A Comparative study of Proximity-Coupled Multiband Microstrip Antenna and Multimode Reduced Surface Wave Antenna

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Abstract

This paper shows the comparative study of proximity-coupled feed, used for a multiband microstrip antenna (MMA) and multimode reduced surface-wave antenna based on the shorted-annular-ring reduced-surface-wave (SAR-RSW) element and the inverted-SAR-RSW (ISAR-RSW) element. Microstrip antenna operates in four bands - WiMAX (3.3–3.7 GHz), LTE2300 (2300–2400 MHz), Bluetooth (2400–2485 MHz), and WLAN (5.15–5.35 GHz, 5.725–5.825 GHz). Microstrip antenna has excellent radiation features along with a steady gain over the operating bands. Multimode reduced-surface-wave antenna has a reduced return-loss bandwidth of less than 10-dB. Its range of operation is 1.164–1.255 and 1.552–1.610 GHz, a 3-dB axial-ratio bandwidth from 1.16 to 1.26 GHz and from 1.54 to 1.61 GHz. It produces a larger than 7-dBi gain in the entire operating band. To increase the impedance bandwidth, the multimode reduced-surface-wave antenna implements the proximity-coupled probe feeds. In order to restrain the mutual coupling between the SAR-RSW and ISAR-RSW elements, the defected ground structure band-rejection filters are implemented.
References


Index Terms

Computer Science Wireless
Keywords

Microstrip antenna, multiband, proximity feed, Microstrip antenna, Reduced surface wave element.