Short construction manual for DK7ZB 144 / 432 MHz twin band yagis in 50 Ohm design

Source: http://www.nuxcom.de/pdf/nuxcom-construction-manual-twinband.pdf

Basically you have to follow the construction details of "Short construction manual for nuxcom 144 MHz and 432 MHz yagi kits". **Source:** http://www.nuxcom.de/pdf/nuxcom_construction-manual_2-70.pdf

There are some changes which have to be followed for twin band yagis:

Handling of the boom rod:

1. As the radiator is also mounted directly to the boom, make a mark also for it.
2. **You can mark a point for the first 70cm element after the radiator. But as it is an open-sleeve element, its final position has to be found during the calibration at the end. So do not drill the hole now.**

Assembly of the radiator

The two holes for the radiator rods at the side of the box have to be as close as possible to the wall opposite to the coax socket, because the open-sleeve-element has to be very close to the radiator. Also we need space for the choke in the box.

The second fixing of the box on the boom is directly at the radiator, because outside isn't any space due to the close open-sleeve-element. The dipole connectors for DBY1 and DBY2 have already a hole in the middle for this fixation. At the other antennas you have to drill a hole into the middle of the dipole connector. Use the machine screw without any flat washer (to avoid short circuit) under the screw head for fixation.

The choke

The choke is the same as for 50 ohm design yagi kits. It's a coil of 50 ohm coax cable.

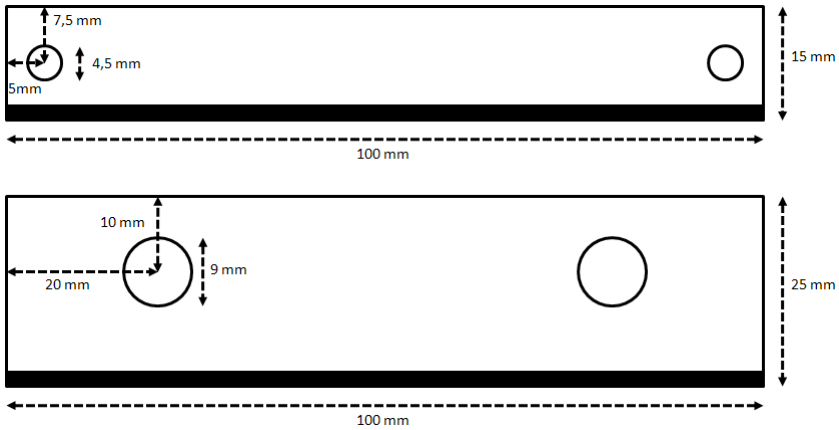
Mast connection (RS-DB, separate purchase)

The shorter twin band antennas may be connected to the mast with an aluminum bracket 25 x 15 x 2mm and a pipe clamp up to 52mm.

Only DBY1/2: In horizontal polarization the clamp has to be mounted behind the 432 MHz reflector and in vertical polarization behind the 144 MHz reflector. There is enough boom material enclosed for both versions. You can get a commercial mast clamp as option, which has the advantage that it can be positioned at any position you want.

It's also possible to use a professional mast clamp (MS15), which can be purchased separately.

Drill template for the aluminum bracket



Startup and calibration

First you have to check the SWR on 144 MHz, it should be better than 1.3 from the start and there should be no calibration necessary. Check SWR on 430 MHz. If the best SWR is not at your preferred frequency, you can adjust it by shifting the open-sleeve-element +/- 5mm. You can do this easily by fixing the element only with insulating tape on the element clamp. Also a change in the length of the element may help, already 1mm has a remarkable impact.

Only DBD1/DBD2 (twin band dipole)

These antennas have a special behavior on 144 MHz because the mast is used as reflector and is responsible for 50 Ohm feeding. Without a mast in the back the impedance is about 70 Ohms and the SWR is not perfect, but should work. You can align the SWR on 144 MHz by experimenting with the distance between mast and radiator.

If your antenna works well, you can seal all vents in the box with silicone or hot glue. Some professionals fill the box with epoxy resin to protect it completely. If you don't fill it, leave a small hole in the box on the future bottom side of the box, so that condensed water can flow out. For horizontal protection there are pipe caps for boom, dipole and elements included in the kit. In the kits DBY1 and DBY2 there are no caps enclosed for radiator and elements, because the 6mm caps are radio sensitive and will destroy pattern and SWR on 430 MHz.

If you have critic or suggestions regarding this manual, please contact us:

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Disclaimer:

Drilling, cutting and other technical work have to be done carefully and can hurt you. We are not responsible for any accidents which result in following our instructions in the manual. Please be careful.