

Most relevant for RWP is certainly clear-air or Bragg scattering at fluctuations of the refractive index, see e.g. [Ottersten \(1969a\)](#), [Ottersten \(1969b\)](#), [Gossard et.al.\(1982\)](#). The intensity of the scattered wave is usually very small and the power level of the received signal is often close to the sensitivity limit of the radar receiver, which is typically well below -150 dBm ( $10^{-18}$  Watt). Sensitive receivers and high gain antennas are therefore required for RWP's.

The scattered electromagnetic wave can generally be written as

$$\mathbf{E}_s(\mathbf{r}, t) = \iiint_V K(\mathbf{r}', \mathbf{r}) \epsilon'(\mathbf{r}', t) d^3 \mathbf{r}'$$

where  $K(\mathbf{r}', \mathbf{r})$  is a kernel function that depends on the incoming electromagnetic wave and the scattering geometry.

More details can be found in [Tatarskii \(2003\)](#) and [Muschinski \(2004\)](#).

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