Booth No. **8.1B40.2**

Wave Fusion Lab

WAVE FUSION LAB
SEOUL NATIONAL UNIVERSITY

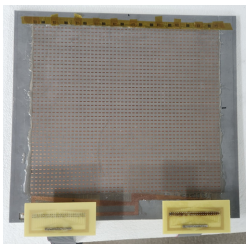
Year Established	2018	Type of Business	Other
Website	http://wfl.snu.ac.kr/	Main Export Countries	US, EP, CN
Main Customer	Domestic Customers Samsung		
The Person In Charge	Name	Department	Position
	Jungsuek Oh	Wave Fusion Lab	Professor
	Phone	Mobile	E-mail
	+82-2-880-1815	+82-10-5673-7978	jungsuek@snu.ac.kr

Company Description

We research RF antennas, RIS [Reconfigurable Intelligent Surface], RF circuits, and system simulators for commercializing 5G/6G systems and radar. Innovatively, we integrate semiconductor and display materials into the RF system to expand communication coverage. Demonstrating these technologies in forums, we integrate them into real-world systems, conducting practical demonstrations and validations.

Product

5G/6G RIS [Reconfigurable Intelligent Surface]



Function and Usage : The proposed product is an innovative RF module for base stations, designed for the commercialization of 5G/6G communication and radar systems. It surpasses conventional SMD products by incorporating semiconductor and display materials, expanding beyond the limitations of conventional RF systems. The optimized manufacturing process allows the simultaneous implementation of multiple elements, achieving enhanced RIS performance. Optimization of semiconductor and display processes not only reduces production costs but also enables mass production, contributing to the industrialization and commercialization of 5G/6G communication.

Marketing and Selling Points : The created Reconfigurable Intelligent Surface (RIS) incorporates active components into unit cells, employing semiconductor processes and display materials. By electrically controlling these active components, the restructuring of unit cells facilitates the transmission and reflection of RF signals in the desired direction. Furthermore, RIS products can be produced in a single process, utilizing semiconductor processes and display materials to fabricate a tremendous number of unit cells. Therefore, the proposed RIS enables cost-effective and efficient manufacturing in a brief timeframe, facilitating mass production.

5G/6G Holographic antenna

Function and Usage : The proposed product is an antenna designed for use in repeaters and mobile devices, integrating semiconductor and display materials. The characteristics of applied materials are considered in antenna fabrication to achieve high efficiency and gain antenna. Furthermore, by controlling the utilized semiconductor and display materials, the antenna enables to transmission of the signal in the desired direction.

Marketing and Selling Points : The proposed antenna is suitable for use in repeaters and mobile devices. By applying semiconductor processes and display materials as reconfigurable components in the antenna enables beam steering in the desired direction without requiring a phase shifter. Moreover, the implementation of reconfigurable components in the middle of the antenna fabrication process allows not only the enhancement of antenna performance but also simplification of the fabrication process. Consequently, the proposed antenna not only attains high performance but also allows for mass production, reducing costs and streamlining the process, thereby making it viable for the commercialization of 5G/6G communication.