Volume 8, Issue 10

7/2025

the exchange

SWODXA
WWW.SWODXA.ORG
SouthWest Ohio DX Association

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INSIDE THIS ISSUE:

The Prez says…..

Welcome to the last edition of the newsletter for this club season. We start year #9 of the newsletter with the August/September edition and with the start of regular club meetings again. All of this reflection led me to ask myself, What is special about DX? Why spend the time and money to continually improve our stations, techniques, code speed, and knowledge? Ask yourself these questions and send me YOUR answer for the next newsletter.

For me, it is the thrill of setting a long term goal (Honor Roll) and then tracking my progress to achieve it. It is the short term satisfaction of ending the year with a better Marathon score than I did the previous year or a better contest score that in previous years. These are barometers to help me gauge my progress.

The coolest thing for me is that YOUR success doesn't hurt me at all, in fact, it may help me. For instance, Tom, NR8Z, and I have a very friendly competition as to our DX standings. "I passed you", or "I am only one behind you now" are expressions that we share as soon as we catch up on the air or phone. However, in spite of our standings relative to each other, we are ready to lend equipment, knowledge, spots, or techniques to help move the other up the ladder. How cool is that?

(cont. on next page)

The Prez says (cont.)

There are 5 hams that I regular chat with to learn and improve. No matter what the question, they have NEVER hesitated to give me an answer, knowing that it will most likely help me fill band slots or get an ATNO. (K4YJ, K4ZLE, AD8FD, K8DV, and W8GEX - Thanks guys!)

Due to some ham connections, I now have the opportunity to pass along information that I have learned over 53 years of doing this. I have to admit, when you get a thank you because of something you passed along that worked, that is almost as fulfilling as tracking down and working an ATNO!

So, what information do YOU need? If you are not very active right now, how can WE help? What is YOUR expertise that we can leverage? We have a lot of very smart folks in the club and I need to do a better job of leveraging the talent. How can I do that?

We have about 2 months before the next newsletter and the next meeting. Lots to think about, but please do so and then let me know your thoughts.

Have a safe summer and fill those band slots!

73 and Gud DX
AJ8B => Bill

SWODXA 2025-2026 Calendar

July 2025
- 12-13 IARU HF Championship
- 19— 20 CQWW VHF

August 2025
- 9-Milford ARC Hamfest
- 9— 10 WAE DX CW
- 23 Ohio QSO Party

September 2025
- 6-7 All Asian DX SSB Contest
- 13-15 ARRL Sept. VHF Contest
- 11 SWODXA Meeting
- 13-14 WAE DX SSB Contest
- 27-28 CQWW RTTY

October 2025
- 9 SWODXA Meeting
- 25-26 CQWW DX SSB

November 2025
- 1-2 ARRL SS CW
- 13 SWODXA Meeting
- 15-16 ARRL SS SSB

December 2025
- 5-7 ARRL 160M CW
- 11 SWODXA Meeting
- 13-14 ARRL 10M
- 27-28 Stew Perry 160M CW

January 2026
- 3-4 ARRL RTTY Roundup
- 8 SWODXA Meeting
- 18-19 ARRL January VHF
- 23-25 CQWW 160M CW

February 2026
- 14-15 CQWW WPX RTTY
- 14 SWODXA Meeting
- 21-22 ARRL DX CW
- 20-22 CQWW 160M SSB

March 2026
- 7-8 ARRL DX SSB
- 12 SWODXA Meeting
- 28-29 CQWW WPX SSB

April 2026
- 9 SWODXA Meeting

May 2026
- 7 SWODXA Meeting
- 15 SWODXA DX Dinner
- 15-17 Dayton Hamvention
- 30-31 CQWW WPX CW

June 2026
- 11 SWODXA Meeting
- 14— 16 ARRL VHF
- 20-21 All Asian CW
- 27-28 ARRL Field Day

Upcoming Club Dates and Topics

Meeting Date	Topic
Thursday, September 11th, 2025	Using Old Antenna Components Tom Schiller—N6BT
Thursday, October 9th, 2025	Will it Work? Limited Time & Space Antennas—Tom Schiller—N6BT
Thursday, November 12th, 2025	Is 3dB Worth a Divorce? Glenn Johnson—W0GJ

The DXPeditioner of the Year!

Hello my friend,

I am enclosing the photo with the plaque. This title means a lot to me.

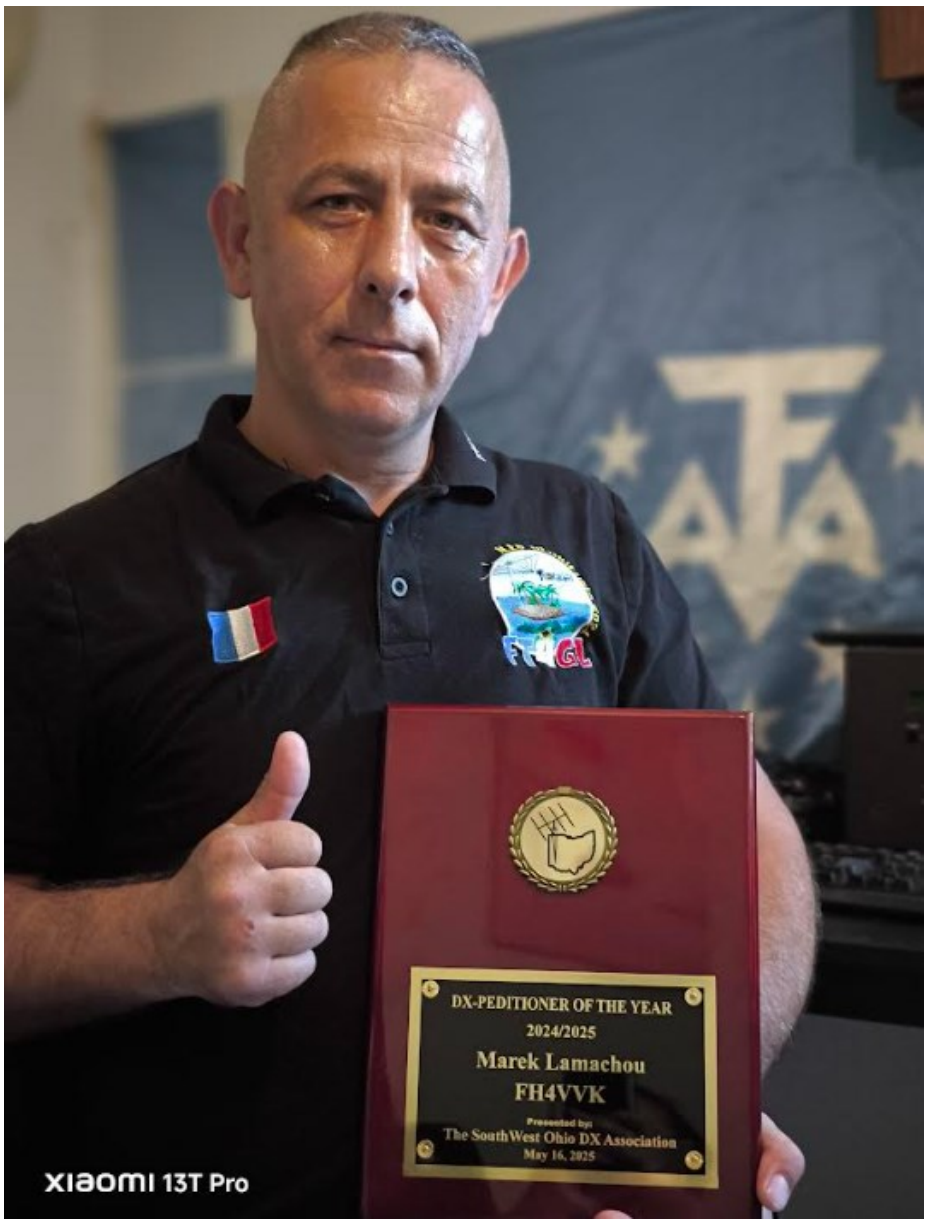
Thank you and all the sponsors, because without you, this expedition would not have the same success.

I hope to quickly accomplish other DX lands,

see you soon,

73!

Marek F4VVJ



New Member Bio— Dave— K3BQ

I was first licensed in 1976. What got me interested in Amatuer Radio was a co-worker who kept coming to work telling me all about the countries he made contact with on 20 meters. So, DXing has been my biggest interest in Amatuer Radio.

My first callsign was WN9WGC obtained my license through a local club test session. Back then I had to go to the FCC office in Chicago to upgrade my license. I got my Tech Class license and my callsign changed to WB9WGC. A couple of years later I upgraded to Advance Class and obtain the callsign KC9NG. Then years later I took the Extra Class test and obtain the callsign K9DQ. Then I retired in 2020 and moved to Pennsylvania. Since, my license was due to renew around the same time. I renewed and changed my callsign to K3BQ.

I obtain my DXCC certificate on 12/10/1991 as KC9NG. I now have 293 countries confirmed. I have 10m, 15m, 20m and 40m endorsements. Still working on 80m. I just obtained VUCC on 50 MHz!

There you have it!

73

Dave - K3BQ

Amateur Radio Youth Groups Clarification

by Jay, K4ZLE

During our last SWODXA meeting, held virtually on June 12th, there was extensive discussion concerning our support for various youth groups intended to promote activity in our hobby by the younger generation. I was very confused about which group was which and our level of support for each.

Article 2 of our constitution states our purpose as follows:

"The SWODXA is organized and operated exclusively for scientific and educational purposes, namely:

A. the promotion and interest in amateur radio communication and experimentation.

B. the fostering and promotion of noncommercial intercommunication by radio means throughout the world (DX or DXing).

C. the fostering and promotion of individual proficiency in radio communications.

D. the contributing to the advancement of the radio art.

E. the furthering of interest of amateur radio in the community."

With that background, it is certainly within our charter to support those organizations that promote and encourage young people within our hobby, including those groups not necessarily emphasizing DX. Over the years we have provided some financial support for the Dave Kalter Memorial Youth DX Adventure (**YDXA**). This year **YDXA** plans to operate from PJ2T as PJ2Y. They usually engage 4 or 5 youth and guardians in their activities. There are at least three other groups actively engaged in encouraging youth in amateur radio. They are the **ARRL**, Youth on the Air (**YOTA**) and the Pacific Islands DX Group (**PIDXG**).

The ARRL promotes getting youth involved in many ways. I am not wanting to minimize the efforts of the league, but I will not expound on them here. If you want to see how extensive those efforts are, I encourage you to go to the ARRL web site and do a search on "youth".

YOTA does not emphasize DXing. From their website we read about them as follows:

"Youth on the Air is a program for and by young amateur radio operators in the Americas, closely modeled after the Youngsters on the Air program in IARU Region 1 (Europe, Africa & Middle East).

Amateur Radio Youth Groups Clarification (cont.)

The mission of YOTA is to connect young amateurs with others of similar age by promoting and facilitating activities for them with the goal of encouraging their continued involvement in amateur radio. This web site and our social media sites are connecting places for groups and events like YARC, YCP, and other activities for young hams.

YOTA in the Americas currently sponsors or participates in these events for young amateur radio operators:

- *YOTA Summer Camps for ages 15 through 25 (under 26)*
- *YOTA Junior Camps for ages 0 through 14 (under 15)*
- *December YOTA Month special event for ages 0 through 25 (under 26)*
- *YOTA Contest for all ages with a bonus for ages 0 through 25 (under 26)*
- *Youth Contesting Program for ages 0 through 25 (under 26)"*

They also promote other youth activities. In their camps, they attempt to cover a broad range of activities within the hobby. A distinguishing feature of their work is that they work to develop youth, especially those who attend the camps, to take on leadership roles, both at the camp, in future camps and within the amateur youth community itself. At least one of the early camp attendees is still actively involved in the organization.

