PileUP!

Volume 12(4) 2008
14th OHDXF/CCF meeting

The Mammoth has been revived. See p.43–49.

PileUp! is an ad-free newsletter of Contest Club Finland published quarterly in bad Finnish, Swedish and English. Contribute! Send your material to oh1wz@sral.fi.

President ……	Jussi-Pekka	OH6RX
Vice-President …	Jari	OH1EB
Secretary ……	Aki	OH1ZE
Treasurer ……	Mikko	OH4XX

CCF's homepage: http://www.contestclubfinland.com/
E-mail reflector archives: http://lists.contesting.com/pipermail/ccf/
This issue in pdf: http://www.helsinki.fi/~korpela/PU/PU4_2008.pdf

PileUP! 12(4) Contents

Thanks: LA9HW, OH1NOA, OH1RX, OH2BH, OH2BP, OH2GJL, OH2IW, OH2MM, OH2PM, OH2XX, OH3BU, OH5XT, OH6BG, OH6CT, OH6KN, OH6KZP, OH7JT, OH7WV, OH8NC, PT7ZZ, SG3P, http://ag.arrak.fi/fi/ag. Martti OH2BH & Jari, OH6BG are acknowledged for ideas and help.

OG5M is getting ready for the WPX Contests 2009.

Ethics in radio contesting

We have operators who do not play by the rules. They make impressive scores; place high in the standings, make records, and presumably feel proud about their achievements. This is an everlasting topic, but we should not give in and throw up our hands, so…

Should I sneak a quick look at the cluster?

CCF fosters fair play. To those who are still not on the map - fair play means simple things. One enters a contest by complying with the rules and license conditions. In the unassisted category, for example, you are not allowed to get assistance from others. It is not only the DX-cluster that is forbidden – you can't for example Skype or chat with others. My understanding is that you even can't have someone to turn or switch antennas for you. Similarly, two operators can't take turns and eventually submit a single-op log. This is known to have happened. Output power is an old issue. In OH, I have heard about the 3-dB-rule. It is the level of justifiable inaccuracy in the power measurements when entering the HP category. LP is 100 Watts and QRP is 5 Watts and there 3dB can make a huge difference in S/N. Well, I will not continue further or I'll be accused of hypocrisy. Let's try to follow the rules. Jari, OH3BU tells us why on page 30.

CCF/OHDXF meeting

One of CCF's main activities is the yearly DX and Contest meeting and now in January it is time for the 14th occasion. It is an outcome of excellent work by many. The meeting takes place on a big and comfortable ferry travelling each night between Helsinki and Stockholm. It is a 40-hour cruise so there's plenty of time to eat well, meet friends and attend interesting presentations.

PileUP!

This newsletter relies on voluntary work, i.e. it operates in the assisted multi-multi category. Forty individuals are acknowledged for their help with the issues in 2008. In each issue, I have tried to list the contributors. The list is always near the table of contents. The newsletter balances between OH-content and material that would be of wider interest.

This issue

With antennas we can do home brewing. The new simulation tools offer means of avoiding the trial-and-error method. One is no longer so dependant on antenna books and their example-antennas. In the last issue, OH1JT theorized on stacked 80-m dipoles, now our VOACAP wizard Jari, OH6BG squeezes the last drops of gain out of a single dipole. Juha leaves theory behind and tells us how the 1/1-el 80-m array worked in practice. Aftermath completes a contest. I did quite a bit of it to fill pages. Kari, OH2BP writes about station ergonomics – an important aspect that is often overlooked. Gunnar, SG3P features SK3W. Topband is covered by Jan, LA9HW. We have a screening test for the TCS disease and encourage the TSC-positive to seek help or form peer groups on the cruise (yes, not 'beer'). Mammoths are back and in this issue.

Cheers, OH1WZ

-humor

The 48-hour contest format is very demanding, and it is well known that some ops “take a trip” as a result of the sleep deprivation. PileUP! asked its readers to tell about their experiences.

“*One CQ WW Phone some 10 years ago we, the ops at the multiplier stn, started to wonder why the run-station op wasn’t making any QSOs. Well, when we entered the room, the op was desperately trying to finish a QSO by yelling: “What is my name, repeat my name, over!*””

OH1WZ

When Tom was tired he used to control the pile up by saying: “Stand by gentlemen – who was the weak station – would you call again?”

OG5M

This happened in the late 80's at OH7AAC before the OH7M station was built. Before the real towers we had a 10 meter high tubular mast, rotator at ground level. The mast had 2 el 10m yagi at 8 meters, a 3 el 15m yagi on the top at 10 meters plus a 20m GP atop using the 15m beam as ground plane.

On the second night I had a 15m run and when the band closed down I moved to 20m. A few hours later, after rotating the mast back and forth, I shouted to the others: "Guys, there is something wrong with the 20m antenna. There is absolutely no directivity!"

I think someone asked something like "Are you rotating the vertical...". Felt kinda stupid.

Esa, OH7WV

Next morning right after a contest in a technical meeting at work related to a power supply I couldn't really concentrate on the topic. Somewhere in the middle of the meeting I heard someone say the word "kilowatt". Spontaneously, half asleep, I had to confirm: "Five nine kilowatt?"

Esa, OH7WV

Peter, OH5NQ often remembers a contest, in the mid 1950s, when he was tired and 40 m was packed with stations. Finding room, cross-VFO-dial, to call CQ was tough. However, there seemed to be space all along the dial’s needle.

OH5Z uses a wireless network

OH-anagrammeja. Yhdistä kutsu ja etunimi-sukunimi-anagrammi:

Haluais Mopoa	OH5XT
Euro käy Johnny	OH2IW
Jahvetin Uuno	OH6GLE
Maili Mark	OH5LF
Olen Hans Ujo	OH3UU
Tenho Mikroon	OH4XX
Onerva Rinkka	OH6KN
Sotkeva Joni	OH1RX
Rantatien Apple	OH0XX
Sir Nul Dot	OH5JOC
Kehno Yön Kömpi	OH5TQ
Soneran Silli	OH1JT

Contest Club Finland's Screening Test for the True Contester Syndrome (TCS)

This 10-question self test may help you become aware of the symptoms of the True Contester Syndrome, which is a recent discovery of the SITH-research group at the Naboo School of Medicine.

While taking the test you might want to protect your privacy by not allowing the person next to you to see your score. If you do the test on the CCF-cruise, make sure you don't put your name on the print and leave it behind you.

Please note that the assessment is reliable only if you respond to all of the 10 questions. Note also that there are two complementary versions, A and B. Please read the disclaimer: The screening test provided by CCF is intended for educational purposes only and should not be understood to constitute any type of diagnosis or healthcare recommendation.

TCS test. Version –A

A1. You are a desperate bachelor who has for long tried to get a date. Well, CQ WW weekend is coming and the girl you have been longing for says yes.

1 Accept the offer and skip contest
2 Omit the rendezvous and work the contest alone.
3 Take her with you to work the contest and rub your shoulders

A2. Same basic setting as above, but It's your XYL's birthday.

1 Go for the birthday celebrations and let go of the contest
2 Tell her about your devotion to her and work the contest
3 Divorce her, as it is inconvenient to have the XYL's birthday matching contest dates. You terminate your suffering marriage on the spot.

A3. It is your favourite DX-contest and you are running High-Power as standard. In the midst of your best-ever 3-pointer-pileup on 160 meters, the fellow citizen shows up and presents with TVI-claims.

1 You kindly express regret to him, switch off the station and go vacuuming the house with the XYL.
2 You present him with the makeshift brandy bottle and promise to do something about it next Monday
3 You say you have a gun in the drawer

A4. You are working the contest in the unassisted category. However, your logging computer has an internet connection and a multitasking OS. You are one mouse click away from the DX-cluster and finding new multipliers by S&P gets harder. What do you do?

1. You sneak a quick look at the Cluster and work a few mults, and feel good about it.
2. You stay that one mouse-click away.
3. You uninstall all web-browsers and internet services from the computer to make sure that you are not even a suspect of cheating.

A5. It is Friday evening before your favourite DX-contest. But not all is right. Your 80-m dipole is tuned to CW and it is an SSB-contest. It is up in the tower, 40 meters high, and you don't have a safety-belt. What do you do?

1. You choose to run low power on 80 meters.
2. You drive 150 km to your friend and get the belt and fix the problem
3. You climb the tower without safety equipment.

A6. You are guest-operating a very big contest station. Your host has a PA that is very big and powerful. You start to tune it and realize that the 200W exciter can push up to 8 kW of output. What do you do?

1. You choose to run low power at 100 Watts to help battle climate change.
2. You tune the system to run 1.5 kW + the sales tax, which is what your license says, roughly.
3. You squeeze 10 KW out of the setup.

A7. QSL-cards. What is your attitude towards QSL'ing?

1. What's a QSL? Don't care.
2. I reply to all QSL-requests.
3. I seize the green stamps and put the rest to rest in an old shoebox.

A8. Hamfests and contest meetings, why do attend them?

1. Donno
2. Its fun.
3. I'm in need of recognition for my exceptional scores and big antennas.

A9. How is your sex life?

1. It is ok when I think of my ICOM.
2. Couldn't be better.
3. Haven't given it a thought since I got my 3-el for 40.

A10. What made you take this test?

1. To find out if I could, someday, became a real contester.
2. Because it is for real contesters.
3. To validate, what I know already is the sad truth.

TCS test. Version – B

B1. Do you have lots of friends?

1. Only my PileUP! clippings
2. I think so.
3. Just a few. They usually get annoyed with me

B2. CQ WW and your XYL's birthday collide, what do you do?

1. Surprise her by taking her to a weekend-long b-day party you have arranged at your in-laws place
2. Buy a nice gift and take her to an expensive lunch, then head for the station
3 .Buy her the 600-page bestseller "Keeping your husband happy" as a present and demand that she reads it four times while you are away to work the contest.

B3. Three days before the contest you find out your 2nd radio is dead and your bank account runs low. You:

1. Decide to run SO1R
2. Ask all your ham friends to find a replacement for loan
3. Bring XYL's jewelry to a pawn shop to get the dough for a new radio

B4. 15 hours into the contest the dual 3-500Z:s in your amp go south. You:

1. Quit as contest is no contest barefoot
2. Keep running barefoot and at the same time rewire the amp for the 8877 you happen to have on the shelf
3. Call your friend and trade your 2 month old Mercedes to the 4CX10000 amp he has a few miles away

B5. You have decided to buy yourself a new PA. It will run:

1. A pair of 572B's
2. A pair of 8877's
3. A pair of 4CX20000's

B6. Its midnight, its cold and your beam stops rotating because the mast bearing freezes. The main pileup is on the side of your beam and the rate sucks. Your decision is to:

1. Shut down the station, go to sleep and wait until morning. The sun will eventually thaw the bearing and you can continue running
2. Switch to vertical and keep running
3. Climb up the tower and thaw the bearing by peeing on it

B7. 36 hours behind and you are getting reeeaallly tired and can't keep your eyes open. Your choice is to:

1. Go to sleep. Heck, it's just a contest
2. Go for a two-minute walk outside, drink a pot of fresh coffee and keep running
3. Call your doctor to bring you some good stuff to keep you awake

B8. You have decided to build a competitive SOSB station. Your choice of antennas is:

1. Four dipoles on 15m
2. Four by four by four yagis on 20m
3. Four by four by four by four quads on 160m

B9. Your country has just issued a new regulation for maximum output power of 50W. You don't want to brake the law, so you:

1. Move to a QRP category as power and QSO rate do not matter
2. Find a rental QTH in a place where you can still run full legal limit and decent pileups
3. Sell your property, quit your job and move to Cayman Islands with your family

B10. Your 40m stacked yagis are in dire need for coax replacement. You opt for:

1. RG-58 because it’s cheap, a few extra dB loss doesn’t matter and it can take your power
2. 1” hardline
3. Commercial grade 3” coax, although it’s gonna cost you $20,000. Low loss is everything!

Scoring

Your score is the sum the points (1-3) in each question, minimum 10 and maximum 30. If you do both tests and take the average, the consistency of the test is four-fold. The interpretation of the score is given below.

10–15	You do not suffer from TCS, actually your behavior is uncharacteristic to that of a contester. You are quite not there yet!
16–25	You can experience mild symptoms of TCS, but actually you give the im-pression of a fine contester.
26–	You should consider seeking profess-sional help for your severe TCS.

73, CCF Medical Division

Squeezing the decibels out of a simple dipole

Jari Perkiömäki OH6BG/OG6G

As a **novice** antenna modeller, immediately after the purchase of EZNEC Pro/4 (1), I started to browse through the wealth of antenna information available on the Internet. It was soon that I found Tom's (W8JI) awesome web site, www.w8ji.com. In the Antenna section of his site (2), Tom explained that a simple horizontal half-wave dipole has about 8.5 dB gain over an isotropic radiator. This was my inspiration to delve into modelling the simple dipole with EZNEC not to consciously waste the invaluable gain this antenna has to offer.

Lesson 1. The dipole typically has a 8 dBi gain or less over an isotropic radiator.

When a half-wave dipole is placed over the real earth, the dipole really has more gain that the theoretical 2.15 dB over an isotropic radiator. Tom says the dipole has about 8.5 dB gain over the isotropic, and if any EZNEC antenna model over earth shows such a gain, that particular model effectively has the same gain as a dipole. His claim is based on the calculations with EZNEC+; a claim which I was happy trying to confirm with EZNEC Pro/4 (incorporating a double-precision NEC-4 engine from the Lawrence Livermore National Laboratory) which is the most advanced version of EZNEC available for mortals like me, outside the U.S.

But soon I realized the Pro/4 was slightly more conservative in its calculations than the version Tom has used. The Pro/4 suggests that the dipole gain peaks at about 8.0 dBi with a cyclic nature, so I guess it would be safe to assume that its typical gain is just a little less than 8 dBi (using EZNEC's ”average” ground), in contrast to the 8.5 dBi Tom's observations suggest.

What is important to note is, however, that the dipole gain over the ground is dependent on many factors such as the height, ground characteristics, thickness of the wire and, in some degree, the frequency, in the eyes of EZNEC.

The ground characteristics are one of the most important factors that has a direct impact on the gain and radiation pattern of the antenna. In EZNEC, there are a dozen typical ground characteristics the user can choose from. Unfortunately, what is labelled as an ”average” ground in EZNEC, may not be that ”average” in a specific country. For instance, the ”average” ground in EZNEC is better than the average ground in Finland. As a matter of fact, if we look at the conductivity map of Finland (see summary in Table 1), we soon realize that Finland's average ground is close to a ”very poor” ground in EZNEC's terms.

Table 1. Typical ground characteristics in Finland.

Ground type	Conductivity (S/m)	Dielectric constant
Very poor (Lapland):	0.0005	3
Average:	0.001	13
Very good (Turku archipelago & OH0):	0.02	40
Sea water (Gulf of Finland/Bothnia):	1	80

Lesson 2. The optimal minimum height is 0.6 wavelengths over the ground.

So, the gain of the half-wave dipole has a regular variation as a function of height over the ground. This leads effortlessly to my next question: At what height I should place my dipole in order to exploit all the available gain from this antenna? The quick answer is: 0.6 λ and all the heights that are multiples of 0.5 λ above 0.6 λ (i.e. 1.1, 1.6, 2.1, 2.6 λ, etc.).

Let's now take a brief glance at Figure 1 that shows how the gain (dBi) of the horizontal half-wave dipole develops from the height of 0.05 λ to 1.25 λ on 160M, 80M and 10M over the Finnish average ground.

