The Official Newsletter of the

# PAPAKURA RADIO CLUB INC.

*June 2022*



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# This Month's Meetings:

Wed 1 June – General Meeting – Antenna Fundamentals – The Science behind Antennas
Wed 8 June – Project Night - Arduino
Wed 15 June – Committee Meeting
Wed 22 June – Activity Night – All-Star
Wed 29 June – AREC Activity

Also, remember there is a Thursday daytime meeting schedule starting at 11:00 and finishing around 13:00, Hopefully, this may appeal to members who may not find getting to the rooms at night so easy

# CLUB ACTIVITY:

The Clubrooms have been given a spruce up and we are hosting an AREC Training Weekend as below.

For those attending the Training Weekend at Papakura on 11-12 June, a reminder from Don Robertson, AREC CEO to bring your laptops/mobile phones.

If you are planning to attend and have not already done so, please contact AREC admin Annalise at admin@arec.nz and let her know.

In addition, we are arranging a Ham Cram, probably in July, due to extensive use of the clubrooms most weekends in June, as well as several public holidays over the coming weekends. In the meantime, I have been working on an online learning platform to assist those who wish to study, There is still plenty of work to do, but if know someone willing to start learning, and ok with being a guinea pig, we can certainly get them started in the system. I will be adding video content in the days ahead to supplement the written teaching content.

We have plenty of interest, so it's a good time to talk about ham radio, you never know who might be interested.

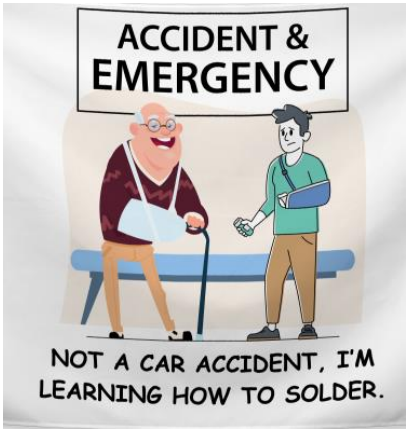
# UPCOMING ACTIVITIES:

WED 1 JUNE – GENERAL MEETING
WED 8 MAY – PROJECT NIGHT – ARDUINO TRAINING
WED 15 MAY – COMMITTEE MEETING
WED 22 MAY – ACTIVITY NIGHT - ALLSTAR
WED 29 MAY – AREC ACTIVITY NIGHT

THURSDAYS 10:00 AM DAY MEETINGS

AS THESE ARE SUBJECT TO CHANGE - PLEASE LISTEN FOR UPDATES ON THE SUNDAY MORNING CLUB NETS. (SEE BACK PAGE FOR FREQUENCIES AND TIMES)





# DX Calendar May 2022

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V48A | | | | | | | | | | | | | | | | | JD1BMH | | | | | | | | | | FP/KV1J | | |
| 3D2RRR | | | | | | | | | | | | | | | | | | | | | | | | | OJ0MR | | | | |
| JD1BOW | | | | | | | | | | | | | | | | | | | | | | | | | OJ0JR | | | | |
| C5C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C5B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JX/LB4MI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JG8NQJ/JD1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FT4XW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## FEATURED EXPEDITION:


**JD1BMH Chichi Jima Island Bonin Islands Ogasawara Islands**
Hiroyuki, JG7PSJ will be active again as JD1BMH from Chichi Jima Island, IOTA AS-031, Ogasawara (Bonin) Islands, 18 - 26 June 2022.

He will operate on 80 - 10m CW, SSB, RTTY.

For information on other expeditions, click the link in the calendar above, or check out

DXnews.com
More than just DX News

# CONTESTS JUNE 2022

| Date-Time | | Date-Time | | Bands | Contest Name | Mode | Exchange | Sponsor's Website |
|---|---|---|---|---|---|---|---|---|
| 1 | 1700 | 1 | 2000 | 144 | VHF-UHF FT8 Activity Contest | FT8 | 4-char grid square | www.ft8activity.eu/index.php/en |
| 2 | 1700 | 2 | 2100 | 28 | NRAU 10-Meter Activity Contest | CW Ph Dig | RS(T), 6-char grid square | nrrlcontest.no/index.php/nrrl-contests |
| 2 | 1900 | 2 | 2100 | 1.8-50 | SKCC Sprint Europe | CW | RST, SPC, name, mbr or "none" | www.skccgroup.com |
| 3 | 0000 | 5 | 2359 | 1.8-50 | PODXS 070 Club Three Day Contest | Dig | Mbr or "0000" | www.podxs070.com |
| 3 | 1900 | 3 | 1959 | 3.5, 7 | HA3NS Sprint Memorial Contest | CW | RST, mbr or "NM" | radioamator.honlapepites.hu/?p=1280 |
| 4 | 0000 | 5 | 2359 | 28 | 10-10 International Open Season PSK Contest | Dig | Name, SPC, mbr | www.ten-ten.org |
| 4 | 0600 | 4 | 0800 | 7, 14 | Wake-Up! QRP Sprint | CW | RST, serial, suffix of previous QSO | qrp.ru/contest/wakeup/333-wakeup-eng |
| 4 | 0600 | 5 | 0600 | 1.8-UHF | KANHAM Contest | CW Ph | RST, JA prefecture | www.jarl.or.jp/kanhamcontest/en |
| 4 | 1200 | 5 | 1159 | 1.8-28 | Tisza Cup CW Contest | CW | RST, CQ zone | tiszacup.eu/index.php/en/contest-rules |
| 4 | 1300 | 5 | 0100 | 1.8-144 | Kentucky QSO Party | CW Ph Dig | RS(T), KY county or SPC | www.kyqsoparty.org/rules |
| 4 | 1300 | 5 | 1300 | 50 | UKSMG Summer Contest | CW Ph RTTY | RST, serial, 6-char grid square | uksmg.org/summer-contest-rules.php |
| 4 | 1500 | 5 | 1459 | 1.8-28 | IARU Region 1 Field Day, CW | CW | RST, serial | darc.de/der-club/referate/conteste |
| 4 | 1500 | 5 | 1500 | 1.8-28 | RSGB National Field Day | CW | RST, serial | www.rsgbcc.org/hf |
| 5 | 1700 | 5 | 2200 | All | Cookie Crumble QRP Contest | CW Ph Dig | RS(T), SPC, cookie number, name | w3atb.com/cookie-crumble |
| 6 | 1630 | 6 | 1729 | 3.5, 7 | OK1WC Memorial (MWC) | CW | RST, serial | memorial-ok1wc.cz/index.php?page=rules2l |
| 6 | 1900 | 6 | 2030 | 3.5 | RSGB 80-Meter Club Championship, Data | Dig | RST, serial | www.rsgbcc.org/hf |
| 7 | 0100 | 7 | 0300 | 3.5- 28 | ARS Spartan Sprint | CW | RST, SPC, | arsqrp.blogspot.com |
| 8 | 0030 | 8 | 0230 | 3.5-14 | NAQCC CW Sprint | CW | RST, SPC, mbr or power | naqcc.info |
| 8 | 1700 | 8 | 2000 | 432 | VHF-UHF FT8 Activity Contest | FT8 | 4-char grid square | www.ft8activity.eu/index.php/en |
| 11 | 0000 | 11 | 2359 | 1.8-28 | VK Shires Contest | CW Ph | RS(T), VK shire or CQ zone | www.wia.org.au/members/contests |
| 11 | 0000 | 12 | 1559 | 3.5-28 | DRCG WW RTTY Contest | Dig | RST, CQ Zone | www.drcg.de/drcgww |
| 11 | 1100 | 11 | 1300 | 14, 21 | Asia-Pacifc Sprint, SSB | Ph | RS, serial | jsfc.org/apsprint/aprule.txt |
| 11 | 1200 | 12 | 1200 | 3.5-28 | Portugal Day Contest | CW Ph | RS(T), CT district or serial | portugaldaycontest.rep.pt/rules.php |
| 11 | 1200 | 12 | 2359 | 1.8-50 | SKCC Weekend Sprintathon | CW | RST, SPC, name, mbr or "none" | www.skccgroup.com |
| 11 | 1400 | 11 | 1800 | 144, 432 | AGCW VHF/UHF Contest | CW | RST, serial, power, 6-char grid square | www.agcw.de/contest/vhf-uhf |
| 11 | 1500 | 12 | 1500 | 3.5-28 | GACW WWSA CW DX Contest | CW | RST, CQ zone | contest.com.ar |
| 11 | 1600 | 12 | 1600 | 50 | REF DDFM 6 Meter Contest | CW Ph | RS(T), serial, 4-char grid square | concours.r-e-f.org |
| 12 | 0800 | 12 | 0900 | 3.5 | Straight Night | CW | RST / Location / name / Key / Transmitter / Power | radio1nz.com/new-zealand-straight-key-night/ |
| 13 | 0000 | 13 | 0200 | 1.8-28 | 4 States QRP Group 2nd Sunday Sprint | CW Ph | RS(T), SPC, mbr or power | www.4sqrp.com/SSS/sss_rules.pdf |
| 13 | 1630 | 13 | 1729 | 3.5, 7 | OK1WC Memorial (MWC) | CW | RST, serial | memorial-ok1wc.cz/index.php?page=rules2l |
| 15 | 0030 | 15 | 0230 | 3.5-14 | NAQCC CW Sprint | CW | RST, SPC, mbr or power | naqcc.info |
| 15 | 1700 | 15 | 2000 | 1.2G | VHF-UHF FT8 Activity Contest | FT8 | 4-char grid square | www.ft8activity.eu/index.php/en |
| 15 | 1900 | 15 | 2030 | 3.5 | RSGB 80-Meter Club Championship, CW | CW | RST, serial | www.rsgbcc.org/hf |
| 16 | 1200 | 16 | 1300 | 7 | SARL Youth Sprint | Ph | RS, | www.sarl.org.za |
| 16 | 1900 | 16 | 2000 | 3.5-14 | NTC QSO Party | CW | Max 25 WPM; RST, mbr or "NM" | qsl.net/ntc/party.html |
| 18 | 0000 | 18 | 2359 | 3.5-28 | Battle of Carabobo International Contest | Ph | RS(T), YV state or serial | www.qrz.com/db/YV4VV |
| 18 | 0000 | 19 | 2359 | 1.8-28 | All Asian DX Contest, CW | CW | RST, 2-digit age | www.jarl.org/English |
| 18 | 1200 | 19 | 1159 | 3.5-28 | Ukrainian DX Classic RTTY Contest | Dig | RST, 2-letter Ukraine oblast or serial | urdxc.org/rttv/eng.htm |
| 18 | 1400 | 19 | 1400 | 50 | IARU Region 1 50 MHz Contest | CW Ph | RS(T), serial, 6-char grid square | www.iaru-r1.org |
| 18 | 1500 | 19 | 1500 | 1.8 | Stew Perry Topband Challenge | CW | 4-char grid square | www.kkn.net/stew |
| 18 | 1600 | 19 | 0400 | 3.5-28 | West Virginia QSO Party | CW Ph Dig | RS(T), WV county or SPC | www.qsl.net/wvsarc |
| 18 | 1800 | 18 | 1959 | 1.8-50 | Feld Hell Sprint | Dig | MBR, SPC, grid square | sites.google.com/site/feldhellclub |
| 19 | 0800 | 19 | 1400 | 50 | WAB 50 MHz Phone | Ph | RS, serial, WAB square or country | wab.intermip.net |
| 19 | 2300 | 20 | 0100 | 1.8-28 | Run for the Bacon QRP Contest | CW | RST, SPC, mbr or power | qrpcontest.com/pigrun |
| 20 | 1630 | 20 | 1729 | 3.5,7 | OK1WC Memorial (MWC) | CW | RST, serial | memorial-ok1wc.cz/index.php?page=rules2l |
| 22 | 0000 | 22 | 0200 | 1.8-50 | SKCC Sprint | CW | RST, SPC, name, mbr or "none" | www.skccgroup.com |
| 23 | 1900 | 23 | 2030 | 3.5 | RSGB 80-Meter Club Championship, SSB | Ph | RS, serial | www.rsgbcc.org/hf |
| 25 | 0000 | 25 | 2359 | 3.5-28 | Pajajaran Bogor DX Contest | Ph | RS, serial | pbdx-contest.com/rules |
| 25 | 0600 | 25 | 1700 | 3.5-28 | UFT QRP Contest | CW | RST, QRP/QRO, mbr or "NM" | www.uft.net/concours-qrp-uft |
| 25 | 1200 | 26 | 1200 | 3.5-28 | Ukrainian DX DIGI Contest | RTTY, PSK63 | RST, 2-letter Ukraine oblast or serial | izmail-dx.irc.net.ua |
| 25 | 1200 | 26 | 1200 | 1.8-28 | His Majesty King of Spain Contest, SSB | Ph | RST, EA province or serial | concursos.ure.es/en |
| 25 | 1800 | 26 | 2059 | All | ARRL Field Day | CW Ph Dig | Number of transmitters, operating class, ARRL/RAC section or "DX" | www.arrl.org/feld-day |
| 27 | 1630 | 27 | 1729 | 3.5, 7 | OK1WC Memorial (MWC) | CW | RST, serial | memorial-ok1wc.cz/index.php?page=rules2l |
| 27 | 1900 | 27 | 2030 | 3.5-14 | RSGB FT4 Contest | FT4 | 4-char grid square | www.rsgbcc.org/hf |

