

TN8K - Congo by OK6DJ & Czech DXpedition Group

The Congo (prefix TN, full name: the Republic of the Congo) - is located on the west coast of Africa in the equatorial region. It is very similar in size to Germany, but for how big it is, it has just under 5 million inhabitants. Although the official language is French, the inhabitants speak the Kituba language. The country is quiet from a security point of view, unlike its "related" neighbor, the Democratic Republic of Congo – 9Q. TN is ranked 80th on the Club Log's "Most Wanted" list.

The Congo is a country we have been thinking about activating for years. But only now we have managed to implement a rather difficult project. It did, however, turn out a little differently than initially planned, but let's not get ahead of ourselves.

The basis of every expedition is always a ham radio license. Unless there is a license, or at least advanced negotiation, there is no point in taking any further steps. The first emails to the authorities in the Congo to obtain the license were sent in December 2021. The actual expedition was then planned for September 2022, time enough, it seemed. But, as it often happens with African institutions, communication was slow and for a long time, we were unable to get it.

In the meantime, we were looking for a QTH. As usual, several hours were spent pouring over maps and doing Internet searches for a location that would be optimal for our needs, yet not too far from the airport. We finally succeeded.

On June 23rd, 2022 we concluded that we would be able to get the license in time and took a risk by buying flight tickets for September. As fate would have it, after many urgings and e-mails, on June 18th we received two individual licenses for TN/OK2ZI and TN/OK6DJ which were unusable for the expedition. It was clear that obtaining the club license as we requested would drag on, so we re-booked the flights for January 2023. It took another two months until the club license with the TN8K callsign finally arrived! The very next day on September 16th, 2022, the expedition was officially announced and featured in amateur radio newsletters and on Facebook.

Time passed and in our minds, we were slowly drawing the setup that we would bring with us to the Congo. It was clear that in terms of equipment, this expedition would be the biggest we had ever undertaken and also that it would be the most expensive project. On November 15th, 2022 the regular pre-expedition meeting took place at Peter's QTH in Ritka. All of the antennas had been checked and packed in the four special bags and the passports of all participants were sent to Paris for visas. They returned in a reasonable amount of time on December 19th with the visas pasted in.

The meeting of the whole team consisting of Petr OK1BOA, Palo OK1CRM, Petr OK1FCJ, Pavel OK1GK, Ruda OK2ZA, Ludek OK2ZC, Karel OK2ZI and David OK6DJ took place on the morning of January 5th at Ruda's QTH. Since we didn't want to risk the morning traffic on the D1 highway, we all arrived in Moravia during the previous evening and spent the night partly at OK2ZA's place and partly at OK2ZI's place. The final packing and transporting of trunks and cabin baggage took place on the morning of January 5th and shortly before noon, everything was ready. In total, seventeen 23kg pieces of baggage and eight 12kg cabin bags were prepared. At noon, we then set off in the hired minibus to the Vienna airport. Check-in was relatively smooth, as were the flights from Vienna to Paris and then two hours later from Paris to Pointe-Noire, with a stopover in Luanda (Angola).

The first major problems came after our arrival in the Congo, where we passed through health and passport control without any problems, but were held up because of our "suspicious baggage." Although we had all of the necessary documents and the support of an official at the airport, it was not without nearly two hours of complicated negotiations. Pierre, the owner of our QTH, who was waiting for us at the airport and was present during the negotiations with customs, helped us a lot. In the end, our baggage was released, except for one trunk that didn't arrive at all and contained, among other things, 350m of coaxial cables, a very important piece of equipment, which was also almost half of everything we were carrying.

In front of the airport, we got into the prepared cars and started the 20 km-long journey to the QTH. It took almost an hour through the clogged city both downtown and along rural muddy roads. The QTH was located in Pointe Indienne – a shark fin-shaped promontory that juts out into the Atlantic Ocean. The rented house was in the northern part of the promontory, 500m from the coast, where there was an open profile with no elevation on any side. The direction to the EU, NA, and JA even sloped gently towards the coast. The house had a large garden (100x60m) surrounded by meadows and pastures, with the possibility of building antennas arbitrarily in the garden and "reasonably" in the surrounding area. There was no power connection in the QTH, but with the powerful 30kW diesel generator this was not a problem. As it turned out, the generator worked perfectly, except for one glitch, and it consumed altogether 1,200 liters of diesel during our stay. We had a cook and his family at the lodge who took care of our meals and provisions, so we could concentrate solely on our objectives.