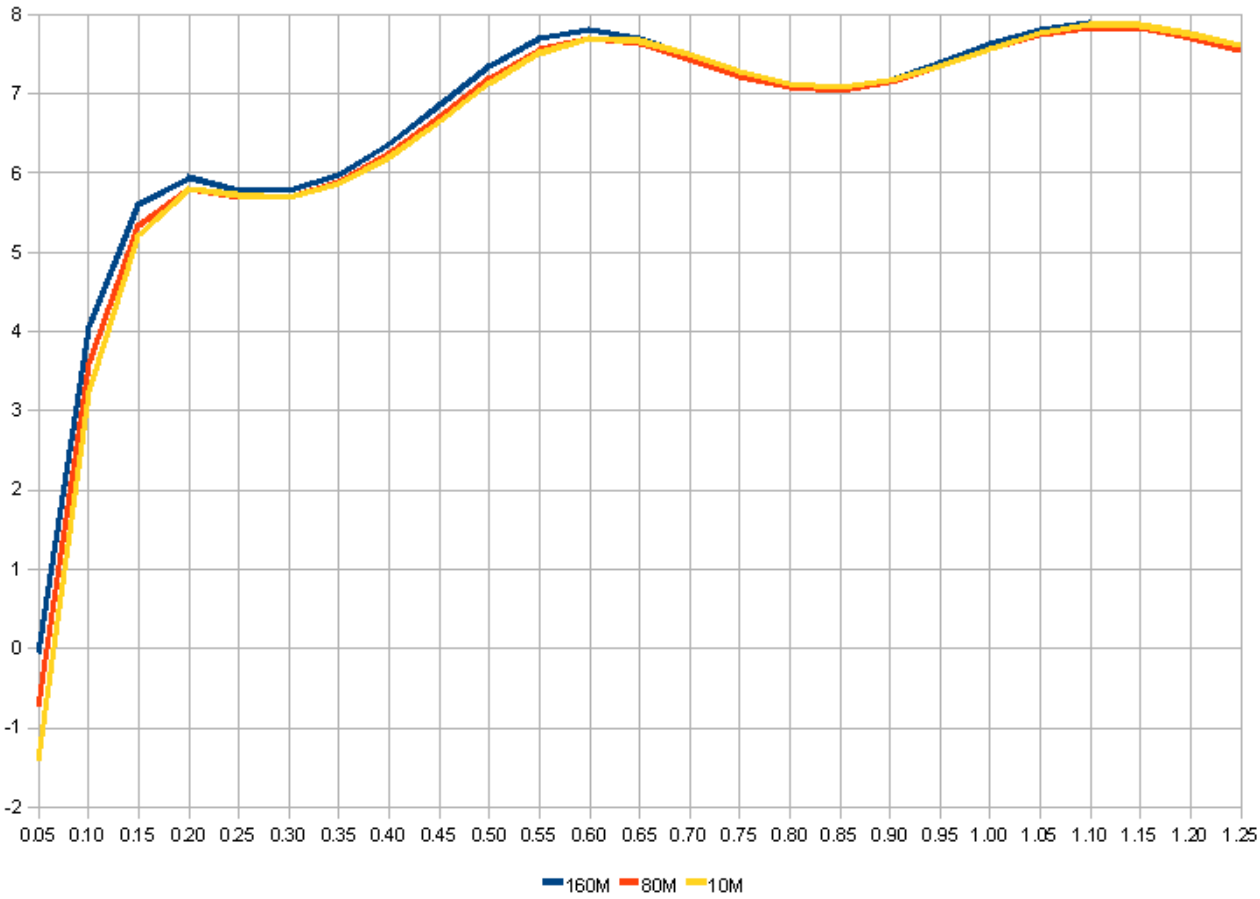


Figure 1. The dipole gain (in dBi) as a function of height (in wavelengths) over average ground. 160M (1.83 MHz), 80M (3.7 MHz) and 10M (28.1 MHz)

.

This simple figure also tells us that if we have to place our low-band antennas at a considerably low height, the suggested absolutely minimum height in terms of gain would be in the range of 0.15 to 0.25 λ. This is 25 to 41 meters (82 to 134 ft) above the ground on 160M, and 12 to 20 meters (39 to 65 ft) above the ground on 80M.

Now, let's see the variation of the gain and the lowest elevation angle as a function of height in more detail on 80M over the Finnish soil (Table 2).

Table 2. 3.7-MHz dipole gain (in dBi) and the lowest elevation angle (deg) over four typical Finnish grounds. Modelled with a copper wire of 2 mm in diameter, taking into account the wire losses, using the high-accuracy NEC Sommerfeld ground simulation model in EZNEC.

Height over ground	Sea water		Very good ground		Average ground		Very poor ground		Average values, excl. Sea water	
	dBi	Elev	dBi	Elev	dBi	Elev	dBi	Elev	dBi	Elev
0.6 λ	8.98	24	8.60	24	7.70	23	6.85	21	7.72	22.7
1.1 λ	8.54	13	8.34	13	7.84	13	7.34	12	7.84	12.7
1.6 λ	8.38	9	8.25	9	7.90	9	7.51	8	7.89	8.7
2.1 λ	8.30	7	8.19	7	7.92	7	7.61	7	7.91	7.0
2.6 λ	8.17	6	8.09	5	7.89	5	7.69	5	7.89	5.0
3.1 λ	8.15	5	8.07	5	7.88	5	7.65	4	7.87	4.7
3.6 λ	8.20	4	8.14	4	7.98	4	7.81	4	7.98	4.0

Lesson 3. The best heights are 44 m (144 ft) and 47 m (154 ft) above the ground.

Now that I discovered that 0.6 λ and its 0.5-λ multiples are the best heights in terms of gain, my next question was: Is there a height or heights that would be optimal for multiband dipole gain (or for my Mosley 5-band TA-53-M Yagi, for that matter)?

I ran an extensive set of calculations with EZNEC's double-precision NEC-4 engine trying to find the heights where the dipole gain reached its peak dB values. The model used a 2-mm (diameter) copper wire with 51 segments on all frequencies, and was placed over a Finnish medium-type ground (conductivity 0.001 S/m; dielectric constant 13). Calculations were made with EZNEC's high-accuracy NEC Sommerfeld ground algorithm. Wire losses for the copper wire were taken into account. For detailed results, see Tables 3 and 4.

Table 3 shows the heights that optimally support our quest for squeezing out the maximum decibels from the dipole, or any horizontal antenna. To cover all amateur radio bands from 80M to 10M, there is not one solution but we will have to build two dipoles, one for lower-bands (from 80M to 30M) and second for higher bands (from 20M to 10M).

We would place our multiband dipole for the lower bands at about 47 meters/154 ft (or 47.5 m as the average of 48.6, 46.8 and 47.5 m) above the ground. For the higher bands, we would place our multiband dipole at about 44 meters/144 ft (approximately the average of 44.6, 43.1, 44.0, 43.3 and 43.7 m) above the ground.

How about the elevation angles? you may ask. If you take another look at Table 3, you will see that the elevation angle with the best gain for the lowest lobe remains the same across all frequencies at the given height in wavelengths. The angles shown in Table 3 have been calculated with EZNEC.

The angle of the lowest lobe for most horizontal antennas can also be esti-

mated with this simple equation: θ = arc sin 1/(4h), where θ is the elevation angle in degrees and h is the height in wavelengths. Arc sin means the inverse of sine. Example: arc sin 1/(4 x 0.6) = arc sin 1/2.4 = arc sin 0.4167 = 24.6 degrees (EZNEC says 23 degrees).

Horizontal ½-λ DIPOLE (2-mm Cu, 51 seg) over average Finnish ground

Table 3. Optimum height (in meters) for maximum gain (dBi)

λ/deg\MHz	1.83	3.7	7.05	10.1	14.1	18.1	21.1	24.9	28.1
0.6 λ/23	98.3	48.6	25.5	17.8	12.8	9.9	8.5	7.2	6.4
1.1 λ/13	180.2	89.1	46.8	32.7	23.4	18.2	15.6	13.2	11.7
1.6 λ/9	262.1	129.6	68.0	47.5	34.0	26.5	22.7	19.3	17.1
2.1 λ/7	344.0	170.2	89.3	62.3	44.6	34.8	29.8	25.3	22.4
2.6 λ/5	425.9	210.7	110.6	77.2	55.3	43.1	36.9	31.3	27.7
3.1 λ/5	507.8	251.2	131.8	92.0	65.9	51.3	44.0	37.3	33.1
3.6 λ/4	589.8	291.7	153.1	106.9	76.5	59.6	51.1	43.3	38.4
4.1 λ/3	671.7	332.2	174.3	121.7	87.2	67.9	58.3	49.4	43.7

Table 4. Maximum gain (dBi) of the lowest elevation lobe (deg)

λ/deg\MHz	1.83	3.7	7.05	10.1	14.1	18.1	21.1	24.9	28.1
0.6 λ/23	7.81	7.70	7.68	7.68	7.68	7.69	7.69	7.69	7.70
1.1 λ/13	7.88	7.84	7.84	7.85	7.86	7.86	7.87	7.87	7.87
1.6 λ/9	7.92	7.90	7.91	7.92	7.92	7.93	7.93	7.94	7.94
2.1 λ/7	7.92	7.92	7.93	7.94	7.95	7.96	7.96	7.96	7.97
2.6 λ/5	7.89	7.89	7.90	7.91	7.92	7.93	7.93	7.93	7.94
3.1 λ/5	7.87	7.88	7.90	7.91	7.92	7.93	7.93	7.94	7.94
3.6 λ/4	7.97	7.98	8.00	8.01	8.02	8.03	8.03	8.03	8.04
4.1 λ/3	7.79	7.80	7.82	7.83	7.84	7.84	7.85	7.85	7.85

Table 5. Amateur-band frequencies in MHz and their corresponding wavelengths from EZNEC

Freq.	λ(m)	λ(ft)
1.83 MHz	163.821	537.471
3.70 MHz	81.025	265.830
7.05 MHz	42.523	139.510
10.1 MHz	29.682	97.383
14.1 MHz	21.261	69.756
18.1 MHz	16.563	54.340
21.1 MHz	14.208	46.614
24.9 MHz	12.039	39.500
28.1 MHz	10.668	35.002

If you wish to do calculations of your own, please visit
http://www.voacap.com/antennas/
for the EZNEC and NEC input files. On the VOACAP site, there is also a collection of antenna files presented here that are suitable for running VOACAP propagation predictions.

Elevation Plots

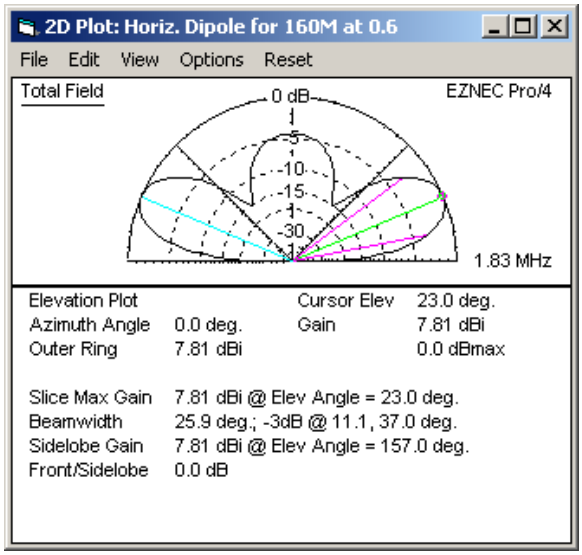


Figure 2. The elevation angles of a dipole at 0.6 λ

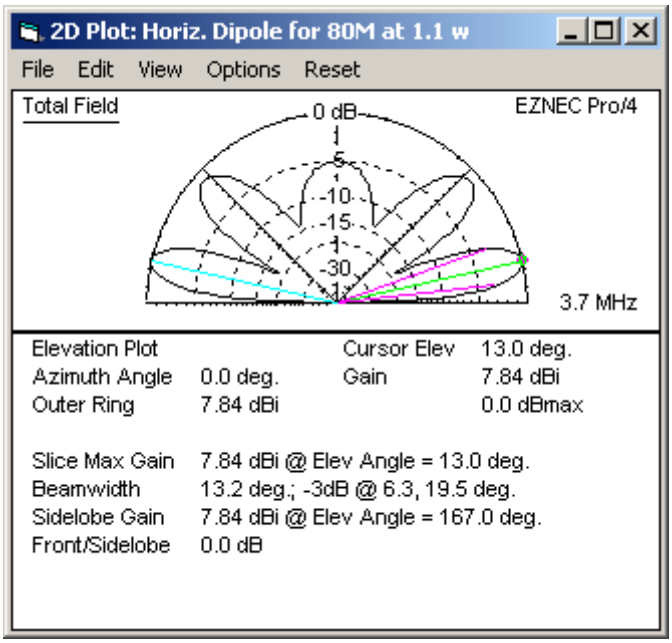


Figure 3. The elevation angles of a dipole at 1.1 λ

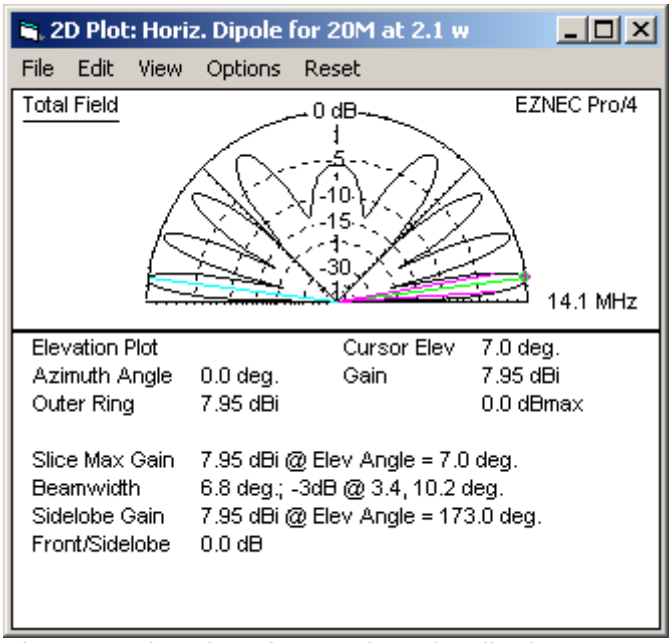


Figure 4. The elevation angles of a dipole at 2.1 λ

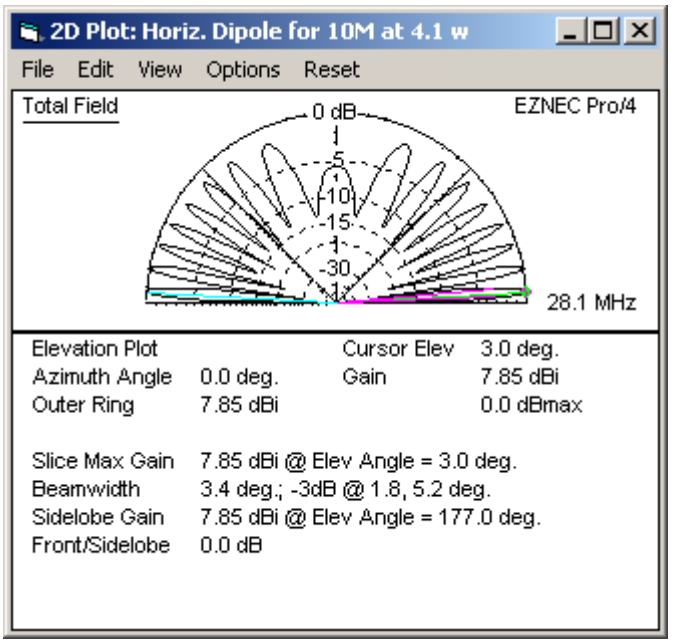


Figure 5. The elevation angles of a dipole at 4.1 λ

What next?

Although we now have a picture of how the dipole gain is dependent on the ground and the height, and how the elevation angles are directly related to the height of the antenna, we still need to have another study where we will see which elevation angles are necessary for making the best QSOs from Finland to all corners of the globe. This will be discussed in our next article, and we will use the elevation angle data available on the ARRL Antenna Handbook CD-ROM as the basis of that study.

References

(1) http://www.eznec.com
(2) http://www.w8ji.com/antennas.htm

SK3W goes M/M
Gunnar, SG3P

After a few of years of low activity from Fernebo SK3W, it was time to awake the station and go for the next level. In 2007, a long-term goal was set: “beat the Swedish CQWW CW M/M record from 1998 by SL3ZV”. It could be reached in 2009 at earliest.

The old record resulted from a serious M/M battle in Scandinavia in late 1990s, the beginning of cycle 23. SL3ZV in Östersund gathered back then an experienced crew - some operators from the famous SK2KW, in what we can call a semi field-day style operation. Most antennas permanently installed, but radios and amplifiers brought by different people for the contest. On the other side of the Gulf of Bothnia, Pekka’s (OH2HE) garage in Paksalo was transformed into an M/M station. The successful OH2U M/M-era started. SL3ZV run M/M in CQWW CW in 1997 and 1998. I wonder if the Paksalo Philharmonics are still going strong?

Harpo fans from 1974. SK2KW ops, Jan SM2EKM and Peter SM2CEW.

Why is M/M so appealing? Antenna switching is simple as all antennas on one band go to one radio. No need for six-packs and band decoders. Single bandpass filters and stubs can be used without difficulty. However, you need lots of antennas and towers as well as radios and amplifiers. Team work is essential. M/M is not putting too much pressure on the new operators in comparison to M/S.

