Antenna Tests Procedure

Where field strength measurements have been made and they reveal a potential fault then the following procedures should be adopted to determine the true cause and extent of the problem. The following are guidelines only and should be adapted to suit the circumstances of the particular antenna and the geography of the location.

1 Calibrate the test equipment as described in the adjoining sheets.

2 Find three or four locations corresponding to the primary antenna azimuth directions 0°, 90°, 180° & 270° etc., that are in clear line of sight of the transmitting antenna, and at a distance of 5 to 10km from the site.

3 Measure the field strength on all frequencies at these sites. Compare the results with the theoretical values. They should be within ±3dB.

4 If the results of (3) are incorrect then repeat the measurements (2 & 3) first on full antenna then on both half antennas. The full antenna measurements should be 6dB more than the half antenna measurements, which themselves should be equal. If not check the phasing of the suspect face of panels. Correct the fault before proceeding further.

5 Proceed to measure additional points between the main lobes say 180° and 270°ETN in 10° steps, where the problem exists.

6 If there is a serious dip in the HRP as revealed by the step (5) then the phasing of the antenna, or panel positioning should be suspect.

7 Inspect the antenna panels to ensure they are orientated correctly. Check all the distribution cables to see if the correct lengths are used.

8 If an external visual inspection does not reveal any problems, then disconnect the various cables and make a thorough internal visual inspection.

9 Repair make good any defects

10 Check the VSWR of the antenna and feeder.

11 Repeat the field strength measurements at critical point to ensure all the defects found.