We arrived in the QTH on January 6th at 13:00 local time. Since we wanted to be QRV on the lower bands already on the very first night, we immediately unpacked our bags with the antennas and started building. During the afternoon we had built a vertical for 160m, a vertical for 40m, a vertical for 30m, two Spiderbeams, and in deep darkness we finished also the vertical for 80m. All of the verticals had ten quarter-wave radials. The 30m and 40m antennas were temporarily set up near the house, just for the first night, knowing they would be relocated later.

After dark, we then converted the main room of the house into an operator's room and installed eight workplaces: a K3+Expert 1.3K-FA, a SunSDR2DX+JUMA, a SunSDR2pro+JUMA, an FT-DX10+JUMA, an IC-705+JUMA, another IC-705+JUMA, and finally the remaining two TS-480HXs, which were primarily intended for 6m and FT8/FT4.

The first contact under TN8K was made by Petr, OK1FCJ on 20m CW. We were working all evening on several bands, but the fatigue from the hard 24 hours of travel and building antennas was evident in our traffic. We still made almost two thousand contacts by midnight. The pile-ups were huge on all bands, so it was clear that we would not be bored.

January 7th, 2023

In the morning, part of the team was working on the antennas. First, we moved the 40m antenna away to a meadow outside our property and upgraded it from a simple vertical to a two-element phased array. Then, we also moved the 30m vertical up to the fence for the final position and upgraded it to a two-element phased system. We erected mast #3 with a trio of two-element duraluminium Yagis for 17m, 15m and 12m and then mast #4 with five element for 6m and four element for 10m. We couldn't build the last fifth mast because of the lost trunk which contained the center of the last Spiderbeam.

We stretched a receiving loop on the ground, which we hoped would help us listen on the lower bands. Suddenly a thunderstorm and windstorm came in the afternoon. Fortunately, all of the antennas survived, except for the 40m vertical which fell to the ground. Thankfully the repair only took a few minutes.

At 1600 UTC the storm was over, all damages had been repaired, and the SWR of the antennas checked. After that six stations were in operation simultaneously – 30m+6m on FT8 and 20m+17m+15m+10m on CW.

The last thing we managed to do that day in daylight was to build an RX-point behind the fence, to which all of the beverage antennas were connected. We stretched the first one, 150m long towards the EU later that day. During the day we took turns at the radios and although we spent a lot of time working on the antennas, we managed to make over 10,000 contacts thanks to the brisk CW traffic. The pileups were massive. The familiar "big guns" we worked during the start of every expedition were calling. The joy was spoiled a bit by unusual number of the undisciplined callers, which slowed down the traffic considerably. The beverage antenna was tested at night, and it worked well, but atmospheric QRN from nearby thunderstorms made listening extremely difficult.

January 8th, 2023

In the morning after dawn, we put up another antenna, a 20m wire dipole, which was pulled through a pulley to the middle of the 160m vertical. Thanks to this the coax cable from the 160m antenna did not "slack" during the day and was connected to this antenna. This helped increase the work efficiency on the 20m. This also allowed all of the Spiderbeams to be on the upper bands during the day. The 20m band behaved typically for the area, with conditions gradually deteriorating during the morning and not working at all by midday. Even on the FT8 frequencies, nothing was heard and the band only started to open up in the afternoon. Progress was also made with the receiving antennas and two more 150m beverages were stretched towards JA and NA. Some of the team then also went to test the local sea. The beach was sandy and beautifully clear, the water relatively warm but somewhat murky. We also learned that our lost trunk had arrived, but as it was Sunday and the special desk at the airport for such cases was closed we had no choice but to wait until the next day. The number of contacts was increasing rapidly and by midnight there were almost 30,000 QSOs in the log.

