

## 12x12 MIMO Terminal Antennas Covering the Whole LTE and WiFi Spectrum

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**Abstract :** A broadband resonant terminal antenna has been developed. It can be used in different MIMO arrangements such as 2x2, 4x4, 8x8, or even 12x12 MIMO configurations. The antenna covers the whole LTE and WiFi bands besides the existing 2G/3G bands (700-5800 MHz), without using any matching/tuning circuits. Matching circuits significantly reduce the efficiency of any antenna and reduce the battery life. They also reduce the bandwidth because they are frequency dependent. The antenna can be implemented in smartphone handsets, tablets, laptops, notebooks or any other terminal. It is also suitable for different IoT and vehicle applications. The antenna is manufactured from a flexible material and can be bent or folded and shaped in any form to fit any available space in any terminal. It is self-contained and does not need to use the ground plane, the chassis or any other component of the terminal. Hence, it can be mounted on any terminal at different positions and configurations. Its performance does not get affected by the terminal, regardless of its type, shape or size. Moreover, its performance does not get affected by the human body of the terminal's users. Because of all these unique features of the antenna, multiples of them can be simultaneously used for MIMO diversity coverage in any terminal device with a high isolation and a low correlation factor between them.

**Keywords :** IOT, LTE, MIMO, terminal antenna, WiFi

**Conference Title :** ICSRD 2020 : International Conference on Scientific Research and Development

**Conference Location :** Chicago, United States

**Conference Dates :** December 12-13, 2020