

Buried Targets

Case 6.a

Submarine mine

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1. Submarine mine structure

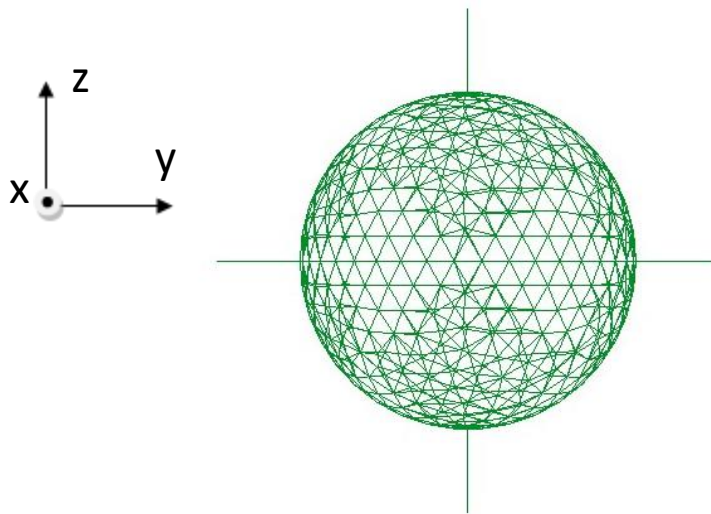


Figure 1: Target n°1

The target is a sphere of radius 0.3 meter. Six linear elements, or dipoles, are included on the sphere principal axis. Their length is 0.15 m. and their radius 1 cm. All the parts are perfectly electric conducting (PEC).

1.1 Case 6a.1: Immersed structure

The sphere center is located 0.4 meter below the sea level. The calculation to be performed is the monostatic radar cross section, for the following parameters:

- plane wave incident with Theta angle (with respect to the z axis) equal to 45° and Phi angle (with respect to the x axis) equal to 0° .
- Frequency band [3 MHz – 30 MHz] - frequency step : 0,2 MHz
- Sea : Flat with electrical characteristics (epsilon = 80 ; sigma = 5 s/m)
- Polarizations : VV and HH ($\theta\theta$ and $\phi\phi$)

1.2 Case 6a-2: Partially Immersed structure

The sphere center is located 0.15 meter below the sea level. The calculation to be performed is the monostatic radar cross section, for the following parameters:

- plane wave incident with Theta angle (with respect to the z axis) equal to 45° and Phi angle (with respect to the x axis) equal to 0°.
- Frequency band [300 MHz – 3 GHz] - frequency step : 10 MHz
- Sea : Flat with electrical characteristics (epsilon = 80 ; sigma = 5 s/m)
- Polarizations: VV and HH.

2. Results to be provided

Frequency (in GHz), $\sigma_{\theta\theta}$, $\sigma_{\phi\phi}$ (in dBm²)

Each result will be provided as an ascii file.

They will be named

BuriedTargets_Case_6a.i_CompanyName.txt