Assignment 1

Due on 2020-02-12, 23:59 IST.

1. The measured half-power beamwidth of a Penet in the two orthogonal planes is 90° and 20°. What will be the approximate directivity of the antenna in dbi?

2. The axial ratio of an antenna is 1.3. If the antenna is to be used for practical applications, it is acceptable for which polarization?

3. For an omnidirectional antenna, UTD TM in the E-plane is 60°, the approximate directivity in dbi is:

4. For a directional antenna, first null beam width (FNBW) in the E-plane is 45°, what is the HPBW of this antenna in the E-plane?

5. If the distance from the antenna increases by 2 times, then its radiation density will:

6. What is the voltage standing wave ratio (VSWR) in the following cases?

7. The percentage power transmitted by the antenna is:

8. A GSM 900 MHz tower antenna with 16 dBic gain is transmitting 10W of power at 945 MHz. What is the power density at a distance of 60 m in the direction of maximum radiation?

9. Two identical transmitting and receiving antennas are located at a distance of 3 km. If power transmitted is 30 dBm at 19 GHz and received power 42.5 dBm at 19.9 GHz, the approximate gain of each antenna is:

10. The diameter of a parabolic dish antenna to achieve 90 dBic gain at 11 GHz is...

Note: It is assumed that the antenna is in free space.