

73 DXCC and through 700 QSO, CW ... with a tree!

Autor: Jože Konda, S52AB
E-mail: s52ab.joze@gmail.com

Not bad, right? In the last article, around the substance of use, adjustments and usability are the basics. I was curious because work with »ordinary« antennas, doesn't represent a challenge to me, and wanted to know if it's even possible and in what measure, to work QSO in classics, this is CW way of working, with this »antenna«.

Tabulated list 1					
Date: 02(7 MHz)-03(14 MHz) April 2018					
Both days: Solar-Terrestrial Data,					
HF Conditions 7 MHz= Good; 14 MHz= Poor; Sig noise Lvl S1-2					
Skimmer	7 MHz Tree Antenna 50 W	7 MHz Vertical 12m 500 mW	14 MHz Tree antenna 50 W	14 MHz Vertical 12m 5 W	14 MHz Vertical 12m 50 W
ES5PC	4, 4, 4, 13, 7	12, 13	8, 10, 11	14, 13, 12	13, 11
EASWU	1, 2, 2, 20, 17	5	7, 5, 9	10, 9, 9, 7	20, 13
OH2BG	5, 5, 6, 12	7, 12	11,10,10, 10,10	9,12, 12	25, 20
SE0X	2, 13	3, 5	9	3, 11	-
SK3W/1	4	4, 5	6, 7	4, 11	9, 10, 10
ON5KQ	7, 8, 8	9, 9	-	-	-
DL1EFW	6, 6, 6, 4	9, 9	-	-	-
LZ7AA	6, 6, 14, 8	14, 11	-	-	-
DJ9IE	11, 11, 10, 11	6, 13	-	-	-
DL8TG	8, 9	9, 6	-	-	-
DL9GTB	5, 5, 5, 6	4, 5	-	-	-
DF4XX	7, 6, 4	3, 3	-	-	-
F6IIT	3, 6, 4	4, 4	-	-	-
DJ2BC	9	7, 7	-	-	-
CT1BOH	-	-	11, 11, 17	14, 12	22, 26
OH6BG/1	-	-	9, 16, 13	10, 13, 8	26, 25
GI4DOH	-	-	4, 4, 5	4, 5	28, 29
SM6FMB	-	-	7, 9, 5	13	-
SM2IUF	-	-	10, 10, 11, 12	7, 8	25, 25
GW8IZR	-	-	2, 4	5	-
WZ7I	-	-	3, 5, 5, 3	-	11, 11
VK4RJ	-	-	4, 4	-	21, 21
VE2WU	-	-	5, 7, 5	-	-



Picture 1: Measuring spot. Antenna analyzer AA-30.

