

The Official Newsletter of the

PAPAKURA RADIO CLUB INC.

December 2024



Celebrating Field Operations



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December Meetings:

The December Meeting will be followed by a series of Short 10 Minute Talks, after this, we will enjoy our last supper together for 2024.

We hope you take the time to chat with someone new and make the most of this time.

If transport is a problem, let the committee members know, and we may be able to assist with arranging a ride for you.

Alternatively, ask <u>zl1nux@outlook.com</u> for the teams link, and you can join us from home.

December Dates

Wednesday 4 th	General Meeting & Talks
Wednesday 11th	Tait VFO Project
Wednesday 18th	Committee Meeting
Wednesday 25th	No Meeting – Christmas Day.



DX Calendar November 2024



Click any link above for details on the expedition

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FEATURED DX: TOOJ FRENCH GULANA

Joergen, OZ0J will be active as TO0J from French Guiana, 20 - 31 December 2024. He will operate on 80 - 10m. QSL via LOTW, ClubLog OQRS.

French Guiana is the smallest territory of South America, and at the same time - the largest part of the European Union, located not in Europe and not on the islands. The region is considered a department of France, subject to its laws and president. In fact, nowadays the territory could be called simply Guiana, as there are no other countries with this name. At the time of the conquest, there were also other Guianas - "British", "Dutch", "Spanish" - but later all of them were renamed.

Most of the region's black inhabitants call themselves French and their land France. European laws do apply here. The official administrative centre of the area is the city of Cayenne, but in fact this role is played by Paris. The inhabitants consider the French president as their head, who appoints the local prefect. However, the population of Guiana chooses representatives to the Senate and Parliament of the European power independently, by voting.

The official language of the province is French. Tourists who do not know it will have a hard time explaining themselves here - the inhabitants do not know English. Closer to the south and west of the country, local dialects - types of Creole, Indian and Maroon languages - are more and more common. The language "Taki-Tak", once formed on the basis of modified English and Dutch, is also practiced. However, nowadays it is not easy to hear European notes in the speech of speakers, and one should not hope for it.

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The monetary unit here is the euro, the main religion is Catholicism, and prices for services correspond roughly to the French equivalents. However, a Schengen visa alone is not enough to visit the government: the country has its own rules. Those wishing to fly to an exotic country should have a residence permit in one of the European countries, or a French visa for more than a year. It is also possible to issue a tourist visa directly to French Guiana.

Centuries of history

According to archaeological data, the first settlements in the territory appeared in the 5th century BC. The abundance of rivers and fresh water bodies made the area comfortable for living: the inhabitants called their country "The Land of Waters". Numerous tribes settled down here and lived peacefully until the arrival of the Spaniards led by Columbus. However, the guests were not interested in the territory - there were enough discoveries at that time, and there were more interesting from the economic point of view of lands and islands.

But the French, starting from 1604, began to show more active interest in the territory. The aliens began to grow coffee trees and sugar cane, and transformed the hard-to-pronounce name chosen by the natives into Guiana. Soon French authority was clearly established over the territory, but for the most part formally. The Indians categorically refused to work for the conquerors: violent measures did not help. To maintain the economy, African slaves had to be transported to South America. After the abolition of slavery in 1848, the situation became even more difficult: the area was not very attractive for immigrants. However, the situation changed dramatically with the onset of the gold rush. Those hungry for gold came here by the thousands, and many died in the jungle from animal attacks or insect bites. From 1852 and for almost a century, the department served as a place of exile for French prisoners. It was not until 1946 that the country was officially freed from this shameful designation and became a full-fledged part of France.

The region experiences a classic equatorial climate, marked by extremely high temperatures, often reaching between 35 and 37°C during the summer. Humidity levels are consistently high, not only during the rainy season but throughout the year. Rainfall is abundant, with the rainy season occurring from January to June. Overall, the combination of the country's climate and the considerable risk of tropical diseases makes it less than ideal for visitors.

The relief of the territory is not too mountainous - Almost the entire terrain is covered with impenetrable virgin jungle. The abundance of rainfall, so discouraging to immigrants, has created an ideal environment for local animal and plant life. There are dozens of species of monkeys, various predators, birds, fish, insects, and rare tree species. Compared to other countries of South America, the local nature is the least affected by man and is preserved in its original form.

Those who want to enjoy the cleanest beaches and clear sea will be disappointed when they find themselves in French Guiana. Due to the swampy terrain and clay soil, the water here has a muddy consistency and yellowish colour. There are few sandy beaches, and even they do not seem suitable for swimming. Tourist infrastructure here is also not too developed: there are few hotels, transportation branching functions mainly along the coasts, many areas are difficult to access.

But for those who first of all appreciate not comfort but brightness of impressions, French Guiana is a suitable solution. It is a real paradise for zoologists, herpetologists, ornithologists and just lovers of tropical nature. On the territory there are several large reserves. However, it should be remembered that not all wildlife is friendly and welcoming. Those wishing to get acquainted with the local fauna should maximize safety, cover the body and use the services of a guide.

Another bright attraction of the department is the spaceport, located 10 km from the city of Kuru. Its proximity to the equator has created suitable conditions for rocket launches. Visitors should also take a look at islands, caves, waterfalls and other natural beauties.

