circular-polarized proximity-fed tip-truncated triangular switchable array for land vehicle mobile system

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Abstrak

This paper proposes a compact circularly polarized (CP) tip-truncated triangular patch array that is developed for land vehicle mobile system aiming at communications. The array is constructed by three patches, which its beam pattern can be switched in three 120°-coverage beam in azimuth plane with minimum gain requirement at fixed point of the elevation angle, in order for data communications with the large geostationary satellite can be achieved. The targeted gain is set to be 5 dBic at 48° of the looking angle from the satellite in Kanto area. The patches are fed with proximity feed technique owing to its simplicity and easier installation on the vehicle. The array performance is numerically analyzed with the method of moment (MoM) to clarify the array characteristics. Measurement results are provided to validate the simulated results. The results show that the array meets the specifications at targeted looking angle 48° with the gain is more than 5-dBic for each three-selectable beam in the azimuth plane.