

Antena compacta de escaneo en frecuencia para radar automotriz a 24 GHz

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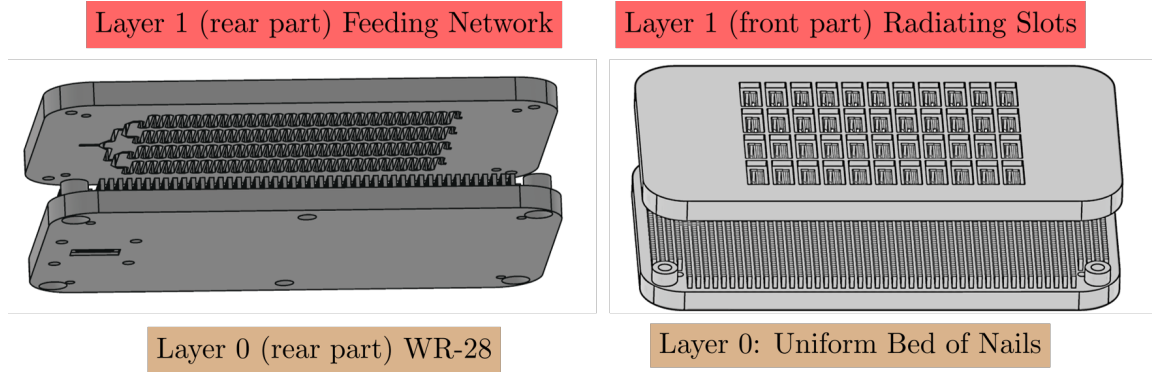


Figure 1: Vista esquemática de la antena propuesta basada en tecnología Half-Mode Groove Gap Waveguide (HM-GGW).

Resumen

Este trabajo presenta una antena de onda progresiva (travelling wave) basada en tecnología *Half-Mode Groove Gap Waveguide* (HM-GGW), diseñada para aplicaciones de radar automotriz en 24 GHz. Su arquitectura meandrada permite aumentar la longitud del trayecto electromagnético manteniendo un volumen compacto y una eficiencia de radiación elevada.

El diseño, completamente metálico y de bajo perfil ($9\lambda_0 \times 5\lambda_0 \times \lambda_0$), ofrece un escaneo angular de 45° (de -25° a $+20^\circ$) con solo un **5%** de ancho de banda relativo. Las simulaciones indican una directividad de hasta **22 dBi** y una eficiencia del **90%**. Estas características hacen de esta antena una opción muy adecuada para aplicaciones de radar donde se requiere escaneo rápido, alta directividad y compacidad.

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