The **PIDXG** does the most to truly immerse the youth into all aspects of DXing. A great article concerning their Rotuma 3D2Y operation with the youth involved can be found in the NCDXF 2025 spring newsletter - https://ncdxf.org/newsletters/2025-SPRING.pdf. Youth participation with PIDXG covers all aspects of DXPeditioning, from planning, setup, execution, etc. Not only do they place "sneakers on the ground": they employ the Rig in a Box, (RIB) concept to engage youth from all over the world to actively operate from the DX entity. Most of the work to conduct a DXpedition is completed prior to departure. New DXPeditioners have little insight into the effort required to pull off a "real" DXpedition. Prior to departure a series of Planning Workshops are conducted. Hosted on Zoom these sessions are conducted by experienced DXPeditioners. These recorded sessions will be made available to supporters. (cont. on next page)

Amateur Radio Youth Groups Clarification (cont.)

The **PIDXG** and **YOTA** partnered for the 3D2Y operation and will do so for the upcoming PJ6Y operation later this year. To provide an idea of scope of that operation I provide some excerpts for their May 27, 2025 press release. There will be 9 young, first time DXPeditioners on the island, They will operate 3 local stations equipped with Elecraft K3s + KPA500 amplifiers. There will also be 2 remote stations using NexGenRiB2s, generously provided by The Northern California DX Foundation. The remote stations will be manned by a team of 30–40 young operators from around the globe.

I hope this helps clarify who the youth groups are that we have voted to support – who they are and what they do. Certainly, by supporting these activities, we are operating within the purpose of the SW Ohio DX Association as stated in our constitution. If you feel encouraged to privately donate to them, here is some contact information;

YDXA -- mail directly to Youth DX Adventure, c/o DARA, PO Box 44, Dayton, OH 45401-0044 or contact Jim Storms, AB8YK.

YOTA -- via PayPal (ears@w9ear.org), via Venmo (@w9ear), or mail check payable to EARS, 10193 Cardigan Drive, Union, KY 41091

PIDXG – mail a check to Pacific Island DX Group, 69 Saddleview Lane, Morganton, GA 30560

PJ6Y independently – on the Website: pj6y2025.com, or PayPal: donatepj6y2025@gmail.com

A “DXPedition” That Was Not!

by Jay, K4ZLE

When my daughter initially informed me that she was planning a cruise from Reykjavik, Iceland ending in Copenhagen, Denmark, I was sort of ho-hum about it. My wife and I had taken a cruise a couple of years ago with many of the same ports of call. However, when she outlined the full itinerary that included Longyearbyen, Svalbard (JW) as one of the stops with a 17 hour in-port stay, I was more than halfway committed to tag along!

Longyearbyen is located well within the Artic Circle at 78°13’27” N, 15°39’10” E with a population of approximately 2400 people from over 50 different countries. It is the world’s northernmost settlement with a permanent population of more than 1,000. Longyearbyen exists because of coal in the nearby mountains. In 1906, the American businessman and mining pioneer John Munroe Longyear established the first mine, erected buildings and named the settlement Longyear City. It was a typical mining town up to 1990, but due to falling coal prices in recent years the mining operations have been scaled down. The last operational mine is scheduled to close at the end of June 2025.

K4ZLE (cont.)

There are roughly 1,700 seed banks, or gene banks, around the world housing collections of plant species that are invaluable for scientific research, education, species preservation and safeguarding Indigenous cultures. The world's largest secure seed storage can be found in the permafrost close to Longyearbyen. It is not open for visitors. If you venture outside the town, you are required to carry a rifle for protection against Polar Bears. There are only about 24 miles of road on the island. Except in the town, the roads are gravel. In addition to the bears, there are reindeer, artic foxes, many species of birds, whales in the harbor and many more unique or interesting aspects of this locality. (While we were there, a reindeer wandered into the heart of the town.)

From a DXCC basis, it is not rare at all. It is ranked number 186 on the Club Log Most Wanted list. However, because of its unique location, the above mentioned attributes, the fact that my wife had been following a VBLOGer from there, and it would be another entity for me to say I have operated from, the decision was a definite GO! Although I had visited the other two DXCC entities with ports of call, I had never operated from Iceland (TF) or Norway (LA). They are even less rare, being ranked 273 and 309 respectively.

Ham radio equipment is listed as forbidden items on most cruise lines, including this one. Regardless, I made plans to take a rig and take my chances. I figured the worst that would happen would be that they confiscated the gear and returned it once we disembarked at the end of the cruise. I hoped they would let me take it off ship at ports of call and re-inter it when I came back aboard. The equipment consisted of an Elecraft KX3 with internal batteries and antenna tuner, a TalentCell Rechargeable 12V 6000mAh/5V 12000mAh DC Output Lithium ion battery, plus a 20 ft telescopic Carbon Fiber Mast and a couple of wire antennas (EFHW and a short long wire) borrowed from Jocelyn Brault, KD8VRX, from his POTA inventory. There were other items like headset, paddle, bungies, etc.

K4ZLE (cont.)

As expected, the cruise line confiscated the equipment when I checked in for embarkation. To my surprise, they delivered all of it directly to my cabin the same day. (I had all the tell-tale equipment in one carry-on bag along with copies of my US license and a copy of the CEPT Recommendation T/R 61-02.) My wife rented the JW5E club station for Father's Day, so I also included a copy of that rental agreement. The big objection to having amateur equipment is using hand-helds or unauthorized operation from the ship which that they fear would interfere with navigation. As an aside, on the club station rental, it is available for 100 €/day, payable in advance. They only accept bank transfers and as a result it costs $167.98 to wire the 100 €. Don't I have a sweet XYL?

Here is the rest of the story of why it was 'A DXPedition That Was Not':

I set up in Akureyri, Iceland for my first attempt. This was the last port we visited in Iceland before our trek to Spitsbergen (Longyearbyen). I set up on a picnic table near the dock after a successful whale watching excursion. Immediately after I had everything ready to play, the rain came heavily. As a result, I had only one Q with a Swiss op and he gave me a 519?

From the club station in Svalbard, they provided an IC7300 with a beam up at least 60 feet and wire antennas for the lower frequency bands. The station is right next to the water. Sounds ideal, right? It mattered not; only 4 stations made it into the log – 3 Russians and one Brit. The bands were totally dead! Let's see; that works out to approximately $42/Q!

K4ZLE (cont.)

On to Norway. I set-up right on the dock at Bergen and again the results were disappointing. No rain, but I managed to put only OT4A in the log. He was a solid 599, but I could not find another signal on the bands. He was calling CQ with the same results as I was having.

Six contacts total from three locations. Was it worth it? You bet! I would do it again. I've added 3 more entities that I have had the experience of operating from, I saw more of God's splendor in a way many others can only dream, and I spent quality time with my wife, daughter and her husband. Not too shabby for a kid who literally grew up on the wrong side of the tracks!

K4ZLE (cont.)

Interview with 9A3PV – Zvonko Sovic

I have worked Zvonko several times on several modes and when I received his QSL card, it was the trigger to contact him for an "interview". He agreed and sent this along. He can be reached at sovaluka@gmail.com

AJ8B: How did you first get interested in amateur radio?
9A3PV: My interest in amateur radio began in 1982 when I started amateur flying on a SAVANNAH plane. At that time Croatia was part of the former Yugoslavia. My first call sign was YT6AJD

AJ8B: Do you have a favorite band or mode?
9A3PV: I work on all HF bands, 60% digital and 40% SSB.

AJ8B: What time of day and days do you like to operate?
9A3PV: If you are thinking about working in amateur radio, I can work early in the morning or in the afternoon until ten at night, makes no difference, just when the band is open.

AJ8B: What is your favorite contest?
9A3PV: I no work contest because in contest I must work very quickly and sitting very long time with the transceiver is no fun.

If you one day visit Croatia you call me no problem I wait you in Airport Zagreb the capital of Croatia. It not far from me, about 35 km. It is a 30 min drive for me.

I have a weekend house in small hill and here I have another location where I have the radio amateur equipment and antennas. At this location I have two rooms for sleeping for 4 people; no problem!

If you came to Croatia, there are many National Parks, water falls, Adriatic sea, any monument and so on.

Antenna & Tower Safety Thoughts

by Lynn Lamb, W4NL (SK)

I'm a climber of ham radio towers and a lover of all antennas. I'm appalled at how many disregard safety issues when working on a tower/antenna project; even watching or otherwise helping out.

On the cover of major ham radio magazines I see people on towers displaying this disregard and sending the wrong message. Let me give you a few first hand experiences and some good lessons learned from my Elmers many years ago.

#1-Be aware of your surroundings relative to other structures, particularly ones with power lines and STAY CLEAR, period. I don't generally write gospel, but I'll make an exception this time. To do anything else is not only jeopardizing yourself but those around you. Please do this first ... did I say first?

#2 - WEAR A HARD HAT whether you're on the tower or working on the ground. They are not pretty or comfortable, but a 2" X 3/8" bolt falling from 30' can cause major injury to an unprotected head. Being hard headed doesn't play here. Just do it and if you are the Chief Op insist everyone follow this rule. (cont. on next page)

9A3PV— Svonko (cont.)

At this remote location, I prepare many delicacies such as deer, roe deer, wild boar, rabbit, and domestic cake with fruit.

I normally work in security electronics such as video control and alarms.

With best regards
9A3PV— Svonko

Safey Thoughts (cont.)

Here's a short story. Many years ago in Maryland, I was recruited to help rescue a member of the PVRC who was injured on an antenna project. He wasn't wearing a hard hat, was hit on the top of his head with a sharp part of a boom to mast on a TH6DXX. He had a hole in his head, was missing some teeth, bleeding and hanging by a belt only half aware he was still alive. I was first to reach him, at 80' soon to be joined by emergency crews. I was then rendered a helper and slid his extended belt down the tower while the EM fellow (brave too) who had never climbed a tower moved the ham down the tower. This took 30 minutes. He recovered, and I suspect he has more than one hard hat now.

Do it because it can save your life. The older I get the more I know this is true, and I'm not going to work for anyone who doesn't follow this rule.

#3— Have a good belt and make sure it fits. Gorilla hooks are good for a climber and other safety cables/ropes can also help.

#4— I've seen broken toes from crank-up towers not being ALL the way down before climbing. Put a board or pipe in near the ground to make sure it can't come down even an inch.

#5— Check guys on towers, especially older installations, as many don't ever check them for aging, etc. Know your guy specs for your towers. Rohn has some good specs I follow, but don't believe Rohn 25 is the end all and doesn't really need guys as often as Rohn says. I have seen so many around here which are not only dangerous to climb but could potentially fall. If you don't know the specs on a tower, find out or run the other way.

#6— Safety also means the right tools for the job. If you don't have the right tools for the job, please don't expect your crew to supply them. As my Elmer told me once in the 60s, if you have a tower you need the tools to take care of it. I thought at the time this was hard, but NO.. it's good advice.

#7— The climber will drop things...it's the nature of the job... so remember to not only have a hard hat but don't drink coffee and have an eyeball if someone is above you. If it is me on the tower I may ask you to take a walk, and not necessarily politely.

#8— If one person can do a job on a tower, don't make it two.

#9— Choose your ground crew if you are the climber. I don't always do this but its smart logic. Do this if you can.

Safey Thoughts (cont.)

#10— If there were ever a place for a blue tooth for a cell phone, it's on a tower, Alcoa Hwy not withstanding.

#11— Have good rope for lifting and pulling.

#12— The chief op is almost the only person who is totally responsible for safety and good planning of the job. The only exception is the fellow on top as he calls the shots relative to the details of the up and down part, etc!