All dates and Times are in UTC and are not adjusted for local time
Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state.

Listings in blue indicate contests sponsored by ARRL or *NCJ*. The latest time to make a valid contest QSO is the minute listed in the "Finish Time" column. Data for Contest Corral is maintained on the WA7BNM Contest Calendar at **www.contestcalendar.com**

Check for updates and a downloadable PDF version online at www.arrl.org/contests.

# YES- YOU CAN STILL USE YOUR PHONE WHEN DRIVING

The announcement of the Auckland camera study which photographs drivers using their cellphones has raised the old question about using two-way radios while driving.

NZART met with the NZ police when the cellphone ban was first looked at, and there has been no change to the policy over this period. As can be seen from the act reprint below, the act only applies to mobile phones, and not to Two-Way radio

Note also that a mobile phone that is securely affixed and touched only occasionally (such as connected to a handsfree device, or used as a navigation aid) may be used while driving, There is, therefore, no reason that an installed 2-way radio should be considered any differently.

It is therefore acceptable to continue to operate two-way radio equipment legally and safely while driving.

The installation of the equipment should however be secure and safely installed to allow operation without the installation impeding the driver's ability to safely operate all controls and view all indicators of the vehicle.

In short, install it well, and use it with confidence.

## 7.3A Ban on use of mobile phones while driving

(1) A driver must not, while driving a vehicle,—

(a) use a mobile phone to make, receive, or terminate a telephone call; or

(b) use a mobile phone to create, send, or read a text message; or

(c) use a mobile phone to create, send, or read an email; or

(d) use a mobile phone to create, send, or view a video message; or

(e) use a mobile phone to communicate in a way similar to a way described in any of paragraphs (b) to (d); or

(f) use a mobile phone in a way other than a way described in any of paragraphs (a) to (e).

(1A)

Subclause (1) is overridden by subclauses (2) to (7).

(2) An enforcement officer may, while driving a vehicle, use a mobile phone to make, receive, or terminate a telephone call if the officer is making, receiving, or terminating the call in the execution of the officer's duty.

(3) A driver may, while driving a vehicle, use a mobile phone if—

(a) the driver is using the phone to make a 111 or *555 call; and

(b) it is unsafe or impracticable for the driver to stop and park the vehicle to make the call.

(4) A driver may, while driving a vehicle, use a mobile phone to make, receive, or terminate a telephone call if the phone does not require the driver to hold or manipulate it to make, receive, or terminate the call.

(5) *[Revoked]*

(6) A driver may, while driving a vehicle, use a mobile phone to make, receive, or terminate a telephone call if the vehicle has stopped for a reason other than the normal starting and stopping of vehicles in a flow of traffic.

(7) A driver may, while driving a vehicle, use a mobile phone in a way described in subclause (1)(a) or (f), if both the following apply:

(a) the phone is secured in a mounting fixed to the vehicle; and

(b) if the driver manipulates or looks at the phone, he or she does so infrequently and briefly.

# RAMBLINGS FROM THE EDITOR'S DESK

With a shortage of radio news this month, the focus of the newsletter is much more on science and technology, but this is in no way negates what is happening in radio. I have noted an increase in traffic, especially SOTA activations from some pretty cold places, more repeater traffic, and some callsigns I have not heard before on the repeaters. So It looks like life is returning to the bands. The sun is again becoming active, and much more active than many predicted, and we are seeing some spectacular flares (sadly many of these reduce HF propagation, but the background flux, means the bands are more open than I have seen in a long time, with contacts in the 20, 15, 10 & 6-metre bands becoming much more common

But there has also been a bit more interest in the experimentation part of the hobby, and as the winter months set in, the opportunity to get out may become less, but the opportunity to work on our gear can increase.