The most challenging task is to fill up the operators list. SL3ZV-ops were flown in from all parts of Sweden, and with very little preparation they set the SM-record. Many of the operators had never met before. With our “long-term project” at SK3W, we had two practice runs before we could expect any result, and therefore time to form a team. In Sweden, it is difficult to find any hot and up-coming contesters, and the existing ones are busy building their own station or reluctant to travel. But luckily in this hobby, there are plenty of old farts that can be called in and they eagerly show

up in their SUV's[1] five minutes before the contest, and open the box with the golden bencher ;-)

For comparison, the OH2U team is of one cohort; they are licensed at the same time and have known each other for years. SK2KW had the top notch operators in Sweden, same age and very active. SL3ZV was a project with a mixed collection of people. SK3W M/M team is a mix of new and old contesters, in the process of getting to know each other. SK3W in 2007 was a 5-radio and 8-op effort. In 2008, it was extended to 6 radios and a mix of 11 ops including our contest rookie SM5PHU on 10 and hardcore contesters SM5CCT & SM5DJZ on 80. We now have a stable operator set for the coming years.

The Fernebo station has been in static state for the last eight years apart from a radio shack extension we did two years ago. We are still very limited in space, facilities and comforts. A sensational fact to our readers in Finland: we lack a sauna. Before we started any M/M, our main concerns were band interference and the unstable power line. However, we did not have problems in 2007-2008 using high power on most bands. W3NQN filters are installed, without stubs.

[1] Sports utility vehicle

Fernebo marshland (60°17'N, 16°15'E) provides with steady flow of mosquitos.

The SK3W equipment belongs to the team members; SM5IMO, SM3EVR and

SM3SGP are our key contributors. We would prefer to have similar radios on all bands and that each operator would bring their own together with cables, keyers and computers. In 2008, the amplifier set consisted of Alphas, a Tentec and an Acom accompanied by a home-built GU84 PA and a 3CX3000 PA. Since commercial amplifiers use single phase, the 3-phase 16A line to the house is very sensitive to uneven load on the phases. An amplifier project has started to build a couple of single band amps feed by a common 3-phase power supply, but progress has been slow.

We currently use Win-Test for logging, mainly for its simple UI. It is relatively easy to set up by new users, which will always be the case in a multi-multi. Unfortunately WinTest's licensing for Multi stations is not good.

The antenna set has been the same for many years. Lack of maintenance is the most common disease. (I hope Pasi OH6UM will use a helmet in Arkala during solar cycle 25). In Fernebo, all cables had to be replaced this year for the 40m stack. 10-m rotator is not working, and some other antennas are out of order. Already during 2007 we discovered the major problem of having the 20 m and 40m main antenna on the same rotator. Unfortunately nothing has been done to fix this yet.

SK3W M/M 2007

BAND	Q-goal	Q-res	C-goal	C-res	Ops
160	800	852	80	74	SM5COP/SM3SGP
80	1400	1347	110	113	SM5CCT
40	2000	1731	130	133	SM3EVR/SM0TXT
20	2200	1322	130	138	SM5AJV
15	1200	508	110	122	SM5IMO/SM0EPO
10	400	116	60	40	SM5COP/SM3SGP
	8000	5876	620	620	

SK3W M/M 2008

BAND	Q-goal	Q-res	C-goal	C-res	
160	850	980	85	75	SM5HJZ/SM0GNS
80	1500	1822	115	133	SM5CCT/SM5DJZ
40	2000	2077	135	145	SM3EVR/SM0TXT
20	2000	1497	140	145	SM5AJV/SM3SGP
15	800	254	120	90	SM5COP/SMEPO
10	250	96	60	30	SM0PHU
	7400	6736	655	618	

SL3ZV Swedish Record 1998

BAND	Q	C	Z
160	901	90	24
80	1170	115	32
40	2161	137	35
20	2589	139	37
15	1670	139	39
10	716	122	36
Tot	9207	742	203

Jonas, SM5PHU pressing F1 on ten.

For 2007 we set up mult and QSO goals for each band. Surprisingly the numbers came quite close, except for the high bands. The result of 2007 was used for planning 2008. As everyone remembers, 2008 was the year for setting low-band records, with minimal scores on higher bands. It was exciting to follow the race to beat the target each hour. Hopefully we will have the same thrill in the coming years, and continue to beat our own scores, as propagation and our operating skills improve.

How to motivate the crew to high targets? We are now in the very bottom between solar cycles 23 and 24. It is already fun to work CQ WW CW - we can just imagine the scores in a couple of years, the endless pileups on 10 and 15 meters. Will the low band scores go down? Probably the activity will move to higher bands, but the extreme interest in low bands in the past years has resulted in improved antenna systems around the world. Mults will be available. We at SK3W are still playing in the sand-box in this category. Major M/M stations use two radios per band and have extensive switching capabilities. At SK3W, we have a lot to learn.

In 2008, we used three TenTec Orions, a FT1000D, a K3 and an IC756p3. On 80, the sub-RX of the Orion was used for mult-listening by a second operator. This was a cheap and easy way to improve the score without external and complicated switching.

Jan SM5DJZ and Bengt SM5CCT – 80 meter virtuosos.

Why don't we set our goals higher? OH2U won the EU in M/M for years, and SK2KW had impressive scores from Sweden some 30 years ago, showing that the Scandinavians could be competitive. 30 years ago Radio was still King (as well as Formula One in SM; Do you remember Ronnie Pettersson, Reine Wisell and Gunnar Nilsson?), and even a callsign like SM2EKM sounded fresh and hot. Nowadays we in SM are behind the Finns. We need to improve here, but the lack of Formula One drivers in Sweden prevents us from setting the target even higher. To have a clear and realistic goal helps motivation, such as a ten-year-old record in the most hardware-demanding category.

Tord, SM3EVR learning from the coach Gunnar, SM3SGP.

What can you expect in the future from SK3W? We now focus on CQWW CW, with SAC as a secondary target. Other contests will mostly be for practice and single-op efforts. To have a dedicated maximum-effort contest every year helps planning and vacation scheduling. We will probably enter more into SSB contesting in the coming years, since we have two very strong local QRP'ers, SA3ARK, Dan and SA3ARL, Fredrik in the group.

References:

http://www.sk3w.se

http://lists.contesting.com/archives//html/3830/1998-12/msg00028.html

http://lists.contesting.com/archives//html/3830/2007-11/msg01536.html

http://lists.contesting.com/archives//html/3830/2008-12/msg00375.html

SOSB 160 in CQ WW CW from LN9Z

Jan, LA9HW

Lucky me! Finally I was on the right band at the right time! Conditions on Top Band had been great for most of the season, working the first US west coast stations already in early September. And after running 1000 QSOs in the SSB part, with the antenna down half the contest, I had decided to do a serious 160-m effort in the CW part.

LA9Z (LN9Z in major contests) is a new contest station in Lista, near the southernmost point of Norway. This is our third season, and we still only have inverted-L antennas. Thus far, we have focused on 160–40. The first season was 80 only, so this is our second serious season on the topband (TB). We have worked WAS, 38 CQ zones and 157 DXCC countries so far. Activity has been primarily in contests, but includes also some casual DX-weekends. And I must add that prior to LA9Z, I have 30 years of contest experience, but almost without TB! (... *it's impossible to work any DX on 160 meters as there is only strong Europeans and lots of QRN* ...) I had been so wrong.

I have gained much experience in how the TB works in the last three years. It just isn't like the other bands! Here, in the aurora zone, everything depends on the Aurora Index (Au). With Au above 4, we might better just find something else to do... Predictions for the 2008 contest looked good, and all indicators behaved well in the days before the contest. Au was above 5 early in the week, but that doesn't hurt as long as there are a couple of days to settle down again. When the contest started, the Au was at 1! And it remained from 1 to 2 for most of the contest!

Preparation before the contest was not as I wanted. Normally I try to get to the QTH on Thursday night before a major contest to be able to relax and check all equipment. This time I had to be in Oslo for a meeting late Thursday night, so I didn't get to the station before 6 pm on Friday. And, as always, first task was to check antennas. The QTH is extremely windy, and we have already lots of bad experiences, but this time everything looked fine. I only needed a couple of minutes to straighten out the Beverages. At 8 pm, I went to bed for some sleep, and after a 4-hour refreshing nap (!) I was ready to start. At this point the station owner Roy LA5KO and his wife had also arrived at the site. They were of great help during the contest with food etc.

The QTH is located about 80 meters from sea water, and our 160-meter antenna is a 1/4-wave Inverted-L. The length of the vertical part is 18 meters. The antenna was originally a 27.5- meter high 160-m Titanex antenna. It did not withstand the wind at the site. The antenna has ca. 300 radials, plus about 100 m^2 of poultry net. And it works excellent! On the RX side we currently have 3 Beverages, 160–180 meters long. They are directed at USA, JA, and SA. Despite being short, one wavelength on 160, they work well, and enhance the RX-capability.

In the shack, we have two stations. A Yaesu FT-1000MPMkIII Field, and a brand new Ten-Tec Orion II. Both stations have a QRO Technologies PA, running a smooth 1 kW without getting heated. The Orion was used for the first time in the SSB part by LA5KO, who worked SOSB 40. CQWW CW was my first contest experience with the rig. It has a complete set of filters, and the narrow CW filter showed to be much more efficient than the FT-1000 I am used to. The rig has a nice option that I took full advantage of: the 2 separate VFOs can be run with different antennas. For almost the entire contest I used both VFOs – one on each ear (on the same frequency when running), where one

VFO used the TX antenna, and the other VFO used the RX antenna. (Switching between the Beverages is still done on a manual switch). Using both antennas at the same time was very efficient!

Since I am not a good CW operator I always start a CW contest with S&P to 'warm up'. This time I did for a short while. Started at lower band edge and worked my way upwards. Picked a few 'goodies' – OH0 and 7X. And after trying a bit on 1830, I started to run on 1835 at 0018, and stayed on 1835 for over 4 hours. Worked 94 QSOs the first hour, and after 5 hours, I still was above 100 q/h in average.

And then, just before sunrise, I lost the antenna! Crises! Knocked on LA5KO's door to wake him up, and we went out in the cold, rainy and very dark night – this had to be fixed. It had happened before, and was a construction failure. The Kevlar support rope for the horizontal part just burned off. Normally it's a quick fix. Instead of spending 10 minutes to have the antenna up again, we decided to do a more permanent fix, which cost me 43 minutes of good operating time. But no further problems.

Back on air I worked a couple of more hours before the night was over, finishing with 711 QSOs. At midnight I had 1.213 QSOs.

Conditions were incredible all weekend. The band seemed wide open, and even at times sounded like 20 meters with sunspots. Au was 1 or 2 and the Sun Wind Speed (SWS) barely exceeded 400 km/h for short periods on Sunday evening. The band was stable. I did not notice any significant changes between the nights. Already from the start I understood that this would be good – great signals and lots of US stations. The first zone 3 already at 0106z – that is early!

Considering the dates, this is the closest any major contest could come to Winter Solistice. And for once we had a great advantage in southern Scandinavia. Normally we complain about the 'aurora ceiling', but not this time. And being this far north, I had longer nights than those further south.

Most of the contest was running smoothly – not many incidents to report. Two times ON4UN jumped on the running freq to call somebody who probably had been spotted on that frequency. It was frustrating on Saturday afternoon when UA0YAY started calling CQ on my run freq. He didn't hear me, and I did not get zone 23... The same happened on Sunday evening with BU2AI. I didn't get BV either, and he actually was the only station during the entire contest who made me move my run frequency – not because he was making QRM, but because he was working JAs, and I wanted to work JAs too!

I was surprised to work 22 JAs during such a noisy contest. On Saturday the JAs peaked at their sunrise, but on Sunday the contacts were evenly scattered between my sunset and their sunrise. The 'no peak' condition might be related to that this was the only time the SWS was over 400.

Normally DL is the largest contributor of QSOs on TB, and with 257 QSOs they really were important this time too. But the big winner was USA with 329 QSOs! Two years ago, I would have been happy just to get the zone 4 mult.

Working 86 countries on TB is pretty good, but I will mostly remember those not worked... BV already mentioned, but also BY and HC were heard. I did not hear any CT or zone 1. On the other hand, lots of 'goodies' were worked: 3X, HC8, KH6, OX and 2 VKs. Working zones 29, 30 and 31 in a 160-m contest is very satisfying!

Except for the first quarter, I was mostly running. Did a few turns of S&P, but mostly fruitless – only worked a few stations and a couple of mults this way.

Jan. LA9HW

Summary

Call: LN9Z
Operator(s): LA9HW
Class: SOSB/160 HP
QTH: JO38hc
Operating Time (hrs): 36

Band	QSOs	Zones	Countries
160	1657	25	86

Total Score = 293,151

Continental breakdown:

	Total	%
EU	1158	69.9
NA	379	22.9
AF	12	0.7
AS	98	5.9
SA	7	0.4
OC	3	0.2

QSO/ZN+DX by hour and band

H	160M	Cum	OffTime
00	94/36	94/36	
01	122/12	216/48	
02	118/10	334/58	
03	102/3	436/61	
04	73/5	509/66	
05	73/0	582/66	
06	36/0	618/66	43
07	62/6	680/72	
08	31/2	711/74	11
09	-	711/74	60
10	-	711/74	60
11	-	711/74	60
12	-	711/74	60
13	-	711/74	60
14	26/0	737/74	22
15	32/0	769/74	
16	38/2	807/76	
17	62/1	869/77	
18	56/1	925/78	
19	67/6	992/84	
20	30/0	1022/84	
21	45/2	1067/86	
22	51/0	1118/86	
23	47/1	1165/87	
00	48/2	1213/89	
01	31/0	1244/89	
02	40/1	1284/90	
03	34/6	1318/96	
04	26/2	1344/98	
05	29/2	1373/100	
06	19/3	1392/103	
07	12/0	1404/103	
08	5/0	1409/103	49
09	-	1409/103	60
10	-	1409/103	60
11	-	1409/103	52
12	3/0	1412/103	20
13	2/0	1414/103	60
14	13/0	1427/103	
15	13/0	1440/103	
16	33/0	1473/103	
17	28/3	1501/106	
18	24/0	1525/106	
19	31/2	1556/108	
20	28/2	1584/110	
21	23/1	1607/111	
22	15/0	1622/111	
23	35/0	1657/111	

The author when erecting the antennas. This is the 80-m vertical. Antenna work was done in warm summer weather.

160 m Titanex, the ori-ginal 27.5 m high version, which was modified into an inver-ted-L antenna that works better than the original.

Aftermath completes a contest!
Ilkka, OH1WZ

Since 2000 I have operated CQ WW CW from **OH2BH** in SOSB. My activity includes five fruitless attacks against the 3.5-MHz EU record, one successful act on 14 MHz (EU record) and one effort, last year, to break the 7-MHz OH record. This year, the propagation forecast was exceptional in terms of Aurora Borealis. 160 meters and 80 meters would be in fine shape. Knowing this, Martti, my host, mentioned that "also the 3-el on 80 is in good form and ready for play". Perhaps I should have listened to his advice more carefully, but I had set my mind on 7 MHz.

Last year, 40 proved to be a daytime DX-band in OH2. That's possible when the solar flux is as low as 70. The A-indeces were high, 24 and 22. It seemed then that the aurora caused poor nighttime propagation to W/VE and JA. Knowing that the aurora would be weaker, I had high hopes for this year's contest. I was also prepared to run more than the 37 hours in 2007. When Pertti, **OH2PM** announced that **TC4X** chose 7 MHz, I was delighted since we have had many SOAB and SOSB "duels" in the past.

This is the aftermath of the CQ WW CW 2008. In my opinion, an aftermath completes the contest! The idea was to analyze the 7-MHz logs of OH2BH and TC4X and write a simple report. On the way there, some new analysis tools emerged and programs were written. I report that activity here too.

New "old" tools

CallPars.dll COM object by VE3NEA

This analysis used Cabrillo logs as the source data. The graphics were made using MS Excel and some Visual Basic 6 and C code.

The Cabrillo logs contain the zone information, but multipliers and QSO-point data are lost. To make a decent log analysis, the missing elements were found with Visual Basic code, which called an excellent parser DLL (dynamic link library, COM object) written by Alex, VE3NEA.

