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Optically Transparent Antenna for Smart Glasses

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Abstract: *Optically transparent antenna technology has attracted the attention of the consumer electronics industry for its ability to embed limited antennas into compact mobile devices. Initial research focused on the integration of transparent antennas into guidelines for smartphone applications, for example, to improve 5G mmWave spatial coverage charging on the forehead side. To our knowledge, the application of transparent antenna technology in smart glasses and virtual reality glasses has not yet been explored, especially given the limitations of integration with optical properties in lens clusters. Therefore, we first wanted to find a solution to the presence of RF lossy layers in the antenna and lens group to reduce the negative performance of the antenna. A metal mesh-based transparent antenna film and a ring antenna made of a metal glass frame were investigated. Testing the results of this antenna on a phantom human head shows an overall better than -4.5 dB in the 2.4 GHz band. While it is recommended for eg 2.4 GHz antennas, the same principle can be used for other sub-6 GHz antenna applications, for example.For example, LTE, Wi-Fi, GNSS etc.*

Keywords: Smart Glasses

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