For me, after finding the parts and time to replace an antenna base on the tower, this has been trying to complete my POTA go box, and in doing so, I realised that while I can programme radios, the only real "Experimental" part of the hobby in this project is the power supply and the antenna. Sure I can programme the radios, and build some mounting hardware, but in real terms, the solar, charger and battery are simply purchased bits that get assembled, so only the real build activity would be the antenna. Unless I also purchase a made-up unit.


This realisation saddened me, as I have always thought of hams and experimenters, and I wonder if the commercialisation of the hobby is the best for us long term. Sure there is no way I can build an HF rig that matches a modern commercial unit in terms of performance but is that what is driving the hobby, are we now only operators? I hope not, and I know that antennas, even the ones that end up as dummy loads, are great teaching tools, but I wonder how we would do if we had to build our gear. Maybe the kitset project is a good place to start.

On the science front, I have watched with interest the news and innovation coming in the battery market, and while I disagree with Eleon Musjk about Hydrogen as energy storage, I do agree, that we need to think of hydrogen as a way to store and move energy, rather than as a fuel source. And it seems I am not alone, with Toyota releasing the Mirai using Fuel cell production. All the benefits of electric, but with the refuelling convenience of petrol, no recharging time required. Yet at the same time, Japanese researchers have developed lithium batteries with twice the capacity, while tesla is looking at 100-year batteries (current batteries are less than 20 years, with some as low as 5 years) by using Nickel-based chemistry rather than traditional lithium-Ion.

So what is driving these innovations?

Who is driving the innovations?

The sad reality of this is that innovation is not coming from the normal establishment, innovation comes from rebels, and I have to admit that I have an obsession with rebels, to be brutally honest, I may have an obsession with anarchy. I have certainly been called an anarchist on more than one occasion, Yet for the most part, I would hardly see myself in that role.

But what exactly is anarchy?

Webster's dictionary defines it as:

***Etymology: Medieval Latin anarchia, from Greek, from anarchos having no ruler, from an- + archos ruler. Date: 1539.***
**1 a** ***: absence of government b : a state of lawlessness or political disorder due to the absence of governmental authority c : a utopian society of individuals who enjoy complete freedom without government***
**2 a** ***: absence or denial of any authority or established order b : absence of order***

No doubt that there is an unhealthy form of anarchy – especially in context of one who simply has no rules in his/her life and just follows his own heart's desire, destructive or not. I for one would call that nihilism.

***Etymology: German Nihilismus, from Latin nihil nothing. Date: circa 1817***
**1 a** ***: a viewpoint that traditional values and beliefs are unfounded and that existence is senseless and useless b : a doctrine that denies any objective ground of truth and especially of moral truths***
**2 a (1)** ***: a doctrine or belief that conditions in the social organization are so bad as to make destruction desirable for its own sake independent of any constructive program or possibility (2) capitalized : the program of a 19th century Russian party advocating revolutionary reform and using terrorism and assassination***

But allow me to submit another translation of anarchy: Rebelling against corrupt systems and the mediocre status quo, in search of truth. Not accepting the way things are just because people and so-called 'authorities' say so.

In other words: the search for the true nature and workings of the universe – not something man-made – but a universal truth, that transcends all our structures and definitions.

Not the anarchy driven by reckless abandon or plain narcissism. Not the anarchy that is a smokescreen for doing whatever you like. But the anarchy that is revolutionary! It may not always know how to be channelled, but it is driven by the desperate quest for something higher – something more – than our conventional pedestrian diet.

Conformists don't change the world. Anarchists do. That is, anarchists according to my definition when they channel their energy into a positive revolution.

There is a thin line between pursuing true and true anarchy – a very thin line. Just like there is a thin line between genius and madness, between faith and heresy, between tragedy and comedy. That's how extremes work. Passion can go both ways. In Hebrew it's called shtus d'kedusha – holy insanity, separated by a thin line from unhealthy insanity.

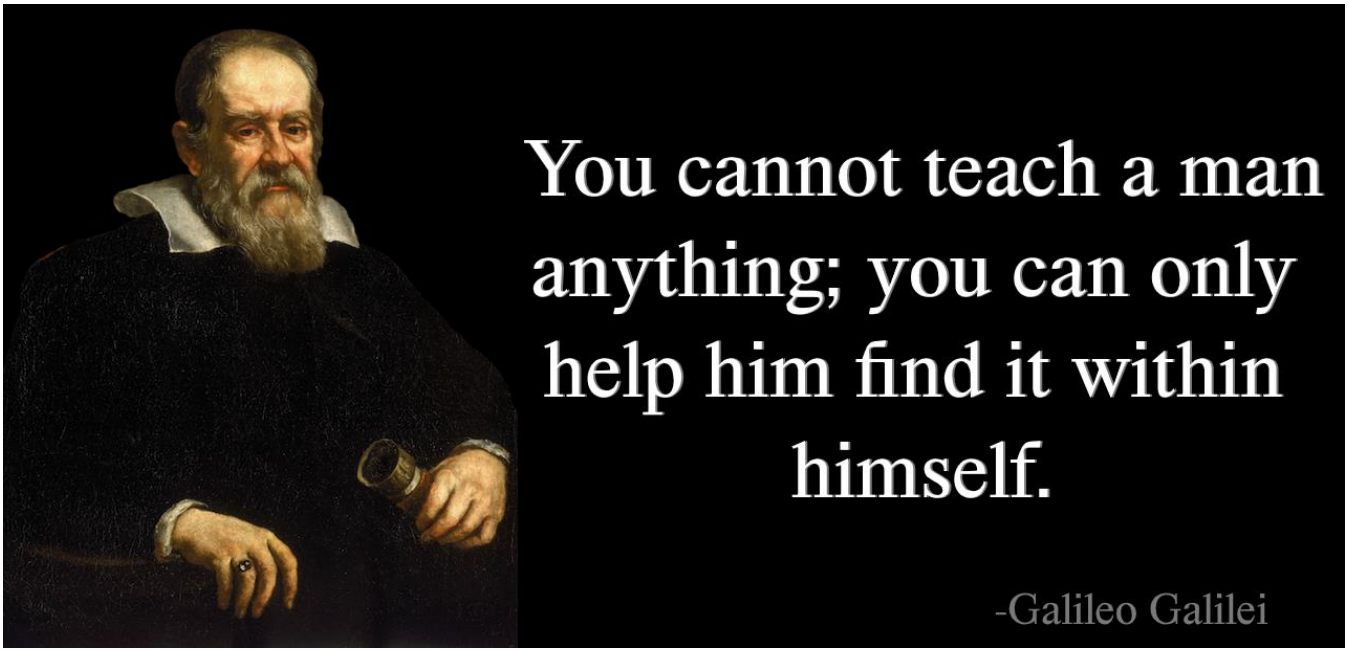
Perhaps that is why I admire men like Musk, even though I often disagree with them, they do not accept the normal, they dare to seek something more

Those who think outside the box are never comfortable to be around, they don't like to conform, they say, and do things that make us uncomfortable, and see things we call impossible dreams, But we need the dreamers. Dreamers (anarchists) are never satisfied with just drifting with the river's flow, they will either race it downstream or swim against the flow. But true anarchists will not stop with a dream, they will take action to achieve it, and they will make us uncomfortable, they will ask why? they will challenge our beliefs.

So how will we react?

While I was not there, I am told by history books that a man called Simon Stevin (sorry it was not Galileo nor was it at the leaning tower) proved through an experiment from a church bell tower where he dropped two lead balls of differing weights, that the balls would not fall at different rates, as was commonly taught, but landed at the same time, three years later Galileo was to explain this mathematically, to the tutors who were still teaching that the balls would fall and different rates. Yet we know now that decades earlier this same experiment was known to Giovanni Battista Benedetti and 1,000 years earlier, the little-known John Philoponus performed his own falling bodies experiments with unequal weights. Philoponus was a Byzantine scholar working in the sixth century. He recognized weight could not determine acceleration, though he incorrectly theorized on density's effect.

So why were scholars in Pisa, years later, still teaching this myth? Galileo, who taught mathematics at Pisa from 1589 to 1592, was still fighting what was known to be wrong, but it was still taught as the main theory because this was the belief of the day, and no one wished to challenge this deeply held belief. Galileo was an anarchist (by my definition), he dared to look to the heavens and ask why? He championed the heliocentric universe, and he determined the size of the earth producing the new famous square law. He saw the divine order in mathematics. He saw the truth, and he would not let it go lightly.