The parser gets a callsign as a parameter and returns a multitude of parameters (Figs. 2, 3). For example, it returns the latitude and longitude, which then allows the drawing of QSO maps (Fig. 1.).

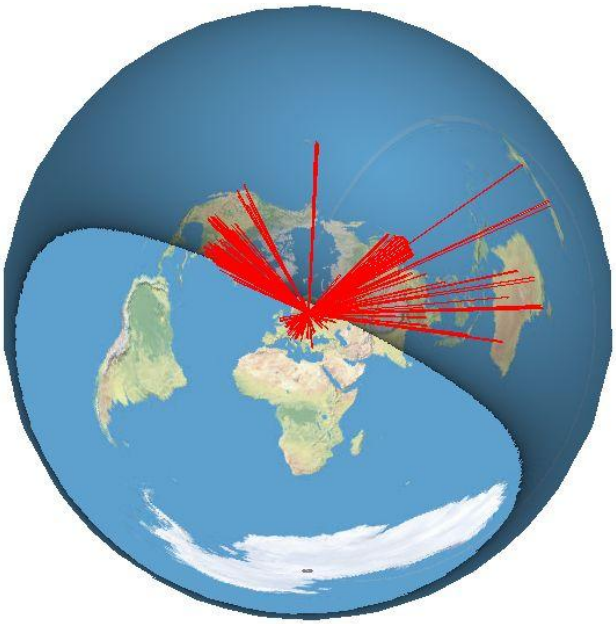


Fig. 1. An azimuth view with solar elevation at 12 UTC, Nov 29. The 7 MHz contest QSOs from OH2BH logged at 11–13 UTC are drawn on the map.

The callpars.dll is a nice utility. Before you can use it, register it with regsvr32.exe in Windows.

```
Dim CallParser As CallPars.CallsignParser
Private Sub CommandButton1_Click()
Dim Hit As CallPars.PrefixInfo
CallParser.callsign = "OH6AA"
For i = 0 To CallParser.HitCount - 1
    Set Hit = CallParser.Hits(i)
    MsgBox (Hit.Prefix & " " & Hit.City & " " & Hit.Province _
    & " " & Hit.Latitude & " " & Hit.Longitude)
Next i
End Sub
Private Sub UserForm_Activate()
Set CallParser = CreateObject("CallPars.CallsignParser")
  CallParser.PrefixFile = "c:\temp\pu\prefix.lst"
End Sub
```

Fig 2. A sample code written using the Visual Basic Editor (Alt-F11) in MS Word. The file prefix.lst is required by the parser. It is somewhat similar to cty.dat.

.

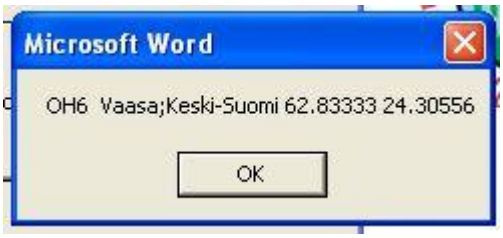


Fig 3. This is what MS Word (actually, the very same document that you are reading) tells about "**OH6AA**" when the Command-button-1 was clicked with the mouse. Prefix, City, Province, Latitude and Longitude were requested as output (Fig. 2).

Jackknifing the logs

For long, I have wanted to use a tool that would allow a "leave-this-hour-out" type of log analysis. It would reveal the most productive period and when, maybe, it would have been better to have a rest period. The analysis requires that one can exclude QSOs from the period evaluated and re-compute the score with the jackknifed log. Callpars.dll's functionality allowed a quick "computation" of the country and zone multipliers.

New QSO maps

QSO maps illustrate the propagation and the course of events (Fig. 1). We all have seen how a QSO map on VHF can reveal for example the position and manouvers of an Es cloud. On HF, we have excellent tools such as VOACAP which predicts the expected signal-to-noise (SNR) over a specified path. And by making lots of computations to various places, this data can be interpolated into SNR maps (Fig. 4). These maps are a must, and I try to use them for optimizing my actions in a contest. So far the optimization has been very simple and unorganized (visual interpretation and "ad hoc reasoning") – but I believe SOAB operators can use VOACAP coverage maps for both pre-contest planning and on-line analysis of the log/propagation.

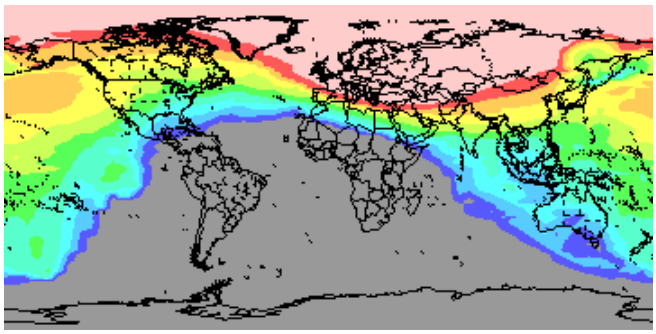


Fig. 4. The VOACAP propagation prediction from OH2 to the world on 7 MHz modeled with HamCAP. 12 UTC, November. (OH6BG)

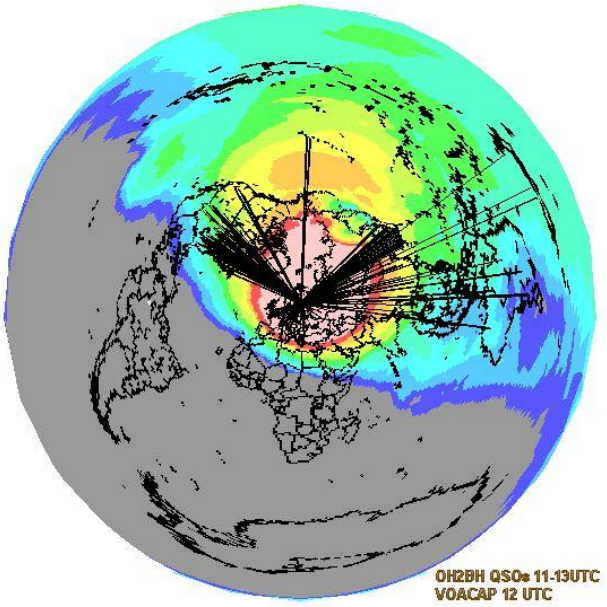


Fig 5. The HamCAP map of Fig. 4 transformed into an azimuth projection. The black lines represent QSOs from OH2BH 11-13 UTC.

For drawing azimuthal maps (Fig. 1, Fig. 5), two basic functions, *distance*() and *azimuth*() are needed. The latitude and longitude are first transformed into geocentric XYZ coordinates assuming that the world is a sphere with a 6370-km radius. It is simple to calculate the distance between two locations but less trivial to derive the azimuth.[2]

The HamCAP-map in Fig. 4 is in the equirectangular projection and has 360 columns and 180 rows. Pixels in the bitmap are directly linked with latitude and longitude. The transformation into azimuth projection is done per pixel. Each corner in a square pixel is warped to form a 4-point polygon to be drawn on the azimuth map. The fill color of the polygon is the RGB-color of the original pixel.

While drawing the pixels, it is possible to call a function that solves the solar elevation in that (lat, lon) location. The solar elevation gives an "attenuation factor", 1 for daylight and <1 for night-time. It multiplies the RGB values. Figs. 1 and 4 were drawn that way.

The selection of different map themes is of course endless, but there is one that I like. The NOAA auroral activity maps are interpolated from satellite observations and are available as raw data at http://www.sec.noaa.gov/pmap/GEpmap/GEpmapS.png and http://www.sec.noaa.gov/pmap/GEpmap/GEpmapN.png. These raster files are updated several times a day. The PNG files have 400 columns for the 360 longitudes and 400 rows for 56 "upper/lower" degrees of latitude, and using this mapping the aurora data can be superimposed on any map (Fig. 4).

Fig. 4. An azimuth map with two themes. Dec 12 at 10 UTC.

It would be interesting to compute, along the path of a QSO, a cumulative auroral activity. However, the oval is not a 2D phenomenon, and neither is the path of the QSO. Also, the accuracy of the statistical oval is questionable. Similarly, using a map like in Fig. 5, it would be interesting get the HamCAP estimate (the color of the pixel) and analyze this data. Another visualization could be an automatically generated QSO map that uses data from the DX Cluster (or Skimmer). Such a map can visualize the band conditions and activity at a glance. The

[2] Unless you use these: http://williams.best.vwh.net/avform.htm

question is whether the use of such maps is allowed in the unassisted category. Playing with map projections is entertaining. Fig. 5 illustrates "constrained azimuthal equidistant projection for Emotator rotators".

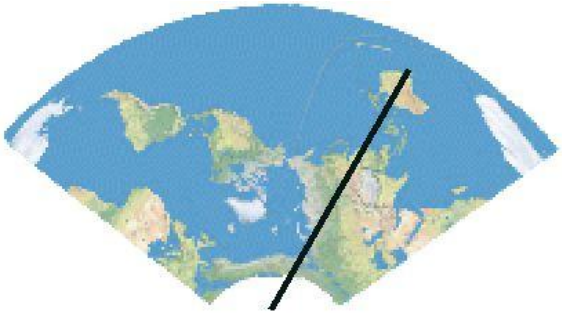


Fig 5. This map serves as the background image for Emotator rotator control boxes in OH8 area. The "needle" points to 90 degrees.

CQ WW CW 7 MHz - comparing the TC4X and OH2BH logs

OH2BH
- 2/2–el yagis at 42 m & 20 m.
- 3-el yagi at 38 m
- FT1000MP
- Alpha 77

At OH2BH the sunrise was at 0650 UTC and the sun climbed up 8.5° (1008 UTC). The sunset was at 1323 UTC. It's a forest QTH with a 1-km^2 lake E–SE of the antennas.

TC4X
- Dipole
- FT1000MPField
- Alpha 91B

Pertti's QTH was located in Alanya, south Turkey (36°32'N, 31°59'E). The QTH is in a 9-storey building and the antenna, an inverted-V dipole, was on the roof. The feedpoint was 8 m above the roof. The sea is 100 m away, towards the sector SE-WNW. The 600-m-high mountains are 2-3 km away inland, a bit closer in the East.

The duel was won by TC4X, as predicted. Table 1 shows the numbers. The Asian record of 1.6 million by S53R @ A61AJ will remain intact. Similarly, the EU record of 1.12M by T96Q is not at risk. However, TA2BK will lose two of his TA records, namely 40 m (TC4X) and 80 m (TA4ZA, OH2BH). Also, OH2U's OH record of 757,390 points from 2004 may cease to exist.

Table 1. Log summary.

	TC4X	OH2BH
Net QSO	2819	2659
WVE-QSO	271	471
JA-QSO	148	460
DXCC	140	139
CQ-Z	37	38
Score	1,365,000	919,692

The first thing to check was if we had worked the same stations to see if any "QSO potential" was left unused. 1465 calls appear in both logs, and TC4X had worked 1396 stations that did not find their way into the OH2BH logbook. That is 50% of his QSOs! They were mostly from EU (Table 2).

Table 2. Stations worked by TC4X but missed by OH2BH.

Cont	QSOs
Af	10
Eu	1110
Oc	12
Asia	135
NA	124
SA	5

The TC4X log had 12 country and 2 zone multipliers that OH2BH missed: 7X0RY, 5R8FU, 9H1XT, TA1AN, VP2ETN, C6AQQ, YS4RR, XE1MM (z), YN2Z, FJ/WJ2O, CE0Y /SM6DUK (z) and PZ5TT. Since OH2BH had 38 zones and 139 countries, it means that 40/150 would have been possible on 7 MHz (for the cluster ops). TC4X had a good skip with the 3-point Europeans most of the time and attracted the audience. That explains the "extra" 1110 EU QSOs that TC4X got. I had the feeling when I was working the JAs that I have them almost

all in my log. That was not true, TC4X had 64 JA calls that OH2BH did not have. Similarly, I did not expect TC4X to have worked 114 such WVEs that I missed.

I wanted to find out when TC4X worked these WVE and JA QSOs to know whether it was due to propagation.

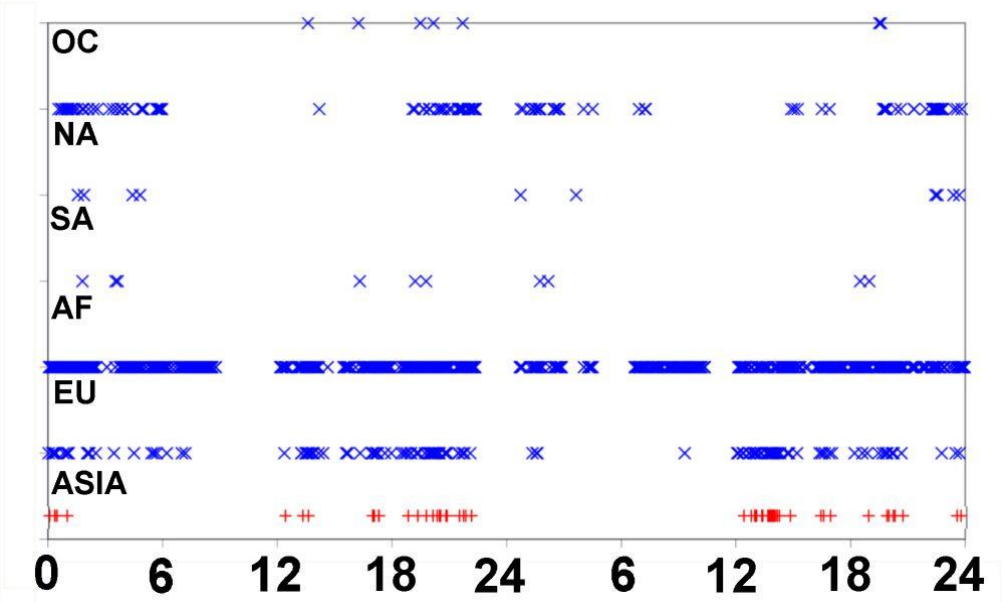


Fig 6. UTC x Continent distribution of the not-in-OH2BH-log QSOs of TC4X. The JA QSOs are marked with the red crosses.

Fig. 6 reveals that TC4X had WVE propagation at 0–5 UTC and 20–23 UTC both evenings. TC4X's JAs-not-in-OH2BH-log were logged at 23–1 UTC, 12–15 UTC and 20–22 UTC. The 23–1 UTC window is after the JA sunrise and shows that propagation from TA is quite different from what we are used to have in Finland. In OH, the last JAs are worked 2230Z and then the band closes.

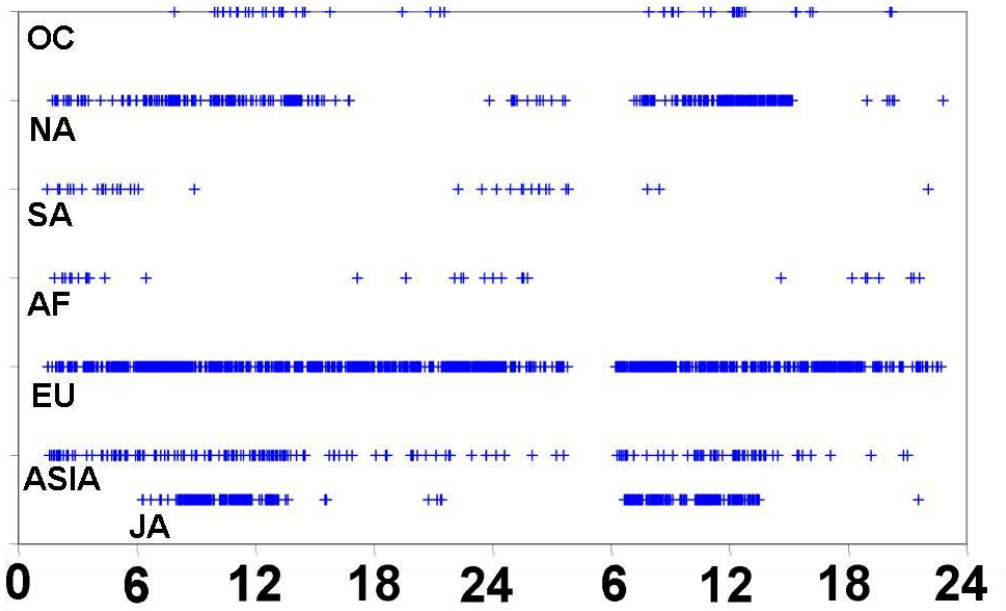


Fig. 7. All OH2BH QSOs by continents + JA.