January 9th, 2023

The event of the day: they retrieved the lost trunk. We immediately unpacked it and took what was missing to complete our station. We assembled the eighth workplace, which was missing a power supply with wiring for the K3, and began preparing the Spiderbeam, which was the only one of the three tuned to the SSB parts of the bands. However, it could not be completed by dusk and so we postponed it until the next day. As far as possible one station was in

operation permanently on SSB, three to four stations on CW, and two on FT8. Then during the day one of the stations was allocated to 6m FT8 and although we weren't very hopeful of making any contacts, we still logged the first 19 stations on this day. When we got information from the VK hams that our signals were passing into their area we gave short-term CQ VK/ZL to allow them to make contacts, as their signals were weak, and breaking through the EU or NA pileups was almost impossible for them. Unfortunately, here too we have often encountered a lack of discipline on the part of the callers who simply did not respect our directional CQ. We did our best and by the evening there were over 40,000 QSOs in the log.

January 10th, 2023

This time the whole night was very quiet. Almost no QRN on the lower bands. Unlike the previous nights the 80m band worked great and conditions were good. On the contrary, surprisingly, 160m didn't work at all. The conditions were similarly miserable also on the upper bands in the morning. During the day we finished the remaining antennas. We put up the last Spiderbeam for SSB and set up a quarter-wave vertical for 60m band in a meadow far beyond the property line. There was a lot of interest in the contacts on this band, and we made over a thousand contacts there on the first night. The only nuisance was that we had to disassemble and modify the IC-705 TRX, as it had the 60m band blocked from the factory and we had to modify the setting following the instructions on YouTube. Later in the afternoon, when it was not so hot, we built a two-element vertical system for the 40m band pointing to NA and another vertical for the 30m band. These antennas were planned, but without the coaxial cables from the lost trunk, there was no point in building them earlier. We have also managed to establish the first satellite link via QO-100, which was our premiere on this band and certainly a premiere in the Congo. We had asked the owner of the facility to purchase a satellite dish antenna for us in town. In the meantime we had been transmitting provisionally only with the feed pointed at the inverted lid of a large pot. In order to maximize our potential we also installed the last "backup" workstation with IC-705+JUMA and so that evening the call TN8K appeared for the first time 9 times simultaneously on the air, with seven stations working in "human" modes and two on FT8. These FT8 stations were operated by operators in parallel with CW or SSB traffic on their tablets.

January 11th, 2023

Every day in the morning the upper bands worked fine to JA and so we gave these stations plenty of space. We tried the simultaneous operation of three stations on the 15m band – CW, SSB and FT8. With minor problems, it worked, mainly because FT8 was transmitting into the vertical antennas for 40m. This antenna works satisfactorily on 15m and thanks to vertical polarization there was no problem with mutual interference. After lunch, we stretched the last beverage 150m towards VK and decided to extend the JA beverage by another 100m. But that was easier said than done, as it turned out, what looked like a meadow was actually a swamp covered with grass, and pulling 100m of wire and quarter wave radials took over an hour. If we had known what kind of terrain we were getting into, we might have changed our minds. We also took a commemorative photo to mark the 60,000 contacts in the log that day. The afternoon conditions were very good on the upper bands and lasted until midnight when the 10m band was still full of stations. Unfortunately, towards the evening, there were heavy thunderstorms which swirled around our QTH and so listening in the storm QRN was very tiring. After midnight the storm was so intense that we had to make QRT for a while and disconnect all antennas to prevent possible damage to the equipment by static electricity.

January 12th, 2023

As soon as the storm subsided, we got back to the stations, but shortly after the traffic had started it was over again because there was a power outage. The generator stopped working unexpectedly and did not start again. Just after dawn, the staff started working on the repair. It was found that the V-belt had broken. Fortunately, we managed to get it in town, but even so, the repair took almost the whole morning. As a result, our "unwritten" goal of 10,000 contacts per day was not met that day. We were also told that the dish antenna could not be found in any shop, so the owner of the building allowed us to dismantle his satellite dish from the wall and use it for QO-100, of course on the condition that we put it back at the end of our expedition. We also moved the RX loop further away from our facility, using the last piece of coaxial cable we had. At night, traffic continued on the lower bands and the beverage antennas were also used on the 60m workstation, where we worked on CW for a few hours, and many new stations were logged on this band.