Before the lockdowns, I sat and listened to a presentation on AREC, and how its role had changed from message handling to technical expertise, yet every AREC training exercise I have attended still focuses on simplex message handling. So what has changed? What then is the role? Is there any wonder some are confused? But would we ever be willing to let go of message handling?

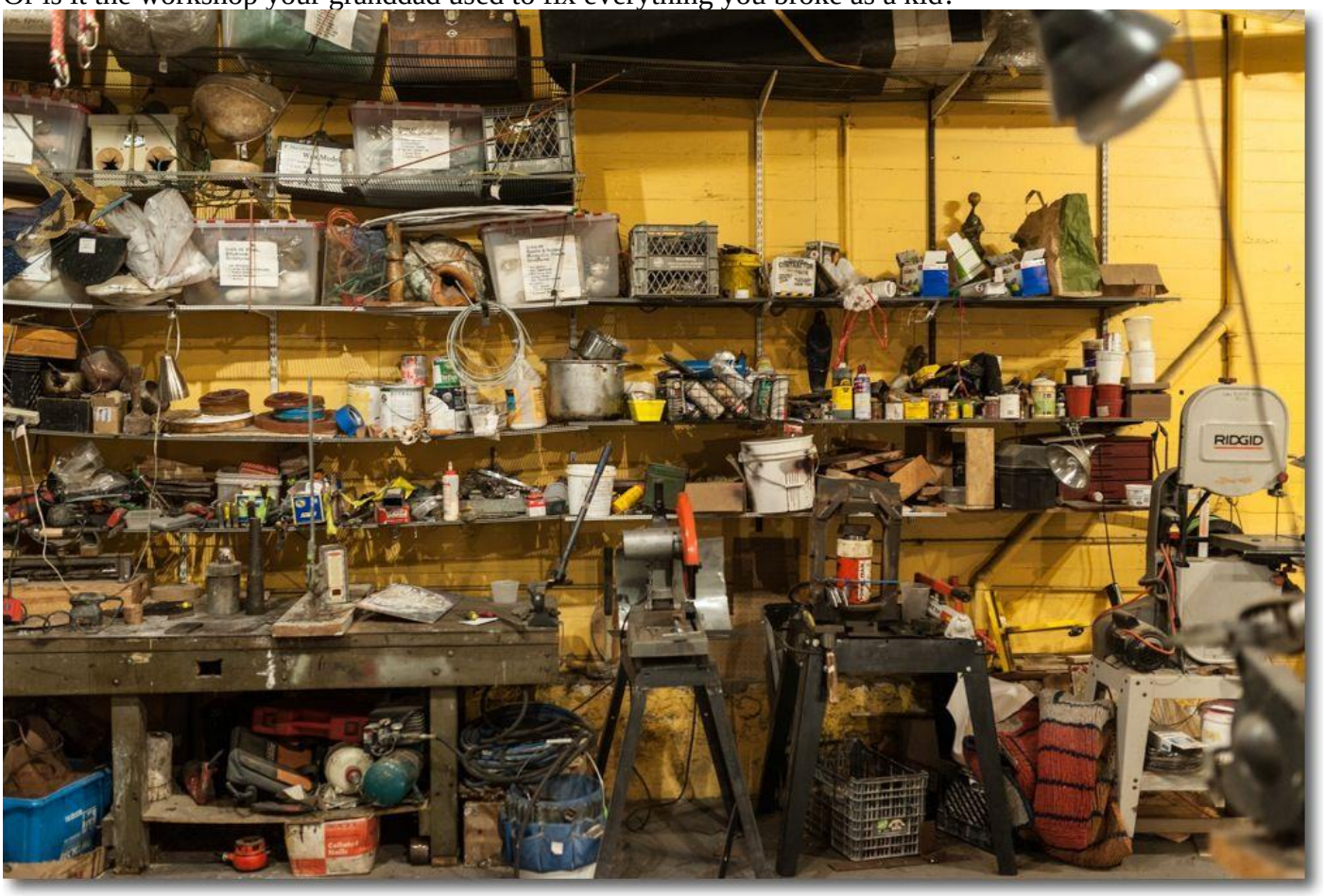
But what about the amateur radio hobby?

According to NZART, Wikipedia, ARRL and even the ITU agree that *"Amateur radio, also known as "ham radio", is a hobby about **experimenting and communicating** using not only radio, but a range of technologies including satellites, the internet and even beams of light!"* Wikipedia uses the words, *Self Training & Private recreation.*

Experimenting and communicating. Not just contesting, or having the right gear, experimentation is at the heart of ham radio. Yet are we still trying stuff, or have we become professionals. The whole idea of being an amateur is to not be professional, it's ok to be a little messy, to be making do with things that are less than perfect, to be pulling things apart and putting them back together again another way. It's okay to not be a professional.

Is it a workshop, or is it a model site designed for a photoshoot?

Or is it the workshop your granddad used to fix everything you broke as a kid?




When did we start to get professional?

Yes, we need to have a place to work that is safe and where we can find stuff, But it does not always have to be state of the art, it, like us, can be a work in progress. Not that there is anything wrong with having the best toys or choosing to purchase antenna's rather than build them. If you're seeking long term investment, this might be a great idea, but if no-one is testing, trying, failing, but learning, then how will the hobby advance?

Will we copy the technology of the commercial inventors, or will be trailblazers forging our own path?

A little anarchy has achieved a lot in the hobby, someone had to have a crazy idea to carry radio equipment up toa summit, or into a park, or to a lake to start the many different awards we have for both activators and chasers. The first ones must have been crazy … after all, this was not how it was done, yet it has caught on with many others, and now it is a respectable part of ham radio. Field days started to test the ability to construct a station in short time at an unknown site, but is it still meeting the goal?

As I have been copying the study materials from NZART into the e-learning platform I have been reminded about what a special and privileged position we as amateur radio operators have. We are allowed to try things and are trusted to play nice in our own space. We are allowed to play with radio. All types of radio.

Activity and project nights were designed to raise the skills of operators, but as the equipment is less "Hackable" can we teach hardware hacking (modifications)? In the age of the internet are we content creators, or have we simply become consumers? Are we so busy copying others projects, we no longer experiment? Have we lost a part of the hobby?

It seems that this is one of those dangerous times in history where we are judged not on our abilities or achievements but on who we are following, and the social groups that we identify with. What we seem to need is some anarchy, some who will not just copy the status quo, but who will step out and make ham radio great again, by innovation, enthusiasm and energy. Some who will get us back on air and connecting again, Not just a quick 2 minute exchange, not a burst of radio data, but a meaningful exchange that will add value to the life of all involved.

As I said at the start, some are doing it, they are climbing hills, driving to lakes, or maybe just activating a park. But if there is no-one listening for them, who will they connect with?

So maybe we need only add 146.500 and 146.475 to our scan list. After all there is more to life than repeaters, or maybe you might even brush off the dust from the USB button and dial down to 144.200 and put out a sideband call, who knows. Someone may even come back.

Or if you have been learning morse during the week, you might like to have a go at the straight key night, where everyone will be a lot more tolerant of you fumbling new skills. (remember they want your contact too)

We don't always have to wait for a special event. But for now I have some antenna's to fix, and then maybe, I'll take my own advice and start chasing some SSB VHF contacts. But sadly only outside work hours.

Perhaps I'll hear you there

de ZL1NUX

# SINGLE SIDEBAND ON 2 METERS: THE OTHER VHF MODE

Most new hams get started on the ham bands using FM, with 2m and 70cm being the most popular bands. This is a great way to get started using VHF simplex and repeater communications. FM is the most popular mode primarily due to the wide availability of FM repeaters. These repeaters extend the operating range on VHF and enable low power handheld transceivers to communicate over 100 miles. FM is also used on simplex to make contacts directly without repeaters.

The main disadvantage of FM is relatively poor performance when signals are weak, which is where SSB really shines. A weak FM signal can disappear completely into the noise while a comparable SSB signal is still quite readable. How big of a difference does this really make? Perhaps 10 dB or more, which corresponds to one or two S-units. Put a different way, using SSB instead of FM can be equivalent to having a beam antenna with 10 dB of gain, just by changing modulation types. So this is a big deal and radio amateurs interested in serious VHF work have naturally chosen SSB as the preferred voice mode. (You may also hear them using Morse code or CW transmissions, which is even more efficient that SSB.)

## FREQUENCIES

The bottom of the VHF band has been allocated with 2 SSB calling frequencies, 144.1 for Oceania DX calling and 144.2 for ZL calling (144.5 is also allocated for FM calling along with 146.675) once a contact has been made any other frequency up to 144.25 can be used for the QSO.  144.3-144.575 is also available or all modes if there is no space left due to busy SSB operations (Very Unlikely). Most operators will by convention use USB, but there is no reason you cannot use LSB if you prefer, but others may have trouble understanding you.