Fig. 7 shows how virtually all JAs at OH2BH were logged in early JA evening while it was daylight in OH at 6–13 UTC. This is different from TA4. Fig. 7 also

shows how the WVE propagation peaked at the same time at 6–14 UTC. Almost no WVE QSOs between 20–24Z from OH2BH when TC4X was working NA. Every time I listened on 3.5 MHz, it was wide open to NA with S9+ signals, grrrr. The MUF dropped so that the band was open to the south only.

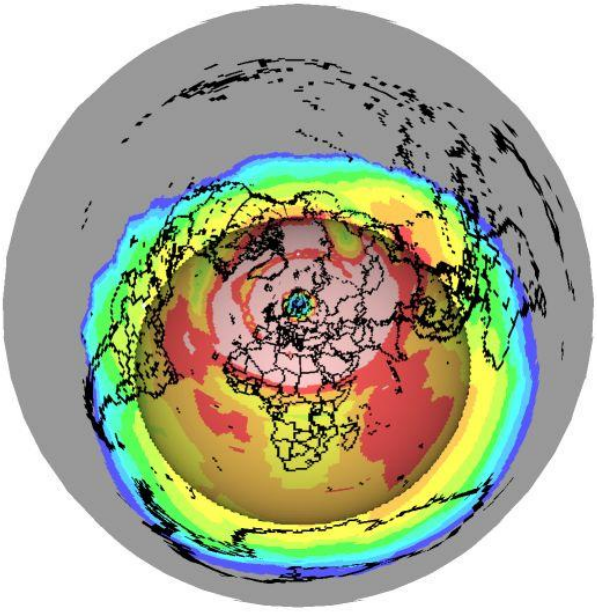


Fig 8. HamCAP prediction for 22 UTC. It says, “expect JA, most of Europe, VK6, BY PY7, W1–4 and VE1–3”.

All in all, making QSOs between 19–23Z was not so much fun as I had expected based on VOACAP predictions (Fig. 8). Figures 9 and 10 show the actual QSOs on the map. Contrary to the prediction, the aurora-free polar paths did not bring any DXs. Also, the skip to Europe was longer than predicted. It was over 2000 km and, for example, did not cover G, SP, OK, OM, or north DL (Fig. 10).
I had hoped that at 19-23 UTC, when it is early evening in W/VE, there would have been good runs via the aurora-free ionosphere above TF and southern OX. There was no propagation, contrary to the VOACAP prediction. The MUF must have dropped below 7 MHz.

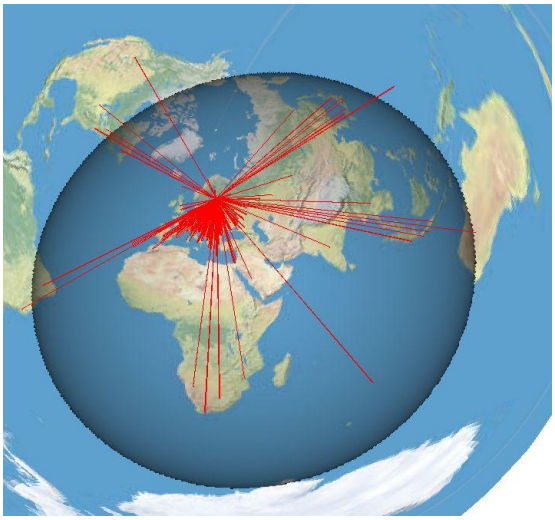


Fig 9. OH2BH QSOs at 19-23UTC with grayline at 21 UTC. CallPars.dll has made a mistake on one of the TO calls, placing it to Amsterdam Isl, Indian Ocean.

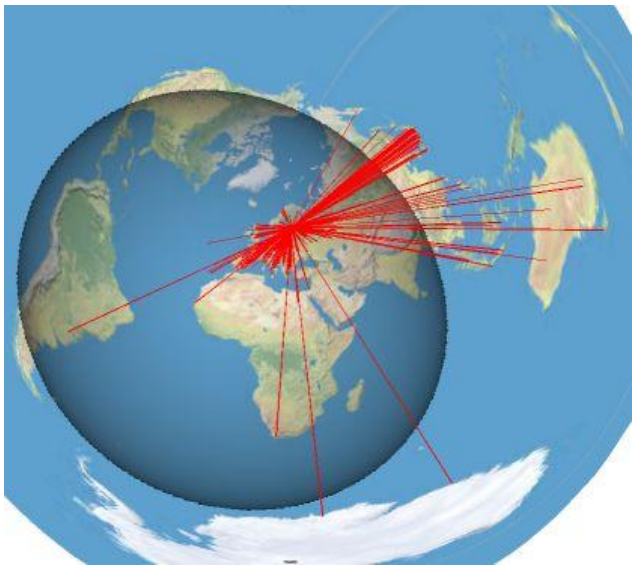


Fig 9b. OH2U’s QSOs at 19-23 UTC in 2004.

Fig 10. 19-23 UTC in Europe. The circle denotes a 2000-km distance. OH2BH QSOs are drawn as red dots.

Fig. 11. TC4X QSOs with EU at 19-23 UTC. From TA4 the nighttime skip was shorter. Note that the (lat, lon) from callpars.dll has been jittered to show a bit more realistic maps. 2000-km circle.

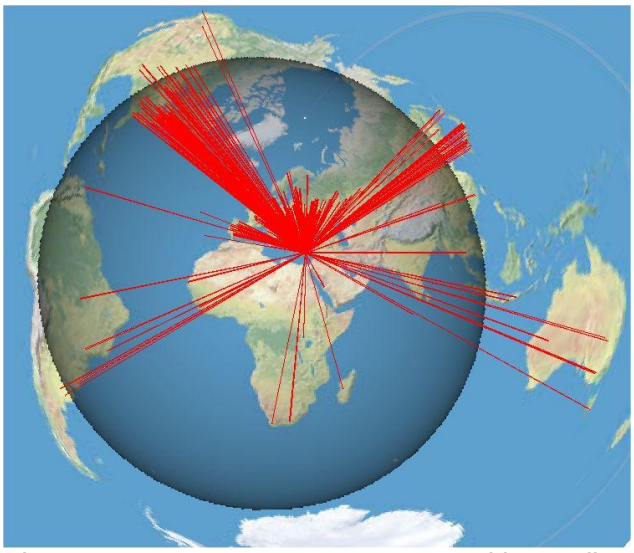


Fig. 12. TC4X QSOs at 19-23UTC with grayline at 23 UTC. The W6 and W7 calls may be in incorrect locations. Compare with Fig. 9.

This year, at the bottom of the cycle, 7 MHz was a DX band during the daylight hours up in the north. The optimal location in Europe must have been around the 50°N latitude. That is where DX conditions prevailed day and night.
TC4X was too south (Fig. 14). However, some DX was worked during the daytime: K1LZ, 09 UTC, 31.3°; ZL4AS, 0730 UTC, 24°; W3GQ, 0730 UTC, 24°, and AH2R, 12 UTC, 23.3° just to mention a few (sun elev. in degrees).

I also looked at the sun angle on the DX side for QSOs with distances over 5000 km. When VO1MP worked OH2BH, the sun was 6° above the horizon at both ends. The solar elevation was -15°-+10° for most NA stations. That is the sunrise +/- a couple of hours.

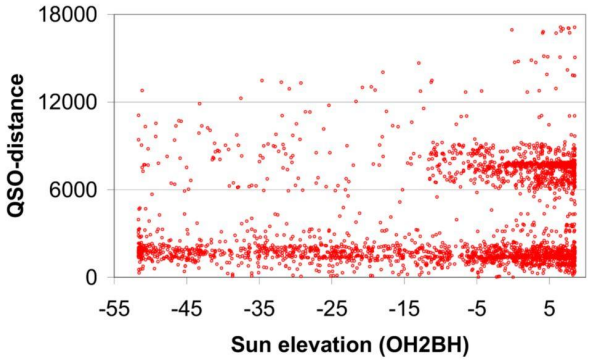


Fig. 13. Distance x sun elevation distribution of the 2735 OH2BH QSOs. 500-1500 km QSOs were mostly made when the sun was -15°-9°. That was the time for the 6000-9000 km QSOs.

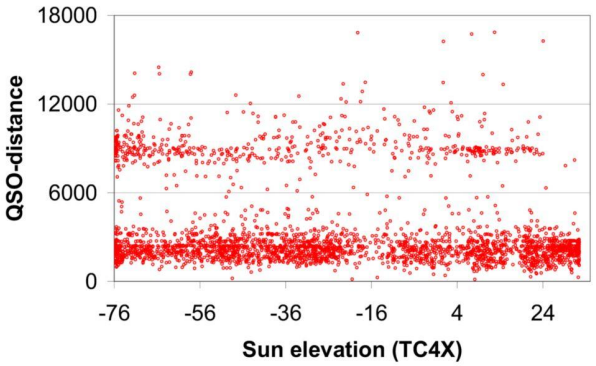


Fig. 14. Distance x sun elevation distribution of the TC4X QSOs. The DX conditions required solar evelation of below 20 degrees, and at TA4 midnight, at 22UTC, the DX propagation peaked.

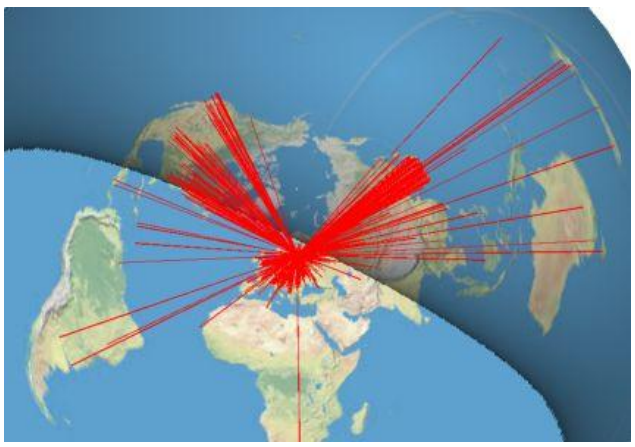


Fig. 14b. OH2U's QSOs at 06-14 UTC in 2004. The flux was 130 and the A-index was 2 and 2, Sat/Sun.

40 meters will improve when the flux reaches 100-140 (Fig. 14b). Of course, this comes at the expense of an increased aurora risk, but it looks as if that 1-million-point score from OH is still within our reach.

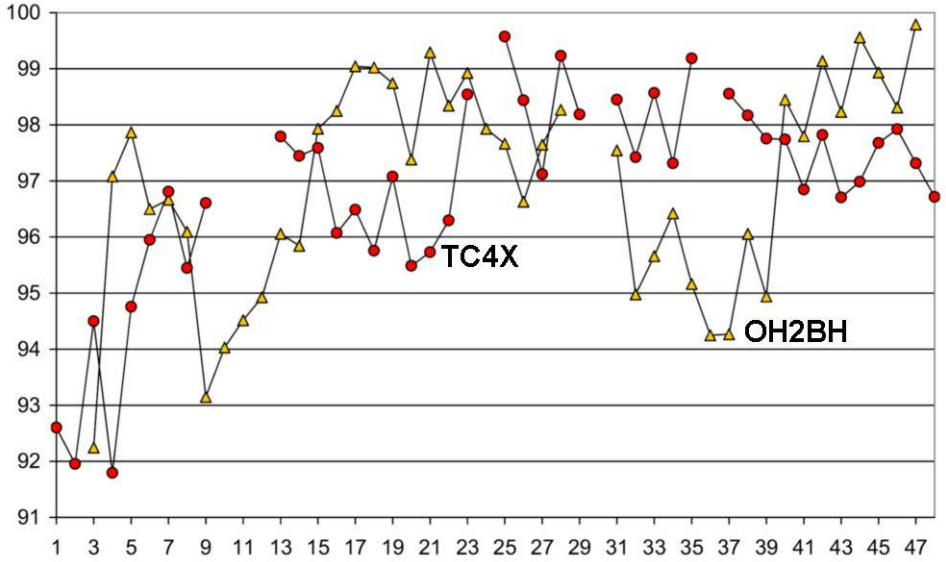


Fig. 15. The jackknifed scores of OH2BH & TC4X, relative to the 48-hour score (100 %). Each dot represents the score without the QSOs of the particular hour.

The jackknife analysis is in fact not very interesting when it is applied to a SOSB log. The first hour was important, without it the scores would be 8% less. Fig. 15 shows also that the daytime hours were productive @ OH2BH, due to the high rate of 3-point QSOs. I had a break during the hours of 1, 2, 29, 30 and 48. The start I simply missed. The graph shows that the hours of 29, 30 and 48 were rather good choices for a break (neighboring hours are high). TC4X had productive last 2 hours

How to operate?

OH2BH worked just 352 QSOs in the S&P mode - mainly in the beginning (Fig. 16). The running frequency was 7040 or around 7010 kHz. There were stations to work as high as 7090 kHz. TC4X chose a slightly different strategy. Pertti worked 519 S&P contacts.

If one looks closely into Figs 16 and 17, it is possible to notice that both ops, while S&Ping, first tuned to the upper end of the band, then came back to 7000 for another sweep up. This way the odds of finding a new station on any frequency are the same across the band. These guys have given it a thought.

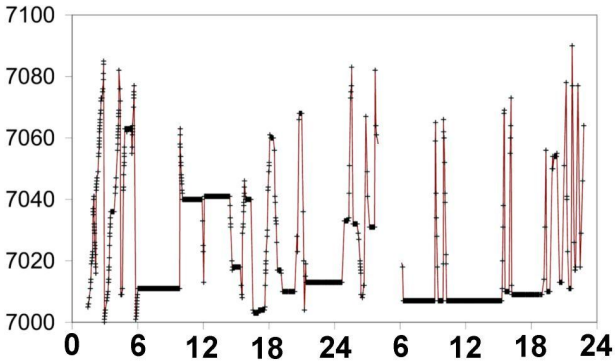


Fig 16. The VFO activity at OH2BH.

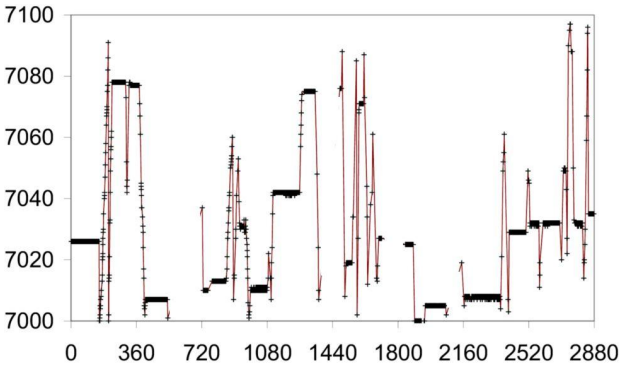


Fig. 17. The VFO changes at TC4X.

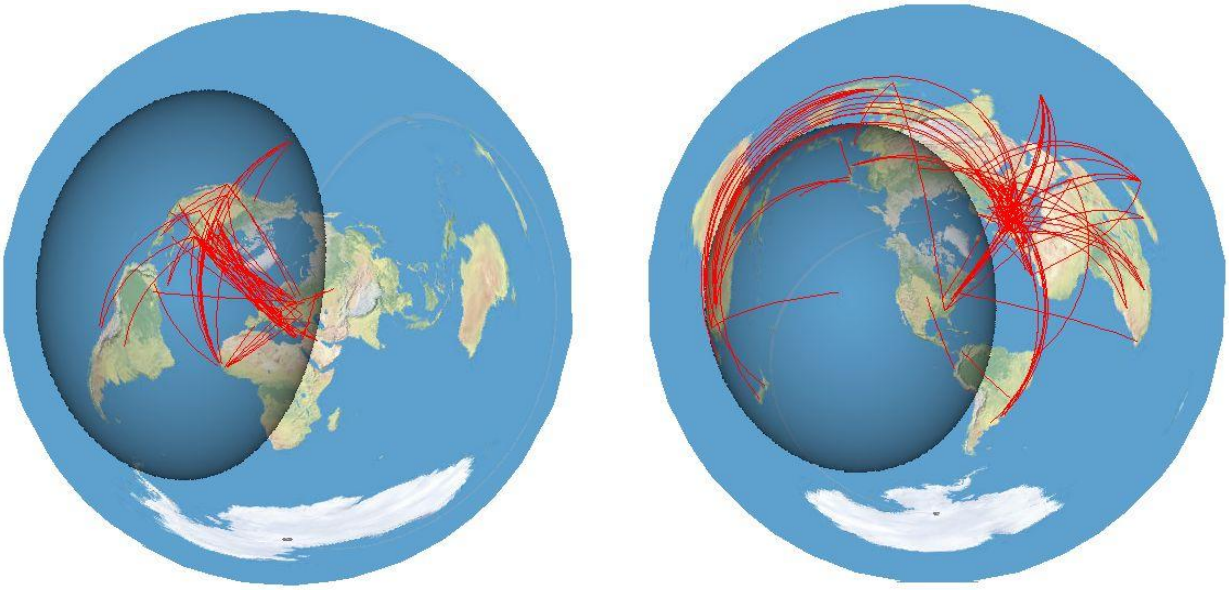
Wrapping it up

Working a DX contest is a great fun. So is the aftermath. What did we learn? Here are the well-thought conclusions:

1. Everything has its purpose, even radio contests and post-contest log analyses.
2. You can't win the world from TA, because of the condx to W/VE.
3. TC4X won't win the world, maybe because Pertti spent too much time in the bathtub (Fig. 17).
4. Rolling the VFO up, then quickly back down and slowly up again, you can find multipliers.
5. If you try to move multipliers when working SOSB, wake up, it does not pay off.
6. Let's capture the bad guys breaking the rules.
7. The people know. Kyllä kansa tietää.
8. OH2BH-shack, the container, isn't comparable with a space capsule, except for the nice rugs on the wall.
9. Köyhä on Suomi ja siksi jää. Finland is a country for the radio-have-nots, but it shows some first-class sides when you go out for a pee.

