“Stubby” Dual-Band Low Profile UHF/VHF Mobile Antenna
Ref TCA March 2021

Background

Philip Boucher, VE3BOC, discussed in his November/December 2020 TCA column a different type of mobile dual band antenna with a very low profile. It is about 3.5” tall and 1.5” in diameter, with an NMO mount.
After reading the article, I acquired a similar unit and did some SWR scans on it. The results were forwarded to Philip which he published in his TCA column of March/April 2021.
The same scans are appended to this article in larger scale, making them easier to read.

The antenna I tested came from AliExpress on-line, under the interesting brand name of “Eightwood” and cost me less than $20 Cdn.

Testing

A word on my test set up: For a ground plane, I use a ground plane setup mounted on a tripod. The test ground plane I used is based loosely on the NIJ-Standard-0205.02 that pertains to testing requirements for mobile antennas. My version of that, is essentially a 15” diameter pizza pan, with 4 extensible 20” radials!! I use a Rigexpert AA-1400 to do the scans.

SWR measurements summary

Band & freq range	“Eightwood” Stubby	Tram 1180 *(For Reference)
VHF 144-148	2.8 – 3.2	1.7 – 1.2
UHF 420-450	3.0 – 2.5	2.5 -1.4

*Note:
1. I included measurements for a Tram dual band antenna I have on hand, just to act as a reference.
2. I normally find SWR measurements taken outdoors to be a bit lower, but not by a lot.

In summary, one could say the SWR performance is acceptable over our amateur radio bands.

However claiming it to work 136 to 170 Mhz and 400-450 Mhz is a bit of a stretch.

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Tear-Down

The above photos show the inner construction of the antenna. I was expecting to find a springy coil of wire similar to the construction of some “rubber duck” antennas.
Instead, when I opened it up I was surprised to find a neat looking printed circuit board, measuring about 0.9”w x 2.4” L.

The pcb has been cleverly designed so that the copper traces on each side connect in series via the plated connections on each side.

At the bottom feed point there is a 10 pf capacitor and on the other side a small coil of about 0.35uH used for matching. The coil has been obviously ‘adjusted’, by splitting it and moving it apart.

73
Don va3ddn
January 2022

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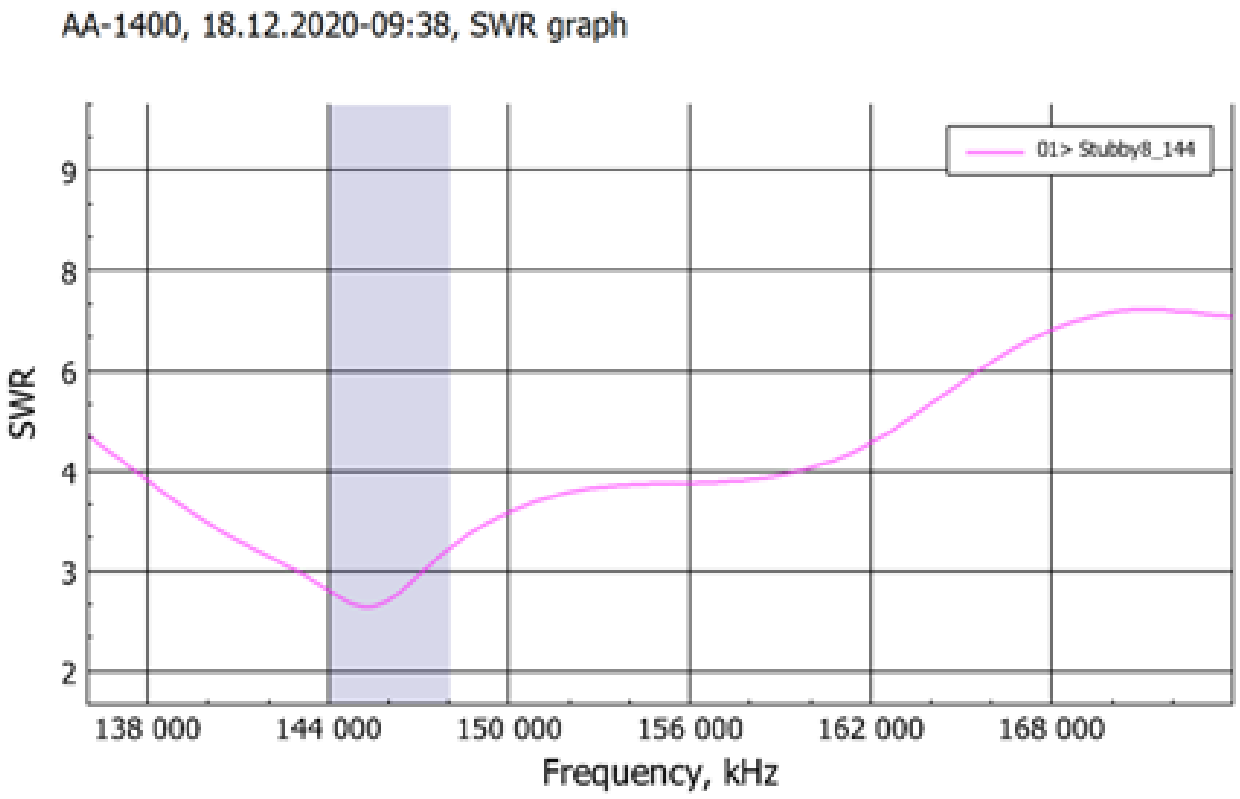
Scans shown below:

STUBBY 144mhz



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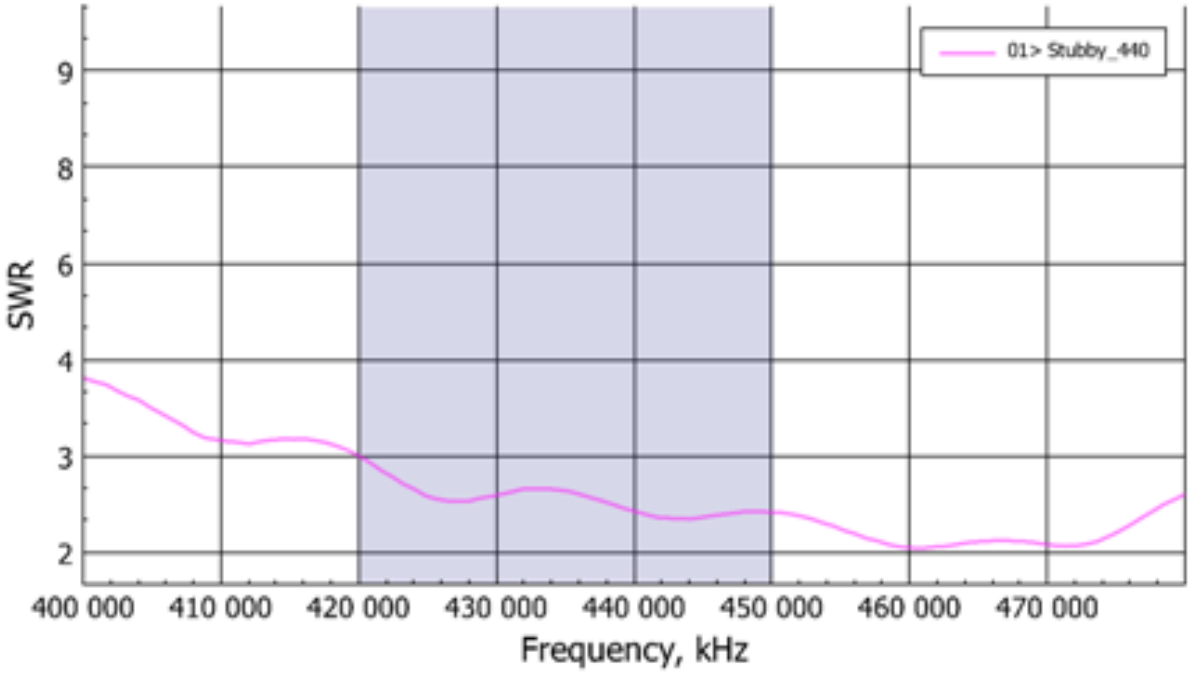
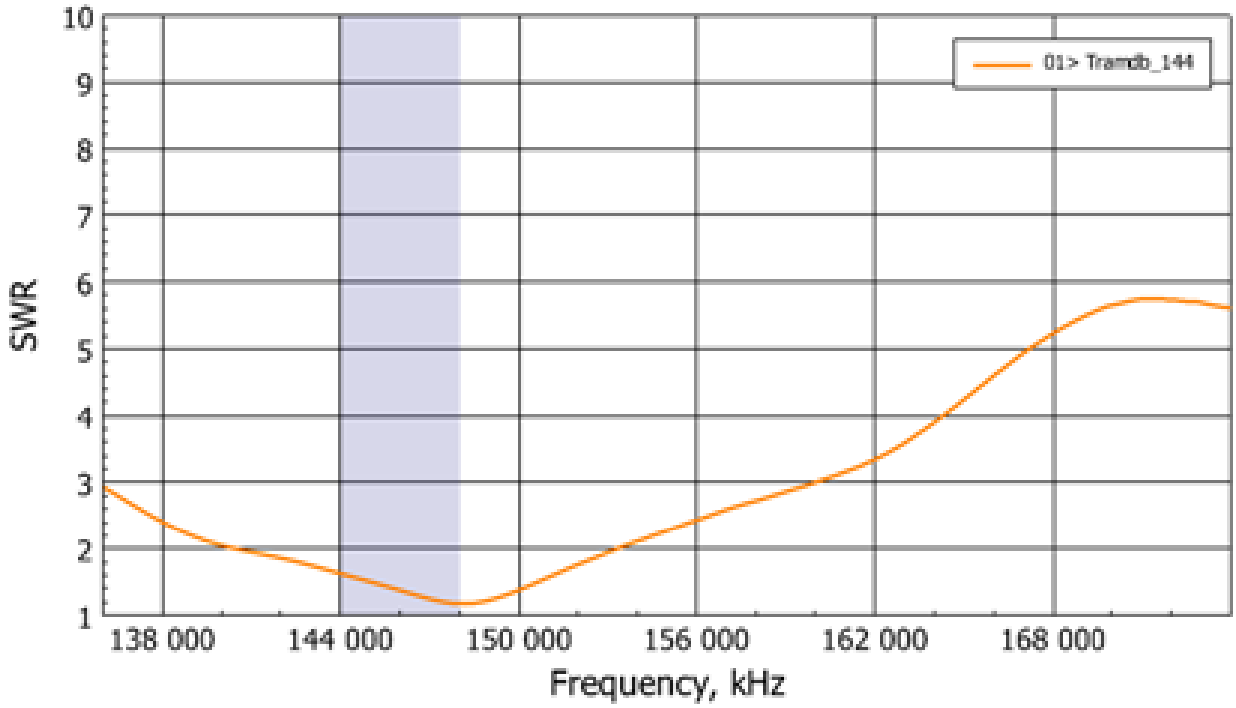
AA-1400, 18.12.2020-09:29, SWR graph



AA-1400, 18.12.2020-09:50, SWR graph



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