In the 70cm band (if you are lucky enough to own a rig that does SSB at 70cm) 432.1 for calling outside NZ and 432.2 for inside NZ are allocated but without specifying modes, So I guess SSB is ok there too. Check the band plan for frequencies so you can avoid the beacons.

Also remember that both of these are up for review, so hopefully we will see a draft version before the committee finalises these to make room for newer digital modes. Also remember, we are to be frequency agile to avoid licensed spectrum, and other users who also have rights to operate.

## EQUIPMENT

The required equipment for getting started on 2M SSB is pretty basic – a transceiver capable of 2M SSB and a 2M antenna.

The 2M antenna you already have is probably vertically polarized since that is what we use for 2M FM, both mobile and base stations. All of the 1/4-wave and 5/8-wave antennas that are commonly used for 2M mobile work are vertically polarized. Most omni-directional base station antennas are vertical, too. These antennas will work for SSB but most of the really active 2m SSB stations will be using horizontally polarized antennas.

Vertically polarized stations can work horizontally polarized stations but there will be a substantial signal loss (about 20dB). If vertical is all you have, then give it a try. If you can get a horizontal antenna, then your results will be much better.

But chances are you will find others who also are trying SSB will also use a vertical, so you will not be alone in operating with a less than perfect setup.

So if you're ready for a change of pace, flick the knob (or push the button) and try the SSB mode. You never know what might happen.


"Looking For an Apartment Where You Can Put Up an Antenna? — Dream On!"

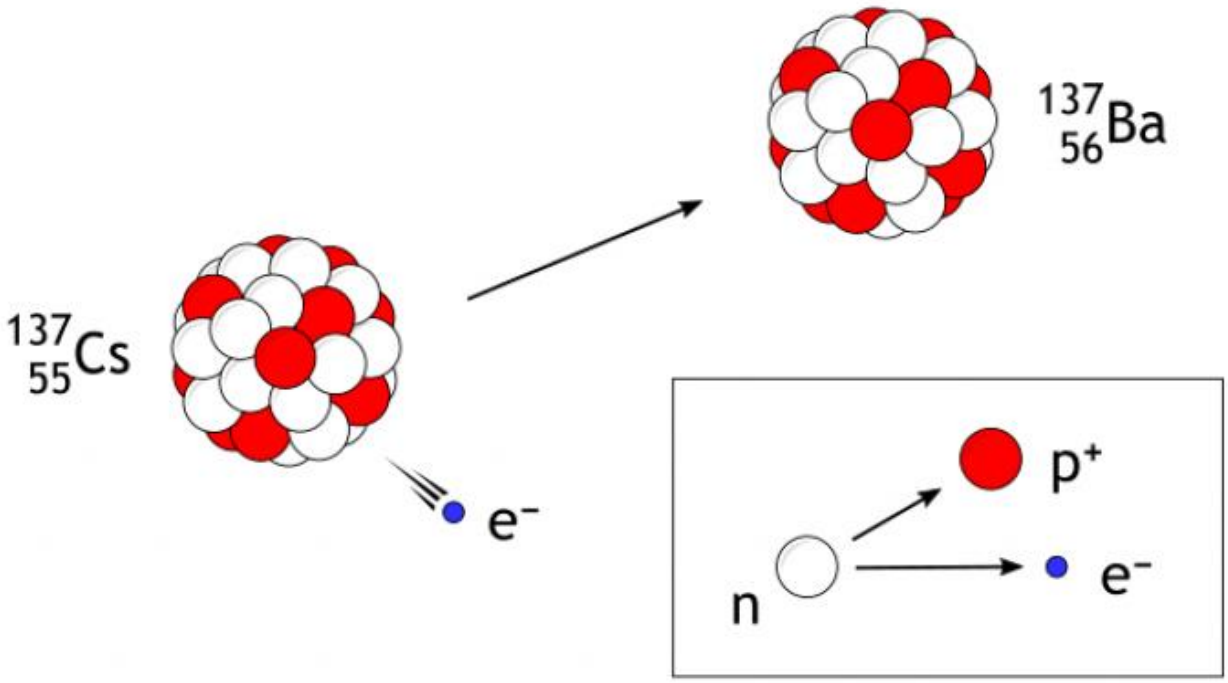
# Will a 1913 patent give nuclear fission a better reputation?

Nuclear power is considered a clean energy source because it has zero carbon dioxide emissions; yet, at the same time, it produces massive amounts of hazardous, radioactive waste that pile up as more and more reactors are built around the world.

Experts have proposed different solutions for this issue to take better care of the environment and people's health. With insufficient safe storage space for nuclear waste disposal, the focal point of these ideas is the reuse of the materials. Radioactive diamond batteries were first developed in 2016 and were immediately acclaimed because they promised a new, cost-effective way of recycling nuclear waste. In this context, it's unavoidable to deliberate whether they're the ultimate solution to these toxic, lethal residues.

Radioactive diamond batteries were first developed by a team of physicists and chemists from the Cabot Institute for the Environment of the University of Bristol. The invention was presented as a betavoltaic device, which means that it's powered by the beta decay of nuclear waste.

Beta decay is a type of radioactive decay that occurs when an atom's nucleus has an excess of particles and releases some of them to obtain a more stable ratio of protons to neutrons. This produces a kind of ionizing radiation called beta radiation, which involves a lot of high-speed and high-energy electrons or positrons known as beta particles. Beta particles contain nuclear energy that can be converted into electric energy through a semiconductor.




A typical betavoltaic cell consists of thin layers of radioactive material placed between semiconductors. As the nuclear material decays, it emits beta particles that knock electrons loose in the semiconductor, creating an electric current.

However, as the particles are released in all directions, only a small number hit the semiconductor, and this is where the diamond comes in, By the use of chemical vapour deposition and artificial diamond can be created from the radioactive methane found on irradiated reactor graphite rods. These polycrystalline diamonds (PCDs) are both very hard and can also act as both a radioactive source and a semiconductor. Expose it to beta radiation and you'll get a long-duration battery that doesn't need to be recharged. The nuclear waste in its interior fuels it over and over again, allowing it to self-charge for ages.

The origins of nuclear batteries can be traced back to 1913, when English physicist Henry Moseley found out that particle radiation could generate an electric current. In the 1950s and 1960s, the aerospace industry was very interested in Moseley's discovery, as it could potentially power spacecraft for long-duration missions. The RCA Corporation also researched an application for nuclear batteries in radio receivers and hearing aids. Sadly the technology to develop these was not readily available, and it was only with the ability to create these in synthetic diamonds that te invention has truly gained momentum

The radioactive diamond batteries, however, wouldn't be immediately suitable for laptops or smartphones, because they contain only 1g of carbon-14, meaning that they provide very low power —only a few microwatts, which is less than a typical AA battery. Therefore, their application so far is limited to small devices that must stay unattended for a long time, such as sensors and pacemakers. However, with time and development, Stacks of these batteries could achieve the levels needed to power consumer devices.