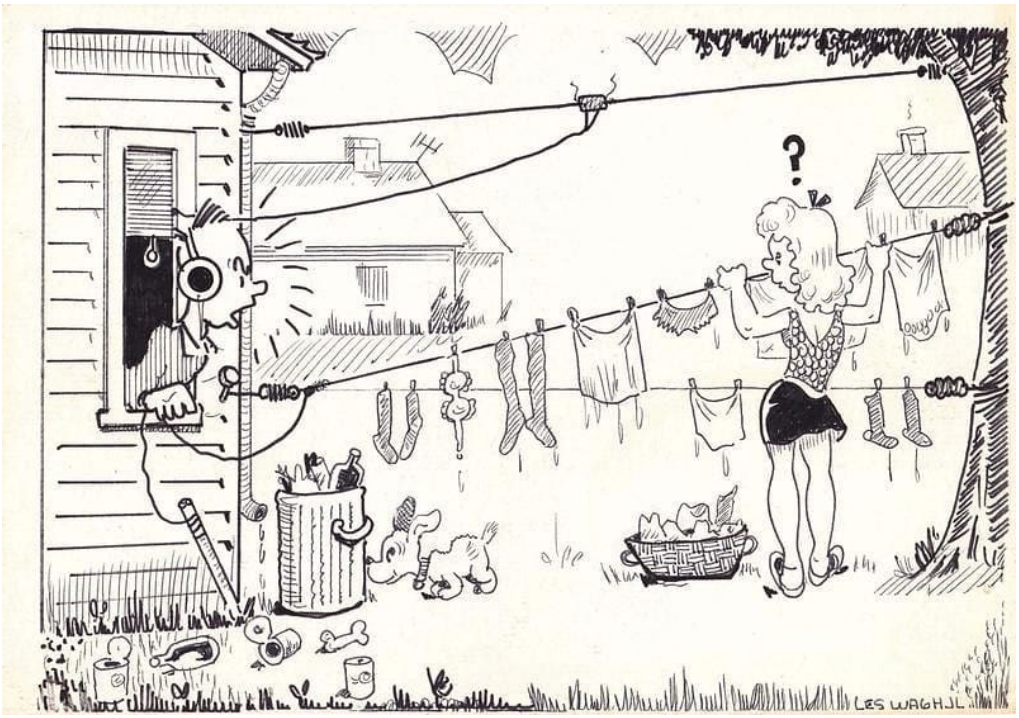
#13— Don't do tower work in high winds, ever.

#14— This may be said or implied in other parts of this short paper but remember the climber should never listen to any mortal when his/her safety is at risk.

#15— People without towers can get hurt working on antennas so always use common sense.

There are many other tips relative to safety, but these and good judgment are the proper way to be healthy for yet another super antenna party.

BE SAFE!



VK9XU— Christmas Island— Feb 18th to March 4th

By Alan, VK6CQ

It's 9 AM, Tuesday morning, February 18th, and Steve, VK6SJ, & his XYL Julie, and I were pushing trolleys of heavy baggage around in the hustle & bustle of Perth International Airport. We were soon joined by DXpedition leader Günter DL2AWG, team members Elmar DF4GV, Heye DJ9RR, Rainer DL2AMD and XYLs Rosie, Uta & Eleonora as one by one, they each appeared out of the International Arrivals Hall pushing even bigger piles of baggage in front of them to be checked-in for the 4½ hour flight to Christmas Island.

The German contingent had just flown in from Bangkok but unfortunately, not all their baggage had flown in with them and we were missing the squid poles & hardware for Elmar's low band antennas as well as the mast for the Hexbeam. Enquiries at the Thai Airways desk soon confirmed the missing baggage was still in Thailand, which meant it would be at least another week before there was any chance of seeing it at Christmas Island, so Steve made a quick dash back home for some extra squid poles to tide us over. Not only that, but one of the German's SPE linear had been quite badly damaged in transit and the owner was not at all happy.

Christmas Island is an hour behind Perth and we arrived at around 4:30pm. Took a fair while to get all our bags through local quarantine inspection, sort out the car-hire then make several trips to & from the airport to ferry everyone and everything to the Divers' Villa which was to be the VK9XU QTH for the next fortnight; so by the time we'd finished, it was well gone 6pm and getting dark already. The Divers' Villa is a traditional wooden 'stilt house' with an internal veranda that slept ten. Recently renovated, it even included an espresso coffee machine that saw constant service for the next 14 days.

Nevertheless, VK9XU was quickly on the air using Alan's rapid-deploy FT8 station (Icom IC-7000 & Terlin multi-tap HF whip antenna) whilst everyone else had an early night. It had been a very long day, especially for the Germans who had been travelling close to 48 hours by this time. Come sunrise and Alan was close to achieving DXCC and had several hundred stations in the log already.

VK9XU (cont.)

The Divers' Villa— VK9XU QTH

He then continued operating FT8 on 10, 12 & 15 metres whilst the rest of the team got the DX Commander, 30m J-pole and 17m/12m vertical rhombic antennas erected and the three sets of main station equipment set up on a very heavy-duty wooden table in the living room.

By 9 am, there were two complete Flex linear stations and a Yaesu FT-DX10 plus a Juma PA1000+ linear up and running. We were now operating three stations 24/7 via a variety of antennas: The Yaesu FT-DX10 dedicated mostly to CW, plus the two Flex radios sharing the SSB and FT8 duties. The rapid-deploy rig then went QRT and Alan wandered off bleary-eyed for a shower and a few hours' sleep.

Steve had kindly lent the DXpedition a large amount of Flex equipment which had been transported up to Christmas Island and Cocos-Keeling Islands separately by ship several weeks previously, so it was already there ready and waiting for us to simply 'Plug & Play'. Most of us had no prior hands-on experience of setting up and operating Flex gear, so it was a very steep learning curve indeed and just as well that Steve has a very patient personality! Certainly very different from operating more conventional radios for sure, but once you know your way around them, then Flex radios really are a dream to operate, almost akin to driving a Rolls-Royce! Rolls-Royce!

As well as being leader of our group, Günter was also 'Herr Log-Meister' and kept an eagle-eye on the German 'UCX-Log' logging & CW keying software that we were using as well as our Internet connection to Club Log Live.

VK9XU in action. L-R: Elmar— DF4GV, Rainer— DL2AMD, Steve— VK6SJ

VK9XU (cont.)

Very impressive and reliable software indeed and certainly an equal to the well known N1MM logging program.

There were only six of us operators, so that meant a very full-on schedule and the agreed operating plan was a roster system of five hours on, five hours off. This is OK for a few days, but after a while the circadian rhythms start to get all confused. Fortunately, were joined a few days later by Zeljko VK6VY as he and XYL Dragana also happened to be holidaying on the Island. Zeljko is a well respected SSB contest operator and he took over one of the shifts each day as a sorely-needed guest operator, enabling one of the other operators to enjoy an occasional full ten hours away from the radios to catch up on some sleep or go for a bit of a wander somewhere and do some sightseeing.

Christmas Island Cable Cutter

One thing you quickly notice at Christmas Island are the feral chickens; never mind the Island's famous little red crabs - there are wild chooks everywhere as well! Not only chooks, but there's also some real monster crabs lurking out there in the rainforest covering most of the Island and some of them looked like they could easily double up as cable-cutters or remove one of your fingers!

Next day, Elmar & Rainer got the 30m J-Pole operational and Steve was able to use his local business contacts to borrow a couple of sturdy 3-metre sections of lattice mast that the Hexbeam could be mounted on; so with a bit of a team effort, we had that up and running pretty quickly as well, which also gave us a 6 meter capability.

Having been on a fair few myself, seems to me that one of those unwritten laws of DXpeditions is that someone nearly always suffers some kind of accident. In our case it was Elmar who had a nocturnal disagreement with the DX Commander guy wires one night which resulted in a sprained wrist and a fairly bad scrape to one of his knees. Fortunately it didn't require stitches and a visit to the local pharmacy for some antiseptic ointment and large sticking plasters was all that was necessary, although he was left with a painful looking limp for the next few days.

The second weekend, a group of us went on a tour of the island's interior with one of the local tour guides – learn about the local phosphate mine, visit the blow-holes on the south coast, see the giant robber crabs in the jungle etc.

VK9XU (cont.)

On the way back, we happened across an Abbott's booby in some distress by the side of the road. This is a very rare bird species with a wing span of about two metres that's endemic only to Christmas Island. They roost up in the tree canopy and are unable to take-off from the ground. This one looked like a juvenile that had become exhausted during a trial flight and had opted for a crash-landing on the road so we carefully coaxed it into the back of the minibus and headed straight to the local bird sanctuary where a wildlife ranger gave it the once over. It was just as well we found it when we did as the ranger mentioned there were still a few feral cats roaming the Island and they would most likely have had it for supper! The young booby soon made a full recovery and was back in the air a few days later, so seems DXpeditions are not always the danger to local birdlife that some make them out to be after all!

The missing baggage eventually showed up seven days later on the following Tuesday flight from Perth, so Elmar was finally able to test out the 160/80 metre vertical he'd designed and built, This was a base-fed 18 metre squid pole with a 2m steel rod extension and capacity hat arrangement at the top plus two raised ground radials which had been designed to be an exact λ/4 at the CW end of 80 metres. A homebrew loading coil & capacitor arrangement that Elmar had also designed could be quickly switched in for 160 metres, making band-changes a breeze. It resonated and performed very well indeed on both bands and gave out quite a few 80 & 160 metres ATNOs over several grey lines and late night/early morning shifts – certainly a testament to some impressive antenna design skills. Elmar had specifically designed his low-band antenna to be lightweight and portable, so might prove popular with future DXpeditions and will no doubt need a name – the 'Elmar-Vert' maybe, or simply the 'Elvert'?

Up until now, it had been largely self-catering at the Divers' Villa with the haus frauen, Julie, Steve & Alan all turning their hands to various soups, pasta dishes, curries and 'special' cottage pies, so one evening a group of us ventured out to try and find a restaurant that was actually open for business. We failed dismally; plenty of restaurants around, but they were all closed!

VK9XU (cont.)

Christmas Island is definitely not geared up to cater to tourists, that's for sure; but we did come across an open-air cinema with a very prosperous looking Chinese temple next door.

Tuesday 4th March was moving day; all the antennas had to be taken down and everything packed ready for the late afternoon flight to the Cocos-Keeling Islands around 1,000 km further west. The 100 Watt rapid-deploy rig was hooked up to the DX Commander and continued logging FT8 QSOs right up until the last minute as everything else was carefully dismantled, weighed and packed ready for ferrying back up to the airport. Virgin Airlines runs the twice-weekly Perth-Christmas-Cocos K service and are notoriously strict on baggage allowances, so particular attention was paid to how much each bag weighed. Even so, we still ended up having to book several lots of excess baggage in order to get everything we needed over to Cocos-Keeling.

VK9CU – Cocos-Keeling Islands 4th – 11th March

Our accommodation for the third and final week was the Beachcombers Family Accommodation on West Island, just a short walk from the airport terminal. Another minus thirty minutes time difference and again, it was past sunset by the time we actually got all our bags past quarantine inspection so the DX Commander was quickly deployed in the backyard next to the beach and the rapid-deploy rig was pressed back into service again calling CQ on 15m FT8 to let everyone know that VK9CU was QRV already. In the meantime, everyone else headed the 200 metres or so back down to the airport bar as Tuesday night is 'Pizza Night' on Cocos-Keeling and we'd all had enough of the Christmas Island 'self-catering experience' for the time being.

The VK9CU QTH was in stark contrast to the old-world charm of the Divers' Villa that had served us so well back on Christmas Island and was a modern family home with all mod cons; same as you'd find in any of Perth's more affluent suburbs. It also had a large front lawn and conveniently backed onto a large grassed area around the back that overlooked the beach so there was plenty of room for all the antennas to go up with a decent amount of spacing in between.

VK9XU (cont.)