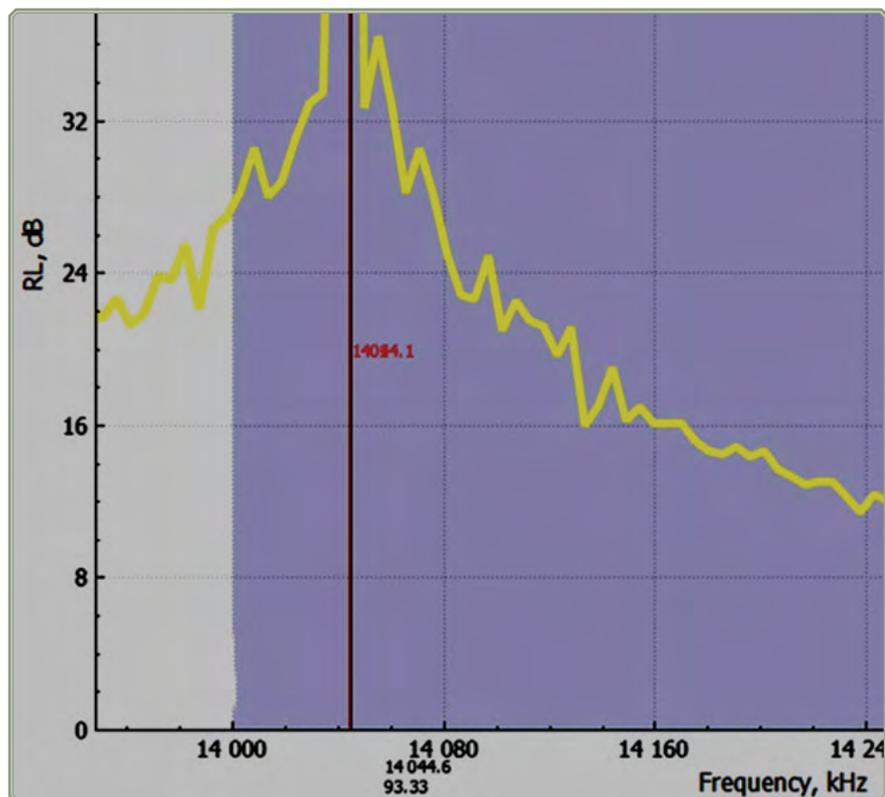
Referentiality

Of course, the basic expectation about successful use of this »antenna« is mutual comparison between this and an »ordinary« antenna, that is in general used for the work on KV frequency. The comparison was done on RBN system, with multiband vertical, also described in one of my former article. It took a few hours (the tree before the vegetation itself) so that on each antenna is used the same time and compared rapports on skimmer stations. So, if the power of 50w on the tree was checked for adjusting to the tree, 5W was sufficient for the same reports on the vertical (half lambda length by 14 MHz). Comparison on 7MHz, gives a significantly bigger difference: for 50W on the three, on the vertical it is sufficient already about 0.5W or 500mW. That is how the decision was made that most QSO takes place on

10.1 and 14MHz. More details in the tabulated list 1.

Efficiency relative to the period

It was expected, that it will be the most efficient in the time of the most vegetation, but it was not so. After regular check up's on RBN system, it was seem that it is the biggest in transitions, so before the vegetation itself and in the end of it. When controlling radiation with a field meter, it was found that, radiate also the twigs at their end, while it wasn't noticed on the leaves. So this is about suffocation. Where there are roots, on the ground level, there is a mild radiation noticed on them.



Picture 2: RL dB - there were many similar surprises, but this is an extreme value - 93 dB

Signal propagation

Most QSO's is of course made in the space of »the first jump« or the period of the ionosphere. The longer links of the DXs create an interesting picture. JH1MDJ answered on my CQ on 10.1MHz and gave rapport 599. I demanded a repeat of the rapport, again 599, while I couldn't give it more than 559. We did two more QSO on 14MHz, really »only« with 559, but there were no problems with the call. The second case is with HS3NBR and 9M2YDX (less than 40km away from each other). There was no trouble with the call. But beside JH1MDJ, we couldn't reach anyone from the JA station. Same in HS and 9M direction. Then the DX areas, with which we didn't have problems, like the area of the Siberian city Čita (ON62) east of Bajkal. Quite a few stations without a problem. Successful directions were also SV, TA and the Persian Gulf, Baltic and Scandinavia, southwest to CN8, EA8 etc. quite a few (already) DX stations. There were no problems of course with the European Russia. But towards north and South America QSO in such propagation, definitely don't work, despite the multiple of received signals.

In total the signal from the tree »antenna« was registered on 74 skimmer stations RBN system. Of which on 7 DX skimmer stations: VK4CT, VK4RJ, WE2WU, WZ7I, K3LR, W1NT, W3UA. With rapports on RBN skimmers resigns ES5PC. Its extreme registration is 40 dB snr. So since the start of the experiment 26. October 2017 and till

5. October 2018, it succeeded QSO with 73 DXCC. Till 25. October 2018 in total 745 QSO on 7, 10.1, 14 and 18MHz, with occasional presence at frequencies.

Measurements

This is interesting on this »antenna«. Very interesting. It was interesting to watch, when the antenna analyzer was connected to the two-meter coax adaptation and -RL dB "floats" from -25 to -63dB depending on the bending of the tree in the wind, reacting with its approach and distance from the trunk. It was a cursory measurement that intrigued me to dedicate a few hours later to changing parts on the adjustment (picture 1). Replacements were made on the resonant loop itself. 2.5 mm / 2 wire was used, then the RG 213 coax braid, the 100 KW coax braid, and the 7 mm medium coax copper tube. All at 14 and 10.1 MHz I had a few hours of interesting happenings. Some of the "flowers" or "science fiction" of these measurements can

be seen in pictures 2, 3 and 4.

