

Antenna Registration Question 4: Directional Antenna Information
WD2XDW Existing 0054-ex-ml-2003, modification 0001-ex-ml-2006

1. The main experimental array at 1101 Tower circle will be a rectangular loop per the attached sketches. The main lobe is in the plane of the loop and has a very appx 3dB point of around 130 degs, but skewed due to local building and powerlines Main lobe firing will be 090/270 deg T.
2. The loop radiates the majority of power towards the zenith, but given the size of the resonated loop against operating efficiency the ERP will be very low and not exceed the application limits even with 1.2Kw applied and the input to the resonating elements. These are mostly capacitive in nature consisting of some 12nF of High powered Sangamo Mica G3 capacitors and one 1nF variable vacuum. Expected aerial current will be around 50 amps obtained from a Class D/E Hybrid FET amplifier.

The use of very small lambda loops as transmitting arrays at LF has been one of the successes of recent part 5 experiments. Even so they are very very lossy but are particularly effected when normal bottom loaded short verticals aren't possible or where they would be situated in wooded or capacitive lossy environmental locations. Given that I havent any trees at my new location the loop will be supported by fibre glass masts at one end and the property and small fiber mast at the other. Alternate array may be a short monopole of some 40ft in height with capacitive top loading using 1.5mm² copper wireless – this array would be supported by a short fibre mast and small copper earth may/earth probes.

2. We have requested permission to locate a mobile array within 5 miles of the base location. This is to allow the use of vertically test data versus the horizontal loop given the same or near same ground condition. This will also allow reception of LF signals from an electrically quiet location. The vertical may be supported by balloons or a fibre mast and will not exceed 65m agl