# Some useful equations

December 31, 2012

## 1 Equations

### 1.1 Transmitted pulse

The transmitted pulse can be written as

$$p(t) = A \cdot e^{i\omega t} = A \cdot (cos(\omega t) + isin(\omega t)) \ , \tag{1}$$

where A is a constant and $\omega$ is the transmitted angular frequency.

### 1.2 Received signal from multiple reflecting surfaces

The received signal from two reflecting surfaces can be written as

$$s(t) = s_1(t) + s_2(t) \ , \tag{2}$$

where $s_i(t)$ is the signal received from surface $i$, which can be written as

$$s_i(t) = R_p \cdot p(t - \frac{2z_i}{c}) \ , \tag{3}$$

where $R_p$ is the reflection coefficient and $z_i$ is the distance to surface number i.