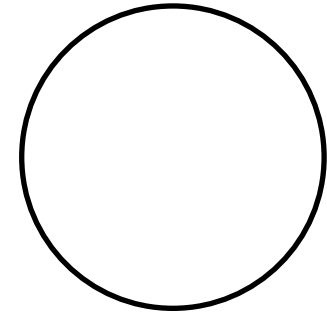


Guida d'onda circolare R



$$\begin{bmatrix} e_\varphi(r, \varphi) \\ h_r(r, \varphi) \end{bmatrix} = \frac{1/r}{k_0^2 - \beta^2} \begin{bmatrix} -j\omega\mu_0 r & -j\beta \\ j\beta r & j\omega\varepsilon_0 \end{bmatrix} \begin{bmatrix} -\partial_r h_z(r, \varphi) \\ \partial_\varphi e_z(r, \varphi) \end{bmatrix}$$

$$\begin{bmatrix} e_r(r, \varphi) \\ h_\varphi(r, \varphi) \end{bmatrix} = \frac{1/r}{k_0^2 - \beta^2} \begin{bmatrix} -j\omega\mu_0 & +j\beta r \\ -j\beta & j\omega\varepsilon_0 r \end{bmatrix} \begin{bmatrix} \partial_\varphi h_z(r, \varphi) \\ -\partial_r e_z(r, \varphi) \end{bmatrix}$$

$$h_{znm}(r, \varphi) = H \frac{\cos(n\phi)}{\sin(n\phi)} J_n(p'_{nm}r/R) \quad p'_{nm} \text{ è lo zero (emmesimo) di } J'_n$$

$$e_{znm}(r, \varphi) = E \frac{\cos(n\phi)}{\sin(n\phi)} J_n(p_{nm}r/R) \quad p_{nm} \text{ è lo zero (emmesimo) di } J_n$$

Zeri delle funzioni di Bessel

n	p_{n1}	p_{n2}	p_{n3}	p_{n4}
0	3.832	7.016	10.174	13.324
1	1.841	5.331	8.536	11.706
2	3.054	6.706	9.970	13.170

n	p_{n1}	p_{n2}	p_{n3}	p_{n4}
0	2.405	5.520	8.654	11.792
1	3.832	7.016	10.174	13.324
2	5.135	8.417	11.620	14.796

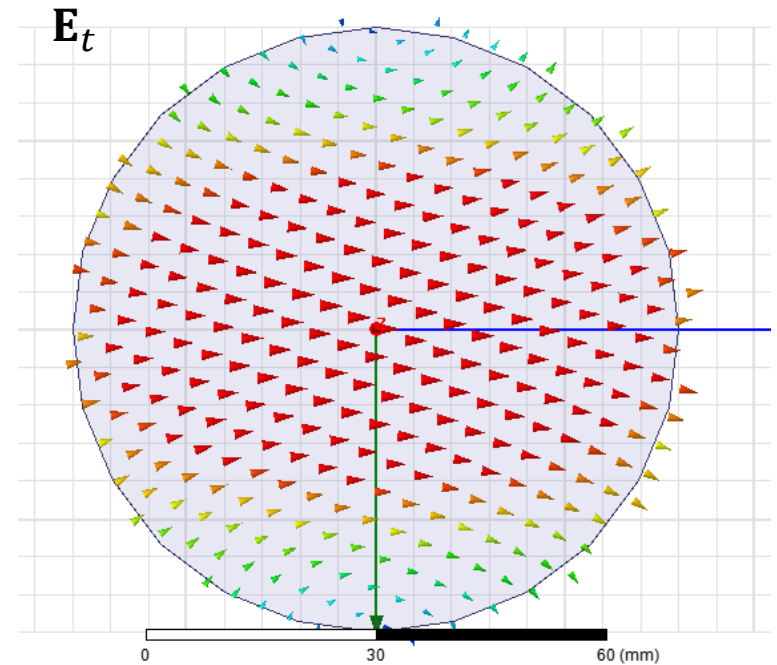
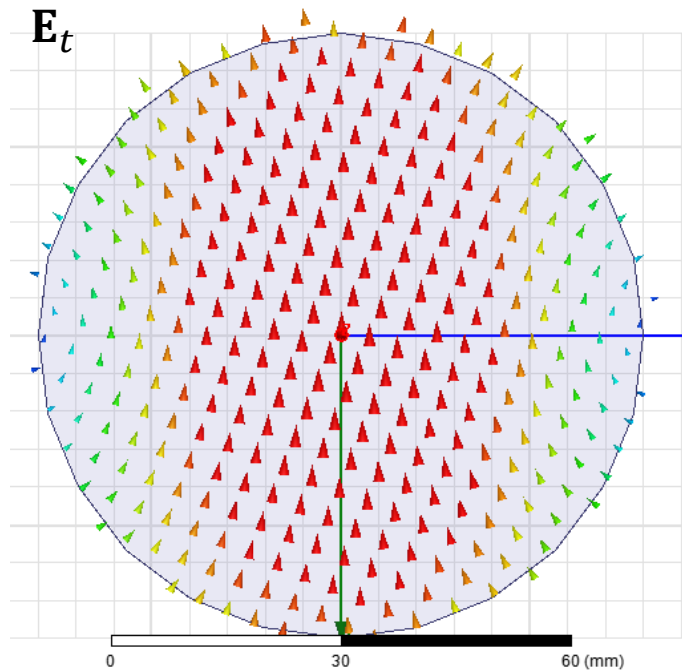
Modi TE

