been damaged in the AN/SRA-12 filter unit because of high rf power from on-board transmisssions.

Separation between hf receiving and transmitting whips will also be influenced by the design approach decision regarding the establishment of topside zones for locating receiving and transmitting antennas.

Satisfactory omnidirectional radiation patterns cannot be achieved for all frequencies in the 2–30-MHz band on any ship having a sizable mast structure above the mounting elevation of any particular antenna. Pattern degradation due to structural interference can be reduced by increasing the distance between the antenna and the structure.

Antennas centrally located on horizontal conducting plane surfaces are likely to have better overall patterns than antennas mounted on the edge. Antennas mounted on the edge of an elevated conducting plane will have the greatest low-angle gain in the directions for which the radiation crosses the plane surface.

The calculated electric near fields at frequencies of 2,4,6, and 10 MHz are shown in figures B1 and B3 for vertical heights, z, of 1 and 2 meters, respectively. At frequencies of 15, 20, 25, and 30 MHz, the electric near fields at vertical heights, z, of 1 and 2 meters are shown in figures B2 and B4, respectively. The radiated power is 1 kW. All figures are graphs of the peak electric field in volts/meter as a function of horizontal distance, x, in meters away from the antenna.

35-FOOT TRUSSED-WHIP ANTENNA

The 35-foot trussed whip is an NT-60047 or other type whip which has been broadbanded by the addition of wires around the antenna—usually trussed to spokes attached part way up the whip (ref A1). The diameter of the whip is increased to several feet (the diameter will vary) at the spokes with the wires tapering to the whip diameter at the bottom and upper attachment points of the trussing. Trussing improves the efficiency of a whip by lowering the mismatch loss to a 50-ohm system at the lower high frequencies. Figure A2 is the AS-2805/SRC, which is the AS-2807/SRC with trussing wires added. The installation guidance is the same as for the 35-foot whip antenna described in the previous section.

The calculated electric near fields of the AS-2805/SRC at frequencies of 2,4,6, and 10 MHz are shown in figures B5 and B7 for vertical heights, z, of 1 and 2 meters, respectively. At frequencies of 15, 20, 25, and 30 MHz the electric near fields at vertical heights, z, of 1 and 2 meters are shown in figures B6 and B8, respectively. The radiated power is 1 kW. All figures are graphs of the peak electric field in volts/meter as a function of horizontal distance, x, in meters away from the antenna.

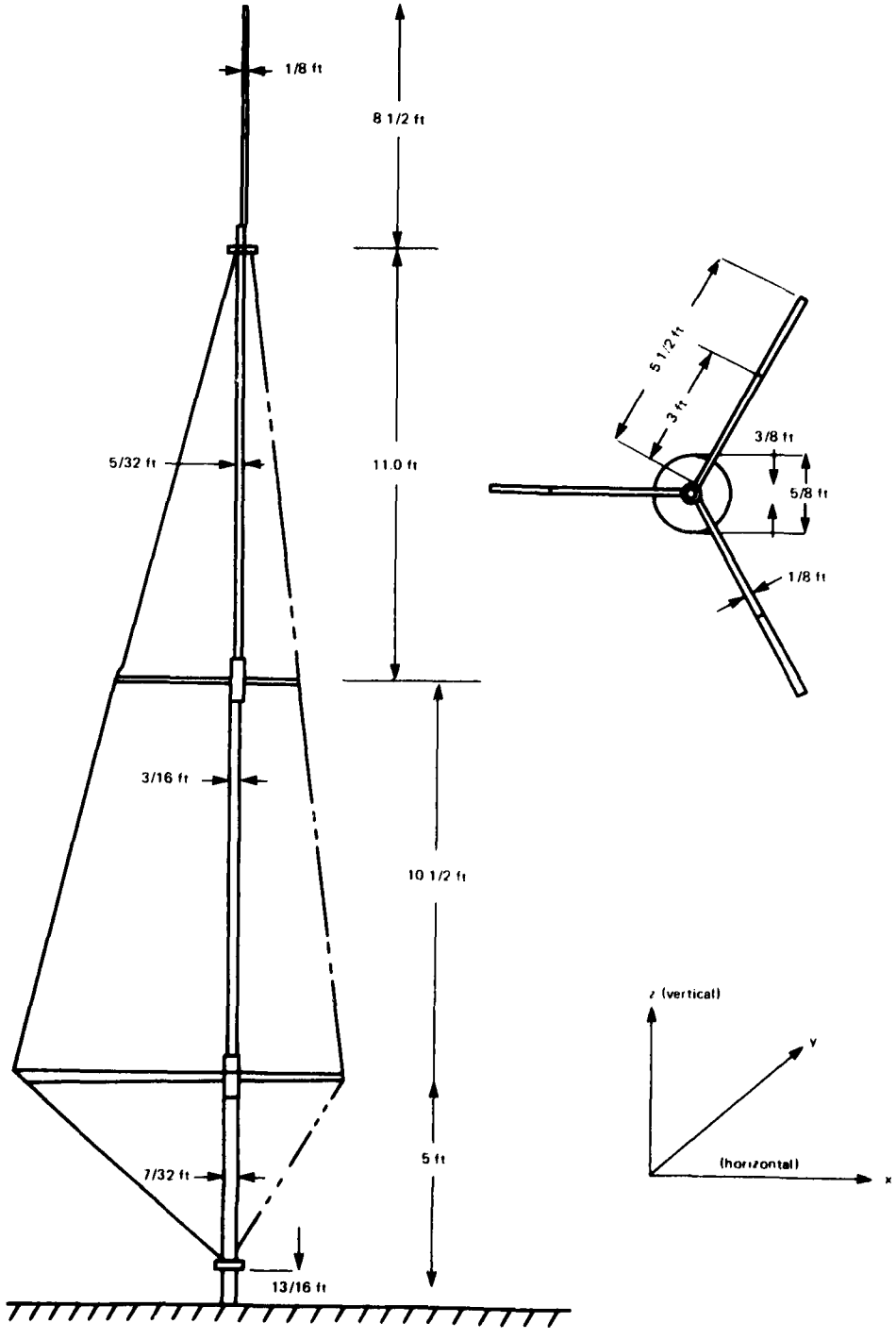

Figure A2. 35-foot trussed-whip antenna.