

## TEST CASE 3b: Passive Reflectarray Antenna

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### Abstract:

This test case concerns the radiation pattern of a passive reflectarray antenna. The reflectarray is composed of 8 Fresnel zones of mushroom cells.

### 1 – Definition of the geometry

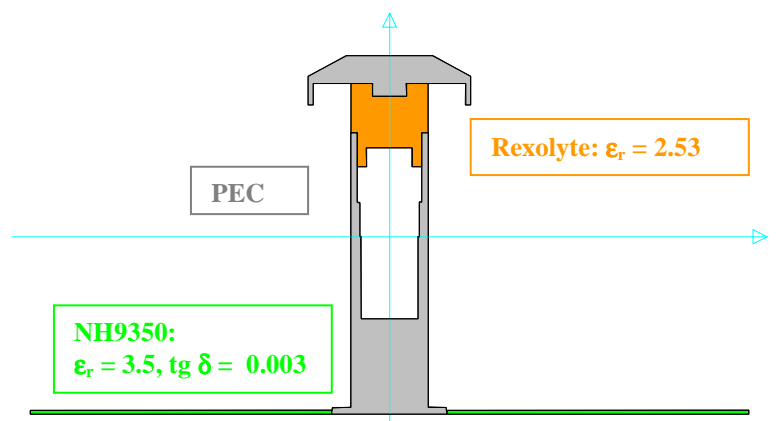


Figure 1 : Definition of the geometry.

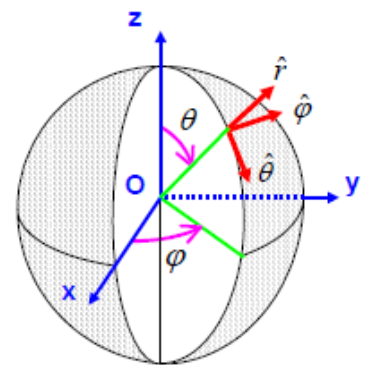
The passive reflectarray consists of printed mushroom cells on Neltec NH9350 ( $\epsilon_r = 3.5$ ,  $\text{tg } \delta = 0.003$ ) with a  $17 \mu\text{m}$  metallization. A circular waveguide with fundamental mode TE<sub>10</sub> (E along x) fed the antenna. The sub-reflector is maintained above the circular waveguide by a dielectric cylinder in Rexolyte ( $\epsilon_r = 2.53$ ). The structure has 2 symmetry planes ( $xOz$  and  $yOz$ ).

The iges file is available on demand to the chairman.

### 2 – Output results

#### • Radiation pattern in Gain:

- Frequencies  $f = 5.25$  and  $5.5$  GHz,
- $\theta$  from  $0^\circ$  to  $180^\circ$ , angular step  $1^\circ$ ,
- In Eplane (OX) and Hplane (OY),
- In main polarization ( $E_\theta$  for Eplane and  $E_\varphi$  for Hplane).



### 3-Diagram formats

The results must be supplied in two ASCII files with 3 columns:

$\theta$  (degrees), Gain\_Eplane (dB), Gain\_Hplane (dB)

With the following suggestions for the name of the ASCII file:

Reflectarray\_525\_Contributorname

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