

### Conversion between GRASP near-field and V/m for 1 watt input

In GRASP the input power is  $4\pi$  and the electric field is normalized so that magnitude squared of the electric field equals directivity. Near field is normalized to  $kr$  so that the near fields are normalized to wavelength instead of V/m. For peak electric field we use

$$E_{SI} = \sqrt{2}E_{GRASP}k\sqrt{\frac{\eta}{4\pi}} \quad (\text{V/m})$$

The GRASP near-field is related to the GRASP far-field in UTD computation.

$$E(\text{near-field})_{GRASP} = E(\text{far})_{GRASP} \frac{e^{-kr}}{kr}$$