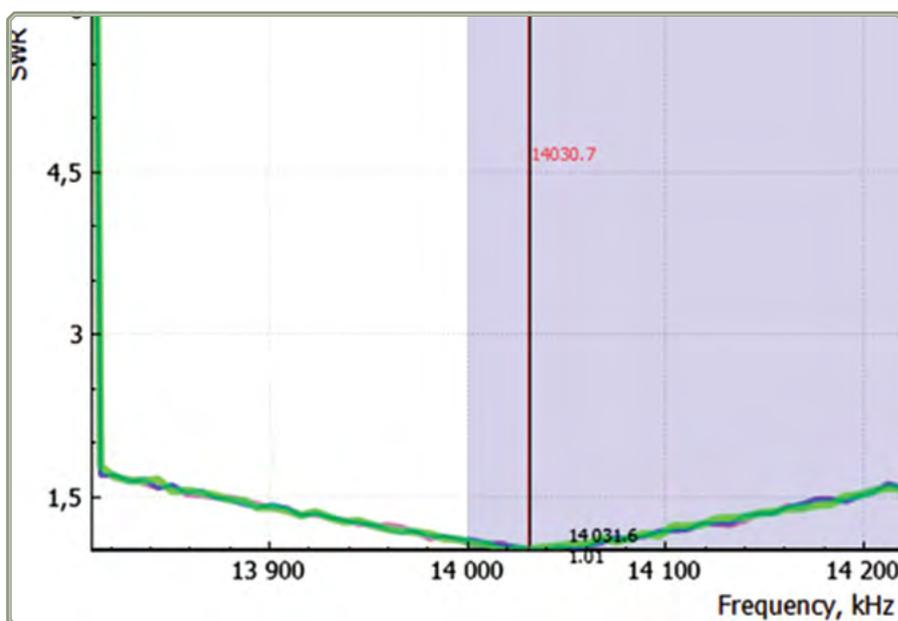
Way of working

I knew that a QSO with this type of antenna could work right from the start. After the initial "No! That can't be true!". After a while, when I realized that the QSOs that I had been used to, for example, the vertical could not work in this way, a different approach had to be found and the fun began. So no problems now. So, in the area of the "first jump" - the volume wave, as many favorable propagations, if we can talk about good propagations in the last year, there are no major problems. I have avoided crazy pile-ups, but there are also great options in these cases if the signal from the station it is causing is 599 or stronger. I kept in mind that most stations in the CW area are just watching and waiting for interesting DXe and will not respond to the CQ call also because the signal from this "antenna" is not surplus. However, after the call, I have the peace to gather the results after a given time to call for the readout on the individual RBN skimmers.

Connecting more trees

Previously, there are known ways to connect, but these are aggressive ways to the tree. Demonstrating successfully, in August this year, I tied several trees in such a way that I threaded the usual insulated wire between the trees, under

the canopy, by twisting each tree clockwise, all at about two to two and a half meters in height, that when walking from under the trees, the wire is not disturbed. The first half of the sheath is about 60 cm above the base resonant loop, which transfers RF energy to the trunk of the base tree. Control with a field meter has shown that such non-invasive transmission of RF energy from tree to tree is very good. The loop is terminated by a joint at the beginning of the wire above the resonant-feed loop. The length of the connecting loop wire between the trees is arbitrary and non-resonant, as far as is necessary to terminate above the resonant loop. In this way, any large forest can be activated.



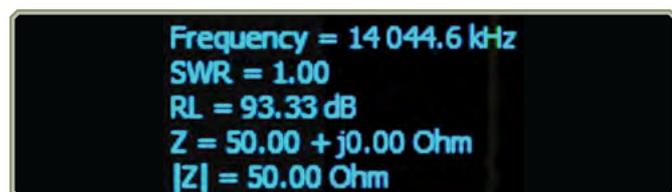
Picture 3: tree like an antenna, on SWR parameter, with this kind of adaption, it behaves fairly broadly bandwidth. On this length koaks cable (2 meters) it is practically perfectly tuned on 14 MHz and on 10.1 MHz. Only there was quite a lot of patience necessary for the coil changing, regulation gamma adaption and capacity value.

Tree as a receiving antenna

From the very first attempts at the beginning, it was undoubtedly found that a tree with this customization, which is WW unique, is also a very easy and good solution as a receiving antenna. Very low levels of QRMA and QRNA, it is unmatched by other conventional antennas such as verticals and dipoles of all types.

Conclusion

- QSO with tree as antenna is trophy, QSO with DX station is Big Trophy! That is why each QSO is successfully completed and DX QSO is a Great Satisfaction. To me personally, after more than fifty years of experience, something special, at least equivalent to the QSOs I made across Europe in the LF 137 kHz band, with a "piece of wire" and 30 mW ERP. - If an individual's usual approach to successful work in the frequency ranges is preferably the best possible location or "remote" to it, the latest station, kilowatts or more, with a big of towers, automatic tuning, this mode of



Picture 4: In a few hours of work, with a lot of patience, exercise with the elements adaption, there was some similar »prizes« on an exactly determined frequency, but this parameters are superb.

entertainment will not suit most. The approach here is completely different and nonetheless interesting and definitely something special. The neurotic approach, when the QSO must be made as soon as possible, will of course not be successful here.

- QSOs with this "antenna" were made out of contest and in 99% or more, CW
- I think working on digital, such as the FT-8, FT-4, would significantly increase the number of DXCCs.

There would certainly be more success on WSPR as well, but there is no proper technique for this.

- In this last year of experiments, in most cases, the HF propagations at 10.1 MHz and above were at Poor, very rarely Fair. There were no "good" propagations, in any case, when I was running tests. Verified and archived.
- the RF energy did not damage the trees that were actively involved in this type of »antenna«, in any way.
- thank Jure S52CQ for the encouragement, Siniša S52ST and Roman S52AS, for the occasional help
- there are no resources that would contribute to the success of the experiment or relate to it in this second record. Showed and done this way, it is WW's first time. At least I do not know that anyone would have described, achieved and published the results so far on the tree "antenna" as described here.

Joze -S52AB
Novo mesto-Golušnik-S5 (SVN)
November 2018