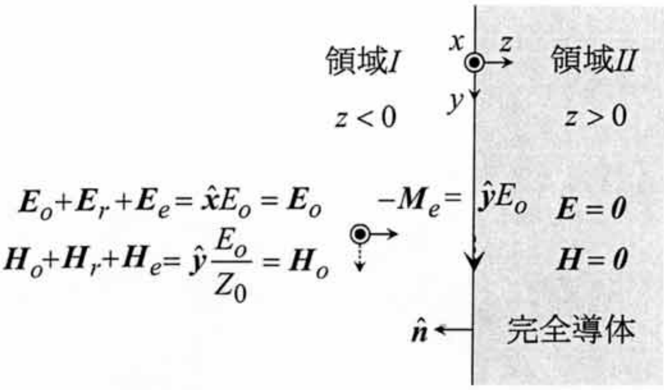

Figure 10: 領域 II を完全導体で満たした領域 I の等価モデル (2)

image theory is applied, region II is substituted by free space and the equivalent magnetic current becomes $-2\mathbf{M}_e$. This argument is valid only for $z < 0$,where the equivalent electromagnetic field becomes $-2\mathbf{E}_{em}$ and $-2\mathbf{H}_{em}$ similar to the equations (7)(8).

$$\mathbf{E}_e = \hat{\mathbf{x}} E_0 \exp{(jk_0 z)} \tag{19}$$

$$\mathbf{H}_e = -\hat{\mathbf{y}} \frac{E_0}{Z_0} \exp{(jk_0 z)} \tag{20}$$

then these three components must be added as:

$$\mathbf{E}_o + \mathbf{E}_r + \mathbf{E}_e = \hat{\mathbf{x}} E_0 \exp{(-jk_0 z)} = \mathbf{E}_o \tag{21}$$

$$\mathbf{H}_o + \mathbf{H}_r + \mathbf{H}_e = \hat{\mathbf{y}} \frac{E_0}{Z_0} \exp{(-jk_0 z)} = \mathbf{H}_o \tag{22}$$

therefore, finally in region I the original field is obtained. And in region II the electromagnetic field vanishes because of PEC.