10. Serious contesting in OH?

73, OH1WZ



Another way of looking at the DX-cluster infos? Left: Infos Dec 21-23, 2008 on 3.5 MHz at 02-06 UTC. Right: All infos on 21-28 MHz.

On the Relativity of Moral
Jari Jokiniemi, OH3BU

The author has received huge amount of feedback to his previous articles. The feedback can be classified into two main categories: 1) hate mail and 2) spam. While it is encouraging to hear that someone in such a rare dxcc entity like Nigeria is willing to support the author financially with approximately one million dollars or more, it is somewhat difficult to understand why exactly does packet cheating, and that alone, provoke so much discussion – while no other creative score enhancement method yields any attention what so ever. This clearly has to be studied more. In this article we create a relative criminality order for different kinds of contest rule or moral offences, and we propose a balanced punishment system to rectify those.

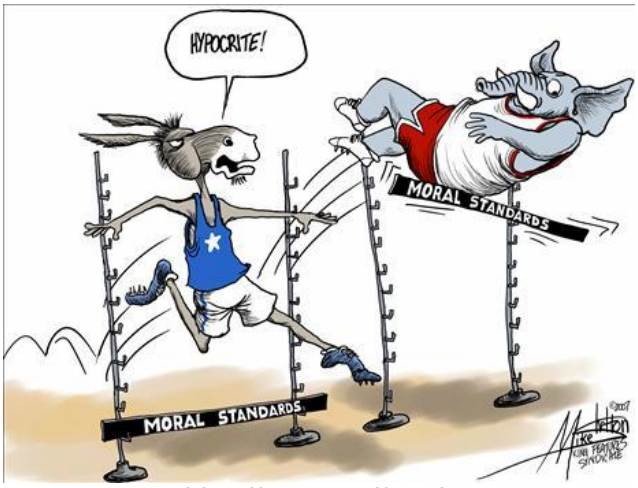
Let us start with the most obvious one, packet cheating. This is the most hotly debated one as it has at least 20 dB more comments on the internet than anything else.

While packet cheating is not illegal it is against the contest rules. One could, at first and without understanding the true meaning of ham spirit, claim that this shouldn't be that bad at all. It is just one point in contest rules. Why don't we make similar noise about overpower? That makes much more many offences. Indeed, if one is running overpower one is not only 1) operating illegally but one is also braking the contest rules, as the contest rules usually dictate 2) that the local laws should be obeyed. Besides, there is also often 3) an absolute maximum power limitation of 1500 W. So one may be breaking not only one but two contest rules besides the law. And still it is totally obvious that packet cheating is much worse, because running overpower is so, so common that **everyone** does it. This has been told to me by a reliable (but secret) source. So you are not gaining any unfair advantage by running 3 kW. You are just following the **unwritten** rules. Remember that the unwritten rules are more important than the written rules. If you are running 10 kW you may actually break the unwritten rules, too, as there are a lot of people out there who don't have three phase power line. So let us now agree that breaking just one contest rule is morally worse than breaking the law and two contest rules. If we accept this all that follows is easier to understand.

Talking about an unfair advantage. One of the unwritten rules is that you shouldn't be running two radios. It gives you an advantage, because there are operators who are not good enough to use two radios. This particular offence has not yet been written to the contest rules just because of a vocal opposition of some guys who have won the big contests for decades. It would be fair to correct this one soon. Hey, CQWW Contest Committee – are you doing something about this one already!

This reminds me of the greatest unfairness of them all. The one we have even codified to our beloved rules as a good thing rather than as a bad thing. I am of course talking about the unfair advantage that one gets by building a

super station into a rare dxcc entity. Not only does it give you more contacts by it's very rareness, but it also gives you more points per contact as usually you are in a different continent than the rest of the gang. You get all the three pointers. Look at all the CQWW single operator all band winners. How many of those come from continental USA or Europe? Right. And how many come from North Africa or the Caribbean. Right. Do you see a pattern? If this isn't a big crime what then is!



Can you identify yourself and OH3BU?

One principle in the law is that one usually makes it illegal to cause trouble or injury to the others. Thus it is obvious that spurious signals are a problem that should be corrected by the contesting community. One can argue that spurious signals are not as bad a thing as speeding a car in the city centre, as the latter offence actually causes danger of life to some pedestrians even if nothing really happens. Perhaps we could compare spurious signals to playing your ghetto blasters full power at midnight or something similar. One may question if spurious signals give you any advantage or not, but I would claim that because of the disturbance to the others we are talking about something that is more severe than SO2R.

The causing injury argument can be used for out of band operations, too. While, strictly speaking, out of band operation is illegal, we had already agreed that breaking the law itself is not that much of a question. Rather than that, we should be thinking about true ham spirit. And isn't it so that making contacts is very much according to ham spirit. How on earth can you make a contact if you are not allowed to transmit where the other guy is listening? Besides, we have government paid officers to catch the guys who are operating out of band. So for the contesting community I can't really find any point in pushing hard this one.

This reminds me of another dear hobby of mine, dxing. While there are purists who say that net operations are bad, I have never ever in my entire life seen any reasonable arguments why this might be so. Quite the contrary, the net operations are often the only way a little pistol can have a contact to a rare dxcc entity. Thus, and rightfully so, the dxcc desk does approve contacts that are made in nets. So should we. In fact, we should not only allow this, we should embrace this! What else makes a good citizen than a willingness to help the others. There could, of course, be some legal stuff to decide related to what actually constitutes a contact. Imagine a typical 80 m ssb net (call signs changed to protect the guilty ones) –XX1YY call now. –DX1RARE this is XX1YY, XX1YY, XX1YY. You are 59, 59, over. –SCRTTCSWTXST. –Thank you for the 57 report. –Wrong wrong wrong. You got the second digit wrong. DX1RARE please give the XX1YY the second number again. –SCADWQGSRRT. –XX1YY did you get your 53 report ok? –Yes, I copied my 53 ok. –Ok. DX1RARE the XX1YY who gave you 59 did copy your 53 ok. Good contact, next one. And if it is ok in the log, all is ok. Isn't it?

Now as we have seen a typical good contact, let's think a bit about faked

contacts. This is a form of lying, really, and lying is generally thought to be a bad thing. There are different levels of lying. If you are lying in a court that is considered to be a really bad thing, while a white lie in order to be nice to your friend is usually considered less severe (like when claiming that her new hat is beautiful). Note that when claiming contacts that actually did not occur, you don't really have anyone hurt, like when transmitting spurious signals. Faked contacts are an example of victimless crimes. One can theoretize that perhaps someone who loses a contest because of someone else making faked contacts might be seen as a victim. But on the other hand, the value of that loss is difficult to quantify. The current view is to do some log checking and punish the maker of faked contacts by a score reduction. How could I argue with this one. Let us move to the punishment part in general. What then is a good punishment?

First of all, the idea of relativity dictates that a more severe crime should be punished harder than a less severe crime. Thus, it is generally accepted that one should be tougher when someone has committed a murder than if it is about crossing a road with a red traffic light. On the other hand, really good behavior should be rewarded with some extra benefits.

Secondly, one should decide the maximum limits of punishments. In criminal law this e.g. means that in some countries one is executed for a murder, while in some other countries one can easily get away with 9 years in prison. The idea of the tough line is to prevent crimes by giving extremely hard punishments. Statistically speaking this idea has not proven to work too well. The idea of the soft line is to prevent the convicted criminals from learning crimes from the other convicted criminals by keeping them outside of prisons. Statistically speaking, this has not worked too well, either. It has been a great surprise (to at least the Finnish law makers) to find that a guy with 50 car thefts and 10 armed robberies, when he finally does go to the prison, will usually not become a productive member of the society even as his contacts to the criminals have been really, really minimized. (Naturally the official cure is to make the punishments even softer.)

Thirdly, one can argue that a really bad guy should be prevented from doing more crimes so that the law-abiding citizens can go on their lifes safely. In the soft punishment line countries this causes some difficulties, because the bad guy may feel unhappy when he cannot burn the cars and do other funny things as he wishes.

Fourthly, one should understand that only the crimes that can be somehow proved can be punished. So in the real life (tm) some if not even many crimes go unpunished. How do you know that there were three operators instead of one? Ok, if you have a video tape, then go for it.

While it can be argued that contest crimes are indeed severe ones, it may be a bit difficult to convince everyone that the very most extreme punishments should be used. Though I do admit that occasionally, in some pile ups, the really

hard line ideas have come to my mind. Taking into account all that has been written above, the final list of contest moral offences and the related punishments is now given below in the final severity order.

Generic punishment table for moral offences in radio contests

Moral violation	Punishment
Operating in a rare DXCC	Op. is given to polar bears (Swiss army knife allowed).
Packet cheating	10 years in a remote village in North Lapland
Spurious signal	Whipping
SO2R	Confiscation of radios
Faked contacts, rubber clocking	Score reduction.
Unrealistic reports	Score reduction (form of lying, see faked contacts)
Overpower 5 kW	We will tell to your mum.
Out of band operation	Who cares
Relaying contacts, net operations	Extra points and/or awards
Extra operators in SO#B	Fame and glory

Little Pistols (serious humor)

This time Olli, OH6CT/8 was assisted by Juha, OH1JT. A 2-el J-P 7-2 Shorty and a 3-el StepIR went up in early November snowfall.

Little Pistol News: OH2XX is getting 599+10 reports on 40 from New Mexico with his J-P shorty. That's firepower.

OHDXF-CCF CRUISE TIMETABLE

Friday Jan 16, 2009 FINLAND

15:30 Check in, ticket's, Helsinki Katajanokka Terminal, 1st floor

17:30 Ferry leaves Helsinki, Finland

18:00 Get- together, conference deck 10
Coffee & fruits

18:10 Welcome on board!
OHDXF & CCF

18:20 Greetings from RL3A / RK3AWL
Mats, SM6LRR

18:40 CQWW from zone 19 - RW0CWA
Marko, N5ZO

19:10 Break

19:30 Azores CU2X – the winning formula
Martti / OH2BH & Toni / OH2UA

20:30 Buffet dinner, Viking Buffet (VB)-restaurant, deck 8. Drinks included

Saturday Jan 17, 2009 SWEDEN

07–09:30 Breakfast, VB-restaurant, deck 8

09:40 Arrival to Stockholm, Sweden

10:30 Arrival of day visitors

10:30 Rag-chewing by the auditorium, conference deck 10

11:00 Warm up! Pileup Contests, CW & SSB
CCF

11:30 VP6DX Ducie Island 2008 expedition
Tõnno, ES5TV

12:10 New DXCC Countries by Dutch Caribbean
Hans, PB2T

12:50 Break

13:10 Arctic diamonds–TF4M rhombic farm
Thor, TF4M

13:40 Arcala Extremes OH8X extreme antenna – 3-el yagi for 160 m
Juha, OH8NC

14:10 Break

14:30 SAC Forum – Change or not to change... Panel and discussions
Jouko, OH1RX

15:45 Thank You!

16:00 Day visitors leave the ferry

16:45 Ferry leaves Stockholm

20:00 Contest & DX Dinner. Food Garden à la carté restaurant, deck 8
2 classes of wine and coffee included

Sunday Jan 18, 2009 FINLAND

08–09:30 Breakfast, VB-restaurant, deck 8

10:00 Arrival to Helsinki, Finland.

- Times are local, OH and SM
- Presentations: auditorium on deck 10
- Please be on time at dinners. Bring your menu-card with you to the à la carté dinner, if you have chosen Fish of Vegetable menu.
- The information and help desk is on deck 7.
- If you go ashore in Stockholm, your boarding card is your ticket back to the ship!

Wishing you a nice
and enjoyable journey!

Hiirellä tai Touch'illä koko kontesti!
Kari, OH2BP

Summary: You can work a whole RTTY-contest using mouse alone. A touch screen makes a great improvement in station ergonomics. Keyboard is ancient stuff, and as we say in Finnish: “you can through yours in the nearest alder forest”.

Jos työn, levon tai sairauden tai vaikkapa vain perhesuhteiden (vihainen vaimo, hi) takia et voi tai halua huutaa CQ'ta tai kolistella yömyöhään bugiasi workkimistilassasi, voi tämä juttu olla Sinulle hyvä vihje.

Jos ongelmana on muille sivullisille aiheutetun ääni-QRM'n välttäminen, varmaan rigin äänihäiriö iltamyöhällä voidaan helposti poistaa kuulokkeilla/headsetillä. Lähetyspuolikin hoituu mukavasti kätevästi kilpailuohjelman F-puskureilta annettuna.

SSB'llä ja CW'llä workittaessa on kuitenkin vasta-aseman kutsu ja sanoma joka kerta kirjoitettava näppäimistöllä Qso Edit -ruutuun. Tämäkin aiheuttaa pientä ääntä ja saattaa jollekin olla vaikeaa jostain syystä.

RTTY-kontestissa kaikki on toisin.

Kun workit yön hiljaisuudessa RTTY tai PSK-kontestissa ei näppäimistöä ylipäätään tarvittaisi lainkaan, ei ainakaan ns. turistiluokassa.

Useissa ohjelmissa, kuten esim. WinTest, vasta-aseman kutsu voidaan suoraan klikata hiirellä yllämainittuun Qso Edit -kentään samoin kuin RST ja sarjanumero tms vastaanotettu kilpasanoman osa. Tämä tapahtuu osoittamalla hiirellä haluttua 'highlightattua' tekstikohtaa näyttöruudulla ja hiiren pikkuklikkauksella. Voit siis workkia koko kontestin halutessasi käyttämällä vain hiirtä!

Jopa rigin taajuusvalinta 'VFOn pyöritys' voidaan tarvittaessa hoitaa CAT-liitynnän ja hiiren avulla. Näin myös kilpailun S&P-vaihe onnistuu kyllä. Tämä workkimiskeino avaa mielenkiintoisen mahdollisuuden ja kilpailujännitystä myös vammautuneille, liikuntarajoitteisille, kuuroille, lievästi näkövammaisille jne.

Tutkiessani tähän liittyvää ergonomiaa SO2R kilpa-asemallani, olen myös kokeillut hiiren asemesta ns. kosketusruutua (touch screen), jolla voidaan myös workkia normaalinäppäimistön rinnalla tai sen asemesta. Sijoittamalla kosketusruudulla varustetun PC-monitorin sopivasti käy QSOnpito veneestä, maastosta tai muusta Mobile-QTH'stakin.

Heitä näppis lepikkoon ja klikkaa itsesi tuloslistoille.

HNY 2009
Kari OH2BP

Paksalo OG2U CQWW CW M/2 - operointia alla stakattujen dipolien

Juha, OH7JT

Summary: The concept of stacking 80 meter dipoles in a 60-m rotable tower was presented in the previous issue. Ten hours into the contest, the upper element was raised at OH2U using a do-not-do-this-at-home method, which involved a 4-wheeler and a Finnish driver. Mr. Murphy paid his visit elsewhere because the antenna had a 1:1 SWR when measured in the darkness at 16:30 UTC Friday evening. Juha reports that DX multipliers were easy to work, if you could hear them in the cluster-op-jungle-QRM. The antenna does not compare to a yagi, but certainly the gain:trouble–and–costs ratio proved favorable. 37 zones and 125 countries was the best ever 80-m multiplier at OH2U.

