# 2 METER SSB YAGI PLANS FOR SIDEBAND FUN

This 6 element beam was designed using the free
Yagi Antenna Design program by WA7RAI called Quick Yagi (QY4)

It was designed and optimized using 144.250mhz as the center frequency which is in the middle of the SSB portion of the 2 meter band and according to the program has a gain of 11.68dBi with a front to back (F/B) ratio of 37.44dB on a boom length of 8.68 feet with 1/4 inch elements using a standard direct feed dipole insulated from the boom as the driven element with a 3dB beamwidth of aprox 48.7 degrees..

No matching device should be required but due to variations in your construction practices, some trimming of driven element may be needed or us a gamma match with non-split (not insulated from boom) solid dipole driven element for best SWR.

When checking SWR, place antenna with reflector on the ground and prop yagi straight up at a ninety degree angle to earth....use low power to check SRW.....adjust match or trim as required and recheck. Repeat procedure until lowest SWR is obtained and mount yagi on your mast, pole, tower, etc in a horizontal position relative to the ground for 2 meter SSB operation. The SWR in the final operating position may vary slightly but not enough to worry about. The measurements on the picture below may be very hard to obtain perfectly, but don't worry too much about them! Try to get them as close as possible using whatever construction practices and genius you can find. Round them off to next highest or lowest number and forget about them.
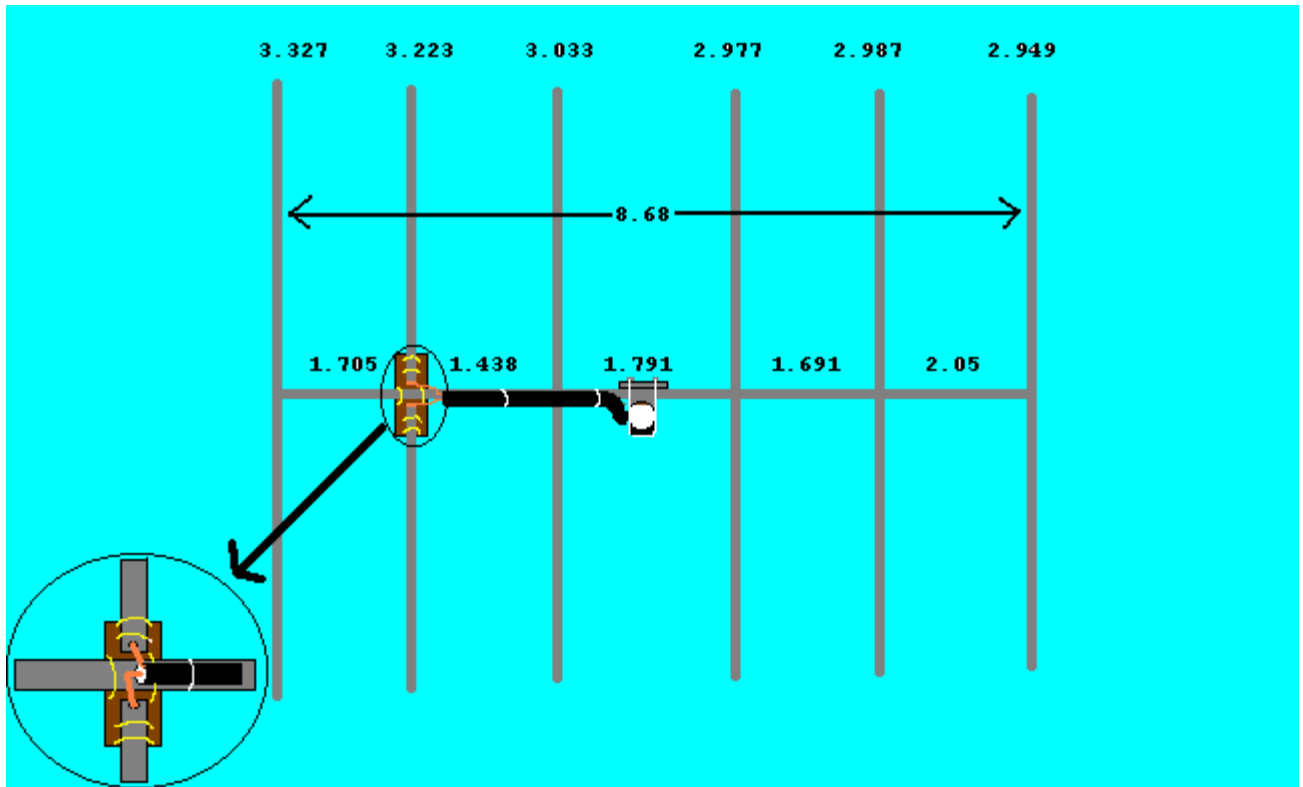
Perfection is best......... but hard to get in the homebrew invironment!
The driven element (dipole) shown in the inset is insulated from the boom
which is metal by the homemade non-conducting bracket which you must
fabricate. Heavy Plexiglass works fine as long as it is thick enough to support
the driven elements (one on each side).
The two halves of the driven element can be attached to the insulator using
muffler type clamps, u bolts, several large wire ties or what ever your gray
matter can come up with as long as the elements can not move by outside
forces and do not touch the boom after final installation.
The other elements of the antenna should be installed thru the boom but if this
is not possible for you, just mount them at the required spacing using your
genius. The final pattern may be slightly off center from the boom by a degree
or two but us it anyway. The idea is to have FUN and experiment!
The conductors from the feedline (50 ohm coax) are attached as you would any
dipole. Center to one side, shield to the other using whatever arrangement of
nuts and bolts you may have. Seal all connections, coax end and antenna
elements from mother nature!
If you decide to use a gamma match instead of this type of mounting
arrangement for the dipole, you won't have to worry about the mounting
bracket for the dipole but then you will have to decide on a way to mount the

gamma match.

You can design your own gamma match for this antenna by using a separate program that comes with the Quick Yagi antenna design software. Get the free complete download here!

This project was designed to give you a starting point in getting on the air on 2 meter SSB fun with a respectible signal using just a stock radio and it should increase your effective radiated power near 9 or10 times (plus or minus a few % for construction errorrrrrrssssss!

EXPERIMENT! EXPERIMENT! EXPERIMENT!

This editor once built a 6 element yagi for the middle of the band using discarded aluminum sections for the elements that were "U" shapped from old junk flouresant light fixtures and attached them to a 1 inch square boom, 16 inches apart for each and the standard dipole formula 468/freqmhz was used for the driven element fed with a homebrew gamma match. 5% was added for the reflector length and each director was shortened 5% shorter each, progressing to the end of the boom!

SWR was checked as above and was less than 2 to1 to start but was lowered a bit, down to about 1.5 to 1 and put up on a 16 foot mast with rotor and it worked great!