All the various antennas soon went up early the following morning. Life on Cocos- Keeling is pretty laid back, to the extent that even the next door neighbor was perfectly happy with Elmar's 160/80m vertical being installed on his front lawn, just so long as the guy wires were festooned with fluorescent safety tape as a hazard warning to anyone walking back home from the pub late at night.

Beachcombers— VK9CU QTH

VK9CU Antennas— 30M J-Pole & DX Commander

We soon established a rhythm again with the 5 hours on 5 hours off shift routine and with the coffee machine again working overtime. The tail-end of a cyclone was passing nearby and we had a couple of very heavy downpours and a couple of instances in the small hours where the antennas had to be disconnected due to nearby lightning, but apart from that everything ran like clockwork.

VK9XU (cont.)

Statistics

These days, DXPeditions seems to be largely judged by their performance statistics. How many bands, how many QSOs, how many dupes, how many ATNOs and so on. In that respect, both VK9XU and VK9CU performed well above average and well beyond what we were expecting to achieve.

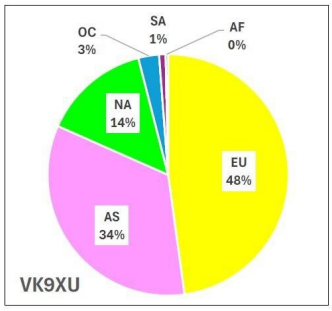
We were active on all bands 160m to 6m and averaged well over 3 QSOs per minute over the 500-odd hours that our three stations were on the air. Sure, we didn't keep everybody happy, but we kept many DXers around the world happy for much of the time, which is about all any DXPeditioner can reasonably expect to do.

So, here's how we did according to UCX-Log:

VK9XU

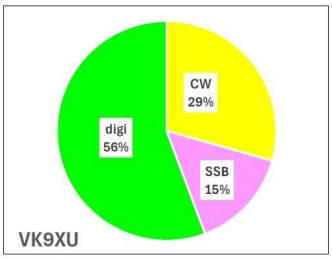
QSOs per band and continent

	Total	1.8	3.5	7	10	14	18	21	24	28	50
EU	27798	111	1101	2213	2718	4326	3516	4646	3837	5330	
AS	19639	424	603	1147	1710	1964	3167	3604	3519	3380	121
NA	8365	3	99	269	716	1163	1813	1629	1549	1124	
OC	1616	25	79	206	136	172	225	306	201	257	9
SA	505		2	46	46	87	81	84	86	73	
AF	193		2	9	18	29	38	31	30	36	



QSOs per band and mode

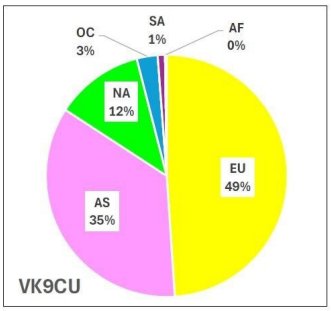
	Total	1.8	3.5	7	10	14	18	21	24	28	50
CW	17090	84	1042	794	1652	1984	1917	3619	2833	3165	
SSB	8658			589		1012	2217	1486	1401	1953	
digi	32381	479	844	2507	3694	4748	4708	5199	4989	5083	130
total	**58129**	**563**	**1886**	**3890**	**5346**	**7744**	**8842**	**10304**	**9223**	**10201**	**130**



VK9CU

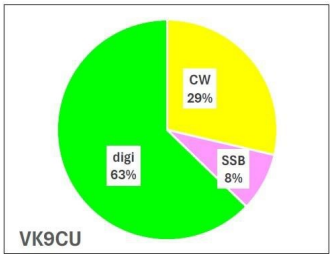
QSOs per band and continent

	Total	1.8	3.5	7	10	14	18	21	24	28	50
EU	17042	29	620	1075	1328	2585	1485	3300	4007	2613	
AS	12275	204	439	628	851	1264	1513	2614	2197	2559	6
NA	4116	13	116	472	517	774	595	847	421	361	
OC	974	24	70	60	64	100	106	212	185	152	1
SA	338		18	53	70	81	34	37	26	19	
AF	81	2	3	10	8	10	11	17	13	7	



QSOs per band and mode

	Total	1.8	3.5	7	10	14	18	21	24	28	50
CW	9983		230	549	863	1245	950	2047	2028	2071	
SSB	2980					408	403	986	619	564	
digi	21863	272	1036	1749	1975	3161	2391	3994	4202	3076	7
total	**34826**	**272**	**1266**	**2298**	**2838**	**4814**	**3744**	**7027**	**6849**	**5711**	**7**

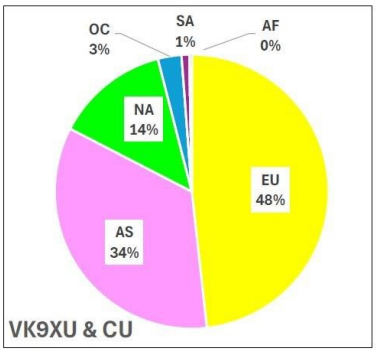


VK9XU (cont.)

VK9XU & VK9CU (sum)

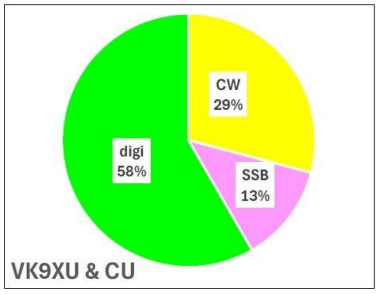
QSOs per band and continent

	Total	1.8	3.5	7	10	14	18	21	24	28	50
EU	44840	140	1721	3288	4046	6911	5001	7946	7844	7943	0
AS	31914	628	1042	1775	2561	3228	4680	6218	5716	5939	127
NA	12481	16	215	741	1233	1937	2408	2476	1970	1485	0
OC	2590	49	149	266	200	272	331	518	386	409	10
SA	843	0	20	99	116	168	115	121	112	92	0
AF	274	2	5	19	26	39	49	48	43	43	0



QSOs per band and mode

	Total	1.8	3.5	7	10	14	18	21	24	28	50
CW	27073	84	1272	1343	2515	3229	2867	5666	4861	5236	0
SSB	11638	0	0	589	0	1420	2620	2472	2020	2517	0
digi	54244	751	1880	4256	5669	7909	7099	9193	9191	8159	137
total	92955	835	3152	6188	8184	12558	12586	17331	16072	15912	137



A total of 92,955 QSOs. Another day or so, or slightly better propagation conditions and we'd easily have passed the 100,000 mark. That's a pretty good show in anyone's book, however I prefer to judge a DXPeditions performance or 'success' in more human terms – who I made friends with, what we did, what we learned and most importantly, how much fun we had.

Günter, Elmar, Heye and Rainer are all very experienced, disciplined and seasoned DXPeditioners who were well-organized and knew how to focus & work together to achieve a common goal - they were really great guys to go play radios with. Sure, it was hard work at times, especially those 2 o'clock in the morning shift changes, but it was viel Spass/great fun and we also got to see lots of chooks, crabs and the occasional Chinese temple!

Many thanks to all our sponsors who contributed equipment and/or donated to the DXpedition to help make it happen, especially Steve for all the logistics work he did in the background, his practical solutions to missing items as well as his enduring sense of humour and patience in sorting out all of our various finger-troubles with the Flex radios.

Finally, thanks to Julie for her friendly support and 'Vielen Dank' to Eleonora, Rosie and Uta for all keeping a straight face and not laughing too much whenever they heard me practicing my high-school German!

Cows, Coax, and Kosovo: The Z68YL/Z68OM DXPedition Adventure!

by Jari Perkiomaki OH6BG

The dream of a joint DXpedition to Kosovo, first sparked way back in late 2018, finally sprang to life on May 20-30, 2025, for Finnish radio amateurs Anne (OH2YL, operating as Z68YL) and Marko (OH2LGW/ON9MP, operating as Z68OM). After COVID-19 delays and even a work-related postponement for Marko (which saw Anne embark on a solo mission to Liechtenstein in April 2024 as HB0/OH2YL), the stars aligned for a thrilling ten-day operating blitz from the heart of the Balkans.

"It felt like an eternity in the making!" Marko shared, "but we were absolutely driven to light up the bands with Z6 for hams everywhere." And they weren't just making contacts; they were delivering the QSLs at lightning speed: every QSO uploaded to Logbook of the World (LoTW) within 24 hours – no waiting, no fees!

The Long Road to Pristina

Planning for this particular adventure kicked into high gear in spring 2024, with the duo navigating work schedules to carve out a precious window in late May 2025. Add travel days from two different countries (Anne from Finland, Marko from Belgium), plus essential setup and teardown time, and it was a significant undertaking. Anne even found herself patiently waiting for Marko's arrival over a weekend just north of Pristina.

But no DXPedition is a two-person show. An "exceptional support team," as Anne and Marko call them, was assembled. Martti OH2BH provided crucial initial support, while local ham Driton Z61DX was their invaluable man on the ground in Kosovo. Back in Finland, Jari OH6QU and Jari OH6BG offered vital technical assistance and crunched HF propagation forecasts, even monitoring their transmissions in real-time. "Their guidance on band openings and quick troubleshooting was absolutely first-class," they say. "We couldn't have done it without them."

Operating with two stations sharing antennas, they cleverly implemented a shift system. "We made sure each of us got a full 8-hour sleep every other night," Anne explains. "It helped manage the sleep debt, though there was still plenty of that!"

The QTH: Beauty and the Beast(s)

Finding the perfect operating spot is always a challenge. Their initial find looked promising online, but a pre-expedition scout by Driton Z61DX revealed a cramped yard. Panic? A little. But a new, even better QTH was quickly secured just 3km (or 2 miles) away, located at a lofty 1200 meters (4000 ft) above sea level. "The location was fantastic for working Japan and the USA, our main targets," Marko noted.

Z68YL/Z68OM (cont.)

"And having a restaurant with excellent, affordable food just across the road was a definite bonus!"

However, this idyllic spot came with its own unique set of challenges. As Anne bluntly puts it: "Animals just roam everywhere!" The spacious surroundings, perfect for antenna setups, were also prime grazing land for herds of cows and sheep.

When Cows Attack

DXpeditions usually come with unexpected hurdles. For Anne and Marko, these included strong winds (which snapped a dipole support pole), the ever-present QRM, and a few power cuts. "We had a generator for the first long outage," Marko recalls, "but Murphy's Law dictated it wasn't onsite for the next five-hour blackout!"

But the cows... oh, the cows. Anne's brief summary: "Cows love coax!" Early in the DXpedition, during one of Anne's SSB shifts, they heard distinct mooing very close by. "Suddenly, the SPE amplifier screamed with a high SWR alarm, and the radio went dead!" Marko says. Racing outside, they found a herd of cows inside their antenna field. The damage? Two critical feedlines – for the EFHW wire antenna and the 6M dipole – had been chewed clean through.

"For a moment, we were speechless," Anne admits. "With limited spare cable, we genuinely thought, 'Is this the end of the DXpedition?'"

But Finnish "Sisu" (grit and perseverance) kicked in. They recalculated their cable runs, and Marko managed to repair the EFHW feedline. The 60M dipole cable was thankfully intact. A new "OH2YL special" vertical was quickly put up in a (supposedly) fenced-off area. The 6M operations had to shift to the less-than-ideal EFHW. Their friendly landlord, a true hero, even provided protective piping for the cables.

