

60 GHz Multi-Sector Antenna Array with Switchable Radiation-Beams for Small Cell 5G Networks

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Abstract : A compact design of multi-sector patch antenna array for 60 GHz applications is presented and discussed in details. The proposed design combines five 1×8 linear patch antenna arrays, referred to as sectors, in a multi-sector configuration. The coaxial-fed radiation elements of the multi-sector array are designed on 0.2 mm Rogers RT5880 dielectrics. The array operates in the frequency range of 58-62 GHz and provides switchable directional/omnidirectional radiation beams with high gain and high directivity characteristics. The designed multi-sector array exhibits good performances and could be used in the fifth generation (5G) cellular networks.

Keywords : mm-wave communications, multi-sector array, patch antenna, small cell networks

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