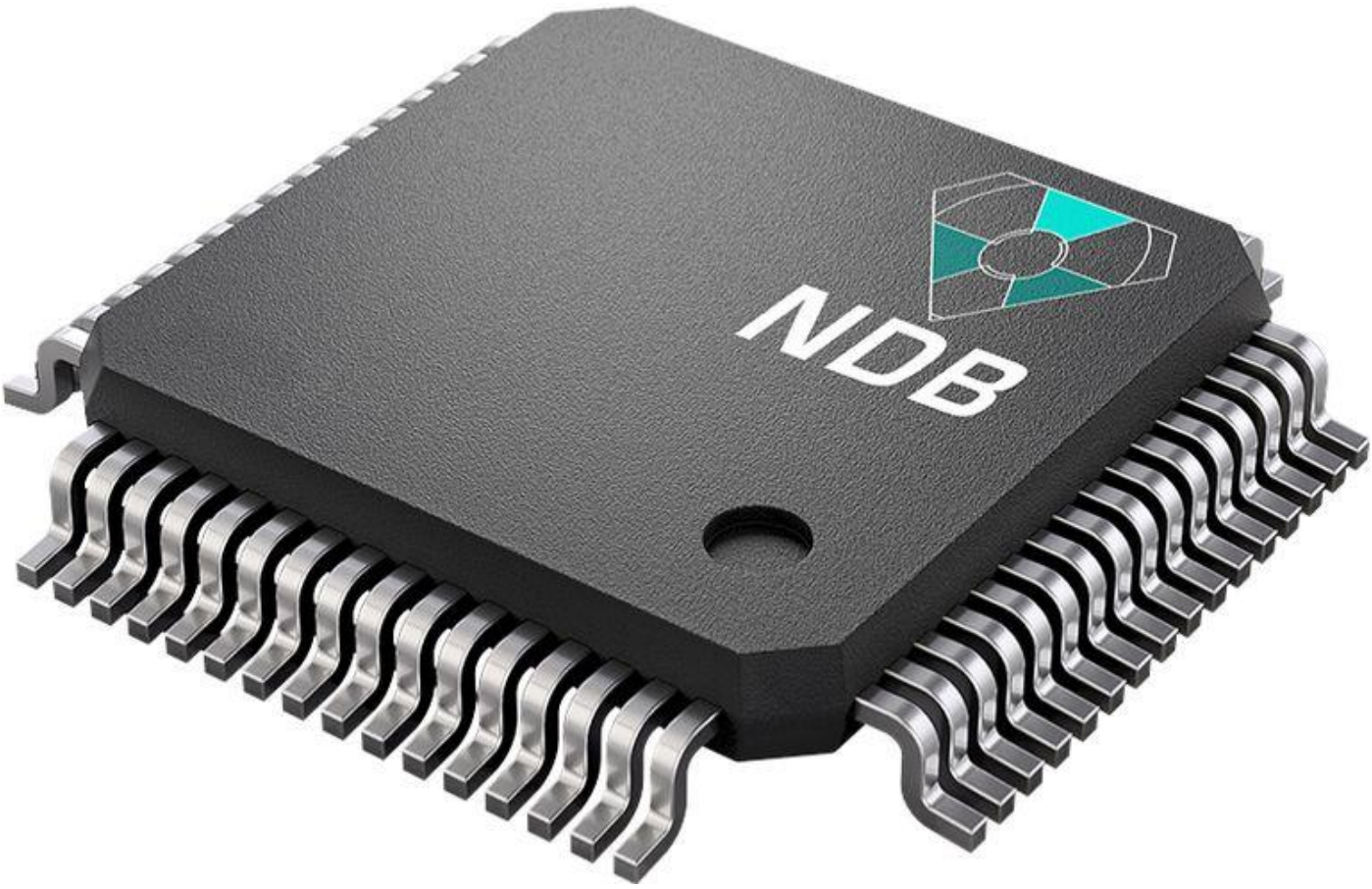
According to NBD Inc Nano-diamond batteries from NDB are described as alpha, beta, and neutron voltaic batteries and have several new features

- Durability. The firm calculates that the batteries could last up to 28,000 years, which means that they could reliably power space vehicles in long-duration missions, space stations, and satellites. Drones, electric cars, and aircraft on Earth would never need to make stops to be recharged.

- Safety. Diamond is not only one of the hardest substances, but also one of the most thermally conductive materials in the world, which helps protect against the heat produced by the radioisotopes that the battery is built with, turning it into electric current very quickly.

- Market-friendliness. Thin-film layers of PCD in these allow the battery to allow for different shapes and forms. This is why nano-diamond batteries can be multipurpose and enter different markets, from the aforementioned space applications to consumer electronics. The consumer version would not last more than a decade, though.

Nano-diamond batteries are scheduled to come onto the market in 2023.




The portability of modern electronic devices, the increasing popularity of electric vehicles, and the 21st Century race to take humanity on long space missions to Mars have triggered a growing interest in battery technology research in the last few years.

Some types of batteries are more appropriate for certain applications and not as useful for others. But it would be safe to say that the conventional lithium-ion batteries that we all know won't be replaced with radioactive diamond batteries any time soon.

Conventional batteries last a shorter time, but they are also much cheaper to manufacture. However, at the same time, the fact that they do not last that long (they have a lifespan of about five years) is problematic, because they also produce a great deal of electronic waste, which is not easy to recycle.

Radioactive diamond batteries are more convenient because they have a much longer lifespan than conventional batteries. If they can be developed into a universal battery, like NDB Inc. proposes, we could end up with batteries that last much longer than the life of the device, and we could simply change the battery from one device to the next, much as we now transfer the SIM card in a phone.

However, the diamond betavoltaics developed by Arkenlight in the UK, won't go that far. The company is working on designs that stack up lots of their carbon-14 betabatteries into cells. To provide high power discharge, each cell could be accompanied by a small supercapacitor, which could offer an excellent quick-discharge capability.

However, this radioactive material also has a lifespan of more than 5000 years. If that radiation were to leak out of the device in gaseous form, it could be a problem. That's where the diamonds come in. In the diamond formation, the C-14 is a solid, so it can't be extracted and absorbed by a living being.

The United Kingdom Atomic Energy Authority (UKAEA) calculated those 100 pounds (approximately 45 kg) of carbon-14 could allow the fabrication of millions of long-duration diamond-based batteries. These batteries could also reduce the costs of nuclear waste storage.

Given the green technology push, we are all becoming aware of, I wonder how we would feel about a nuclear battery replacing the rechargeable ones in our new electric car? I guess it's one way to have a seat warmer (*Didn't they do that in the Movie The Martian?*). This only raises the question, are we ready to consider a nuclear battery future?

# A NEW GUINNESS WORLD RECORD IS NOT TAKEN LIGHTLY.

16 year old Jackson Oswalt has received a honour that many would seek, but only one can own.

His award dates back to hours before his 13th birthday, his school project was not the normal fare of baking soda volcanoes or weather observations, or even a lemon battery. Jackson Oswalt make a steam engine, heated water turned a steam engine, which generated electricity. What made this engine unique was the fuel. He used electricity to fuse two atoms of deuterium into an atom of helium-3 and release a neutron. This neutron heated the water.

In short he had built a working nuclear fusion reactor [How a 12-year-old achieved nuclear fusion - Guinness World Records - YouTube]

"I'd say [the] hardest part was trying to figure out how to make the seal airtight on the chamber, so I spent about probably half a year trying to get the seal correct." (CREDIT: Creative Commons)

There are some key definitions and points to keep in mind here. Oswalt is industrious and obviously very bright, but he's just one of a thriving community of homemade fusion makers. Remember the college student who tried to sell an almost-ready-to-use fusion reactor to pay his college tuition?

These reactors are fun and exciting, but they use far more energy than they replace, compared with the commercial power fusion projects aiming for fusion that outpaces the energy put into them. Nuclear fusion can never be a power source unless it well exceeds the energy required to reach and sustain fusion.

At just 12 years old, Oswalt beat the previous world record by a full two years. He joins a running list of "fusioneers" who have achieved fusion at home. Richard Hull, who keeps the list, is himself part of the club. Oswalt joins both the overall list and the special high school (or below!) list with his 2018 feat. Listed fusioneers have accomplished goals ranging from winning a school science fair to earning a $75,000 college scholarship, which really shows how you have to choose your fusion audience carefully.

His Dad notes "We didn't know enough to have reservations, to be honest," … Jackson no longer conducts experiments that often, as he's decided to look for his 'next best thing,' but for someone who achieved fusion at 12, that next best thing is probably . . . pretty huge.

# BOEING'S STARLINER LANDS SAFELY

## FINALLY COMPLES THE FIRST CRITICAL TEST FLIGHT TO THE ISS

"NASA's Commercial Crew Program and our industry partner, Boeing, today took a major and successful step on the journey to enabling more human spaceflight missions to the International Space Station on American spacecraft from American soil," said NASA Administrator Bill Nelson. "The OFT-2 mission represents the power of collaboration, which allows us to innovate for the benefit of humanity and inspire the world through discovery. This golden era of spaceflight wouldn't be possible without the thousands of individuals who persevered and poured their passion into this great achievement."

The flight test began Thursday, May 19, when Starliner launched on the ULA Atlas V rocket from Space Launch Complex-41 at Cape Canaveral Space Force Station in Florida. Following liftoff, Starliner successfully entered Earth's orbit, performed a series of demonstrations of its capabilities, and docked with the space station 26 hours after launch. The Expedition 67 crew aboard the station opened hatches and entered the capsule for the first time, inspecting the spacecraft and verifying integration with power and communications station systems for longer stays in the future. The station crew also unloaded 500 pounds of cargo delivered by Starliner and sent 600 pounds of cargo back to Earth.

A critical step in validating the performance of Boeing's systems, OFT-2 brings the nation a significant step closer to having two unique human transportation systems to carry astronauts to and from the space station from U.S. soil. Starliner's only "passenger" on the test flight test was a lifelike test device named Rosie.

