra day to include today,
Sunday.

So get submitting by 1400z today. If you wish to make comment, then
add them to the SOAPBOX line in the Cabrillo header.

Some have asked about the serial numbering starting at 1 for each band.

This is perfectly ok. Please submit as is. For the future, my website
now

contains downloads for both SO and MO stations.

Best 73

Alan VK4SN

00:10:41 Speaker 6

During the week, the ACMA announced that it has amended the LCD to open up the entire amateur portion of the six metre band to standard licensees.

00:10:50 Speaker 6

This welcome move was a very long time coming and hopefully we'll see more use made of this band. Some may disagree with me, however, to my mind it was a silly division to create in the first place.

00:11:02 Speaker 6

Especially since it was done, I believe to prevent interference to analogue channel 0 way back some time ago.

00:11:09 Speaker 6

Perhaps I'm oversimplifying how the situation was, but from what I can gather, novice licence holders

were limited to the farthest end of our six metre band lest they created interference to channel 0 because their 30 watts might interfere with TV transmissions and the full calls, 400 watts wouldn't.

00:11:28 Speaker 6

This arrangement found its way to standard licensees in 2004, when our amateur radio licences were sorted out into 3 levels, much to the chagrin of some proposals were made to the ACMA to sort out six metres from the time we changed from analogue to digital TV.

00:11:45 Speaker 6

Around 10 years ago, of course, some people, our amateur radio world, signalled the end of the amateur radio universe as we know it.

00:11:53 Speaker 6

Because of that and others suggested changes to our hobby, we were going to spin out of control into a pit of despair and decay. Amateur radio has undergone significant changes throughout its history.

00:12:05 Speaker 6

And Speaking of history, I've researched a lot of Australian amateur radio history over the years in order to make history items for News West.

00:12:14 Speaker 6

Predictions of the end of the amateur radio universe as we know it have popped up fairly often over the years.

00:12:20 Speaker 6

They are dusted off and trotted out during times of impending change. It seems that amateur radio enthusiasts, long known for their position at the bleeding edge of technology, aren't that keen about change. Why? Why do people feel threatened by change?

00:12:36 Speaker 6

Why is there loud disapproval? No, I don't hold any exclusive claim to soundness of mine. But what keeps me sane, or at least what I call saying is that very few things around us are absolute.

00:12:48 Speaker 6

It helps my sanity to know that those things that are can be questioned and they should be back to amateur radio more than a century down the track, and the hobby is still with us.

00:12:59 Speaker 6

People are still joining the hobby. They see something in the hobby that they like and they want to be part.

00:13:04 Speaker 6

Of it.

00:13:06 Speaker 6

Perhaps they don't look at some of the amateur radio Facebook groups that disgrace the hobby.

00:13:10 Speaker 6

With their invective, perhaps they haven't met the loud, grumble bums who still haven't got over changes that were made 20 years ago.

00:13:17 Speaker 6

Please, folks, don't ever lose sight of the fact that amateur radio is a hobby, not a professional pursuit. I realise and appreciate that amateur radio is full of people on a busman's holiday, and it's possible that they have difficulty separating their professional knowledge from what's required for amateur radio. In our discussions about where the lines in the sand are drawn in terms of privilege.

00:13:40 Speaker 6

For our three amateur radio licence.

00:13:43 Speaker 6

Can we please think about what's going to make our hobby more relevant to today's people and take it forward to tomorrow's and finally single side band was going to be the end of the amateur radio universe as we know it. I'm Bob V K6POP.

00:13:58 Speaker 6

The Radio Amateur Society of Australia's website has some free resources that can assist you to get things working.

00:14:05 Speaker 6

To start with, the website is VK radioamateur.org. If you're a newcomer to the hobby, select the newcomers tab and explore the options there.

00:14:16 Speaker 6

The amateur radio Welcome Pack is provided free to clubs who conduct courses. These packs comprise A portfolio folder which includes a number of useful documents and reference sheets.

00:14:28 Speaker 6

Give your students some practical and relevant material to take away at the end of the course.

And again, that's free.

