

ABSTRACT

Cell phone towers are structures built on specific parcels of land that are designed to accommodate wireless tenants. Wireless tenants utilize cell towers to deploy various technologies to a subscriber base; towers can be classified into square, rectangular, triangular, delta, hexagonal and polygonal towers. Such as telephony, mobile data, television and radio. Cell towers are typically built by tower companies or wireless carriers. The purpose of a cell phone tower is to facilitate cellular phone and other wireless communication device signal reception in a cellular network. The forces acting on the cell tower are due to environmental condition like sun rays, wind and due to rain. One should perform numerical simulations to find deflections.

One should perform different types of analysis for design of cell tower and in the present project Static analysis will be performed using one-dimensional element with material as a stainless steel. The stresses and deflections developed in the cell tower is analyzed by using ANSYS FEA (finite element analysis) tool by modeling it as 1D element with the specified cross sections. FE Modeler can create the geometry equivalent of 1D elements such as beams, bars, and remote points in Geometry Synthesis. We use beams, cross sections, remote points, springs based on the limitations. The objective of the project is design the cell tower by boundary conditions and loads.

Key words: cell towers, static analysis, 1D elements, telecommunication and antenna.