UPCOMING CONTESTS

December 2024

Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

	Start	- 1	inish	_				
Da	te-Time	Da	ate-Time	Bands	Contest Name	Mode	Exchange	Sponsor's Website
3	0100	3	0300	3.5-28	ARS Spartan Sprint	CW	RST, SPC, pwr	ars-qrp.com
3	0100	3	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, Youth YL, or Youth)	wwsac.com
4	0230	4	0300	1.8-14,21	Phone Weekly Test	Ph	Name, SPC	www.perluma.com/Phone_
								Fray_Contest_Rules.pdf
4	1700	4	2100	144	VHF-UHF FT8 Activity Contest	Dig	4-char grid square	www.ft8activity.eu
5	0000	5	0300	1.8	QRP ARCI Topband Sprint	CW	RST, SPC, mbr or pwr	qrparci.org
5	0000	6	0300	7	Walk for the Bacon QRP Contest	CW	Max 13 WPM; RST, SPC, mbr or pwr	qrpcontest.com
5	1800	5	2200	28	NRAU 10m Activity Contest	CW Ph Dig	RS(T), 6-char grid square	nrau.net
5	2000	5	2200	1.8-28,50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
6	2200	8	1600	1.8	ARRL 160-Meter Contest	CW	W/VE: RST, ARRL/RAC section; DX: RST	www.arrl.org/160-meter
7	0000	8	2359	3.5-28	Kalbar Contest	Ph	RS, serial	kalbarcontest.com
7	0600	7	0800	7,14	Wake-Up! QRP Sprint	CW	RST, serial, suffix of previous QSO	qrp.ru/contest/wakeup
7	1200	8	1159	3.5-28	PRO CW Contest	CW	RST, serial, "/M" if mbr	proradiocontestclub.com
7	1400	8	1359	3.5-14,21	INORC Contest	CW	RST, club, mbr or serial	www.inorc.it
7	1800	8	2359	3.5-28	FT Roundup	Dig	RST, SPC or serial	www.rttycontesting.com
8	2000	8	2300	1.8-28	QRP ARCI Holiday Spirits Sprint	CW	RST, SPC, mbr/pwr	qrparci.org
9	0100	9	0300	1.8-28	4 States QRP Group Second Sunday	CW Ph	RS(T), SPC, mbr or pwr	www.4sqrp.com
10	0100	40	0450	10.00.50	Sprint	Dh	DC and move (OM)/L)/auth)/L an /(auth)	
10	0100	10	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, Youth YL, or Youth)	wwsac.com
11	0130	11	0330	3.5-14	NAQUE EVV Sprint	CVV	RST, SPC, mbr or pwr	naqcc.info
11	0230	11	0300	1.8-14,21	Phone Weekly Test	Ph	Name, SPC	www.perluma.com/Phone_
44	4700	44	0400	400		Die	A shar avid a supra	Fray_Contest_Rules.pdf
11	1700	11	2100	432	VHF-UHF F18 Activity Contest	Dig	4-char grid square	www.tt8activity.eu
14	0000	15	2359	28	ARRL 10-Meter Contest	CW Ph	RST, state/province or serial	www.arri.org/10-meter
14	0000	16	2359	1.8-7	PODXS 070 Club Triple Play Low Band Sprint	Dig	RS1, SPC	www.podxs0/0.com
14	0600	15	1800	1.8-28	TRC Digi Contest	Dig	RST, serial, "TRC" if mbr	trcdx.org
14	1200	15	2359	1.8-28,50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
14	1300	15	1300	3.5,7	ARI 40/80 Contest	CW Ph Dig	RS(T), 2-letter province code	www.ari.it
14	1600	15	1559	3.5-28	International Naval Contest	CW Ph	RS(1), club and mbr or serial	www.marac-radio.nl
15	2300	16	0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or pwr	qrpcontest.com/pigrun
17	0100	17	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, Youth YL, or Youth)	wwsac.com/rules.html
18	0130	18	0330	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or pwr	naqcc.info
18	0230	18	0300	1.8-14,21	Phone Weekly Test	Ph	Name, SPC	www.perluma.com/Phone_ Fray_Contest_Rules.pdf
18	1700	18	2100	12G	VHE-LIHE ET8 Activity Contest	Dia	4-char grid square	www.ft8activity.eu
19	0000	20	0300	14	Walk for the Bacon ORP Contest	CW	Max 13 WPM RST_SPC_mbr or pwr	grpcontest com
19	1900	19	2000	3 5-14	NTC OSO Party	CW	Max 25 WPM: RST_mbr or "NM"	ni4ntc nl/ntcan
20	1600	20	1700	357	AGB-Party Contest	CW Ph Dig	RST serial mbr (if mbr)	www.ev5agb.com
21	0000	21	2359	18-28 50	Feld Hell Sprint	Dia	RST mbr SPC grid	sites google com/site/
21	0000	21	2000	1.0 20,00		Dig	ricer, mol, er e, grid	feldheliclub
21	0000	21	2359	3.5-28	OK DX RTTY Contest	Dia	RST. CQ zone	okrtty.crk.cz
21	1400	22	1400	1.8-28	Croatian DX Contest	CW Ph	RS(T). 9A county or ITU zone	www.hamradio.hr
22	1800	22	2359	3.5-28	ARRI Rookie Roundup CW	CW	Name 2-digit year first licensed SPC	www.arrl.org/rookie-
	1000		2000	0.0 20		011		roundup
24	0100	24	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, Youth YL, or Youth)	wwsac.com
25	0000	25	0200	1.8-28,50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
25	0230	25	0300	1.8-14,21	Phone Weekly Test	Ph	Name, SPC	www.perluma.com/Phone_
					-			Fray_Contest_Rules.pdf
26	0830	26	1059	3.5,7	DARC Christmas Contest	CW Ph	RS(T), DOK or "NM," serial	www.darc.de
28	0000	28	2359	1.8-28, 50,144	RAC Winter Contest	CW Ph	RS(T), province/territory, or serial	www.rac.ca
28	1500	29	1500	1.8	Stew Perry Topband Challenge	CW	4-char grid square	www.kkn.net/stew
28	1500	29	1500	3.5-14	Original QRP Contest	CW Ph	RST, serial, pwr category	www.qrpcc.de
30	1000	30	2159	3.5-28	YOTA Contest	CW Ph	RS(T), age (avg age for multi-ops)	www.ham-yota.com
30	1300	30	1400	1.8-28	QCX Challenge	CW	RST, name, SPC, rig	www.qrp-labs.com
30	1900	30	2000	1.8-28	QCX Challenge	CW	RST, name, SPC, rig	www.qrp-labs.com
31	0100	31	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, Youth YL, or Youth)	wwsac.com
31	0300	31	0400	1.8-28	QCX Challenge	CW	RST, name, SPC, rig	www.qrp-labs.com
31	0900	31	2359	3.5,7,28	Bogor Old and New Contest	Ph	RS, age	contest.orari-bogor.org

