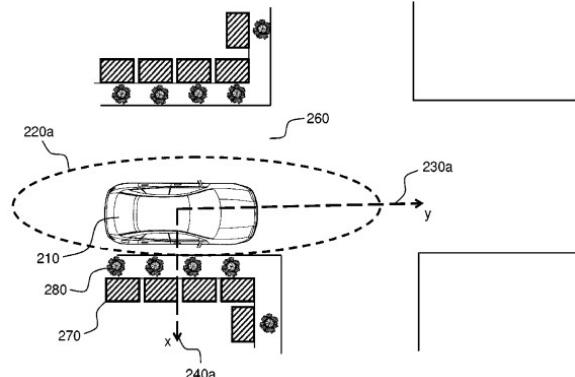




A SIMPLIFIED GNSS RECEIVER WITH IMPROVED PRECISION IN A PERTURBED ENVIRONMENT

Technological advantages

- ⌚ Simple system, compact
- ⌚ Solution with reduced costs



Invention synthesis

The invention deals with navigation systems (GNSS) and presents an antenna assembly allowing for the reduction in issues raised with multipaths and loss in Line Of Sight (LOS) with the satellites.

Perturbed GNSS signals, for example due to multipaths (eg reflections on buildings), degrade the positioning accuracy. Losses in line of sight with satellites also strongly impairs positioning (eg due to mountains). Traditional solutions to improve the positioning are complex and costly.

The invention proposes to adapt the onboard antenna radiating pattern according to the field of view with satellites. The main lobe obtained from the antenna assembly has a narrow aperture in the xz vertical plane (depointing) and a wider aperture in the horizontal xy plane.

The radiating pattern selection can be done with the onboard software for example depending on the vehicle location on a map, depending on the GNSS signal analysis (multipaths detection).

Example for a radiating pattern for a vehicle

- (210) Vehicle equipped with a GNSS receiver
- (260) Road
- (270) Buildings
- (280) Light poles
- (220a) Radiative lobe normal to the vehicle direction
- (230a) Axis aligned with the vehicle motion
- (240a) X axis in the reference frame attached to the vehicle

Commercial benefits

- System with little complexity on the hardware and software levels, well suited to a large public.
- Solution with reduced costs for the improvement of GNSS positioning.

Potential applications

- Well suited to public devices : smartphones and vehicles. Especially suited in cities.

Patented invention - under license.

For more information :

Valo-TT@cnes.fr