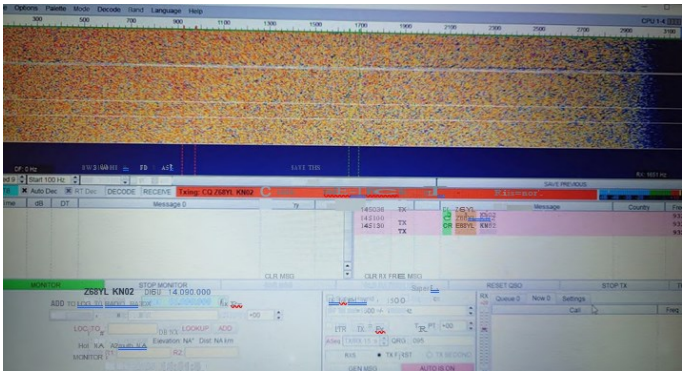
The animal adventures didn't end there. Despite the new vertical being in a 20m x 10m (65ft x 33ft) "protected" area, the cows found a way in and destroyed the vertical's ground radials. So much for that vertical! Even local youths on dirt bikes and ATVs added to the QTH's lively atmosphere, making Anne and Marko "local celebrities," as Anne heard in the nearby restaurant. This fame even led to a tense moment when an uninformed co-landowner demanded they leave, a situation thankfully resolved with the help of their landlord and a translation app.

The high QRM levels, likely made worse by "Chinese LED lights" as Anne suspects, plagued their operation. "CW was pretty much impossible," she states, with noise levels often hitting S5-S9. The 160M band was restricted to FT8 only due to the S9 noise. "And 6 meters," Marko adds, "was a game of long, tedious watchful waiting, which definitely ate into our total QSO count."

Z68YL/Z68OM (cont.)

Triumph Over Tribulation

Despite these beefy battles and technical gremlins, the DXPedition was a resounding success. Marko, focusing Z68OM more on the HF bands for SSB, was pleased. "The sunspots were in our favor, and despite the heavy noise levels, we made good headway on our target bands." The long, tedious watches on 6 meters eventually paid off, with Marko reporting "a few good openings, which gave many radio amateurs a new country from Kosovo." And Anne's thrilling update towards the end: "Just a couple of hours away from 10,000 QSOs!" – a sign of their relentless operating.

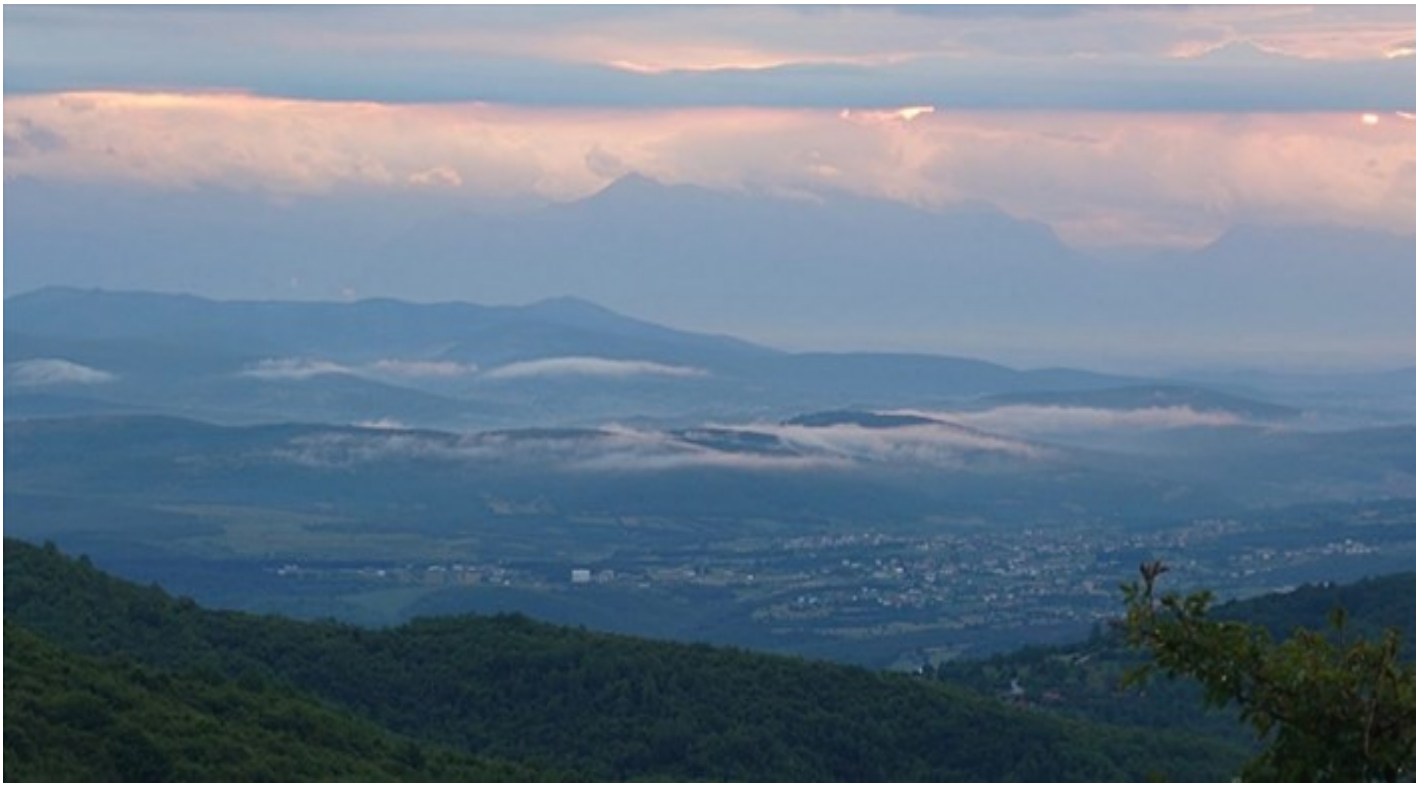


Reflections from the Field

For Marko, the DXpedition was a rich learning experience. "What is the philosophy and practice of DXpeditions?" he ponders. "There are so many dimensions: how to consider your 'customers'; building a support team; ensuring team cohesion; balancing high QSO rates with working difficult bands; managing energy on a longer trip; QTH selection; logistics; and leveraging technology like LoTW, ClubLog, and digital modes. And, of course, tracking and exploiting radio conditions."

Anne's take is characteristically direct and heartfelt: "It was certainly eventful! The initial disappointment [from the setbacks] turned into the joy of survival. Luckily Marko was here – together, we can endure anything! That's Finnish Sisu for you!"

Z68YL/Z68OM (cont.)



Both Anne and Marko found Kosovo to be a welcoming place. "The price level is great, and the people are incredibly friendly," Marko notes. "The timing in May was good, and the licensing process is straightforward, especially with local amateur radio support." He adds, "Z6-Kosovo seems to be a good DXPedition destination; contacts come easily. Of course," he winks, "having a YL operator certainly has its own draw!" They were also pleased that there was no deliberate QRM.

The sun cooperated, minimizing ionospheric disturbances and blessing them with that crucial 6M opening. They were also spared thunderstorms, which would have shut them down completely.

As they packed up, leaving some spare cables and antennas with Driton due to overweight baggage, the sentiment was clear. Would they return? Anne answers with a smile: "Yes! But definitely no cows on a nearby pasture next time!"

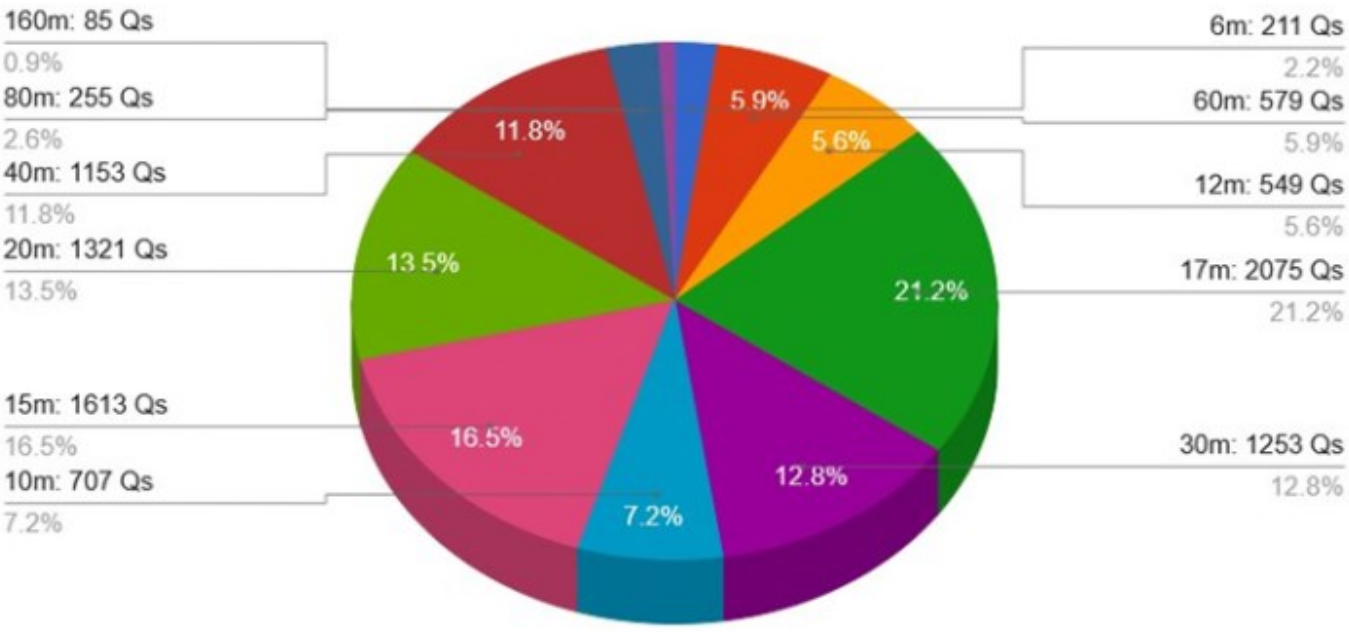
The Z68YL/Z68OM DXPedition is a classic tale of ham radio adventure: meticulous planning, (un)expected chaos, technical cleverness, the vital support of a local and global community, and the sheer joy of putting a sought-after entity on the air. As Anne says, "This was quite the holiday this time! Thank you Kosovo, thank you everyone!" And to Anne and Marko, the amateur radio world says “Kiitos!”

Z68YL/Z68OM (cont.)