Note: All dates and times are in UTC, Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state.

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A SIMPLE BUT VALUABLE MAG MOUNT MODIFICATION

Magnetic mount and a Quarter Wave antenna are a quick and easy way to get an antenna on a vehicle, without the need for drilling holes or because the installation is temporary. At VHF or UHF a central position on a roof is easy to achieve, and the coupling (capacitive) to the roof is normally enough for a decent ground plane.

But what if the roof is either not conductive, or you need to put the antenna on a pole, A simple PL259 Ground Plane kit, can be added to the antenna

The Problem with some of these is that they can change the tuning of the whip when added. But what if your antenna is an loaded HF antenna, or a mono band hamstick?

These antenna's are already a compromise antenna, and the Magnetic Mount will simply not have enough metal beneath it to ensure a good grounds plane. So how do you solve it.

The simplest fix, is to drill a small hole into the magnetic mount, Then add a bolt, washer and nut to the mag mount to allow you to add a counterpoise.

While the Image (Right) shows Normal Nuts, A Wingnut on the top would be superior as it would simplify the addition of the counterpoise when required.

With the Counterpoise attached, The SWR of the antenna can be lowered while maintaining the ease of setup. You arrive at the site, Place

the antenna on the roof, and run out the counterpoise, Taking care not to create a tripping hazard will allow 40 Metres (the counterpoise would be at least 10 metres long) to be easily tuned and a more effective ground plan. Would your vehicle offer a 10-metre counterpoise?

Even 20 Metres would be greatly improved with such a counterpoise.

So if you're looking for a quick easy HF antenna for Field Activations, you could look at SOTA options, but, if your wanting to operate from the comfort of the vehicle, you could make yourself a nice low cost, easy setup HF station for portable use.

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WOULD YOUR RIG BENEFIT FROM & TXCO.

A useful accessory for many amateur transceivers is a TCXO - a device, often offered as an option, that improves the absolute frequency stability and accuracy of the radio. When in current production, the TCXO is available from the manufacturer - and possibly from third parties - but long after the radio has been made, a TCXO may be difficult to find.

One option for addressing this issue is the use of the <u>QRP Labs ProgRock 2 - *LINK*</u>. This unit is pretty inexpensive (*US\$18 at the time of writing*) and has a stability of 0.5ppm - which is likely better than even the original TCXO offered by the manufacturer.

Using the ProgRock 2 is pretty easy: It has a micro-USB connector onboard and when plugged into a computer, it can appear as a serial port - refer to the manual for the appropriate driver. Using a serial terminal program - like PUTTY - one simply enters the frequency, to the nearest 1 Hz, hit the "S" key to save it to memory and you are pretty much done. The ProgRock will allow the output of more than one frequency if needed (the manual has more detail) but we will be using output #1, which is also the one into which we'd program the needed frequency, setting the others to zero (e.g. "off").

Having said that, there's a bit more to it in that it needs power, ground, and the signal output needs to get into the radio

The 1pps signal is designed for a 3.3 volt signal, But the addition of some 3.9K and 10K resistors will allow it to from any signal between 3.3 to 12 volt pulse.

As noted in the ProgRock 2's documentation, as long as the 1pps pin is held low, it's ignored and the unit will operate based on the frequency set by its onboard oscillator, but when it sees the 1pps pulses, it measures the time between their *rising edges* to determine how far off the internal clock is from ideal, making slow, incremental changes. If the 1pps signal were to later disappear, it would simply "hold" that frequency until the ProgRock 2 was power-cycled at which point it would revert to the internal clock unless/until it was again presented with a 1pps signal.

