Jeff

From: Jeff [jking2603@gmail.com]
Sent: Saturday, 2 May 2020 1:24 p.m.
To: 'rmikula@sbcglobal.net'
Cc: 'sm0dtk@passagen.se'; 'chriscarroll75@gmail.com'
Subject: 200502. RE: TH3JR article and suggested significant improvement SM0DTK MiniHorse.
Attachments: 190917 minhorse5_4_4.nec

Tracking:

Recipient	Read
'rmikula@sbcglobal.net'	Read: 2/05/2020 3:30 p.m.
'sm0dtk@passagen.se'	
'chriscarroll75@gmail.com'	

Hi Ray W9NZ,
[copy to Martin SMODTK for information, and to acknowledge thanks for supply in the original design file which was a really well built careful example of NEC building, and with invaluable observation that NEC prediction was slightly different to the parameters measured on the actual final physical model]
[copy to Chris VK3SR for information]

Reference to:
https://www.eham.net/community/smf/index.php/topic,126437.msg1142469.html#msg1142469

Thanks for your email.

I have not yet written part 2. The reason is I have not written is; I spent many hours (40+) optimizing the TH3JR by changing the inductance and capacitance of the traps. This provided really good gain in the region of 11.x dBi on the 20 meter band which was what I was interested in. Gain was good on 15m and 10 m too.
So I should have written part 2, but...
I was frustrated that the traps lost about 10% or more of the power, and
to make these adjustments there was a lot of work changing the coils in the traps and capacitance.
[As a professional civil engineer power loss frustrates me if the design can be changed to gain another say 15% output]

My reason for the modeling the TH3JR initially was to find out what performance was on 20m because the information from Hygain was so vague I could not be sure what was really going to get as a gain. The outcome was far far worse than I ever imagined.

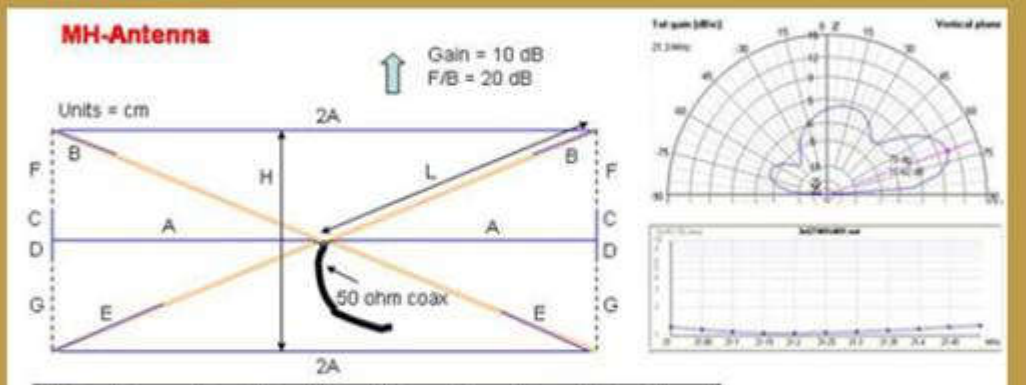
The advantage of 4NEC is it really enables you to compare like with like as long as you put time in.

So I then turned to **Mini Horse (MH)-antenna.**
http://www.sm0dtk.se/antennas.htm

Mini Horse (MH)-antenna.

- kicks like a grown-up horse
- takes the space of a pony
- broad as a highway

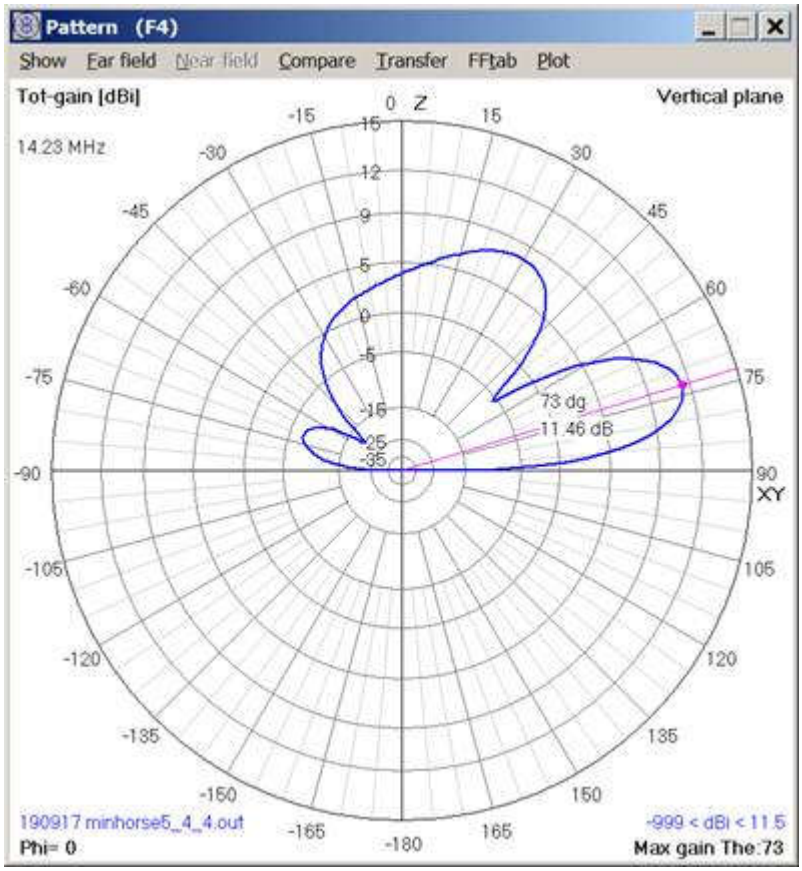
Ever looked for an antenna which has good gain, nice F/B, 50 ohms matching, excellent bandwidth, small turning radius and great mechanical stability? This antenna is for you! If you need a nec-file to play with just send me a mail.



