

Improved Microwave Antenna Auto Tracking System

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Project overview

Dutchview Mobile has developed it's own auto tracking system for establishing stable microwave links between an airplane and the receive site. The aircraft downlinks are operating in the 2 GHz. band and carry approximately 60 Mb/s each, using the DVB-S2 standard. The tracking information is derived from the aircraft GPS data combined with the GPS data from the receive site. The system can track the hemisphere without the use of rotary joints or the need for turning back after 360 degrees. This system is also known as an X-Y tracking antenna. For our next generation downlinks we have to move to higher spectrum so more accurate pointing and more GPS updates (or predicting software) for the tracking unit. Moving to higher spectrum will also give more attenuation and so the need for a directional antenna instead of the now used omnidirectional antenna on the aircraft.

Research questions

- Will this setup still perform at 7 GHz. over 120 km.
- Can this X-Y tracking system be adapted for aircraft use.

Tasks

- Study the conditions were under the auto tracking system has to perform it's task
- Verify if the prototype is performing up to its task.
- Improve or change the prototype so it will meet the new specifications for 7 GHz. usage.
- Improve or change the prototype so it can be used in aircrafts.
- Improve or change the prototype so performance and mechanical construction are in balance.
- Prepare the tracking system for aircraft certification

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