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One important consideration is that you *MUST* be sure that there's a blocking capacitor somewhere between the output of the ProgRock 2 and the input of the circuit that it's driving. If your application does not, *or you are not <u>sure</u> if it does*, simply use a 0.001 to 0.1uF capacitor in series with the output - and this capacitor may also serve instead of a jumper wire in connecting it to the radio.

Finally, don't forget to disable the original oscillator of the radio into which you are installing the ProgRock 2.

The ProgRock 2 can take a 1pps input from a GPS receiver module, using this to make gradual corrections of the frequency. Doing this *if the GPS signal is reliable* will result in the frequency being very stable over a wide temperature range, but there are two caveats to this:

- The ProgRock 2 doesn't (*yet?*) have in its firmware a means by which one can input an offset of its 25 MHz TCXO frequency. As the onboard 25 MHz TCXO is not likely to be *exactly* correct, this means that if you set set the frequency at room temperature and the oscillator is slightly off when you apply a 1pps input the frequency will then be shifted assuming a 25 MHz clock frequency. The reason for this is that the 1pps will set the frequency as if the onboard 25 MHz TCXO *were* 25 MHz, exactly but since it probably isn't (*remember it's rated to be within 0.5ppm*) a frequency shift will result.
 - In other words, if you want your radio to be *precisely* on frequency with a 1pps input, you will have to "dial it in" with 1pps applied and expect it to be slightly off when no 1pps signal is present.
 - If you ever do apply a 1pps signal even briefly the Progrock 2 will "remember" that offset even when the 1pps is removed until the unit is power-cycled. If the 1pps is removed, the oscillator will now be free to drift with temperature.

- The frequency step corrections as a result of the 1pps input are <u>not</u> infinitesimally small. What this means is that with 1pps applied, every second the frequency will shift slightly, typically hovering above and below the target but the magnitude of these corrections may be set in the configuration of the ProgRock 2.
 - For most modes on HF including FT8, FT4, PSK31, CW, Sideband or even many digital modes - these small "sub-Hz" shifts would likely be inconsequential.
 - If you are using a digital mode where fractional-Hertz frequency shifts are important, you may want to *carefully* consider using 1pps at all, weighing the pros and cons of having seemingly random small frequency shifts. Modes where this may be important would be WSPR, FST4W (*particularly the modes longer than 2 minutes*), coherent CW, during an FMT (*Frequency Measurement Test*) or any other instance where small frequency steps may be disruptive.
 - If you are in a situation where the continual frequency correction is an issue but you want the frequency to be closer than what the TCXO onboard the ProgRock will allow you might consider manually applying the 1pps signal intermittently to occasionally recalibrate the frequency. This would allow the frequency to drift slightly with temperature between calibration intervals.
 - While one may configure the adjustment size in the ProgRock 2 and likely minimize the size of the frequency adjustment steps, remember that it must be capable of correcting for the normal and expected frequency changes related to temperature. This need sets a minimum correction size that will be practical and the varying environments with differing temperature and its stability will affect this.
 - If you are using a 1pps input on a radio that operates in the VHF/UHF and/or micro-wave frequencies, these small frequency shifts *will* be proportionally larger and may even be noticeable on SSB and/or as slight "clicks"in received audio possibly making the radio unusable for digital modes altogether. It may be possible to configure the ProgRock 2 to mitigate this somewhat by reducing the magnitude of the corrections, but they will always be there.

The ProgRock 2 draws a modest amount of current (40-60mA) so it's addition will likely not be consequential in power consumption on "desk" and "mobile" radios - but it **may** be significant on a QRP or portable radio. It's likely that most radios do **NOT** have a handy board onto which the ProgRock 2 may be easily mounted like the TS-590, but the unit is small enough that it will likely fit in/near the location intended for the oscillator/TCXO.

Be sure to use as short of leads as practical and it will likely be necessary to use some sort of adhesive (*foam or glue*) or some sort of "zip tie" to hold the ProgRock 2 board into place. If possible, be sure to allow the ProgRock 2 to be connected to a computer to allow final tweaking of frequency once it is installed - at least before it is secured into place: Once the frequency has been "dialed in" it's unlikely that you'll need to readjust it any time soon.

The ProgRock 2 is also rather flexible in its power supply, but even though it is rated to 12.0 volts, I would <u>NOT</u> recommend allowing more than 10 volts to be applied to it - and the input voltage can be as low as around 4 volts meaning that it's likely that the radio itself has an already-existing supply rail (5 volts like the TS-590 - many have an 8, 9 or 10 volt supply as well) that will work nicely.

As noted above, you *must* be sure to keep the DC of the output of the ProgRock from being shorted to ground or to another voltage source (*such as a bias network of an amplifier/buffer*) as it has no block-ing capacitor of its own. If your intended circuit doesn't have such - *or if you don't know if it has one* - simply add a capacitor of between 0.001 and 0.1uf (*value not critical*) series blocking capacitor of your own.