SUMMARY

Band	CW		Digital		Phone		All		Countries
	QSOs	%	QSOs	%	QSOs	%	QSOs	%	
160			85	0.9			85	0.9	20
80			248	2.5	7	0.1	255	2.6	39
40			1089	11.1	64	0.7	1153	11.8	65
20	11	0.1	1087	11.1	223	2.3	1321	13.5	73
15			1259	12.8	354	3.6	1613	16.5	73
10			672	6.9	35	0.4	707	7.2	65
30			1253	12.8			1253	12.8	72
17	48	0.5	1353	13.8	674	6.9	2075	21.2	87
12			461	4.7	88	0.9	549	5.6	55
60			557	5.7	22	0.2	579	5.9	56
6			211	2.2			211	2.2	25
All	59	0.6	8275	84.4	1467	15.0	9801	100.0	

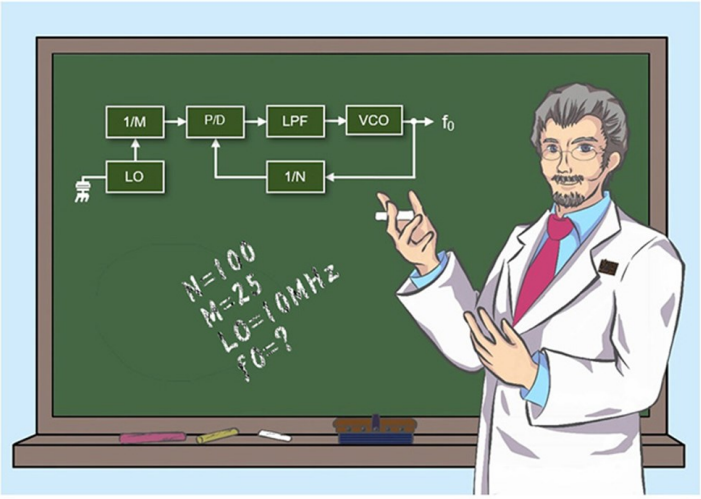
QSOS BY BAND



Technical Trivia

The Principle of PLL

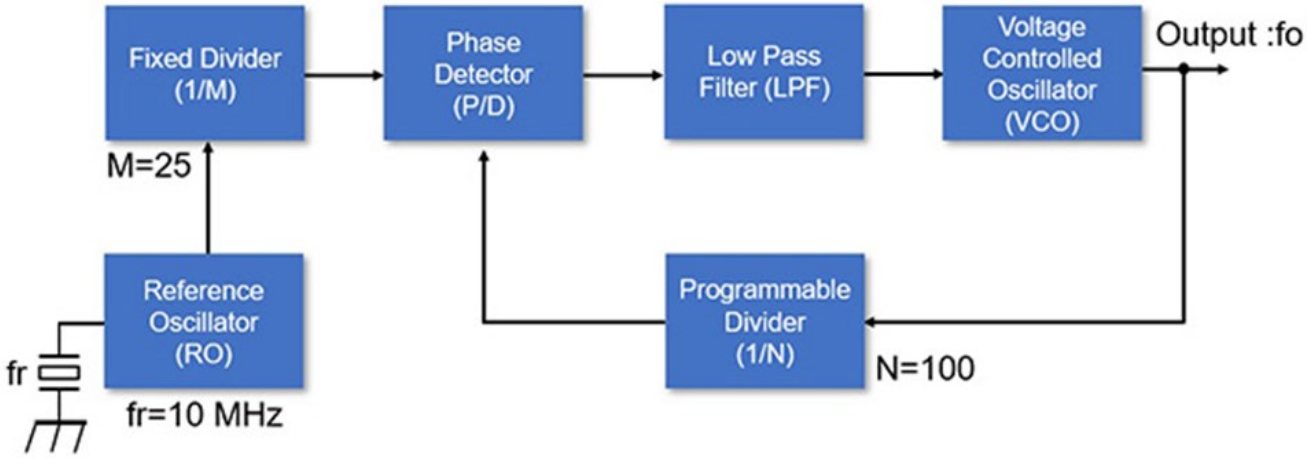
Review the Basics of PLL Technology



A Signal Generator (SG) is useful for small electronic work and radio adjustment. If you only want the generator part of SG, recently you can buy a PCB unit relatively cheaply, but the problem is the attenuator that can fine-tune the signal level. That is expensive. I wanted a signal generator for testing radios, and while thinking about making it, I came up with the principle of PLL (Phase Locked Loop).

Let's try to solve a problem of a simple PLL circuit

First, let's solve a simple PLL problem. In the frequency synthesizer oscillator shown in Figure 1 below, there is a PLL circuit with the following conditions. Find the output frequency fo when the frequency division ratio (N) of the programmable divider is 100. However, it is assumed that the output frequency of the reference oscillator is 10 MHz, the frequency division ratio of the fixed divider is 25, and the PLL is locked. (Answer on next page)



PLL— (cont.)

<Answer>

$$fo = \frac{N}{M} \times LO\ (Hz)$$

$$= \frac{100}{25} \times 10 \times 10^6$$

$$= 4 \times 10 \times 10^6$$

$$= 40\ (MHz)$$

Background of PLL

Before explaining the principle of PLL, I will briefly explain first a transceiver using a crystal unit, and then second give an overview of PLL. After that, I will explain each block.

(1) A transceiver using a crystal unit

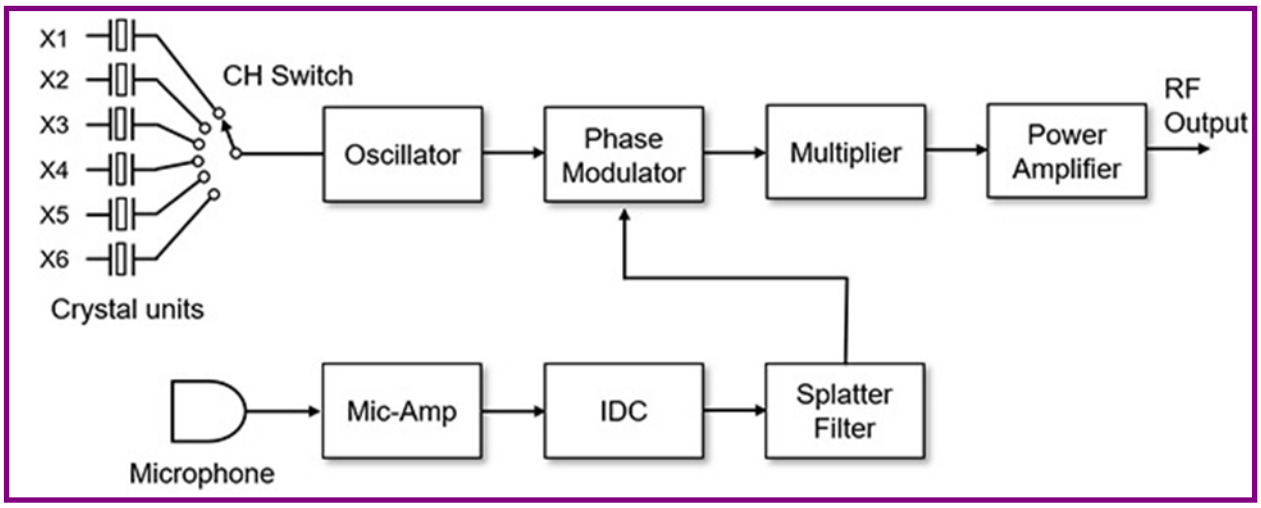
Figure 2 shows Icom's IC-212, 144 MHz 15-channel FM portable transceiver released in 1976. When you open the case, you can see the sockets that hold crystals for one of the 15 channels surrounded by the yellow dotted lines, in Figure 2 (b). Figure 2 (c) is an enlarged view of it. Each of the 15 channels requires a separate crystal for transmission and reception, and if you install 15 channels, you will need 30 crystals.

(a) IC-212 Appearence

(b) Inside view

(c) Crystal units and its socket

PLL— (cont.)



X1 to X6 in Figure 3 are crystal units. Now, when you buy a transceiver, you can transmit and receive on any frequency in the band by turning the channel switch. When the above IC-212 was released, it was necessary to insert one pair of crystal units of the desired frequency into the radio to transmit and receive on the channels.

For example, in the 2-meter band, there are 50 channels with 20 kHz spacing for the FM mode from 145.00 MHz to 145.98 MHz in Japan. If you want to operate on all the channels, you would 100 crystals, 50 for transmit and 50 for receive. Since the crystal unit also has a physical size, if you try to insert all 100 crystal units into the radio would require a large physical space. In that case, the radio will become very large. Inevitably, the question is whether to choose the size or the number of channels.

(2) Is VFO useless?

You can make an oscillation circuit called a VFO (Variable Frequency Oscillator) with a coil (L) and a capacitor (C) without using crystal units. The VFO can replace the crystal units and produce a signal with a continuously adjustable frequency. So, if you use the signal from a VFO in the local oscillator circuit, you can transmit and receive on any frequency.

However, since the circuit is an oscillator composed of L and C, it is greatly affected by external vibration, ambient temperature, and humidity, and it is quite difficult to maintain frequency stability in a communication device. The crystal unit also causes frequency fluctuations due to external factors, but the frequency stability is outstanding compared to the frequency fluctuations of VFOs.

It was stated in a book about the theory of PLL, that PLL was already used for frequency control in generators at the beginning of the 20th century. PLL began to be used in the field of communications equipment after radio broadcasting began in the 1920s. I think that it the cost and space required to build circuits using vacuum tubes was too much at that time to introduce it to consumer equipment.

A PLL does not use special parts like a VFO. The only special thing is how to control the stability of the frequency. The VFO compensated for temperature changes by using a component that cancels the temperature change and stabilized the frequency. In a PLL, the frequency is stabilized by a circuit that is always electrically automatically controlled to match the stability of the crystal unit.

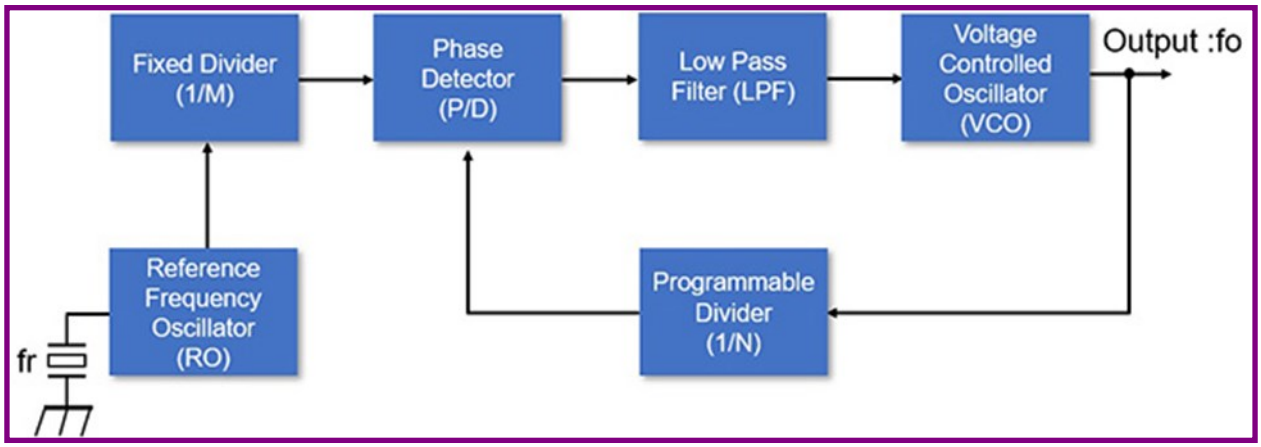
PLL— (cont.)

Overview of the PLL

(1) Block diagram of PLL circuit

The PLL is a kind of feedback circuit. As shown in Figure 4, the basic circuits of the PLL consist of a Reference Frequency Oscillator, a Fixed Divider, a Phase Detector, a Low Pass Filter (LPF), a VCO (Voltage Controlled Oscillator) and a Programmable Divider.

You can use the signal oscillated by an oscillator consisting of L and C circuits, such as a local oscillation signal in a radio, but the frequency stability is very poor and stable communication cannot be made.



That is where the PLL shown above comes into play. The phase detector compares the two signals, signal (fr) oscillated by the reference frequency oscillator and signal (fo) oscillated by the VCO. The oscillation frequency of the VCO is controlled and stabilized by using the output voltage according to the phase difference between these two signals. For example, if the output voltage of the phase detector is high, the oscillation frequency is lowered, and vice versa. The control method will be explained in a little more detail in the VCO described later.

(2) Fixed frequency divider (1/M)

This is a circuit that reduces the input frequency to a fraction of an integer. In most cases, a dedicated IC for frequency division is used. In the problem shown at the beginning, M=25. In other words, it is a circuit that outputs the input 10 MHz signal to 1/25, that is, 400 kHz.