Freq	A	B	C	D	E	F	G	H	L
144	36	12	9	4.5	18	12	16.5	42	41.5
50.1	102.5	33	27	13.5	51	33	46.5	120	119
28.3	182	58	48	24	91	58	82	212	211
24.92	206	65	54	27	102	66	93	240	238
21.2	243	77	64	32	121	77	109	282	281
18.1	285	91	74	37	141	91	128	330	329
14.2	364	116	96	48	181	116	164	424	421
10.1	513	164	136	68	256	164	232	600	594
7.1	728	232	192	96	362	232	328	848	842

1 mm insulated wire
Fishing rod
Support lines

I built the model and optimized that:

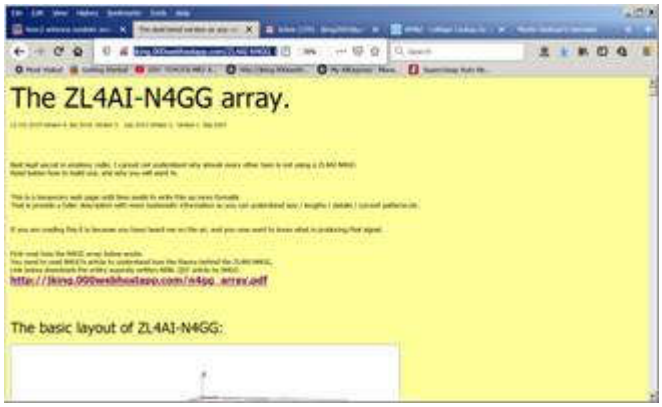


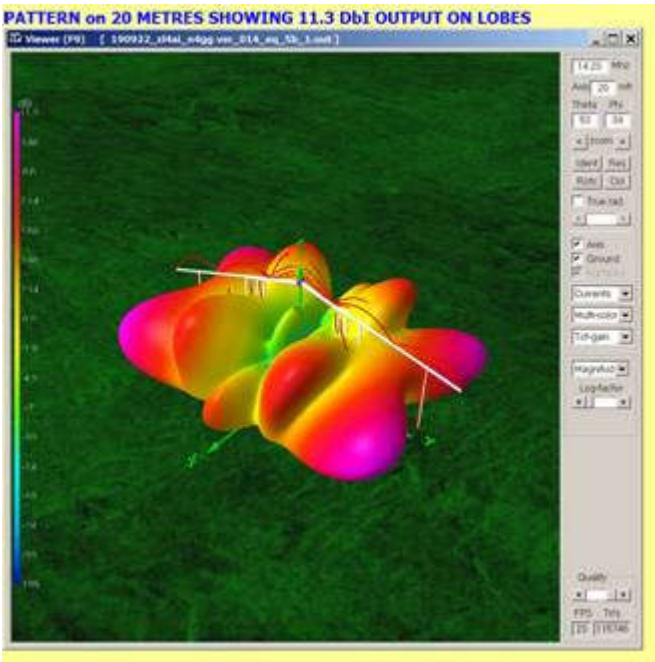
This was a much better solution to get a smaller light weight yagi on 20m. All I had to do was adjust wire lengths. Much easier and much less work. I am less interested in 10m and 15m because those bands are never open especially during this period of the low in the 11 years cycle.
NEC file of last version is attached.

I have not built the Mini Horse yet but will do so when I get time and 20m propagation improves.

If you want I can supply you with the optimized TH3JR file, but do not have time to write it up.

I have had the best success with





http://jking.000webhostapp.com/ZL4AI-N4GG_01.3.html

which may also interest you.

If you have any more questions please do not hesitate to email.

Yours sincerely
Jeff King ZL4AI
Dunedin,
New Zealand.

From: rmikula@sbcglobal.net [mailto:rmikula@sbcglobal.net]
Sent: Friday, 1 May 2020 3:45 a.m.
To: jking2603@gmail.com
Subject: TH3JR articale

Jeff,

A number of months ago I ran across an article you did analyzing the TH3JR. In it you mentioned a Part 2. Does that exist at this point in time? If so, could you tell me where to find it. I'm very much into modeling antennas but so far have limited myself to simple wire antennas such as OCF dipoles. I'm interested in buying or constructing a physically small gain type antenna such as a TH3JR hence I found your work very interesting and useful.

73,

Ray Mikula
W9NZ
Libetyville, IL, USA