So if you need to add some stability to your oscillators, This may turn out to be a useful tool for any experimenter out there, who does not want to build their own reference... Or maybe it could be used to make a 10MHz reference if your radio uses one.

It would be cheaper than purchasing a modern radio that has this level of stability built in.

A TXCO fitted into a Kenwood TS-590 to reduce frequency drift

RAMBLINGS FROM THE EDITOR'S DESK

December? How can it be December? The year is gone, and the next newsletter will mark a quarter of this century gone, It doesn't seem that long ago we were worried about the Y2K bug. But like it or not, this is the last newsletter of 2024.

Which means; It's time to pay your club membership fees again. (see the back page for the banking details, and membership fees) and let us know that you still want to belong to, and support the work your club is doing. At our AGM, we agreed to a price freeze, even though our costs have risen, so every membership counts. So please, Take the time to get this sorted for another year, before you travel off on holidays.

Speaking of Holidays, Everywhere I look, there are trees, tinsel and decorations (*I thought there were only 12 days of Christmas*) and the shopping specials are everywhere, as retailers try to get you to part with your money after a tough year for businesses, We spent large during covid, and now the party's over there's a huge bill to pay.

December and January are excellent months to consider taking your radio out of the shack and making some calls. New Year's Day is designated as NZART's Portable Operations Day, encouraging amateur radio operators to get outdoors and make contacts. Activities such as POTA (Parks on the Air), SOTA (Summits on the Air), and even VOTA (Volcanoes on the Air) will be in full swing, making it a fantastic day for portable operations.

Additionally, we have H-Night, which takes place every 8th of December (this year, it falls on a Sunday). On this day, we dust off some old equipment, or new equipment, and operate an AM station to make as many contacts as possible. We have previously run a station at the club, and if there is enough interest, we could consider doing it again.

If you're travelling take a radio with you, and make some new contacts wherever you are, and be good representatives of this amazing hobby. As well as contacts, you may even make a new friend.

But whatever you do, Have Fun!

All too soon It will be the time to gather with families and celebrate the end of a year, and before we know it, welcome a new one. A time when Candles and fairy lights adorn trees and houses. And people speak of peace on earth and goodwill to men, while hurrying to get the best deals, and some goodies for themselves.

But no matter what your religious views may or may not be, Christmas is something we all share, It may belong to just one group, but it is shared over cultures, religions and continents. It will be celebrated in both Ukraine & Russia though maybe on different days, Both Israelis and Palestinians will claim Jesus (Y'shua) as a citizen and fellow sufferer, and on all the borders of the Red Sea there will be a recognition of the Prince of Peace. And in Bethlehem, the candles will burn even longer for as Christmas ends, the Hanukiahs will be lit for the celebration of Chanukah – The original festival of lights. A reminder that in the darkest of times, Light still penetrates darkness.

How did one life have such an impact on so many nations and became a light to all the earth? We may never fully know, but there is no doubt, that this one life left a mark on the world, A mark that endures today.

As we wrap up the year and our meetings come to a close, we gather with family and friends, or they come to us. Don't let timetables pressure you or make you rush. Travel safely, and remember to practice goodwill toward all people, even if they don't signal or tailgate. Just let them pass and express gratitude for the journey you're on.

Along the way, you might find an opportunity for a random act of kindness towards a stranger, showing the spirit of the hope that lies within you.

If you're local on Christmas Day, I'll be on the Klondyke 6625 repeater on Christmas morning, hoping to spread some holiday cheer. If you're free, you're welcome to join us for a special net.

At the end of the day, it's not about the lights or the presents; it doesn't matter if you travel or stay home. What truly matters is the community we belong to, and we are that community. If you believe in this hobby, you've made not just contacts, but friends, and created a sense of belonging.

If you share that sense of community, if you support each other, if you help one another, then perhaps Christmas might not be something to enjoy once a year, but a life-changing journey. And isn't this also the legacy of Amateur Radio? The first Social Network, the technology that joined nations, and diverse people together under a common banner, and allowed us to talk freely and respectfully to each other.

So No matter how you spend your Holidays, I hope that you will not just enjoy recreation, But be recreated, restored, recharged and refreshed.

And we look forward to more of this amazing Amateur radio journey with you next year.

Until then, May this season bring light and life to you and your families.

73 for now de ZL1NUX

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ABBREVIATIONS THAT WILL PUT YOU IN THE KNOW

Following the last newsletter, I was asked for a list of some abbreviations, that will help some of the newer readers know what I'm talking about when I use them.

So for the requester, Here is the list you asked for, and each month, I'll try to explain some of these technologies to you.

SSB, Single Side Band – A transmission where an AM signal is filtered so that the carrier and one sideband are removed before amplifying the signal. This improves efficiency as the carrier has no information, and the two sidebands carry exactly the same information. By transmitting only 1 sideband the power and also the bandwidth efficiency of the signal is greatly improved. This is the most common type of transmission on the HF bands. (But AM is still used on Friday nights at 8:30PM on 3.850MHz if you want to have a listen on any AM radio that has the 80 Metre band on it).

LSB, Lower Side Band: The transmitter is using SSB (see above) and the Lower (Lower Frequency) side band only is transmitted, This is normally used on the 80 and 40 Metre bands.