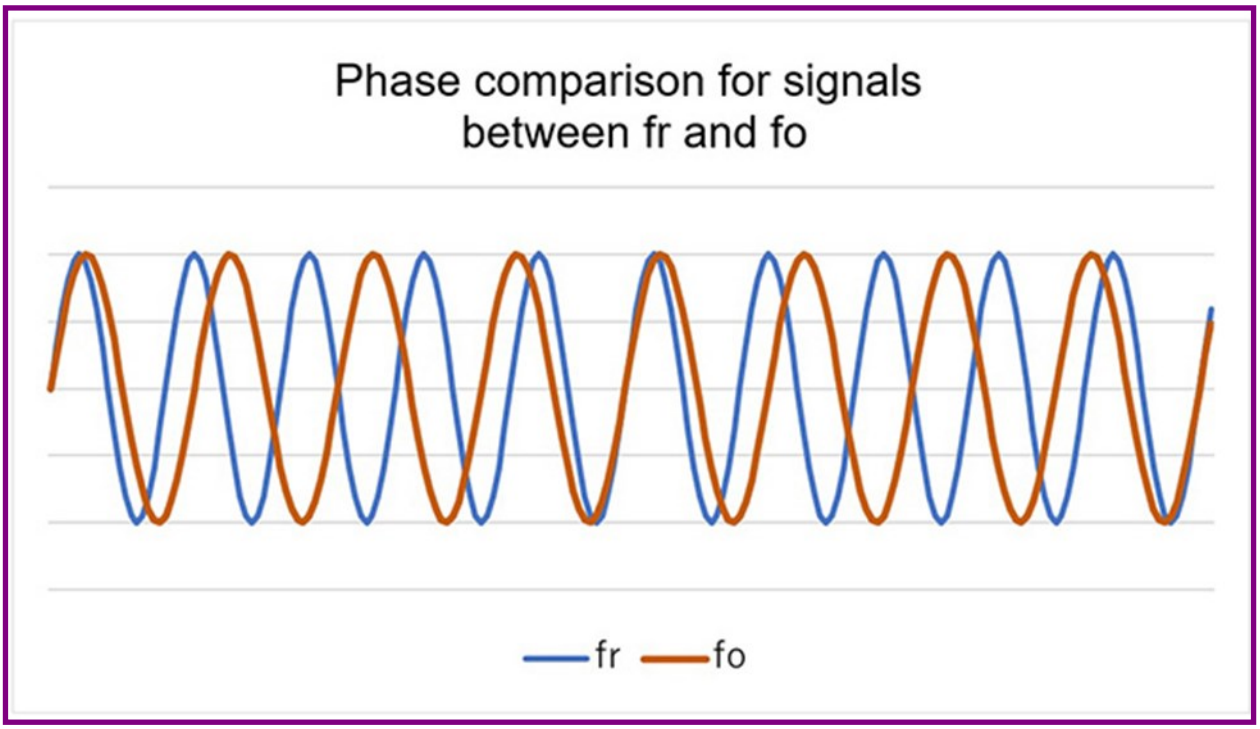
(3) Programmable divider (1/N)

This is also known as a programmable divider. Any division ratio can be set with external terminals. In combination with the CPU, turning the dial of the radio changes the frequency division ratio, and the frequency of the signal output from the programmable frequency divider (1/N) can be changed.

PLL— (cont.)

(4) Phase Detector

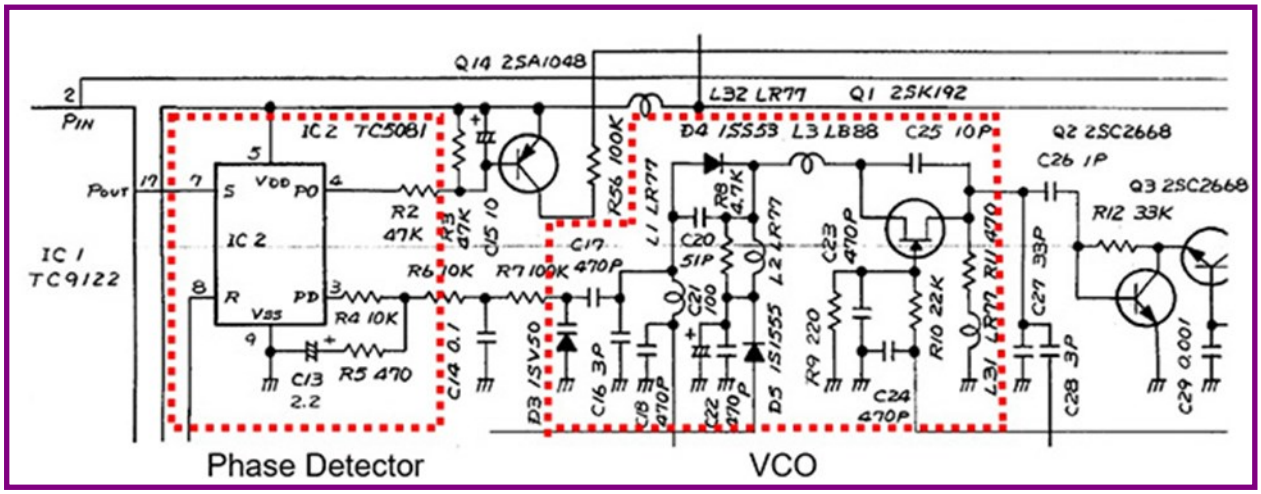
The phase detector compares the phases of two signals and responds to the phase difference. In other words, phase comparison means frequency comparison. One signal (fr) input to the phase comparator has outstanding stability because it is originally an oscillation of a crystal unit. If the signal (fo) of another VCO exactly matches that frequency, the two sine waves in Figure 5 will overlap and there will be no phase difference. In other words, the two frequencies match.



It seems that there are various types of phase detectors, but for example, in the old method, there is also a phase detector that takes the beat frequency of the fr and fo signals and outputs the voltage, depending on beat frequency. In other words, it is f-V (Frequency –Voltage) conversion. When the beat frequency is 0, the output voltage of the phase detector is 0 (V). When a beat is generated, the voltage corresponding to it is output.

The schematic at the top of the next page shows a part of the PLL circuit used in Icom's IC-2A series transceiver (released in 1980). IC2 (TC5081) is an IC of the phase comparator. It seems that this IC has already been discontinued and only distribution stock remains, but it is an easy-to-use IC for homebrewers.

PLL— (cont.)

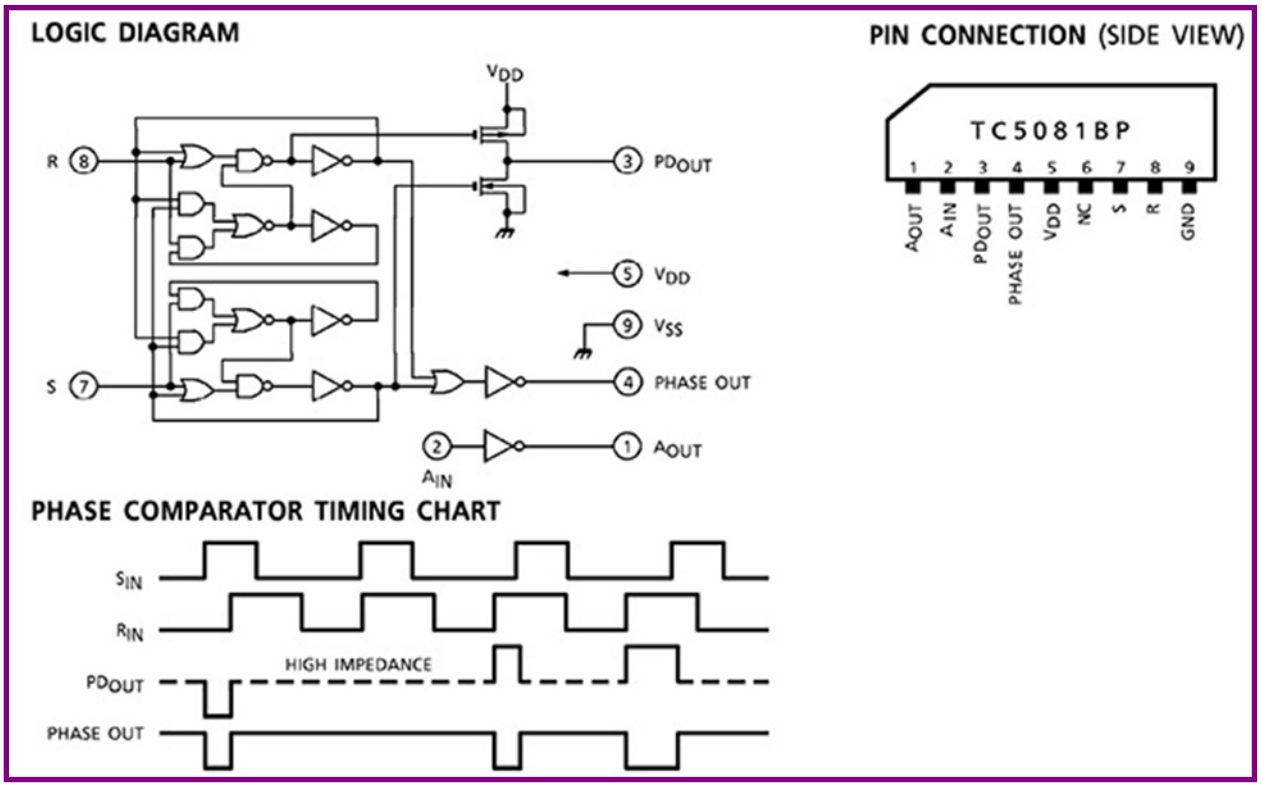


(5) **Low Pass Filter**

Also known as a Loop Filter. The schematic consists of R4, R5, R6, C13 and C14. Since the output of the phase detector contains noise and high frequency components, they are removed to create a DC component signal to be supplied to the D3 (Varactor diode) of the VCO.

(6) **Voltage Controlled Oscillator (VCO)**

The circuit consisting of Q1 (2SK192) and its peripheral circuits is the VCO (Voltage Controlled Oscillator) circuit. The key component of the Colpitts oscillator is a D3 (1SV50) varactor diode.



PLL— (cont.)

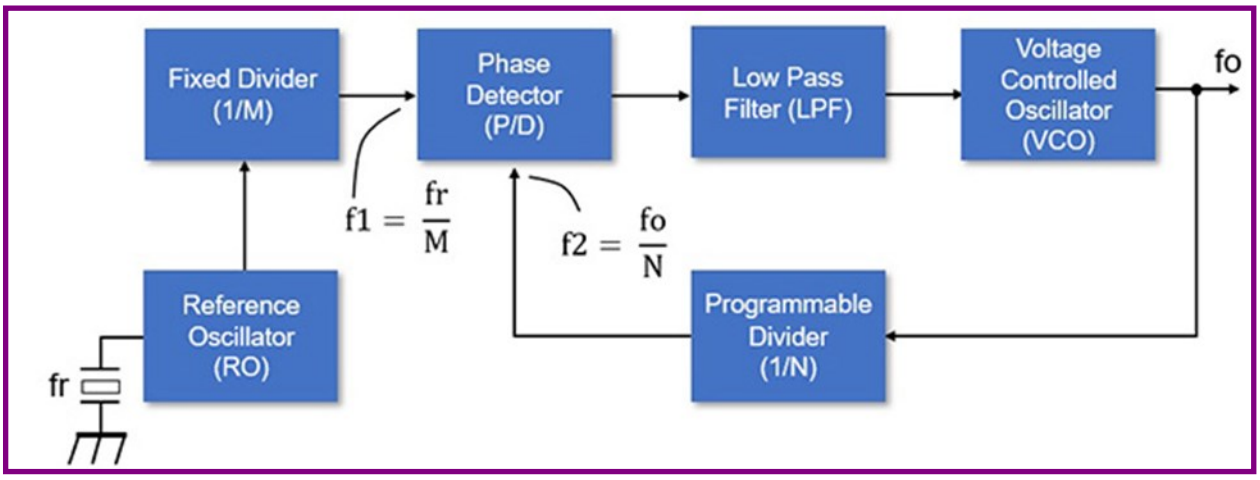
I mentioned that the VCO is an oscillator circuit consisting of L and C, but the key point is that a varactor diode is used in some of its circuits. A varactor diode is a type of diode, but it has the characteristic that the capacitance between the anode and cathode changes when a voltage is applied in the opposite direction. In other words, the C (capacitance) of this varactor diode is used in the LC oscillation circuit, and the VCO oscillation frequency is changed by changing the capacitance of this C.