Edellisessä PileUpissa kirjoitin hiukan teoriapohjaisesti 80 metrin stakattujen dipolien sähköisistä mahdollisuuksista. Tämänkertainen pakina keskittyy itse aktiin: Kisan workkimiseen ja muutamiin havaintoihin uudesta antennista.

Aluksi lienee syytä mainita, että saimme nostettua ylemmän dipoli-elementin vain 8 tuntia ennen kisan alkua. Käytännössä niin että tulin mastosta alas illalla klo 1800 SA. Ylemmän elementin nosto venyi rutkasti aiotusta aikataulusta. Osin siitä syystä että pari viikkoa ennen CQWW CW osaa syysmyrsky murjoi meidän ylintä 20 metrin yagia niin että siitä katkesi syöttöellu. Oli oma akropatianäytös korjata noin 18 metrin puomilla varustettu antenni ylhäällä.

Dipolielementit nostettiin palasina mastoon, siten että elementin päät, noin 5 m, asennettiin mastossa. Ylemmän elementin nostossa apuna käytettiin Pekan oikeaa kättä, Hondan pikku mönkijää. Sillä OH2HE-Pekka veti rissan ja nostonarun avulla elementin vapisevan mastomiehen vapiseviin hyppysiin. En suosittele vasta-alkajille moista metodia. Toisaalta, hyvänä puolena voi pitää nostolaitteen nopeutta..

Valitettavasti emme kerinneet virittämään elementtejä todellisessa mittauskorkeudessa. Lukija saattaa arvata, että oli melkoisen jännittävä hetki, kun koksi kytkettiin koksi radioon ja mitattiin antennin resonanssi. Suureksi hämmästykseksi antenni oli 1:1 vireessä CW-bandin alapäässä. Mikä helpotus. Kumpaankin elementtiin menee varttiaallon sähköinen 50-ohminen syöttöjohto ja molemmissa syöttöpisteissä on ferriittihelmistä tehty 1:1 virtabaluni. Valitsin varttiaallon syötön siksi, että jos jostakin syystä elementit resonoisivat eri paikoissa, saisin pakotettua varttiaallon syötöllä kummankin elementin virrat samansuuruisiksi - samaan tapaan kuin 80 metrin 4-SQ antenneissa. Varsinainen stakkaussovitus tehtiin perinteisellä SMC-muuntajalla.

Itse kisassa oli mukava todeta antennin varsinainen veto. Aiemmin meillä olleeseen 4SQ-nelikköön ero oli melko tarkkaan sellainen kuin uskalsin mallinnusten mukaan toivoa. Antenni veti todella hyvin DX-iin. Eka aamuyönä Karibian kerrointen workkiminen oli suhteellisen helppoa, jopa niin että useinkaan ei uskonut että asema tuli takaisin, se tietty johtui masentavista clusteripailuupeista. Etenkin Euroopan QRM oli massiivinen heti kun DX poloinen putkahti clusteriin. (Henkilökohtaisesti olisin äärettömän onnellinen, jos clusterit suljettaisiin kisan ajaksi. Helpottuisi monen DX-paran elämä ja kilpailijoiden taidot pääsisivät paremmin esiin. Tiedän että eräs jos toinenkin inhaloi palkoja kärsäänsä, mutta ”SO NOT” kuten M. Nykänen osuvasti lausuu!)

Dipoleissa oli selkeä suuntakuvio. Jos iso masto, johon dipolit oli asennettu, osoitti esim. Eurooppaan, olivat jenkkisignaalit noin 10dB heikompia verrattuna siihen kun antennin käänsi kohti. Tosin, ei dipolin suuntakuvio missään nimessä vastaa yagia, minkä huomasi etenkin kuuntelussa. Lähetyksessä asialla ei ole niin suurta merkitystä, oikeastaan antennin leveästä keilasta oli jopa hyötyä.

Pääosin näet riitti, kun antenni oli itä-länsi suuntaan. Kaikki tuli.

Alabandien kelit olivat todella erikoiset. Jopa niin, että tässä kisassa ajoimme 80 metrillä enemmän jenkkejä kuin neljällä kympillä. Se kertoo tietenkin siitä, että yö-aikaan muffi laski niin alas että 40 meni kiinni. Ajoimme 80 m:llä 149 jenkkiä, kun 40 antoi vaan 139 kpl.

80 metrin kusomäärämme nousi kaikista bandeista korkeimmaksi. Syy lienee se että kelit oli mitä oli ja operaattoreilla oli tietty intressi ajaa etenkin 80:ä. Antennin vedosta jäi erittäin positiivinen vaikutel-ma. Tuntui, että ponnistelut ja vaiva, jota antennien nostoon uhrattiin, tuli palki-tuksi, ja paremmin kuin uskalsin toivoa. Ei tämä toki yagille vedä vertoja mutta on huomattavasti helpompi mekaanisesti tehdä.

Ohessa summary sheet joka kertoo karua tarinaa keleistä ja osittain parantuneesta 80M signaalista.

BAND	QSO	CQ	DXC	DUP	POINTS	AVG
160	866	23	80	29	1291	1.49
80	1551	37	125	51	2320	1.50
40	1270	36	139	31	2297	1.81
20	1110	36	135	18	2461	2.22
15	138	23	68	2	259	1.88
10	36	4	20	0	37	1.03
TOTAL	4971	159	567	131	8665	1.74

TOTAL SCORE : 6 290 790

Zonet, jotka jäivät workkimatta 80:llä, olivat 12, 34 ja 36. Zone 34 kuultiin, mutta kisan loppuvaiheessa bandille ilmaantunut, ”ehkä” oikea SU9NC aiheutti niin karseen kaaoksen että ku-kaan ei kuullut saatikka kuunnellut mitään. Jäi siis workkimatta. Ajettu 80 metrin maaluku on Paksalon historian paras CQWW CW:ssä. Osan siitä voinee laittaa kelien piikkiin, mutta merkittävästi siihen vaikutti myös uusi köyhän miehen dipolistakkaus. Hienoja DXiä, jotka aina säväyttävät: KH6, KL7, XE, OA4WW jne. Ohessa kuva ylemmän elementin nostosta.

OH7JT up 60 meters installing the upper 80 m dipole 10 hours into the contest. (Pekka OH2HE)

Multi Two joukkuessa taiteilivat: Toivo ES2RR joka tuli iloksemme workkimaan lauantaina, Mika OH2JA, Juho OH5JOC, Olli OH6CT, Pauli OH7BX, Jami OH7JR ja tietenkin Pekka OH2HE. Emme olleet aivan verenmaku suussa, mutta keleistä huolimatta oli erittäin kivaa pitkästä aikaa ajaa Paksalosta. Multi-Two luokkassa oltiin eka kertaa.

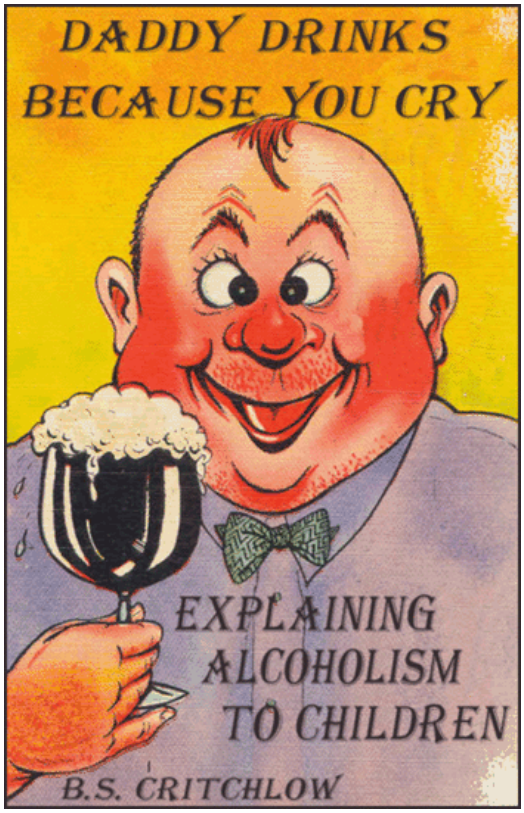
CU in the CCF Cruise 2009
juha oh7jt

News & stuff

CCF-founding member and senior citizen Ville, OH2MM and Andre, PT7ZZ pictured here at the FENARCOM hamfair in July 2008. (PT7ZZ)

Andre salutes all CCF-members and wishes best DX and enjoyable contests in 2009. He is active @ ZY7C and the Fortaleza DX Group. Look for fordx.org and zy7c.org.br.

Tips from the web



Anagrams - International

Page 4 has the Finnish anagrams. Here's the international exercise. Find the link between these well known callsigns and the anagrams.

Genie Gambler Frog	OH2BH
Tilter Mania	K5ZD
Nymph Tornados	YT1AD
Motif of Milk	N7WA
Naked Machine Mill	OH1NOA
Tinned Lion	OH6LI
Ok Mjuka Kalle	SM5AJV
Toni Alamos	G3TXF
Dr. Michael Iverson	PY5EG
Tonal Greenwich	OH2UA

DX-QTH-anagrams

Boeing Failure Cup	ZL8
Say Eat Salami	BV9P
German Knife	KH5
Smacked Ireland	9M8
Canadian Truths	VK9L
Elsie Nathan	V6
Weirdos Holland	ZD9
Icemans Rio	4U1VIC
Uno Estonian Diet	ZD8
Islands Apart	3X

CCF-activity in CQ WW CW 2008. **CN2M** (Charlie November Two Metusalem) never left the operating position, but stayed on alert for odd night-time openings. (Op. OH2MM).

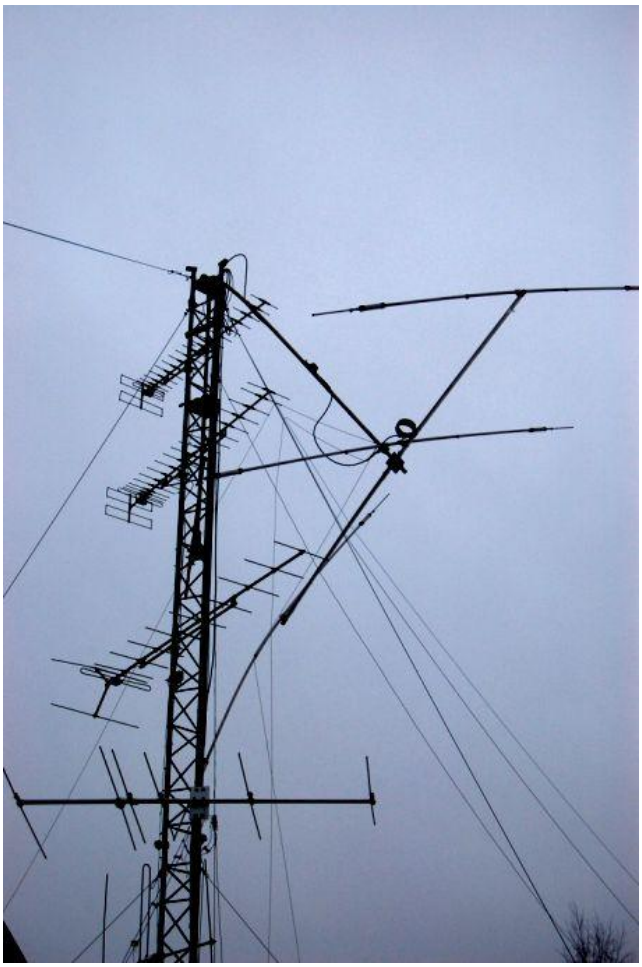
CCF-activity in CQ WW CW 2008. Hannu, OH3WW giving RF-protection @ OG50F. That was the special call of OH1AF in 2008 to celebrate the 50 years of activity at the Pori ARC. The Pori contesters worked CQ WW in the M/M category.

News & stuff…

Long-term editor of PileUP!, Winner of multiple CQ WWs, “Bookkeeper” of OH-contest records, Master of the Morse code, Recognized beer-expert and CCF-founding member Timo, OH1NOA pictured here working 80 m @ OG50F.

OH1AF-contest veteran, Pasi OH1MM was trusted the “money band”, 20 m. It gave 1200 QSOs, 35 zones and 129 countries.

News & stuff…



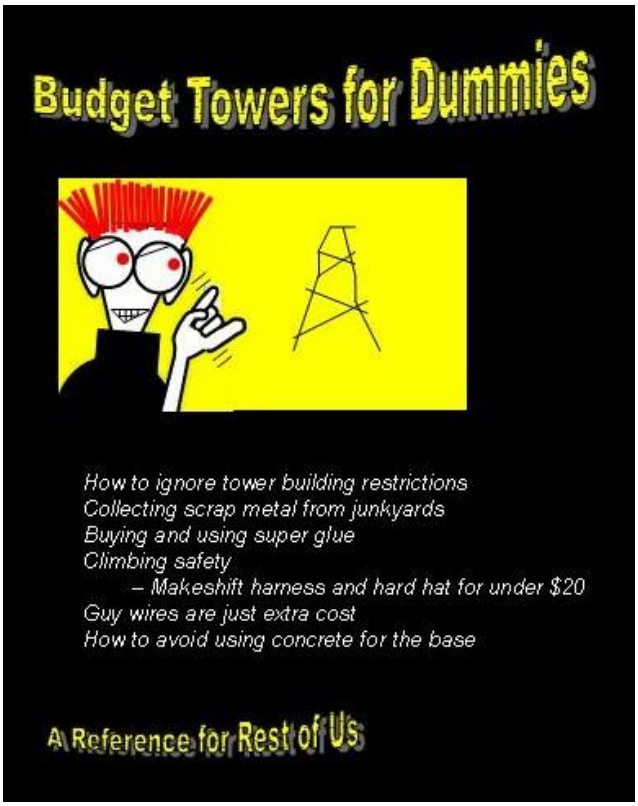
Jarmo, OH2GJL uses a tilting system to control the take-off angle.

Picture from the future? The OH-contester's dream: Aurora has become a rarity to be bought only at the Helsinki Christmas market. (tnx OH6KZP)

PileUP! reader statistics

1408 visitors downloaded the previous issue 2350 times between Nov 23 and Dec 9. These are similar to issue 12(2). 1408 is good for a club of 100 members here in the far north and shows how the world shrinks with the internet. Most visits came from W-land – 578. And inside the U.S., TX (86), CA (78) and NY (38) top the list. Most distant readers came from KH6, ZL, CE, VK, KH2, FK and YS. A total of 70 countries appear in the www logbook.

W	578
OH	577
OK	120
LY	85
SM	77
S5	54
F	46
DL	39
VE	37
G	36
…EA	25 LU 21, ES 8, UA 5, VU 4.



Encouraged by the overwhelming success of our newsletter CCF plans to publish a series of books. Here's the cover of our first bestseller.
Author: VW7HO
Publisher: RG8 Publishing Company
Domicile: Coax Islands

OM Jouko, OH1RX @ OG50F. Jouko has traveled with radios to many places before his 2008 Pori trip: 9M0S, A6, DU9, TF3, XX9, XZ1, JT, OJØ, VU, FO, OX, and LA.

RADIO ARCALA MAMMOTH 160/80M BEAM IN A NUTSHELL

If you want to build an Arcala Extremes (OH8X) style beam, you should start with measuring your property lines. Each of the four guy wires extends 120 meters or 400 ft from the tower – representing an area of 170×170 meters (550×550 ft) - for a needed total space of almost three hectares. And then be ready to order needed 450 meters (1500 ft) of heavy duty tower sections. And - finally - make it look nice with 600 litres (120 gallons) of paint! Ready for the latest story from frozen Arcala - deep North?