USB, Upper Side Band: The transmitter is using SSB (see above) and the Upper (Higher Frequency) side band only is transmitted, This is normally used on the 20, 15 and 10 Metre bands.

DMR, Digital Mobile Radio – A Digital modulation method encoding the voice signal into data, and transmitting it over an FM channel – In DMR 2 timeslots allow more efficient use of the channel. (There are also D-Star and Fusion modes which perform similarly, but technically different methods of operation) To listen to these you need a radio with the ability to decode these digital signals.

DTMF, Dual Tone Multi Frequency – A system in which two audible tones are transmitted to indicate a key press, The keys are mapped into a matrix (3x4 or 4x4) and when a key is pressed two tones are transmitted simultaneously. A decoder can identify the key being pressed, by the tones present. This was designed for Telephone signalling but has found a home in radio units too. (Check out the next page for an explanation of the system)

SDR, Software Defined Radio – A radio system in which computer control and digital signal processing (DSP) are used to extract signals, rather than the traditional method of filtering the signal. Cheap USB TV receivers were modified to operate as software-defined radios (SDRs) and the RTL-SDR project enhanced these to be better receivers, Other hardware includes Hack one units, which can transmit as well as receive. The Icom 7300 is an HF SDR radio, but to improve performance filtering has been added so it's not purely SDR.

LOTA, Lakes on the Air (In Reality its called the Lakes Award.) The "On The Air" Name is just really popular for everything. POTA, Parks on the Air SOTA, Summits on the Air VOTA, Volcanoes on the Air

BOTA – A thing that travels over the water but spelt wrong. That said there was Backyards on the Air during Covid. *I still think we need beaches on the Air, I'd do that one.*

NVIS, Near Vertical Incidence Radiation. I wrote a lot about this one last month. In HF radio, we usually look for a low launch angle to get the most range, But in NVIS, the signal is directed straight up in an almost vertical direction (remember radio waves spread (like light does) as it travels, so not all is vertical. During your Ham Cram, You might remember that there is a frequency called the Critical Frequency, This is the maximum signal that will return to earth if a signal is sent straight up, and it changes throughout the day. So NVIS is best for Low-Frequency operations, so we stay under the Critical frequency.

The benefit is that the signal travels up and bounces back to the same area we sent it from, but as the beam spreads, it can cover an area of several hundred kilometres. This can fill in a Skip Zone (the area after the ground wave, But before the Sky wave returns (Yes NVIS is technically a sky wave). This gives us good coverage in a local area and can allow communications in emergencies. I'll be playing with some of this over the holiday break as a Radio experiment. Hopefully next year we can discuss how it went.

VFO - Variable Frequency Oscillator – The part of a superheterodyne radio receiver you alter to tune the radio- The creates the Fixed IF, where all the heavy work of the radio receiver happens. When you turn the radio knob (or pull a frequency from memory) the VFO changes frequency to let you hear the signal you want.

YASA – Yet Another Stupid Acronym. Yes like every hobby, Amateur radio has many many acronyms and these are a few.

Normally in an article I'll try to give the full name first, and then use the Acronym thereafter to save space in an article, But I'll pay attention to make sure I do.

But I hope you enjoy these

Papakura Radio Club Inc.

WHAT IS DTMF AND WHY DO WE HAVE IT?

So let's get technical for a moment. If you've ever listened on a repeater, you've probably heard some tones being sent over the channel, followed by a voice giving some technical details, Like HF on, HF Off, or Voltage levels ... etc.. The Tones you hear are probably DTMF tones. So what are they, and why do we use them in Radios?

DTMF, like many radio technologies, has its origins in the telephone system. The original manual phones had a crank, which signalled to the operator to manually connect a call, The operator then cranked the called number to make the phone's bell ring. When Automatic exchanges were introduced the user could dial a number. The dialling process, Pulsed the telephone line, to indicate the number. In NZ we used reverse decadic, so 1 used 9 pulses 2 was 8, 3 was 7 ... etc 0 was the full ten pulses. This is where the term tapping the phone came from, as you could dial some phones by tapping out the sequence on hang up button (or lever) to make the call.

As technology improved a better and faster dialling method was needed and DTMF was created.

DTMF stands for Dual Tone Multi Frequency. and it is a description of how the system works. The keys are arranged in a matrix as below.

	1209Hz	1336Hz	1477Hz	1633Hz
697Hz	1	2	3	Α
770Hz	4	5	6	B
852Hz	7	8	9	C
941Hz	*	0	#	D

Every digit has a vertical and horizontal component. Each is mapped to a frequency. Since two tones will beat and create mixer products, the tones were carefully chosen to ensure that any created tones did not match any of the used tones (it is why the numbers seem a bit pedantic) so a 1 is a 1209 Hz tone, and also a 697Hz tone, This will create a 1209-697= 512Hz and 1209+697=1,906Hz. At the receiver sensitive filters listen to these tones, and as only 697 and 1209 are detected, the receiver knows a 1 has been pressed.

So why use them? Since the tones are inside the audio band of a radio transmission these tones can be easily transmitted to the receiver and DTMF generator chips as well as Decoder chips are cheap, and easily added to systems to allow control signals, or even short messages to be displayed.

