

Rx antennas at IV3PRK: the TX3A DHDL

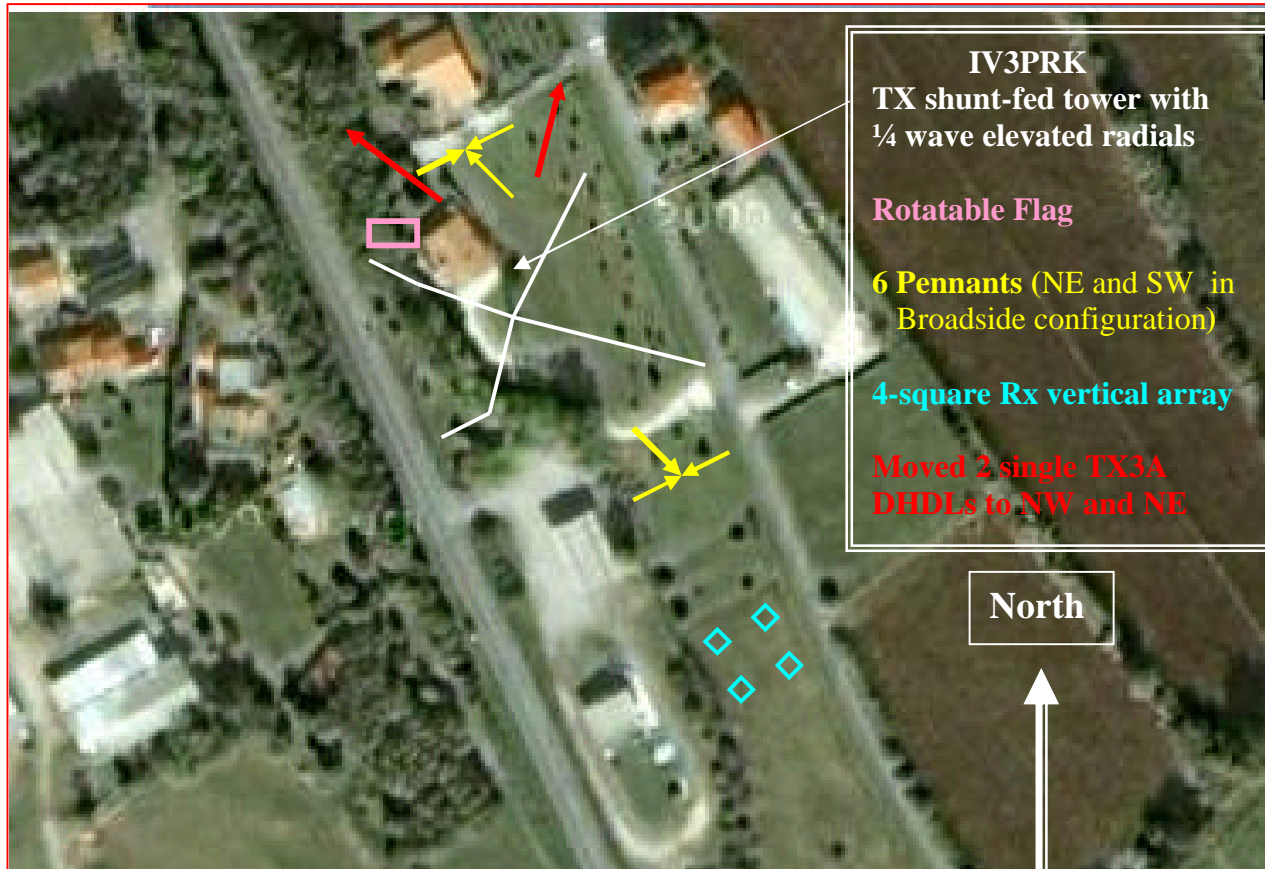
Back to the single DHDL: Feeding and common mode noise choking

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In the month of February 2010 two Pacific DXpeditions were expected, TX4T from 320 and H40FN from 40 deg. So I decided to dismantle that useless 360° DHDL array and to move the single deltas on the northern side of my lot, near the existing Pennants, and put on the most desired directions. That area is less influenced by noise of the utility lines and interactions with the TX antenna, which remains on the back. It's a pity to waive the better RDF of the end-fire array but I must be content within my space limits.



The above picture shows a NW Pennant and a nearby new TX3A DHDL in the NE direction



Google Satellite picture with all 160 m. antennas situation on February 2010

Common mode noise choking and a new feed system

In the mean time I got from Carlos, N4IS, an interesting advice on a new feeding system and common mode noise blocking. He has been very successful with low gain receiving antennas and I put to work his idea, which is quite simple. The use of twisted pair wires instead of coax cable!

