

Broadband antenna having polarization dependent output

Reference No: B77173

CHALLENGE

The proliferation of connected mobile and embedded devices in fields such as V2V and V2X communication, telemedicine, industrial IOT, and smart homes has put an ever-increasing demand on the existing communication infrastructure. Many of these applications require **high data transmission rates and low latency**. The latter being especially **important for safety critical applications**. Both of these requirements will be met by **modern 5G Networks**. These networks exploit mm-wavelengths, where large network speeds can be reached through the abundance of available bandwidth. However, these advancements also put additional requirements on the hardware. Specifically, this leads to an **increased complexity in the area of antenna technology** to meet the demand for higher frequencies, larger bandwidths, and the ability to perform beamforming. This increase in complexity is accompanied by **increased fabrication costs**.

INNOVATION

The invention is a **novel antenna design**. This design enables efficient **dual-polarized broadband operation**, with low cross-polarization, the **ability to operate as a phased array**, and eliminates back radiation. Crucially, manufacturing the novel antenna is relatively straightforward due to its simple geometry and the fact that it can be integrated on a multilayer substrate.

COMMERCIAL OPPORTUNITIES

The antenna supports the mm-wavelength bands used for 5G and point-to-point communication and is thus useful for a plethora of applications requiring large bandwidths and/or low latency, such as:

- Vehicle-to-Vehicle (V2V) or Vehicle-to-Everything (V2X) communication
- Smart factories
- Telemedicine

DEVELOPMENT STATUS

Detailed numerical simulations have been carried out and prototype is under construction.

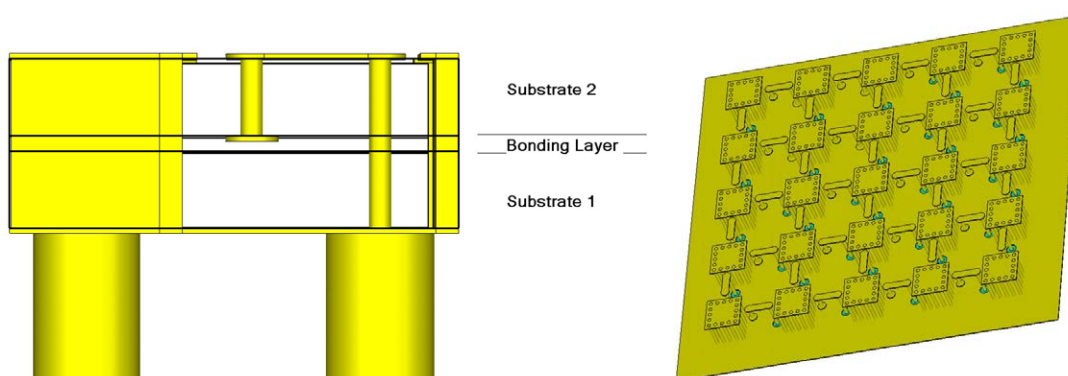
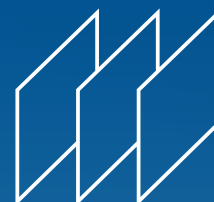


Figure: Side view (left) and top view (right) of the described antenna array.



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