DTMF is used on the IRLP repeaters, (such as 670 here in Auckland) to initiate a link. Just dial the 4 digit code of the repeater you want to link to, and to end the session send 73 to shut it down.

So next time you hear those tones, You might like to thank the old telephone system, for giving us a cool way to send some simple codes over our radios.

THEY DON'T MAKE EM LIKE THEY USED TO

Imagine it's 1977. You buy a brand new Kenwood TS-520S, and it becomes your new base radio. You've never been happier. You make contacts and have a great time. As the 70s give way to the 80s, you grow your hair and don disco pants. Then, in 1984, you treat yourself to a new radio (remember, the cell phone isn't out yet). You get your first Yaesu 430S, and your old Kenwood is placed on a shelf, forgotten.

Fast forward to this year. Your venerable 430S develops a fault, so you arrange for a repair. Remembering your old TS-520 gathering dust, you power it on, and voila—perfect communication!

Only, no! A radio of that age, left sitting on a shelf, is very unlikely to just fire up and work. Components age and we typically do not expect something like this to happen. Except—this time, it just did.

The TS-520 was actually an S-band radio that NASA installed on Voyager 1, built before the 1977 launch. It was last used in 1984 and subsequently powered down to reduce the load on the small nuclear isotope that powers the craft. Since then, the superior X-band radio, which was also built before 1977, stayed in use.

Recently, when NASA engineers sent a signal to the craft to turn on a small heater for instrument testing, a power glitch triggered an emergency power cycle. The X-band transceiver was shut down, and the lower-powered S-band radio was activated, beginning to transmit.

NASA was aware that the Deep Space Network had lost contact with Voyager, so engineers tuned into the S-band signal. To their relief, they received information about what had happened. After conducting some evaluations and tests, Voyager was instructed to turn the X-band back on, and communication was fully restored, while the S-band was returned to a frigid shutdown.

That's a remarkable 40-year period of sitting "on the shelf," only to perform flawlessly when first activated. I don't care what anyone thinks about spacecraft engineering—that's an impressive technological feat by any stretch of the imagination. It's a pity our ham radios weren't built to the same standard, but then again, they didn't cost as much either.

Still... impressive!

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MORSELINK- ONLINE CW COMMUNICATION SOFTWARE

If you want a morse contact, but don't feel confident to get on the air, there may be an internet option. and this time it's not teaching software (Shameless plug follows).

If you're wanting to learn morse, there are 3 tools on the NZART website you can use to learn.

TeachMorse is a Windows application that works on Windows XP through to Windows 10 and provides a way to play practice text at different speeds. It uses the Howard Cunningham teaching character string which is similar to the 'Koch' method.

This software was originally written by Gary Bold ZL1AN (now Silent Key) who was a long time contributor to NZART's official Journal, *Break-In* and was known as 'The Morseman' by many in the Amateur Community.

Load any (Se Load packs Test Packs Test Rades (1 - MI) 14	16.19.52	12 D Pauer des X ches 34 D Ches des X ches 1 B Pauer des X ches	⊡Recert©dyd Stat@eodog
The record Presses (respect	12 20 4 30 3 Constrt Speed all 4 30 6 30 7 Tast Speed all 900 Fast Speed all		
Star han Certina han cerar pullan Star Jack Dat Spräng		3 Deve Program 🔛 Deve after Proces	

The software now maintained and enhanced by Andrew Mitchell ZL1AF.

You can download the .exe file for TeachMorse v8 here: TeachMorseV8.02.zip

If you prefer an online experience to the downloaded tool, Then try <u>https://lcwo.net</u> Learn CW Online is a website that provides an online set of tools for learning Morse Code using the Koch method.

Number of QSOs to make Start index of QSOs Root filename	1 1 2SD
 Use ZL calls Use random calls Use calls from file 	Pre-pend ID string 🔽 Make QSOs

If you learned to read Morse using plain language texts, hearing the format, conventions and abbreviations of a "real" QSO can be a perplexing experience. This program generates any number of sample QSOs as text files, which can be converted to audio Morse using several free programs.

Typical signal reports, QTHs, Q codes and comments are selected randomly from text files, which can be edited by the user to reflect preference and local conditions.

A single file, containing all QSOs concatenated, is also generated, suitable for recording on tape, MP3 etc.

You can download the .exe file for QSOMake-v3 here: QSOMake-v3

Save the .exe file to its own folder and run the file to install.

Then once you are ready to practice, find a friend on Morselink and have a go, or, Talk to a club member and have some slow on-air practice. Just go to GIT-HUB and search morselink.

HEARD AROUND THE SCENES

H-NIGHT.

Sunday, December the 8th, is H-Night. This is a remembrance of the end of WW2 and the ability of Ham radio Operators in New Zealand to again transmit. While it is a sort of contest, It's perhaps the friendliest one you'll ever join. The Mode is AM, 2 sidebands and carrier, and the band is 80 metres.

7:30 – 10 PM NZDST – Five Half hour periods.

