

Planar High-Gain Antennas with Variable Beam Directions

THE EXISTING PROBLEM OR ISSUE

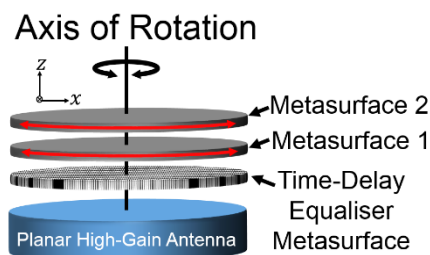
Dish antennas can be seen almost everywhere in modern urban environments. Often standing on roof tops of commercial and residential buildings, these high-gain non-planar antennas are ugly, protruding, and create urban clutter. As a result, many authorities such as councils restrict or prevent installations.

One solution is to use an array of microstrip antennas. A planar array of antennas can create a high-gain beam in a fixed direction. That means for each installation, the passive antenna array should be individually designed and fabricated. The solution to this is a phased array antenna, which uses active phase shifters with antenna arrays. This comes at a very high cost of active phase shifters. Further, active phase shifters are lossy due to radio frequency (RF) signal going through active elements. Therefore, the beam direction cannot be adjusted without losing performance even at high cost.

Existing antenna technologies do not provide an acceptable solution to produce planar, high-gain, high-performance antennas with variable beam directions so that existing ugly conspicuous antennas can be replaced.

OUR SOLUTION

We have invented a new method to adjust the beam direction of a planar antenna without performance penalty.



There are no electronic devices in our antenna, i.e. it is totally passive. Hence its performance (efficiency and gain) is very high. It does not need continuous power (DC or AC). The antenna has a planar configuration, so it can be attached to planar walls or roofs of buildings and easily hidden. In other words, it can be integrated with existing and future buildings, in contrast to incompatible stand out protruding installations of dish antennas.



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APPLICATIONS

- ✓ Replacement for dish antennas
- ✓ NBN wireless access in remote areas
- ✓ Mobile satellite TV and internet receivers
- ✓ Custom designed mobile phone base station

ADVANTAGES	BENEFITS
Planar in shape	Alternative to bulky satellite dishes Can be used on existing and new buildings Fewer restrictions on installation from city councils
No onsite maintenance after installation	Metasurface disk adjusted during installation and no further adjustment required. If turning is required, a stepper motor can be used to turn metasurface disk remotely.
No power	Reduced maintenance costs

INVENTORS

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INTELLECTUAL PROPERTY POSITION

Australian Patent Application:

A directional antenna with a variable beam direction

WOULD YOU LIKE TO KNOW MORE?

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