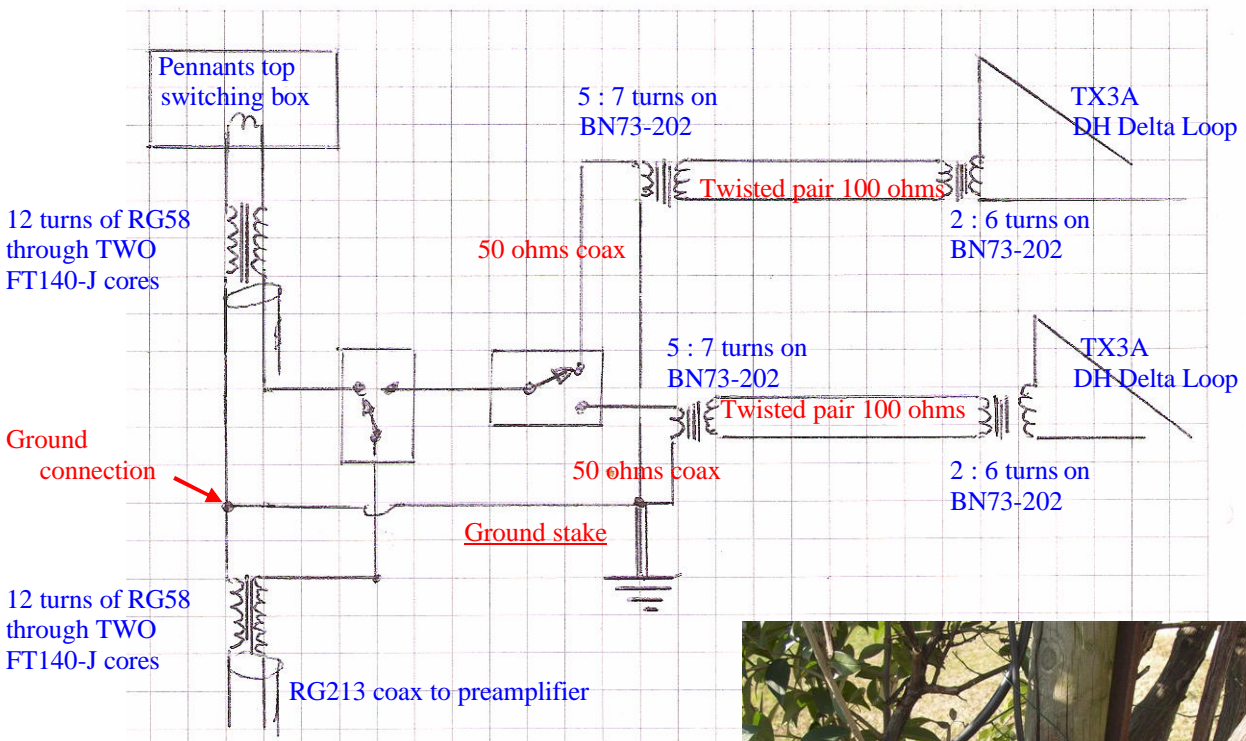
I stripped a 15 m. length of CAT 5 data cable and extracted the 4 pairs of twisted wires, whose characteristic impedance is around 100 ohms. Then I just removed one turn from the antenna side winding of the DHDL transformer to get the correct feed matching (from 7:2 turns for 900/75 ohms ratio to 6:2 turns for 900/100 ohms ratio on the binocular BN73-202). The 15 m. length is just arbitrary. It can be any shorter or longer at your convenience, I used what I had.

At the end of this twisted line I put another isolating 2:1 transformer to match the 50 ohm feedline system to the shack. 7 turns on the 100 ohms side and 5 turns on the 50 ohms side for a binocular BN73-202. Jose Carlos, N4IS, uses the same turns on a small FT50B-77.

Common mode noise is a current outside the coax that gets into the inner conductor, where the desired received signal is merged with noise pick up by the shield. Without shield there is no 3rd current and no common mode noise.

It is not necessary to run 100% of the line with twisted pair, just the last part at your convenience. I used what I had, 15 meters, but it can be much shorter. That is better than any choke.

This is a sketch of my DHDLs and Pennants wiring with common mode noise choking:



The double FT140-J chokes should provide at least 3.000 ohms impedance, more than enough for common mode blocking on 160 meters. “J” material is the same as “75” with high resistive characteristics.

More details on this stuff can be found on pages 4-5 of the paper on my 4 square RX array: [..\\My Ewisoft Web\\Site2\\RXant.PRK_4 Square_3.pdf](http://MyEwisoftWeb/Site2/RXant.PRK_4_Square_3.pdf)