There are 6 categories of Radio

/V: Vintage: The radio is all Valve
/H: Hybrid: The radio has valves in the transmitter or at least the final stage
/M: Modern: Solid State
/S: SDR: Radios Fully Software Defined e.g. Flex, KX3 etc
/H: Home Brew – The radio is homemade for TX, RX or Both
/Q: QRP: Outputting less than 5 watts

Exchange: Signal Report and Type of equipment

Scoring. Is based on the type radio you receive. Not yours

/V 3 Points /H 2 Points /M 1 point /S 2 Points /W 2 Points /Q 3 points

Working ZL6H - 5 Points, After the first contact, claim the points for the equipment instead.

Logs to: Rob Carter ZL2IW <u>rob.zl2iw@gmail.com</u> with a summary of the equipment you used and the category you wish to be in.

Calling Frequencies QRP 3750 and QRO 3850 to allow old receivers to pick up weak signals

Papakura Radio Club Inc.

PRS TRAINING.

It's been good to see our own Trish (ZL1TTM) has been busy with teaching PRS radio use for community resilience. Understanding the need for an alternative method of communication, a lot of people purchased radios, and then simply left them sitting in boxes.

The goal though was to get people talking, so she had radio users lead people outside, splitting into groups and literally got people calling each other. They used repeaters and simplex, doing channel changes, and putting calls out themselves.

Well done Trish.

It just goes to show you don't have to be an expert to promote the hobby, You just need to know a little more than the person you're talking to.

THE NEXT NZART BROADCAST IS ON THE 24TH NOVEMBER 2024 AT \$:00 PM (REPLAYED AT 9:00 PM) AND WILL BE POSTED ON THE WEBSITE ABOUT THE SAME TIME..

The HF broadcast is made on 3900 KHz, LSB at the top end of the 80m band. It will be rebroadcast in the Auckland area on the 6625 Repeater, and is available on the NZART website: NZART-Official Broadcast

Papakura Radio Club Inc.

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Day	Time (NZST)	Freq (MHz)	Group
Sunday	08:00	3.750	Southern Net
	08:00	146.625	Br 65 – Papakura Net
	09:00	3.700	Br 10 - Franklin
	09:00	3.755	Br 65. Papakura.
	09:30	146.900	Br 10 – Franklin ZL1SA
	19:00	146.700	Auckland YL Net
	19:45	145.575	Thames radio club ZL1DF
	20:00	3.710	Br 42. Titahi Bay
	20:15	146.625	Sunday News and Net (Auckland)
	21:30	146.900	Franklin Net (ZL1-SA)
Monday	11:30	3.850/7.125	Br 12. Hamilton
	19:30	3.757	Br 12. Hamilton
	20:00	Echolink	Basic Morse (ZL1PX)
	20.00	3.540	CW Practice Net
	20:00	3.605	Br 80. Hibiscus Coast
	20:30	3.870	O.T.C (Old Timers Club)
Tuesday	09:00	7.096	Ex Post Office Techs
	19:30	3.690	QRP ZL3TK
	20:00	3.581	CW improvers Net
	20:00	7.025 - 7.040	VK CQ QRS Group (CW)
	21:00	1.850	160m Net
Wedneedey	11.20	7 1 2 5	CDAM Not
weathesday	19:00	14.040	
	10.00	14.049	
	20:00	3 660	Cook Not
	20.00	3.645	Br 02 Auckland
	20:00	146 525	W R S C
	20.30	140.525	Wikibie
Thursday	09:00	7.096	Ex Post Office Techs
	18:00	7.0674	SAS Net (CW)
	20:00	3.615	Br 89. REG Net
	20:30	3.696	ZL10A
	20:30	3.666	LF Net ZL2CA
	20:00	3.690	ZL QRP SSB Net
Friday	20:30	3.850	SPAM (AM Mode)
	20:30	3.650	W.S.R.C.
	20:30	3.560	Digital Modes Net
	40.00	20 520	
Saturday	10:30	28.530	10-10 Down Under (AK Based)
	19:30	3.650	Christian Fellowship
	20:30	3.600	Br 62. Reefton/Buller
Daily or Other	07.30	3 696	71204
	08:30	3 730	7I 3RP
	15:00	14.300	Pacific Seafarers
	17:30	3.760	Home Brew
	05:00 Zulu	14.183	ANZA DX Net
	18:00	7.115	VK70B
	19:30	3.720	ZL1MO
	18:30	3.766	ZL3LE
	08:00	3.730	ZL3DAC
	20:30	3.725	ZL2HN / ZL4RF
	21:00	3.677	Counties Net ZL2MA
	21.00	3.535	New Zealand Net (CW)

SOME NETS - FOR WHEN YOU ARE LOOKING FOR SOME COMPANY

Our desire is that this will be a living list, Please email zl1nux@outlook.com any updates, deletions or changes required.

Papakura Radio Club Inc.

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

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Newsletter.	Contact:	zl1nux@outlook.con	n

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. Activity Nights are held on the 2nd Wednesday starting at 7.30 pm. Committee Meetings are held on the 3rd Wednesday of each month at 7.30 pm unless advised.

Project Evenings are on the 4th Wednesday of each month.

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). Total 21 Points. Cost \$5-00. Certified list and \$5-00 to Secretary, Papakura Radio Club. Address above.

ZL1VK Club Nets

146.625 MHz Sunday at 8.00 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)

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