Height and weight of the system
Tower height 100 m (330 ft)
80 m beam 90 m (300 ft)
160 m beam 80 m (270 ft)
Total weight 39 600 kg (80 000 lbs)

Elements, gain and take off angles
160 m 3 elements, 12.9dBi, 26°
80 m 5 elements, 15.7dBi, 12°

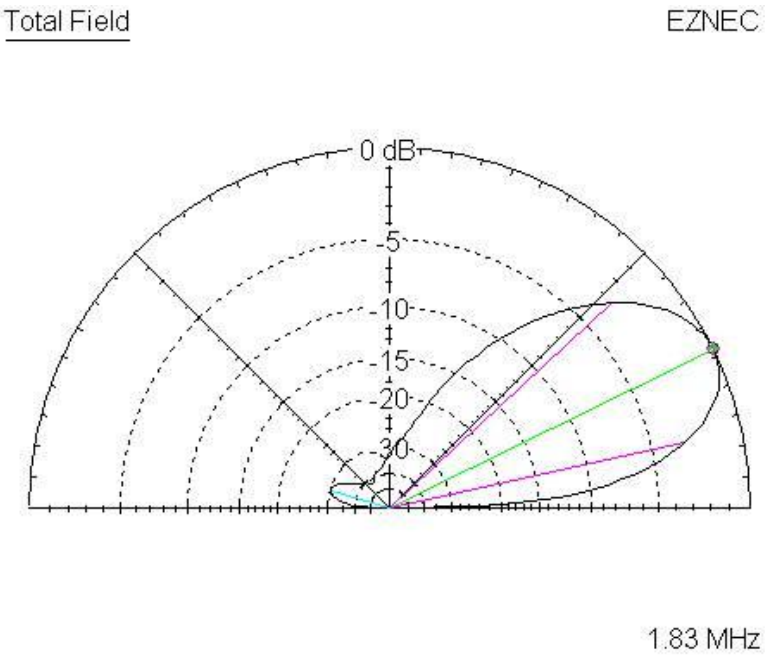
Front-to-Back ratio
160 m 20–30 dB
80 m 20 dB

Operating frequencies
1810–1845, 1845–1880 kHz (SWR < 1.6)
3500–3560 kHz (L-match)
3700–3800 kHz (50 ohm / current balun)

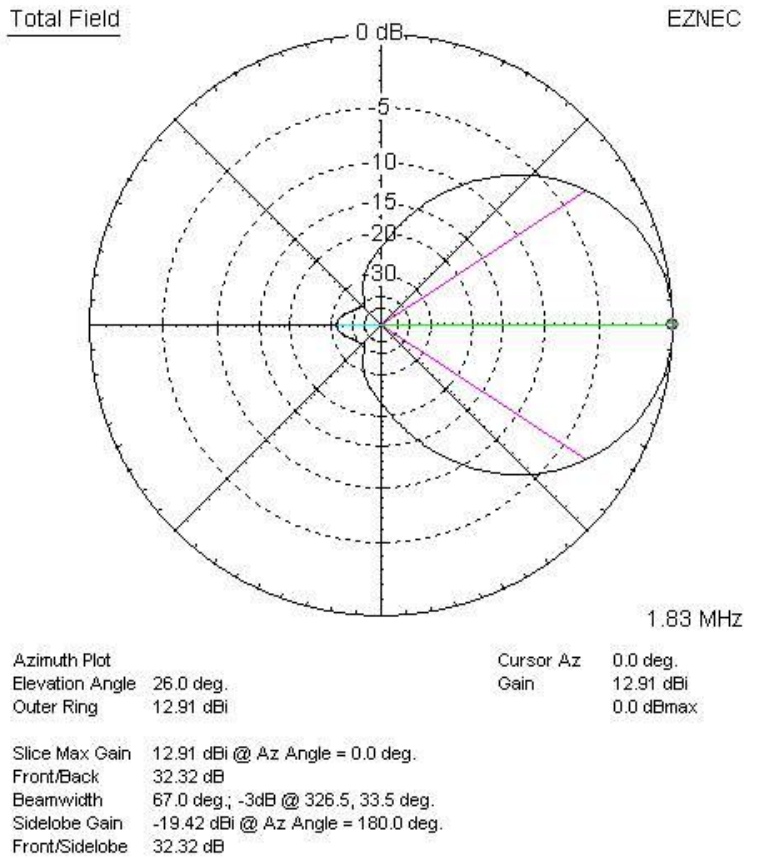
160 m elements
Weight 1600 kg, (3800 lbs), each
Length 59 m (190 ft), all elements
12-m (36-ft) capacitive hats
Each use 700 m (2100 ft) of tubing
Tuned with 0-6 μH coils at the centre
Relay-switches for turning the ant 180°

80 m elements
Length 46 m (140 ft), longest
10 m from the 160 m antenna
max wind-load, 70 m/s.

Boom dimensions
160 m length 71 m (215 ft)
80 m length 60 m (200 ft)
The triangular 160-m boom (2.2 m, 7.3 ft) comes with a rail for walking inside it. A Renault Clio can be fitted inside the boom.



Mammoth's vertical behaviour on 160 meters



This is how Arcala Mammoth sees the 1.8 MHz horizon.

Turning gear
Weight 2000 kg (6000 lbs)
11 kW motor
Inverter driven soft-start/stop

Largest guy ring bearing
Weigth 3300 kg
50 mm (2”) diameter balls in the bearing arrangement
Ring diameter 3,8m (13 ft)

Guy wires
Total length 2300 m (6900 ft)
Phillystran/element guys 1150 m (3450 ft)

Final touch
600 litres (120 gallons) of paint

Mechanical design and project Management
Tuomo Halminen, HALTA OY

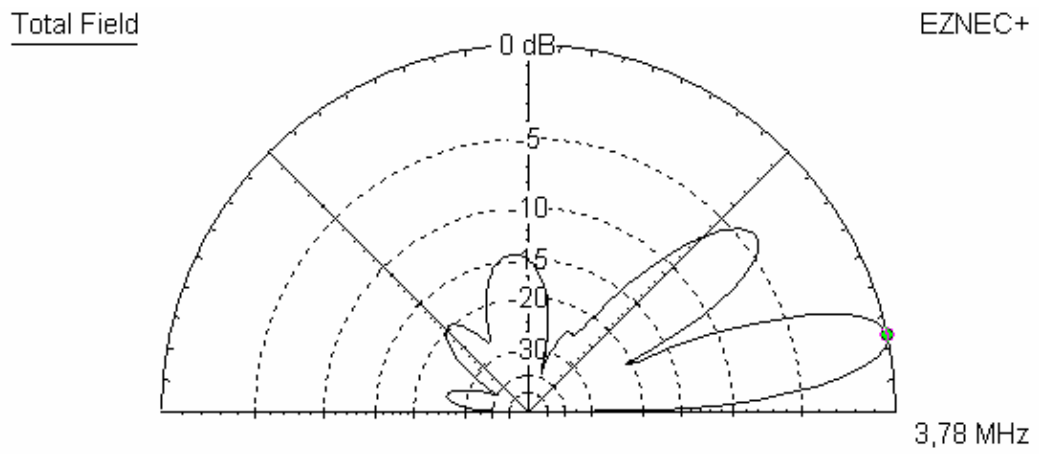
Antenna design
Pekka, OH1TV, 160 m
Olavi, OH5BR, 80 m
Lauri, OH8LK, switching systems

Arcala team members busy at the project
Juha, OH8NC
Veijo, OH6KN
Martti, OH2BH
Toni, OH2UA

Group working on the project of their lifetime
Toke, OH6RM
Pekka, OH7RM
Markku, OH8SR.

The construction is capable of handling ICE and SNOW for its own weight. In an ice storm? - God Bless Radio Arcala!

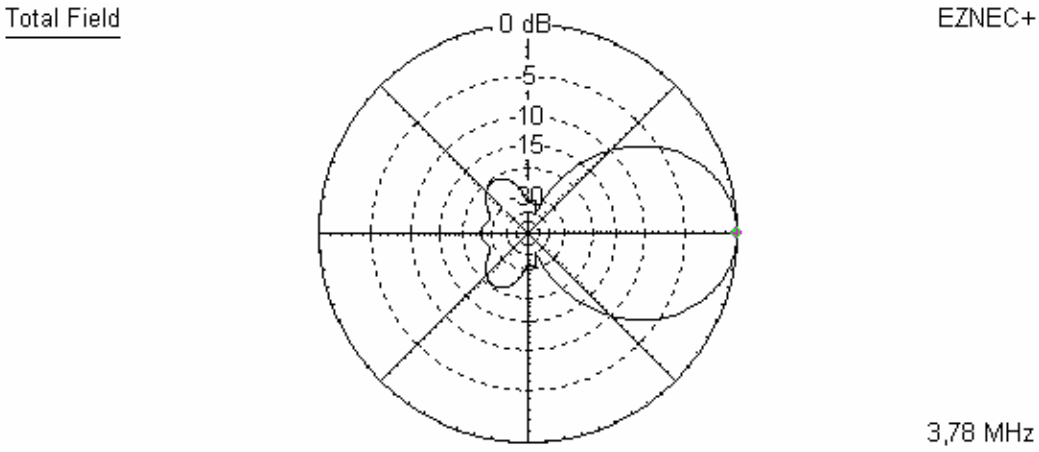
Scale-bar for the tower base, Juha OH8NC, who restored Mammoths to Arcala.



Elevation Plot		Cursor Elev	12,0 deg.
Azimuth Angle	0,0 deg.	Gain	15,74 dBi
Outer Ring	15,74 dBi		0,0 dBmax

Slice Max Gain	15,74 dBi @ Elev Angle = 12,0 deg.
Beamwidth	12,5 deg.; -3dB @ 5,9, 18,4 deg.
Sidelobe Gain	11,55 dBi @ Elev Angle = 38,0 deg.
Front/Sidelobe	4,19 dB

The 5-el's elevation plot.



Azimuth Plot		Cursor Az	0,0 deg.
Elevation Angle	12,0 deg.	Gain	15,74 dBi
Outer Ring	15,74 dBi		0,0 dBmax

Slice Max Gain	15,74 dBi @ Az Angle = 0,0 deg.
Front/Back	25,54 dB
Beamwidth	52,2 deg.; -3dB @ 333,9, 26,1 deg.
Sidelobe Gain	-4,95 dBi @ Az Angle = 124,0 deg.
Front/Sidelobe	20,7 dB

And the azimuth plot

Martti, OH2BH and the rotator gear-box.

160-m element-to-boom joint and another scale bar.

Arcala 60 meter sprint track. 65°11’N, 26°9’E and 220 m above sea level.

Finnish antenna workers are powered by Perkele. Pekka OH7RM up in the fog.

Arcala Engineering Team at LC works; Juha, OH8NC; Lauri, OH8LK; Pekka, OH1TV; Olavi, OH5BR and Toni, OH2UA.

These guys were breaking snow and ice when getting the Arcala Mammoth up in freezing, stormy weather... often high up at 100 meters battling sub-zero tempera-tures days in and days out.

Hats off to Markku, OH8SR (left), Toke, OH6RM and Pekka, OH7RM. Truly, these are men of iron!

Records, CW

For your reading pleasure, the current records for Europe and Finland.

EUROPE CW

A	CU2A(OH2UA)	8,513,294	6208	155	519	06
28	OH0V(OH6LI)	1,071,908	2697	38	135	00
21	OH0V(OH6LI)	1,051,380	2721	38	142	99
14	OH2BH(OH1WZ)	1,233,904	3253	38	146	00
7	T96Q	1,129,383	3436	38	153	06
3.5	4O3B(OH2BH)	819,009	3059	36	123	06
1.8	GM3POI	323,516	1843	26	98	06
MS	RU1A	12,753,600	5670	203	757	00
M2	RU1A	16,533,164	8314	209	749	03
MM	OH2U	22,244,067	10956	211	786	99

FINLAND CW

A	OH5LF(OH1WZ)	5,255,874	3451	166	536	99
28	OH1HD	556,402	1388	36	118	90
21	OH6AC(OH6CS)	850,510	2182	39	131	03
14	OH2BH(OH1WZ)	1,233,904	3253	38	146	00
7	OH2U(OH6UM)	757,390	2329	38	140	04
3.5	OH2BH(OH1WZ)	593,922	2283	35	123	05
1.8	OH1MM	157,788	1210	22	86	05
LA	OH4R(OH4JFN)	2,339,337	2575	124	409	03
L28	OH1HD	232,680	698	33	135	02
L21	OH5BM	359,531	1205	35	116	98
L14	OH3LIM	300,875	1014	35	110	94
L7	OH4JLV	111,150	738	31	83	97
L3.5	OH1TN	69,978	459	21	86	96
L1.8	OH4JLV	102,600	300	31	89	96
QA	OH5BM	489,724	791	95	287	03
Q28	OH7FF	130,800	591	27	82	99
Q21	OH7NVU	121,176	529	27	81	98
Q14	OH7FF	147,193	660	31	96	00
Q7	OH7FF	45,172	316	20	72	02
Q3.5	OH7FF	16,328	285	7	45	03
Q1.8	OH7FF	8,526	204	5	37	05
AA	OH5WQ	4,178,694	3168	147	487	99
A28	OH1MA	301,920	871	39	131	99
A21	OH6AC(OH6CS)	729,289	1931	39	128	99
A14	OH3BU	669,945	1808	38	139	00
A7	OH1MA	555,225	1935	37	128	00
A3.5	OH6GAW	89,856	817	18	78	07
A1.8	OH2BCI	110,595	917	22	79	05
MS	OH7M	9,140,535	4513	193	694	99
M2	OF5Z	4,856,088	4934	153	576	07
MM	OH2U	22,244,067	10956	211	786	99

ARRL DX CONTEST ENNÄTYKSET

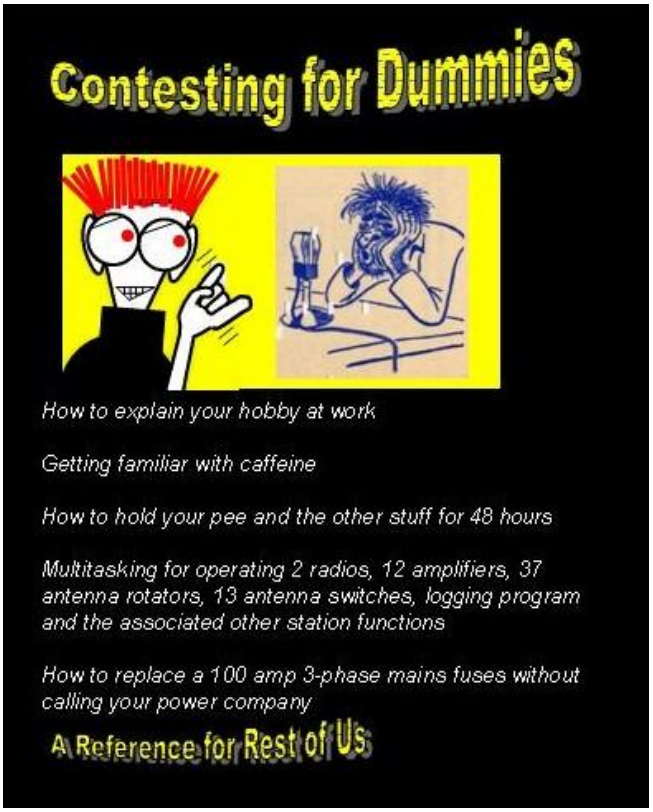
Osa ARRL DX kilpailun ennätyksistä lienee rikottavissa jo 2009. Valitse tästä omasi.
Lähde: www.qsl.net/oh1noa/records

SSB

HIGH POWER	Call	Op	Score	Year
SOAB	OH5LF	OH1WZ	3 072 000	2000
28	OH3TR	OH6LI	293 265	1991
21	OH6AC	OH6CS	363 255	2002
14	OH8X	OH8NC	512 583	2006
7	OH5W	OH2UA	41 472	2001
3.5	OH6YF		405	1993
1.8	OH2BO		27	2006
Multi Single	OH3MMM		2 540 025	2000
Multi 2TX	OH1AF		830 206	1990
Multi Unlimited	OH7AAC		574 104	1992

CW

HIGH POWER				
SOAB	OH2U	OH2LUR	2 425 152	2001
28	OH6RX		199 056	2002
21	OH6AC	OH6CS	273 780	2002
14	OH8X	OH6UM	331 818	2006
7	OH2U	OH2LUR	175 914	1999
3.5	OH2BH		49 794	2004
Multi Single	OG2HE		1 791 954	1992
Multi 2TX	OH4A		1 005 708	2006
Multi Unlimited	OH1AF		875 502	1981



It may well be that the bands are not open 48 hours in the ARRL DX this year. Consider buying this CCF-masterpiece to keep your 10-m operator company. ADHD publishing house Åland Islands.

Palautusosoite / Returneras till:
Ilkka Korpela
Bölsinniityntie 13
06830 Kulloonkylä

CQWW SSB 2008 @ AO8A: OH3RB & OH5XT amid post-contest relaxants. Notice the REINO-shoes, secret weapon of OH-contesters.