Patent Application No. 06-330678 (Patent No. 2642889)

# Antenna System for Mobile Earth Stations

Invented by: ***Yoshihiro HASE and Ryutaro SUZUKI***

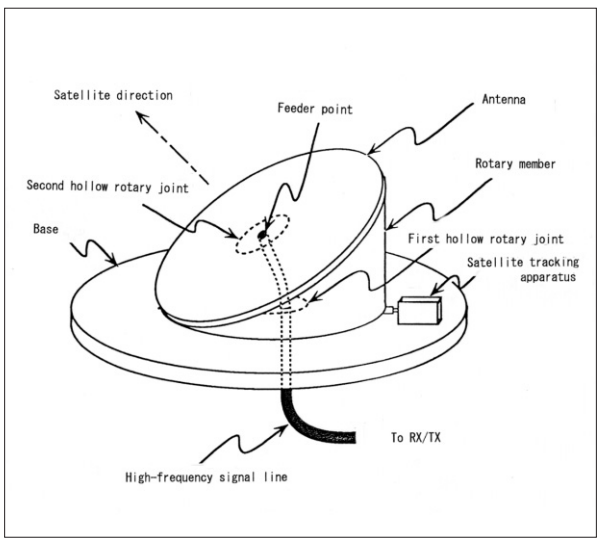

*External view of the antenna*

## Outline of the technology

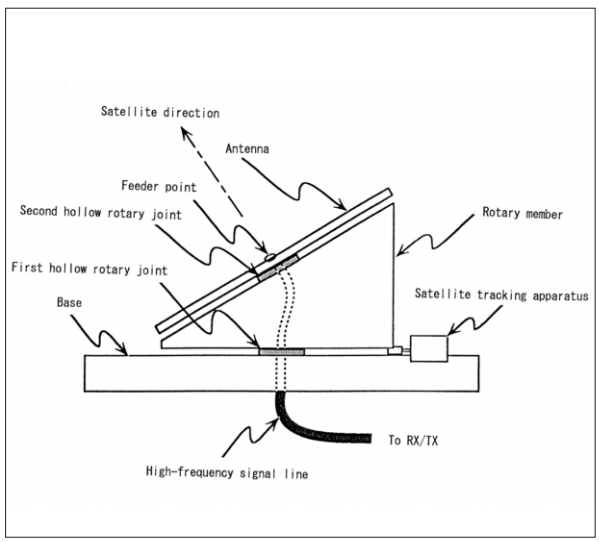
A light and inexpensive antenna system has been invented for use in mobile earth stations that do not require that satellites be tracked in the direction of the elevation angle.

As shown in Fig. 1, an axially symmetrical antenna with directivity is connected to the center of the top surface of a truncated cylinder with a coreless rotary joint. The bottom surface of the truncated cylinder is connected to a base with another coreless joint. Then, to catch the satellite's signal, one end of the rotor's bottom surface is rotated with a driving motor via gears, changing the azimuth angle while holding a constant elevation angle. As a result, it is now possible to track satellites in all azimuth directions.

Then, if the elevation angle does not change, it thus becomes possible to track a satellite using a single driving motor, without causing relative distortion between the antenna and the base. Eliminating the use of an expensive rotary joint driven by a high-frequency signal, the system can be made to be small and inexpensive.




*Inclined View*




*Side View*

## Features

This technology enables the commercialization of an automatic, simply structured BS satellite-tracking antenna at a low price. When placed on a flat surface, this type of antenna can catch the BS signal with single axis (azimuth angle) rotation, and receive BS broadcasts, continually changing its azimuth angle, regardless of the direction it faces.

For example, if the antenna is mounted on the roof of a parked camping car, then, regardless of the camping car's directional orientation, the antenna automatically catches the BS signal, without the need for annoying directional adjustments. Most camping sites are located in the mountains, where it is hard to receive terrestrial broadcasts. However, it is easy to directly receive BS broadcasts if the sky between the antenna and the BS is clear. BS broadcasting is thus now available nationwide.

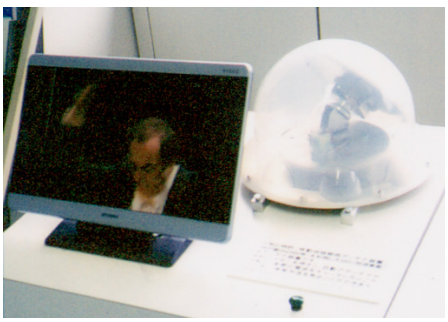
## Applications

This antenna model is sold for use in camping cars, vans, and RVs. It is also sold preinstalled in emergency vehicles. In addition, the antenna has been sold on its own, to be used in emergency kits designed to help prepare for large-scale disasters. This antenna has been selling well, mostly for use in camping cars, since its launch in September, 2000 (right before the Sydney Olympic Games), fueled in part by the outdoor recreational boom. Its price (¥138,000) is surprisingly low, as compared to other CRL patent-based products. This is an affordable price even for individuals, and particularly for you!

*Example of use in camping car*


Photo credit: MICROTEK Inc.

*Demonstration model*
*(installed in a showroom)*



Patents Obtained by CRL may be used for a fee. Please contact CRL Intellectual Property Group for information on patent licensing and technical data.