

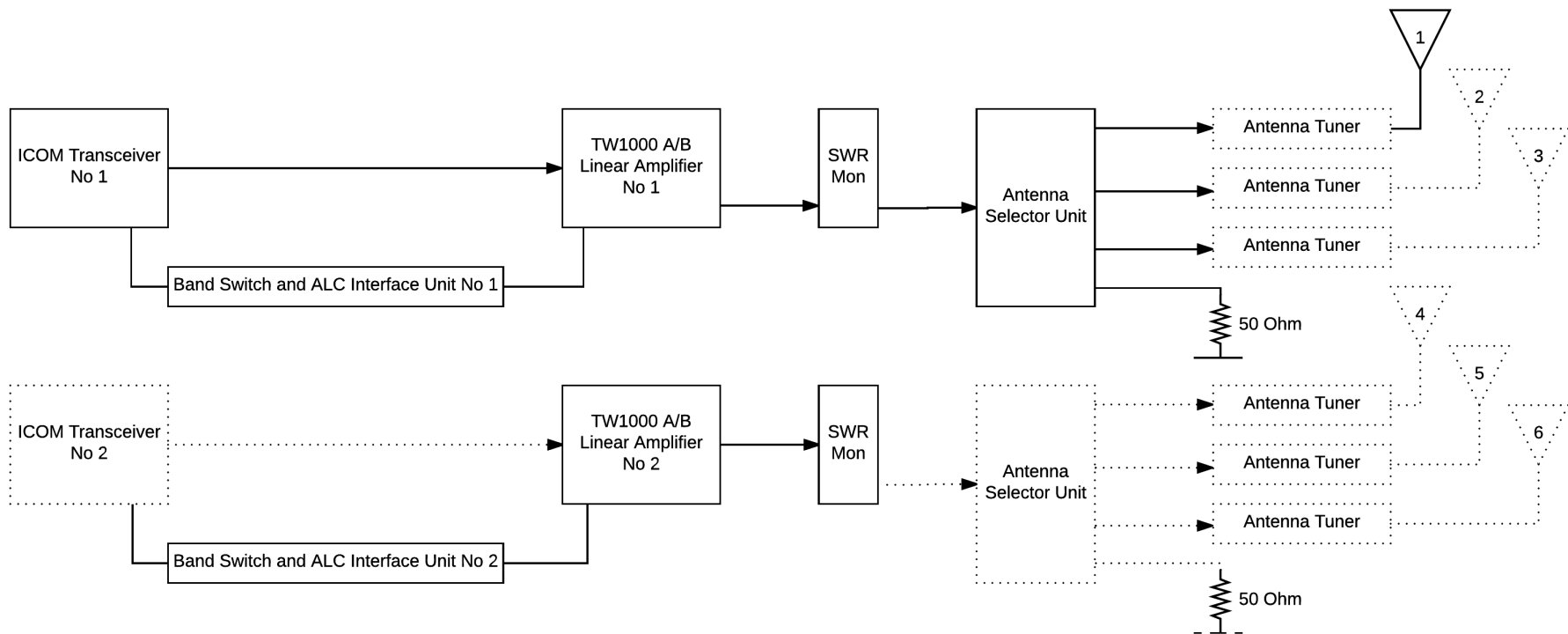
As Built Note 8 - RemoteDX Station RF Configuration

Refer to the original requirements documents and concept designs.

The remote station has been designed for two operational transceivers that can be used simultaneously.

The initial implementation however uses only one transceiver with provision for the second transceiver where appropriate. (shown in dotted lines in the following schematic diagram)

Remote DX Staion RF Schematic



RemoteDx site Antenna Matching

Design Principles

The design principles used for the remote station are:

1. Antenna impedance seen by the transceiver linear combo is 50 Ohms.
2. VSWR at the design frequency of any antenna port is to be 1.1 or better.
3. Antenna tuning networks are to be used where needed to achieve acceptable VSWR.
4. Where antenna matching is used it will generally be provided individually for each antenna as fixed tuned devices manually set up for optimum performance across the band.
5. Automatic Antenna tuners will not be used.
6. PL259 connectors are used for RF levels up to 100Watts. Type N connectors are used for RF levels above 100 Watts up to 1000 Watts

Practical Application

Four Square Antenna arrays use a 3db coupler in the phasing network that connect to the four vertical elements of each array. These exhibit an impedance of 50 Ohms and are remarkably tolerant of changes of impedance on any of the ports feeding the vertical elements. Consequently the feeder to the Phase Switcher should require very little or no correction to achieve an acceptable VSWR in the band they are to be used.

L-C Match

In any configuration that requires a small amount of correction the use of a simple L-C network is recommended. Tests during Station setup of an antenna should determine the type and extent of matching required.

There are four basic versions of the L-network, with two low-pass versions and two high-pass versions (*Fig. 1*). The low-pass versions are probably the most widely used since they attenuate harmonics, noise, and other undesired signals, as is usually necessary in RF designs. The key design criteria are the magnitudes and relative sizes of the driving generator output impedance and load impedance.