January 13th, 2023

The conditions were weaker on the upper bands in the morning. Then another cloudburst came through and mother nature showed us her power. The floodgates of heaven opened and the rain drummed on the tin roof of the house with such force that even the reception in the headphones was heavily distorted. We had to cut off SSB traffic entirely because the microphones were picking up the noise so intensely that the operator's voice was almost lost in it. On the other hand, the conditions were excellent in the afternoon and evening after the rain. Yesterday's 60m traffic lured us in, so we continued CW that day, but listening on the vertical was difficult due to equatorial QRN. Virtually every mark was broken by the crackle and we had to have everything repeated at least once. We also had to accommodate the CW speed which further impacted the rate. Despite this, there were over 90,000 QSOs in the log at midnight. We were enjoying amazing conditions with all bands open at once, from 160m to 10m. This is something that is very difficult to experience in Europe.

January 14th, 2023

The first technical fault occurred – the band-pass filter on 15m was gone. We had three complete sets of 200W band-pass filters with us, so losing one was not a significant problem. Each workstation is always equipped with the appropriate filter and in case of extreme interference, we connect two filters in series, albeit knowing that it causes a bit of attenuation in the RX path. We experienced interference, especially when using the antennas on the same mast, just above each other. Performance-wise the filters didn't do any harm as they were connected between the TRX and the PA, and the TRXs had always enough power to drive the PA. Another significant goal was reached on this day - 100,000 contacts in the log. We briefly interrupted the traffic and took a few commemorative pictures, which we posted on our Facebook page.

January 15th, 2023

There was rain again in the morning, sometimes very heavy. There was so much water that it did not even soak into the sand that was in the yard next to the house. Streams of water flowed under the antennas and disappeared somewhere behind the fence. Fortunately, it didn't affect the propagation conditions. The 10m band was working nicely since the morning and so we gave FM operation on 29.050 a try, which we had never done before. It was an interesting experience for everyone. Even during the morning, the number of contacts from our most

successful S9OK expedition so far in 2021 was surpassed. After lunch, we had a visitor – two neighbors on whose land our verticals for the lower bands stood. Getting along with them was absolutely smooth, the gentlemen were knowledgeable and listened with interest as Karel, OK2ZI explained in French that we were a non-commercial group promoting amateur radio and advertising the Congo to the world. With a promise that the antennas would be gone from the property within a week and everything would be cleaned up, they thanked us for the explanation and left with a friendly nod. The thing almost unprecedented for Africa is that someone would allow you to do something for free.

January 16th, 2023

The lower bands were working well at night, but there were not as many stations in the log as there could have been, again due to the greatly undisciplined callers, especially on 80m and 160m. Even the Japanese stations, which are usually very disciplined, would lose their inhibitions on the lower bands and call over each other. In the morning the upper bands worked nicely and there, on the other hand, the traffic of JA stations was exemplary. Europe was of course a mess as usual. More and more often we were encountering the annoyance of calling stations putting their callsigns twice in a row on CW. This was extremely annoying because the operator usually gets the callsign the first time and thus transmits in "stereo" with the caller when sending the report. As a result, the caller does not respond to our report and we have to repeat the entire session unnecessarily. There's no reason to do that, especially on bands from 40m upwards where the signals tend to be stable and are not significantly affected by the atmospheric QRN. On the other hand, on the 80m and 160m bands, stations that call with their callsign twice gain an advantage. There's more time to exactly tune on their signal and receive the callsign on the first go.

January 17th, 2023

There was another goal reached on this day – 140,000 QSOs in the log. We were thrilled with how the number of contacts was increasing and how the callers were checking the empty fields on Club Log. However, our joy was somewhat spoiled by the fact that the expedition was fast nearing its end. The pileups may have been a little weaker at that time, but there were still so many callers at the opening peaks that we would have had plenty to do even if the expedition had lasted a month. Today was the last day of the QO-100 operation, with over 1,500 contacts in the log. We were regularly monitoring propagation conditions. The report showed aurora and A=14 that day which made upper bands almost non-existent. We had another unexpected visitor this afternoon, a large herd of cows came in over the pasture and messed up our radials for the 80m and 160m verticals. It might seem like bad luck, but we should rather say lucky that they came only once and only towards the end of the expedition. We had studied YouTube videos of the area before selecting the QTH and knew that herds roamed freely in the surrounding pastures and were concerned if verticals could even be installed there beyond the fence.

