

# AGATA, THE AEROTRANSPORTABLE TELEMETRY ANTENNA

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## **Abstract:**

### **Need for launcher tracking systems**

The telemetry stations allow establishing the link between the launcher and the ground. They will allow us to receive in real time: the position of the launcher, its speed, as well as other vital information coming from its sensors, in order to check that all the phases of the flight are executed nominally.

In case of abnormal behavior, we can act accordingly.

Another vital information is the satellite diagnosis, which will allow to know at which moment and at which precise point of the space the payload is injected.

### **The stations allocation according to the launcher trajectories**

For each launch, we implement a network of stations, chosen according to the trajectory, which allows us to receive the telemetry during all the flight trajectory.

The network of stations is composed most of the time by fixed stations being most often in quite isolated places.

### **The risks**

In case of unavailability of one of the stations of the network, because of a breakdown or maintenance, the launch can be postponed.

The consequences of a postponed launch can be very damaging for the payloads and lead to considerable additional costs.

### **Our response: AGATA**

CNES has implemented an antenna that can be easy and rapidly deployed by a commercial aircraft for replacing one of the stations belonging to the network, in case of failure.

Unlike standard-fixed stations, AGATA has been designed to facilitate its agile implementation and its employability in case of an emergency.

AGATA presents an excellent compromise, maximizing its RF performance and minimizing its volume and mass to facilitate the transportation and the on-site integration.

Thanks to its air transportability on commercial aircrafts, the antenna can be transported quickly and take advantage of the regularity of standard flights, what's a big asset in case of emergency.

Once on-site, the antenna assembly can be done by two operators in less than 4 hours. No time to lose! With a 3.7m reflector, the antenna ensures a quality link with the launcher allowing it to receive telemetry at high rate. Data is the new black gold!

AGATA was used<sup>1</sup> for the Ariane's 5 - VA256 Launch<sup>2</sup> - James Webb Space Telescope<sup>3</sup> campaign, replacing the fixed antenna of Ascension Island<sup>4</sup>.

### References:

1. <https://twitter.com/cnes/status/1465974106814361601>
2. <https://www.arianespace.com/mission/ariane-flight-va256/>
3. <https://www.jwst.nasa.gov/>
4. [https://www.esa.int/ESA\\_Multimedia/Images/2001/05/Ground\\_station\\_on\\_Ascension\\_Island\\_used\\_to\\_track\\_launchers\\_and\\_satellites](https://www.esa.int/ESA_Multimedia/Images/2001/05/Ground_station_on_Ascension_Island_used_to_track_launchers_and_satellites)