Rosie was outfitted with 15 sensors to collect data on what astronauts will experience during flights on Starliner. For OFT-2, spacecraft data capture ports previously connected to Rosie's 15 sensors were used to collect data from sensors placed along the seat pallet, which is the infrastructure that holds all the crew seats in place. Among the cargo returned were three Nitrogen Oxygen Recharge System reusable tanks that provide breathable air to station crew members. The tanks will be refurbished on Earth and sent back to station on a future flight.

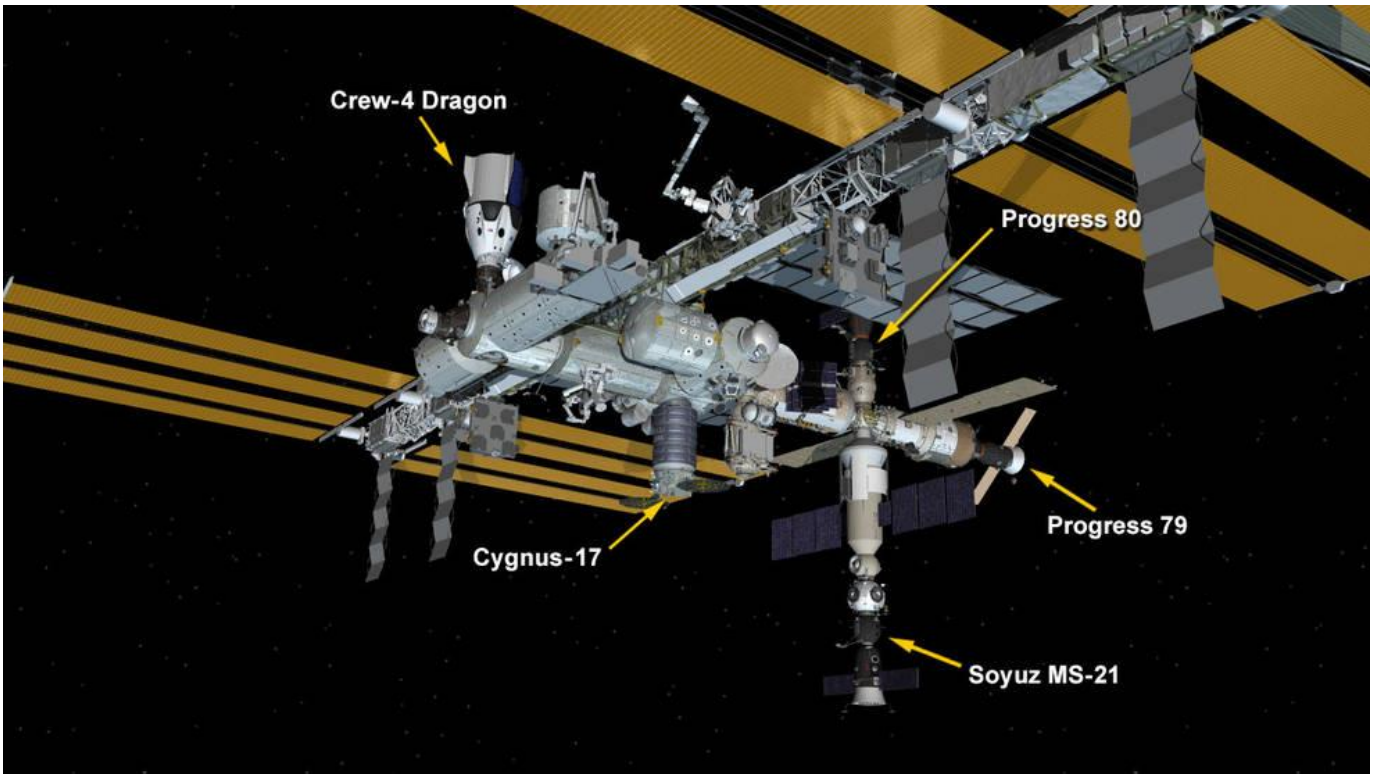
Boeing retrieved the spacecraft from the desert and will transport it back to the company's Commercial Crew and Cargo Processing Facility at NASA's Kennedy Space Centre in Florida for processing.

After NASA and Boeing review processes data from this test flight, teams will continue plans for Starliner and its next mission, the Crew Flight Test to the space station.

Starliner, unlike SpaceX' crew dragon, is not yet certified for human flight, after delays with valves caused a redesign of its systems. Boeing's capsule design is also very different from that of SpaceX, with the idea that having two differing designs (Asymmetrical design is the term NASA uses) would prevent grounding of both capsules in the event of any system failures once certified. The orbital test flight 2 was the first to reach the ISS after issues with Test flight 1 software left the capsule with insufficient fuel to reach the ISS and Return safely.

Having now docked with the ISS and returned, Boeing, is one step closer to the required certifications to allow crewed flights to the ISS.

The docking to the ISS was also unique in that it was the first time that the ISS hosted multiple service vehicles at the ISS with 2 x Soyuz, 1 Crew Dragon and the Starliner vehicles all docked at the same time, In addition, 2x Russian progress modules and 1 US Cygnus supply modules were also docked.




After so many delays, the possibility of having a second option for crewed flights to the aging ISS will reduce NASA's dependence on Russian services at a time when relations between Russia and the USA have become increasingly strained. The commercial crew programme is also essential to plans for future Artemis missions and the building of the gateway station in lunar orbit.

The Orion and SLS vehicles are due to undergo a dry run rehearsal (Tank Testing) on June 6th. For those interested check out NASA Tv (online) to watch these interesting times live or in replays.

Or you can watch New Zealand's rocket lab launch, of the Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment (Capstone) mission from Rocket Lab's Launch Complex 1 (LC-1) on the Mahia Peninsula of New Zealand. CAPSTONE is a joint venture between NASA, Rocket Lab, and Advanced Space, and launch is currently targeting no earlier than June 6, 2022, with a launch period, which extends to June 22.

# CAPSTONE TO LAUNCH FROM NEW ZEALAND

CAPSTONE is a microwave oven–sized CubeSat weighing just 55 pounds and will serve as the first spacecraft to test a unique, elliptical lunar orbit. It is a pathfinder for Gateway, a Moon-orbiting outpost that is part of NASA's Artemis program, CAPSTONE will help reduce risk for future spacecraft by validating innovative navigation technologies and verifying the dynamics of this halo-shaped orbit.

After a three-month journey to its target destination, CAPSTONE will orbit this area around the Moon for at least six months to understand the characteristics of the orbit. Specifically, it will validate the power and propulsion requirements for maintaining its orbit as predicted by NASA's models, reducing logistical uncertainties. It will also demonstrate the reliability of innovative spacecraft-to-spacecraft navigation solutions as well as communication capabilities with Earth. The NRHO provides the advantage of an unobstructed view of Earth in addition to coverage of the lunar South Pole.

To test these new navigation capabilities, CAPSTONE has a second dedicated payload flight computer and radio that will perform calculations to determine where the CubeSat is in its orbital path. Circling the Moon since 2009, NASA's Lunar Reconnaissance Orbiter (LRO) will serve as a reference point for CAPSTONE. The intention is for CAPSTONE to communicate directly with LRO and utilize the data obtained from this crosslink to measure how far it is from LRO and how fast the distance between the two changes, which in turn determines CAPSTONE's position in space.

This peer-to-peer information will be used to evaluate CAPSTONE's autonomous navigation software. If successful, this software, referred to as the Cislunar Autonomous Positioning System (CAPS), will allow future spacecraft to determine their location without having to rely exclusively on tracking from Earth. This capability could enable future technology demonstrations to perform on their own without support from the ground and allow ground-based antennas to prioritize valuable science data over more routine operational tracking.

CAPSTONE is scheduled to launch no earlier than June 2022 aboard a Rocket Lab's Electron rocket from the company's Launch Complex 1 in New Zealand. With a highly ambitious schedule, CAPSTONE will demonstrate key commercial capabilities. NASA partners will test cutting-edge tools for mission planning and operations, paving the way and expanding opportunities for small and more affordable space and exploration missions to the Moon, Mars and other destinations throughout the solar system.