January 18th, 2023

The end was near, it was the last day of full operation. More and more stations were now devoting themselves to SSB at the expense of CW, where there were already nearly 50,000 contacts in the log. Once again, we encountered the annoying nuisance of stations on SSB calling with just a suffix instead of the full callsign. This causes unnecessarily delaying and annoyance for the operator. This behavior is typical for stations from South America and

Europe, especially from its southern part. It is not the case in the USA and certainly not in Japan. In the morning the conditions were poor, so we took time to take pictures for our sponsors and re-tuned the 80m vertical to the SSB part of the band. We also posted the information that this night would be fully dedicated to SSB traffic on both 80m and 60m, which we were often asked about on the band. Both bands had beverage antenna available for better RX. The RX loop barely worked this time, probably because it was too close to the transmitting antennas. On both of our previous expeditions to S9 and HK0/A the loop was far from everything and worked very well.

January 19th, 2023

We worked all night on the lower bands. It was the last night there. We could feel that many callers were nervous as they knew if they didn't make the QSO now, they never would. A lot of well-equipped stations tried the "trick" and although they couldn't hear us properly, they called repeatedly and even gave the report right along with the callsign foolishly thinking we would log them. Naturally, when we called these stations they didn't respond because they couldn't hear us. Of course, they are not in the log because the QSO has not been mutually confirmed. Unfortunately, we have to say that even some well-known OK amateur stations also resorted to this ugly practice and we were saddened by this.

In the morning the packing of antennas started. First the beverages, then verticals for 160m+80m+40m. From phased pairs, only one pair on 30m and one on 40m remained standing. Before dusk, we packed two Spiderbeams. By morning only one Spiderbeam and two masts with duraluminium Yagis remained. On our last night, we were QRV from 40m to 6m with at least one antenna on each band. It rained heavily during packing. On the previous expeditions, the weather was always good for packing, but this time mother nature decided otherwise.

In the meantime, we had received a warning about the transport strike in France which could affect our air transport. Indeed, many flights were canceled, but fortunately, the plane that we were due to return on departed from Paris. We continued to operate, albeit limited, all evening, with over 160,000 contacts in the log. After checking the table on the GDXF website it looked like we might be able to reach 6th place.

In the morning Karel and David briefly activated their valid TN/OK2ZI and TN/OK6DJ personal licenses and made about 200 CW contacts just for fun before they fell into their beds with fatigue.

January 20th, 2023

At 6:20 in the morning, we made the final QRT. TN8K was history. The log showed a fantastic 164,939 contacts. We quickly lowered all the remaining masts and the whole team, although very tired, started dismantling them. By noon everything was packed and tidied up and a photo shot of the whole group took place including the staff who looked after us magnificently. In the afternoon the hired cars arrived and the whole group moved to Pointe-Noire, where Pierre booked a restaurant and invited us to lunch together. Then it was time to say goodbye and move to the airport, where Pierre arranged for a helper from Air France to help us check in. However, once again it was not without problems. The check-in took almost three hours. Two of our bags with antennas were allegedly over the size limit, no explanation or persuasion helped. We had to pay an extra fee for oversize baggage, a total of 600 EUR. The airport staff is corrupt. When checking the baggage by X-ray they were openly demanding bribes. The

highlight then was the uniformed police officer who was doing a "check of cash exported out of the country" before passport control and wanted to see all of our wallets. She unscrupulously told each of us to give her some money. Although she claimed not to speak English, she knew the phrase "give me money" very well. She was not interested in the Czech crowns offered, though. We've seen a lot of things on our travels in the world, but nothing like this. We were also surprised by the double check of the contents of our cabin baggage, first at passport control and then again just before boarding. As much as we had a good time in the Congo and liked it the bureaucratic buffoonery at the airport was so frustrating that we wanted to be all out of there. Fortunately, the plane left on time and after a short stopover in Angola and an hour's wait on the airport tarmac, continued on to Paris for a night flight. Everyone, even those having trouble with it, fell asleep on the plane from fatigue.

