

Aesthetic Dielectric Resonator Antennas for Decorations



Communications & Information

Consumer Electronics

Digital Broadcasting, Telecommunication and Optoelectronics

Smart Mobility and Electric Vehicle

Testing Instruments



IP Status

Patent granted



Technology Readiness
Level (TRL) ?

7

Inventor(s)

Prof. LEUNG Kwok Wa

Mr. XiaoSheng FANG

Dr. Eng Hock LIM

Enquiry: kto@cityu.edu.hk

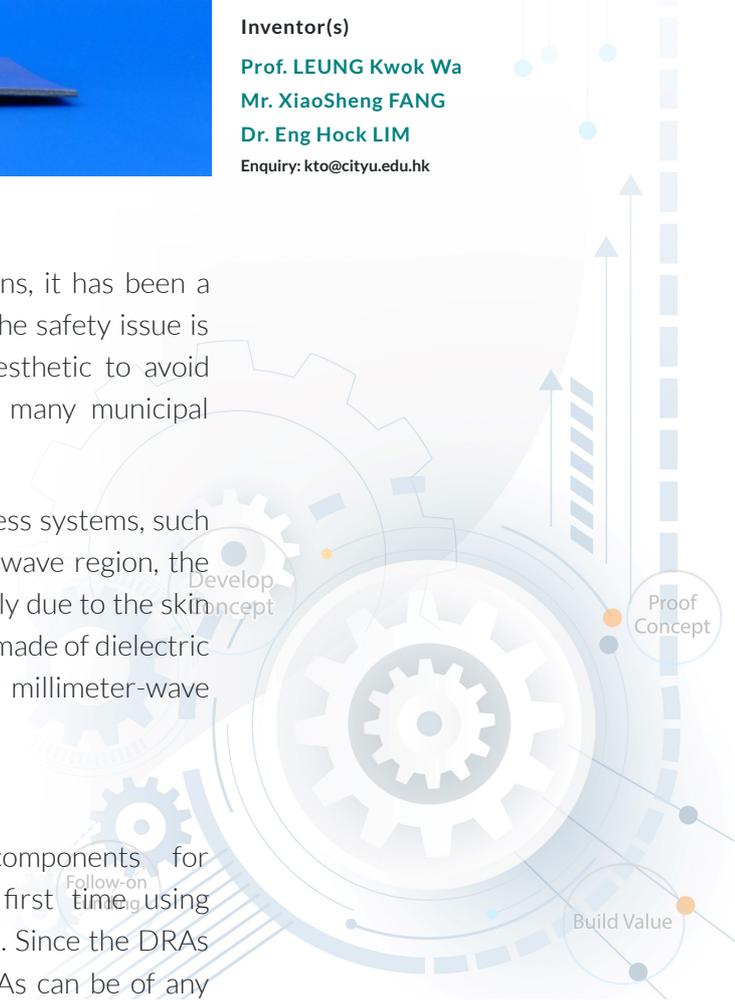
Opportunity

Since people are generally concerned with antenna radiations, it has been a trend to conceal antennas from the sight of people. Even if the safety issue is not a concern, it should be welcome to make antennas aesthetic to avoid possible complaints. As a result, it has been required by many municipal regulations to conceal antennas from the surroundings.

On the other hands, the carrier frequencies of modern wireless systems, such as 5G or 6G network, progresses upward to the millimeter-wave region, the efficiencies of metallic antennas would be reduced significantly due to the skin effect. Since dielectric resonator antennas (DRAs) are purely made of dielectric materials with no conductor loss, they are very suitable for millimeter-wave system.

Technology

The disclosed invention (antennas) are essential components for RF/Microwave/Wireless systems. It is proposed for the first time using dielectric resonator antennas (DRAs) as decoration artworks. Since the DRAs are ornaments, they are named as aesthetic DRAs. The DRAs can be of any ornaments or artworks such as a statue, a dummy, an idol, animal, and vase to



name a few. Commercial glass swan and apple ornaments are used to demonstrate the idea. The idea is useful for designs of camouflaging antennas, and for making wireless systems more aesthetic and visually pleasant. It is worth mentioning that aesthetic DRAs can be placed indoor or outdoor, widening the range of their applications.

Advantages

- The dual-functional DRAs can be camouflaged in an aesthetic way without notice
- It can be made small in size, flexible in shape with aesthetic appealing, and low power loss
- It minimizes the public outcry about the installations of antennas

Applications

- Front-hood medallion of a vehicle as an antenna
- Decoration artworks inside and outside buildings or any infra-structures
- Wireless communication system with interior decoration