$$k_{cnm} = p'_{nm}/R$$

$$f_{cnm}(\text{GHz}) = p'_{nm}/R \frac{1}{k_o(1\text{GHz})}$$

Modo fondamentale TE₁₁

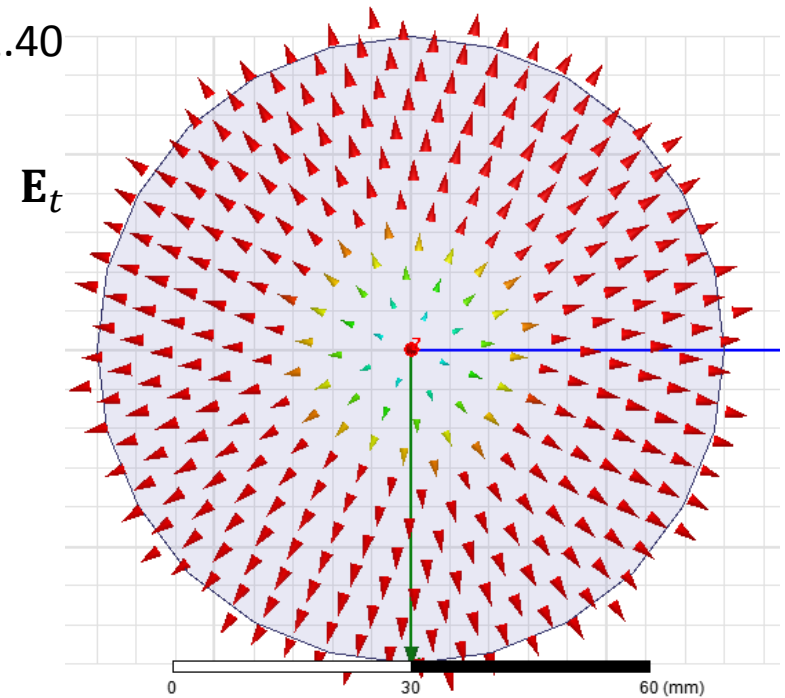
$$p'_{11}=1.841$$



Modi TM

$$k_{cnm} = p_{nm}/R \quad f_{cnm}(\text{GHz}) = p_{nm}/R \frac{1}{k_o(1\text{GHz})}$$

Modo TM di ordine più basso TM01 $p_{01}=2.40$



Banda monomodale guida circolare $f_{cTE11} - f_{cTM01}$

Applicazioni guide circolari che impiegano modi invarianti rispetto all'azimut (es TM_{01} in WC o TEM in coax)

Giunto Rotante

