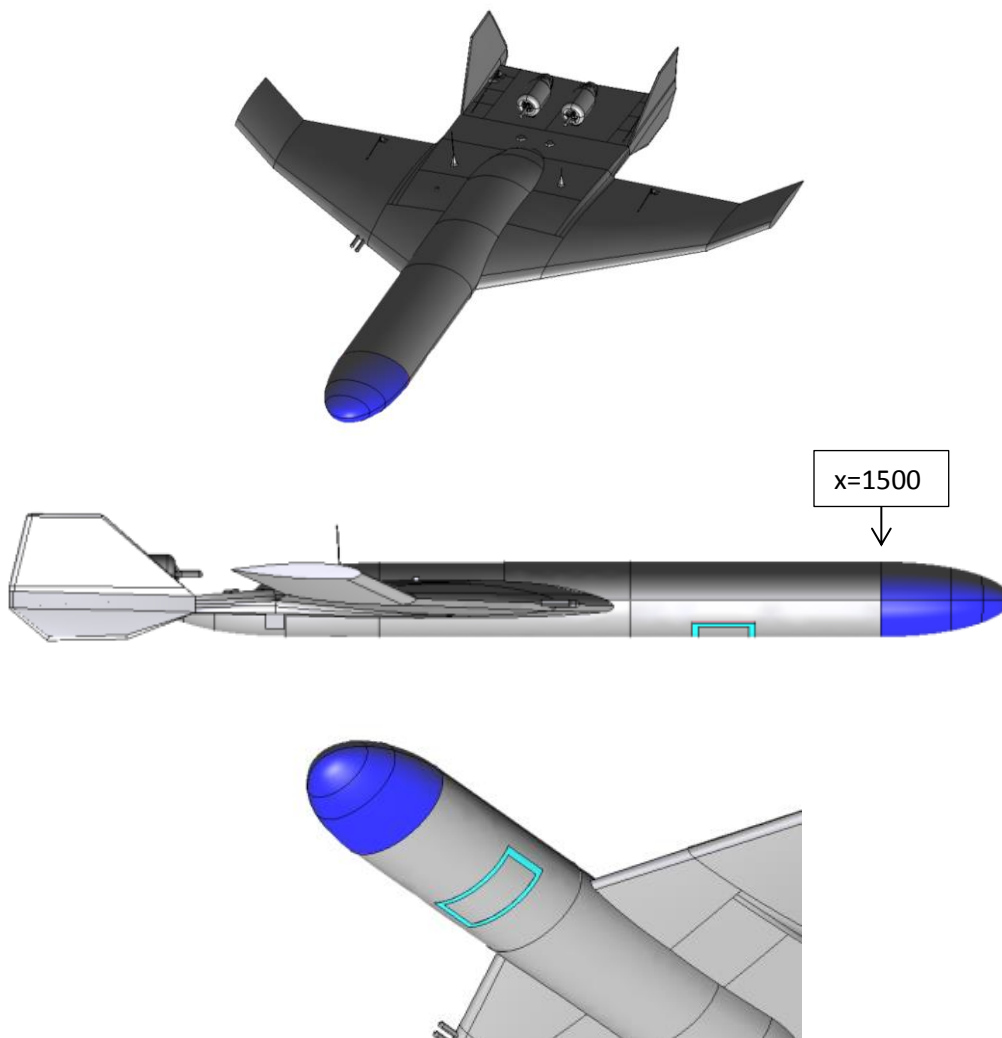

RCS and radar imaging for an UAV-like with two RAM regions.

jerome.simon@onera.fr and paul.soudais@dassault-aviation.com

To obtain a CAD model, please send us an email.

1 Definition of the geometry

This test case concerns the RCS computation and radar imaging of a perfectly conducting UAV-like with two radar absorbing material (RAM) regions. Units in the CAD file are mm.

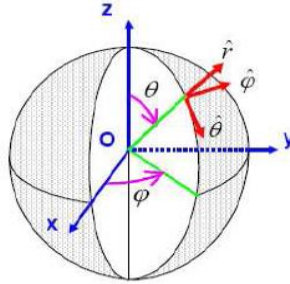


The UAV nose and a slot (in blue) are filled with a material with characteristics:

- relative permittivity $\varepsilon = 1.5 - 0.1j$
- relative permeability $\mu = 2.5 - 1.8j$

2 Simulation Parameters

The time dependency is assumed to be $\exp(j\omega t)$.



For the target described above, the RCS shall be simulated:

- for the frequency range 2.5 to 4.0 GHz with $\delta f = 30$ MHz (i.e. 51 frequencies),
- for the azimuth angles $\phi = -15$ to 15° , $\delta\phi = 0.5^\circ$ (i.e. 61 angles),
- for $\theta=100^\circ$,
- for both polarizations ($\theta\theta$ -polarization and $\phi\phi$ -polarization).

2.1 Data Formats

The results shall be stored in one ASCII file and shall contain:

$f, \phi, \text{Real}(E_{\theta\theta}), \text{Imag}(E_{\theta\theta}), \text{Real}(E_{\phi\phi}), \text{Imag}(E_{\phi\phi})$

Where f is the frequency in GHz, ϕ is the angle in degrees, $\text{Real}(E_{\theta\theta}), \text{Imag}(E_{\theta\theta}), \text{Real}(E_{\phi\phi}), \text{Imag}(E_{\phi\phi})$ are the real and imaginary parts of the scattered field strengths in $\theta\theta$ -polarization and $\phi\phi$ -polarization.

2.2 Others

Participants must provide, in addition to the result file, a document containing at least:

- Method used (with pertinent parameters),
- Number of degrees of freedom,
- Total computation time,
- Number and type of processors.