**Mission objectives:**

- Verify the characteristics of a cis-lunar near rectilinear halo orbit for future spacecraft
- Demonstrate entering and maintaining this unique orbit that provides a highly-efficient path to the Moon's surface and back
- Demonstrate spacecraft-to-spacecraft navigation services that allow future spacecraft to determine their location relative to the Moon without relying exclusively on tracking from Earth
- Lay a foundation for commercial support of future lunar operations
- Gain experience with small dedicated launches of CubeSats beyond low-Earth orbit, to the Moon, and beyond

**Partners:**

- Advanced Space of Westminster, Colorado, is developing and operating CAPSTONE.
- Terran Orbital Corporation, of Irvine, California, is building the CubeSat platform.
- Stellar Exploration, Inc. of San Luis Obispo, California, is providing CAPSTONE's propulsion system.
- Rocket Lab of Long Beach, California, is providing launch services. The launch is managed by NASA's Launch Services Program at NASA's Kennedy Space Center in Florida.
- NASA's Small Spacecraft Technology program within the agency's Space Technology Mission Directorate is managing the CAPSTONE project. The program is based at NASA's Ames Research Center in California's Silicon Valley.
- NASA's Advanced Exploration Systems within the agency's Exploration Systems Development Mission Directorate is funding the launch and supporting mission operations.
- The development of CAPS is supported by NASA's Small Business Innovation Research (SBIR) program.
- NASA's Goddard Space Flight Center in Greenbelt, Maryland, manages LRO.

*So do we now know where the cosmic background radiation really came from? … like the SETI signals?*

[How a microwave could fool SETI – Peter Keijsers]

# TIME TO WARM UP YOUR STRAIGHT KEY


As the winter solstice approaches, that means it's time once again for Straight Key Night - Winter Edition.

One of the nice things about the winter edition, is that it's an hour earlier than the summer event, so you get better propagation - and your don't have to stay up late!

Straight Key Night is a casual CW contest, running for just one hour (8-9pm) on Sunday 13 June.

Here are some tips for newcomers:

- You need to send and receive the full SKN exchange, which includes things like "type of key" and "power level".
- To keep things interesting, we follow the "QSY Rule" - it's easy once you get used to it.

Please see the full details, including special log sheets and summary sheets, at maritimeradio.org/skn.

If you have questions, please contact ZL1NZ at skn@maritimeradio.org.

--

Neil Sanderson ZL1NZ
**New Zealand Straight Key Night**

Address radiograms to ZL1NZ Auckland
QSX 3535.0 kHz at 2100 NZT (Mon-Fri)

# SOME NETS – FOR WHEN YOU ARE LOOKING FOR SOME COMPANY

| Day | Time (Local) | Freq (MHz) | Group |
|---|---|---|---|
| Sunday | 08:00 | 3.750 | Southern Net |
| | 09:00 | 3.700 | Bch 10. Franklin. |
| | 09:15 | 3.755 | Bch 65. Papakura. |
| | 16:00 | 7.125 | SPAM Net (AM Mode) |
| | 19:00 | 146.625 | YL Net |
| | 20:00 | 3.710 | Bch 42. Titahi Bay |
| | 21:30 | 3.595 | Duran WIA Net. |
| | | | |
| Monday | 19:30 | 3.757 | Bch 12. Hamilton |
| | 20.00 | 3.540 | CW Practice Net |
| *updated* | 20:00 | 3.605 | Br 80. Hibiscus Coast |
| *updated* | 20:00 | Nat System | W.A.R.O |
| | 20:30 | 3.870 | O.T.C (Old Timers Club) |
| | | | |
| Tuesday | 09:00 | 7.096 | Ex Post Office Techs |
| | 21:00 | 1.850 | 160m Net _ Ron ZL4JMF |
| | 19:30 | 3.690 | QRP ZL2BH |
| | 20:00 | 3.581 | CW improvers Net |
| | | | |
| Wednesday | 20:00 | 3.660 | Geek Net |
| | 20:00 | 3.645 | Bch 02. Auckland |
| | 20:00 | 3.745 | Bch 84. Bay of Islands |
| | 20:30 | 146.525 | W.R.S.C |
| | | | |
| Thursday | 09:00 | 7.096 | Ex Post Office Techs |
| | 19:30 | 3.690 | QRP ZL2BH |
| | 20:00 | 3.540 | CW Practice Net |
| | 20:00 | 3.615 | Bch 89. REG Net |
| | 20:30 | 3.696 | ZL1OA |
| | 20:30 | 3.666 | LF Net ZL2CA |
| | 20:00 | 3.690 | ZL QRP SSB Net |
| | | | |
| Friday | 20:00 | 3.850 | SPAM (AM Mode) |
| | 20:30 | 3.650 | W.S.R.C. |
| | 20:30 | 3.560 | Digital Modes Net |
| | | | |
| Saturday | 10:30 | 28.530 | 10-10 Down Under |
| | 19:30 | 3.650 | Christian Fellowship |
| | 20:00 | 3.760 | ??? |
| | 20:30 | 3.600 | Ch 62. Reefton/Buller |
| | | | |
| Daily or Other | 07:30 | 3.696 | ZL2OA |
| | 08:30 | 3.730 | ZL3RP |
| | 15:00 | 14.300 | Pacific Seafarers |
| | 17:30 | 3.760 | Home Brew |
| | 05:00 Zulu | 14.183 | ANZA DX Net |
| | 18:00 | 7.115 | VK7OB |
| | 19:30 | 3.720 | ZL1MO |
| | 18:30 | 3.766 | ZL3LE |
| | 08:30/20:00 | 3.730 | ZL3RP |
| | 20:30 | 3.725 | ZL2HN / ZL4RF |
| | 21:00 | 3.677 | Counties Net ZL2MA |
| | 21.00 | 3.535 | New Zealand Net (CW) |

This is designed to be a living list, Please update whenever you are able:

| | | | | |
|---|---|---|---|---|
| Also: Calling Frequencies: | Daily | Sunset-Sunrise | 3580 USB | NZ FSQCall |
| Courtesy of Murray ZL1BPU | Daily | Sunrise-Sunset | 7105 USB | NZ FSQCall |
| | Daily | 24/7 | 7104 USB | International FSQCall |

I'm told the last of these sees some amazing DX, especially around sunset.

**Papakura Radio Club Inc.**
**Branch 65 NZART Club Directory 2017**
Wellington Park, 1 Great South Road.
PO BOX 72-397 Papakura 2244
PHONE 09 296 5244
**Westpac 03-0399-0019896-00**
**Club website: http://www.qsl.net/zl1vk**
**Club email: zl1vk.club@gmail.com**

| **Elected Officers** | | | |
|---|---|---|---|
| **President** | ZL1NUX | Gavin Denby | 021 459 192 |
| **Vice President** | ZL1BNQ | Richard Gamble | 021 729 270 |
| **Secretary** | ZL1AOX | Ian Ashley | 021 198 1810 |
| **Treasurer** | ZL1MR | David Wilkins | 021 185 7903 |
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| | ZL1IRC | Ian Clifford | 021 082 48400 |
| | ZL1ASN | Rolly Adams | 021 042 7760 |
| | ZL1RAH | Rodger Hanson | 027 568 7659 |
| | ZL1RIC | Ricky Hodge | 027 533 8155 |
| **AREC Section Leader** | ZL1BNQ | Richard Gamble | 021 729 270 |
| **CD Liaison** | ZL1AOX | Ian Ashley | 021 198 1810 |
| **Newsletter Editor** | ZL1NUX | Gavin Denby | 021 459 192 |
| **Hall Custodian** | ZL1AOX | Ian Ashley | 021 198 1810 |
| **Newsletter.** | Contact: | zl1nux@outlook.com | |

Our newsletter is published monthly and normally distributed just before the club meeting. Please forward articles etc to the editor Wednesday 1 week before the general meeting. Please notify any change of address. Including E-Mail Address to the secretary.

**Meetings**
General Meetings are held at the Clubrooms on the 1st Wednesday of each month, starting at 7.30 pm. Look at your calendar and mark these nights. The speaker follows the General Meeting.
Project Evenings are on the 4th Wednesday of each month.
Committee Meetings are held on the 3rd Wednesday of each month at 7.30 pm unless advised.
Activity Nights are held on the 2nd Wednesday starting at 7.30 pm.
AREC Meetings are on the 5th Wednesday night, also starting at 7.30 pm
**AGM:** Held in November

**Subscription:** Full membership and newsletter $25.00
Family Membership and newsletter $40.00
**Bank Account number: 03-0399-0019896-00**

**Working Bees** As required.

**Branch 65 21 Award:** For contacts with ZL1VK (5 Points) and 8 Papakura Radio Club Members (2 Points each) after January 2011. Total 21 Points. Cost $5-00. Certified list and $5-00 to Secretary, Papakura Radio Club. Address above.

**ZL1VK Club Nets**
146.900 MHz Sunday at 8.30 am. Controller ZL1NUX, Gavin Denby. If the repeater is not available, listen 146.475MHz simplex.
3.755 MHz Sunday at 9.15 am. Controller ZL1BNQ Richard Gamble. (Linked to 146.675 & 438.775)