When a phase difference occurs in two signals between fr and fo compared by the phase detector, the voltage output from the phase detector is large when the phase difference is large, and the voltage is low when the phase difference is low. By applying that voltage to the varactor diode in the VCO circuit, the PLL changes the oscillation frequency of the VCO so that it becomes the same frequency as the reference frequency (fr).

Relationship between fr and fo

Let f1 be the frequency obtained by dividing the signal oscillated by the reference frequency oscillator (RO) with the fixed frequency divider (1/M). Also, let f2 be the frequency obtained by dividing the VCO output signal (fo) with the programmable divider (1/N). PLL is an automatic control circuit with a kind of feedback that makes the relationship between f1 and f2 for f1=f2. When f1=f2, we say "PLL is locked." On the other hand, if f1=f2 is not set for some reason, it is said that the PLL is in the unlocked state.

The reference frequency oscillator (RO) frequency is fr in Figure 8. Since the frequency of fr is a high frequency on the order of MHz, it is divided by a frequency divider (1/M) to make it a lower frequency. The output frequency f1 of the divided fixed frequency divider is f1=fr/M. Design the VCO oscillation frequency in advance in the LC circuit as the desired target frequency. The desired target frequency fo is a signal used in the local oscillator circuit (LO) of the radio circuit, so turning the dial of the radio changes the frequency. Therefore, the frequency division ratio is determined so that the variable frequency divider (1/N) is constantly programmed from the outside to have a frequency of f1. In other words, f2 is the VCO output frequency (fo) divided by N, so f2 = fo/N.



PLL— (cont.)

IC-2A/AT PLL circuit

The IC-2A/AT PLL circuit uses a fr = 5.12 MHz crystal unit. The 5.12 MHz is divided by 1024 with a fixed frequency divider (1/M), and the 5 kHz signal is input to the phase detector as f1. The other signal, f2, enters the phase detector and divides the output frequency of the VCO to obtain 5 kHz. Here, since M and fr are constant, it can be understood that the output frequency (fo) of the VCO changes by changing the division ratio N.

$$f1 = \frac{fr}{M} \qquad f2 = \frac{fo}{N}$$

$$\text{As} \quad f1 = f2 \qquad \frac{fr}{M} = \frac{fo}{N}$$

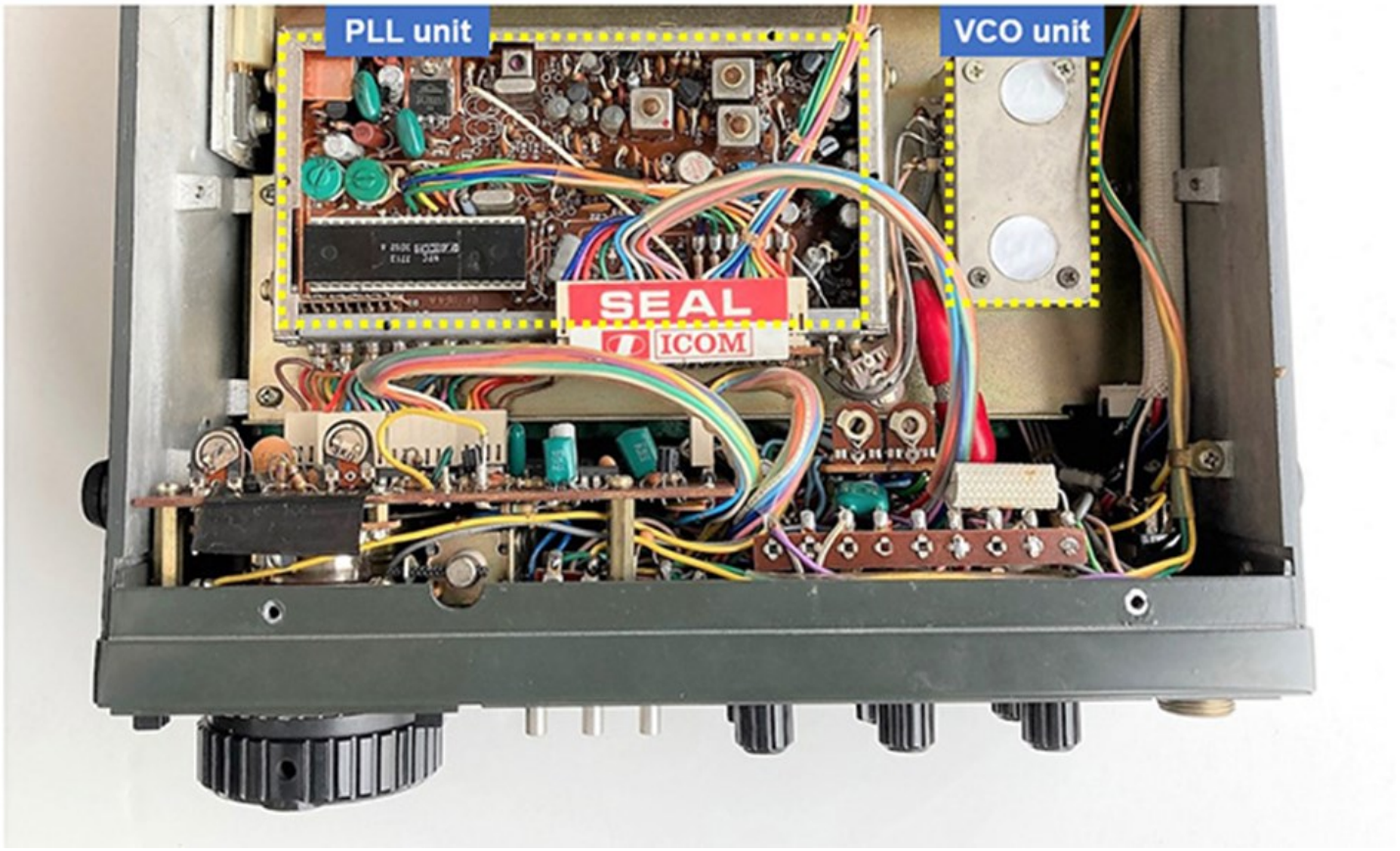
$$fo \times M = fr \times N$$

$$fo = \frac{fr \times N}{M}$$

$$\therefore fo = \frac{N}{M} \times fr$$

IC-221 PLL unit

The IC-221 was launched in 1976. The picture below shows the PLL and VCO units of the IC-221 (IC-211 for the export model name). As you can see the large LSI (SC3062A) in the PLL unit. This is a PLL IC. This IC contains circuits with functions such as a fixed divider, programmable divider, and phase detector etc.



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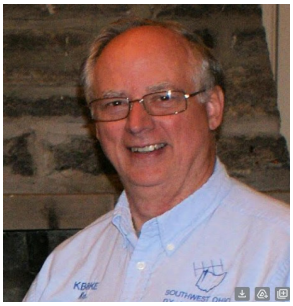

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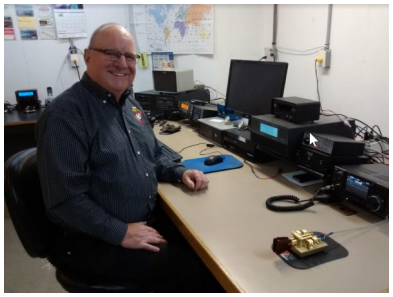

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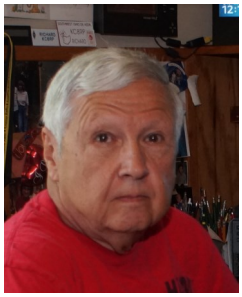

SWODXA Station
TrusteeW8EX

—

KC8RP—Richard Pestinger
rpestinger@gmail.com

SouthWest Ohio DX Association (SWODXA)
Club Fact Sheet

Who We Are: *SWODXA* is comprised of active DX'ers and contesters with a deep passion for all aspects of Amateur Radio. We welcome everyone who is interested in joining our club to please contact us. *SWODXA* members are active in all facets of DX and Contesting. We also travel to, and fund various DXpeditions all over the world. *SWODXA* sponsors the annual DX Dinner held on the Friday evening of Hamvention weekend in Dayton, Ohio. In addition, *SWODXA* members moderate the Hamvention DX Forum and host the *W8DXCC DX Convention*. *SWODXA* is proud sponsor of the prestigious *DXPedition of the Year Award*.

DX Donation Policy: The policy supports major DXPeditions that meet our requirements for financial sponsorship. Details are available on the website at: https://www.swodxa.org/dxgrant-application/ and elsewhere in this newsletter

Club History: The Southwest Ohio DX Association (SWODXA) is one of the country's premier amateur radio clubs. Though loosely formed in mid-1977, the club had its first formal organizational meeting in August of 1981 where Frank Schwob, W8OK (sk), was elected our first President. While organized primarily as a DX club, SWODXA members are active in all aspects of our hobby.

Requirements for Membership: We welcome all hams who have an interest in DXing. It doesn't matter whether you're a newcomer, or an old-timer to DXing; everyone is welcome! Visit http://swodxa.org/member.htm

Meetings: The club meets on the second Thursday of each month at Hunter Pizzeria in Franklin, OH, and virtually via ZOOM. Members gather early in the private room for dinner and then a short business agenda at 6:30 PM, followed by a program. If you enjoy a night out on the town with friends, you'll enjoy this get together. Meeting attendance is NOT a requirement for membership.

Club Officers: Four presiding officers and the past president (or past VP) make up the Board of Directors . The current roster of officers are: Past President Tom Inglin, NR8Z, President Bill Salyers, AJ8B; Vice President Brian Bathe, AD8FD; Secretary Ken Allen, KB8KE, and Treasurer Mike Suhar, W8RKO.

Website: We maintain websites at www.swodxa.org and www.swodxaevents.org managed by Bill, AJ8B. These sites provide information about a variety of subjects related to the club and DXing.

SouthWest Ohio DX Association (SWODXA)
DX Donation Policy

The mission of SWODXA is to support DXing and major DXpeditions by providing funding. A funding request from the organizers of a planned DXPedition should be directed to the DX committee by filling out an online funding request.
(https://www.swodxa.org/dx-grant-application/)

The DX Grant committee will determine how well the DXPedition plans meet key considerations (see below). If the DX Grant committee recommends supporting the DXPedition in question, a recommended funding amount is determined based on the criteria below. The chairman of the committee will make a recommendation at the general meeting on the donation.

Factors Affecting a DXpedition Funding Request Approval

DXpedition destination	Website with logos of club sponsors
Ranking on the Clublog Most Wanted Survey	QSLs with logos of club sponsors
Online logs and pilot stations	Logistics and transportation costs
Number of operators and their credentials	Number of stations on the air
LoTW log submissions	Bands, modes and duration of operation

H40GC	H44GC	ZL9HR	XX9D	HK0NA	FT4TA
KH1/KH7Z	EP2A	FT5ZM	C21GC	VK9WA	NH8S
K4M	CY9C	VK9MA	PT0S	FT4JA	YJ0X
6O6O	VP6D	TO4E	XR0ZR	VP8STI	VP8SGI
W1AW/KH8	K1N	3D2C	VK0EK	S21ZBB	E30FB
ST0RY	TI9/3Z9DX	VK9MT	K5P	9U4M	TX3X
VU7AB	3Y0Z	3C0L	TX7EU	CE0Z	3C1L
TI9A	3D2CR	3B7A	K9W	VU7RI	6O7O
C21WW	CE0Z	T30GC	T30L	D68CCC	W8KKF/WP5
K5D	3Y0J	T33A	3Y0J	CY9C	