January 21st, 2023

The plane landed in Paris while it was still dark. The transfer to the next flight was without any problems, as well as the flight itself. All baggage arrived in Vienna, but one was damaged and a claim had to be made. The hired minibus was waiting for us and the journey to Rudy's QTH was also smooth. There, we were warmly welcomed by Rudy's wife with a cauldron of delicious sirloin steak with cream sauce, which we all devoured with great gusto. In the course of the afternoon, we then went our separate ways home, and at 10 pm the last member arrived. This was the real end of the whole adventure.

We would like to thank all of the stations that called and made a contact with us. We couldn't have done it without them and we believe it was fun for everyone. At least the feedback on Facebook speaks unanimously that it was. Thanks to our host Pierre, who adapted the interior of his house for our needs and provided us, a strange gang from Czechia, with ideal conditions plus allowed us to do literally whatever we wanted with the antennas on and around the property. Thanks to the couple Giselle and Rene who were in charge of our food and safety and took absolutely great care of us. Thanks to Murphy who was in our favor this time. The equipment worked as it should, nothing broke except one filter. Most importantly, all of the antennas worked as they were supposed to.

We would also like to thank the sponsors, both the organizations and the individuals. Without their help, this costly mission would not have been possible.

Our sponsors: Northern California DX Foundation, European DX Foundation, International DX Association, Greater Milwaukee DX Association, German DX Foundation, Swiss DX Foundation, DX-news, Clipperton DX Club, Far East DX Ploitiers Foundation, Oklahoma DX Association, Mediterraneo DX Club, CDXC UK DX Foundation, Danish DX Group, SDXG, Minnesota TCDXA, Southeastern DX Club, Lone Star DX Association, GM DX Group, OH DX Foundation, Northern Ohio DX Association, National Capitol DX Association, East Tennessee DX Association, Northern Illinois DX Association, Araucária DX Group, Spiderbeam, Mastrant, DD-amtek.

From among individuals we were supported by a large number of amateurs and we thank them all, especially K0GEO, N1HO, OG2M, OK5MM, HB9FPM A HB9JOE, OK6RP, AC0W, OK1NS, OK1ALX, OK1CF, OK1FPG, OK2MDC, OM3PC, OM5ZW, TF3SG, IK0AGU, OM4TW, OK2IT, OK1NP, N3OC, GM3WOJ, WO9I, ZL1IU, HB9BAS, KQ4DPH, TF3DC, OK2ARM, OK2NMA, WF8R, DK2CF.

The result puts us in 6th place in the official Mega DXpeditions all-time ranking (<https://gdx.de/megadxpeditions/honorroll.php>). With thirteen days of operation and only eight operators, this is a spectacular achievement. By the time you read these lines, the QSL tickets are already in production. As soon as we receive them, the arduous procedure of distributing them will begin, which as usual will be taken care of in an exemplary manner by David OK6DJ. OQRS direct requests have already been confirmed at LoTW.

For detailed statistics see <https://clublog.org/charts/?c=TN8K#r>

Equipment used:

TRX: 1x K3, 1x FT-DX10, 3x IC-705, 1x SUN-SDR2DX, 1x SUN-SDR2PRO, 2x TS-480HX.

PA: 6x JUMA PA1000, 1x Expert 1.3K-FA

Antennas:

160m vertical with capacitive hat + 10x quarter-wave radials

80m vertical + 10x quarter-wave radials

60m vertical + 10x quarter-wave radials

40m 2el. vertical phased system + 2x10 quarter-wave radials to JA

40m 2el. vertical phased system + 2x10 quarter-wave radials to NA

30m 2el. vertical phased system + 2x10 quarter-wave radials to JA

30m vertical + 10x quarter-wave radials

20m - 10m 5-band Spiderbeam @10m

20m - 10m 5-band Spiderbeam @10m

20m - 10m 5-band Spiderbeam @12m

20m inverted V-dipole @10m

17m - 2el. Yagi

15m - 2el. Yagi

12m - 2el. Yagi

10m - 4el. Yagi

6m - 5el. Yagi

RX antennas:

3x beverage á 150m (NA, EU, VK)

1x beverage 250m JA

RX loop

Written by the TN8K team, English translation by OK1DIX