00:14:34 Speaker 6

Clubs just need to ask for it. The amateur radio guide book contains A wealth of information online that newcomers will find useful for setting up their station.

00:14:43 Speaker 6

VK Riggs is a website that provides a guide to the regulations governing the hobby of amateur radio in Australia.

00:14:51 Speaker 6

It is a joint publication of the Radio Amateur Society of Australia and the Radio and Electronics School, Amateur Radio Tech support is a knowledge based site where you can search for information or ask a question.

00:15:05 Speaker 6

Further along the main menu as an item then invites you to flight QRM. This one takes you to the QRM Guru website, which again is a knowledge based site where you can ask a question or look at what other people have asked

and read up on how their cure are in problems were solved. There's also a link to the QTC online magazine which is published quarterly.

00:15:26 Speaker 6

By the Radio Amateur Society of Australia.

00:15:29 Speaker 6

All of these resources are free for you to use. You don't have to be a member of anything to utilise those resources. The website again is vkradioamateurs.org.

PLEASE Have your HELPLINE requests into me by 07:00 hrs WST Friday to be in the next broadcast

to email ; <roy.watkins@bigpond.com> or (vk6xv@bigpond.com)

Contact me and keep our equipment in Amateur hands, 73 Roy. vk6xv@bigpond.com

Please enter “DISPOSALS or HELPLINE” in the subject

Here is this weeks helpline.

For sale:

Icom IC718 HF transceiver. 10-160m 100 watts.
Comes with hand microphone , power lead and
original handbook.

Very good condition, no scratches. \$450

Contact Greg VK6ED, phone 0417 900 874.

Cheers and 73's, Greg VK6ED

**For Sale. Etone Model 241 12 inch (300 mm)
loudspeakers.**

**These are theatre grade loudspeakers made by
Etone Australia, Bankstown, NSW. Each
speaker weighs 5.1 kilograms, has a robust
diecast chassis and an extremely powerful 14.5
cm diameter magnet.**

Brief specifications:

Nominal impedance 8 ohms.

**Long term power 150 Watts RMS; Program
power 300 Watts RMS.**

50 mm (2 inch) voice coil is made of high temperature copper wire.

Sensitivity is 98 dB at 1 Watt at 1 metre.

Sensitivity is remarkable; a small tranny fed into this speaker produces amazing volume, yet each can handle over 300 watts RMS power without distress.

Full specs can be found on Etone Professional Sound website.

Although slightly scruffy cosmetically, each unit is undamaged and in good working order. Will demonstrate to buyer on request.

Asking \$35 per speaker.

Contact Clive VK6CSW via email cswallis@hotmail.com for further information

VK6LGB, has a Hy-Gain Antenna TH-3JRS 3 Element Tri-Band 10, 15 and 20 Meters Yagi Antenna for sale.

New, not used, comes in the box. The Antenna normally cost around \$995 but is for sale for a reduced cost of \$750 to a good home.

Ideal for mast mounting or a large backyard.

Can be driven up to 600 watts, with a average Gain of 5.8 dBd, and a F/B Ratio: 25 dB avg.

Pick up from Rockingham.

Contact Glenn

Phone 08 9592 7915

Email VK6LGB@hotmail.com

FOR SALE

- Harris R-2368 military HF receiver.
- Solid state, fully synthesised HF receiver with digital display.
- Covers VLF, LF, MF and HF bands from 10kHz to 30MHz with 1Hz resolution.
- Fully functional including sensitivity.
 - \$950.

Thanks,

Tony VK6CV 0419 961 399

Please have your items in to me by 07:00 AM Friday
for inclusion the following Sunday broadcast.

The email address is vk6xv@bigpond.com

Don't forget YOUR phone number and email address.

Please include HELPLINE as the "SUBJECT"

Thank you.

00:17:44 Speaker 1

Hi, this is VK6FCRC.

00:17:46 Speaker 1

With you.

00:17:47 Speaker 1

And from the team at News West, I'd like to thank the broadcasters contributors plus the readers and listeners of News West each week.

00:17:54 Speaker 1

In the words of another famous ham walk softly. Now please stand by for call backs on your local repeater after the broadcast or submit your call backs via the vk6.net website.