1 Dipol in x-Richtung im Ursprung

1.1 Kartesisch $(\mathbf{n}_x, \mathbf{n}_y, \mathbf{n}_z)$

$$\mathbf{E}\left(x,y,z\right) \;=\; \omega^2\mu_0\mu p\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\begin{pmatrix} 1+\frac{\mathrm{i}kr-1}{k^2r^2}+\frac{3-3\mathrm{i}kr-k^2r^2}{k^2r^2}\cdot\frac{x^2}{r^2} \\ \frac{3-3\mathrm{i}kr-k^2r^2}{k^2r^2}\cdot\frac{xy}{r^2} \\ \frac{3-3\mathrm{i}kr-k^2r^2}{k^2r^2}\cdot\frac{xz}{r^2} \end{pmatrix}$$

$$\mathbf{H}\left(x,y,z\right) \;=\; \omega pk\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\left(1+\frac{\mathrm{i}}{kr}\right)\begin{pmatrix} 0 \\ \frac{z}{r} \\ -\frac{y}{r} \end{pmatrix}$$

1.2 Sphärisch $(\mathbf{n}_r, \mathbf{n}_\theta, \mathbf{n}_\phi)$

$$\mathbf{E}\left(r,\theta,\phi\right) \;=\; \omega^2\mu_0\mu p\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\begin{pmatrix} \frac{2-2\mathrm{i}kr}{k^2r^2}\sin\theta\cos\phi \\ \left(1+\frac{\mathrm{i}kr-1}{k^2r^2}\right)\cos\theta\cos\phi \\ -\left(1+\frac{\mathrm{i}kr-1}{k^2r^2}\right)\sin\phi \end{pmatrix}$$

$$\mathbf{H}\left(r,\theta,\phi\right) \;=\; \omega pk\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\left(1+\frac{\mathrm{i}}{kr}\right)\begin{pmatrix} 0 \\ \sin\phi \\ \cos\theta\cos\phi \end{pmatrix}$$

2 Dipol in y-Richtung im Ursprung

2.1 Kartesisch $(\mathbf{n}_x, \mathbf{n}_y, \mathbf{n}_z)$

$$\mathbf{E}(x,y,z) \;=\; \omega^2\mu_0\mu p\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\left(1+\frac{\mathrm{i}kr-1}{k^2r^2}+\begin{matrix}\frac{3-3\mathrm{i}kr-k^2r^2}{k^2r^2}\cdot\frac{xy}{r^2}\\ \frac{3-3\mathrm{i}kr-k^2r^2}{k^2r^2}\cdot\frac{y^2}{r^2}\\ \frac{3-3\mathrm{i}kr-k^2r^2}{k^2r^2}\cdot\frac{yz}{r^2}\end{matrix}\right)$$

$$\mathbf{H}(x,y,z) \;=\; \omega pk\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\left(1+\frac{\mathrm{i}}{kr}\right)\begin{pmatrix}-\frac{z}{r}\\ 0\\ \frac{x}{r}\end{pmatrix}$$

2.2 Sphärisch $(\mathbf{n}_r, \mathbf{n}_\theta, \mathbf{n}_\phi)$

$$\mathbf{E}(r,\theta,\phi) \;=\; \omega^2\mu_0\mu p\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\begin{pmatrix}\frac{2-2\mathrm{i}kr}{k^2r^2}\sin\theta\sin\phi\\ \left(1+\frac{\mathrm{i}kr-1}{k^2r^2}\right)\cos\theta\sin\phi\\ \left(1+\frac{\mathrm{i}kr-1}{k^2r^2}\right)\cos\phi\end{pmatrix}$$

$$\mathbf{H}(r,\theta,\phi) \;=\; \omega pk\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\left(1+\frac{\mathrm{i}}{kr}\right)\begin{pmatrix}0\\ -\cos\phi\\ \cos\theta\sin\phi\end{pmatrix}$$

3 Dipol in z-Richtung im Ursprung

3.1 Kartesisch $(\mathbf{n}_x, \mathbf{n}_y, \mathbf{n}_z)$

$$\mathbf{E}\,(x,y,z) \;=\; \omega^2\mu_0\mu p\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\begin{pmatrix} \frac{3-3\mathrm{i}kr-k^2r^2}{k^2r^2}\cdot\frac{xz}{r^2} \\ \frac{3-3\mathrm{i}kr-k^2r^2}{k^2r^2}\cdot\frac{yz}{r^2} \\ 1+\frac{\mathrm{i}kr-1}{k^2r^2}+\frac{3-3\mathrm{i}kr-k^2r^2}{k^2r^2}\cdot\frac{z^2}{r^2} \end{pmatrix}$$

$$\mathbf{H}\,(x,y,z) \;=\; \omega pk\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\left(1+\frac{\mathrm{i}}{kr}\right)\begin{pmatrix} \frac{y}{r} \\ -\frac{x}{r} \\ 0 \end{pmatrix}$$

3.2 Sphärisch $(\mathbf{n}_r, \mathbf{n}_\theta, \mathbf{n}_\phi)$

$$\mathbf{E}\,(r,\theta,\phi) \;=\; \omega^2\mu_0\mu p\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\begin{pmatrix} \frac{2-2\mathrm{i}kr}{k^2r^2}\cos\theta \\ -\left(1+\frac{\mathrm{i}kr-1}{k^2r^2}\right)\sin\theta \\ 0 \end{pmatrix}$$

$$\mathbf{H}\,(r,\theta,\phi) \;=\; \omega pk\,\frac{\mathrm{e}^{\mathrm{i}kr}}{4\pi r}\left(1+\frac{\mathrm{i}}{kr}\right)\begin{pmatrix} 0 \\ 0 \\ -\sin\theta \end{pmatrix}$$