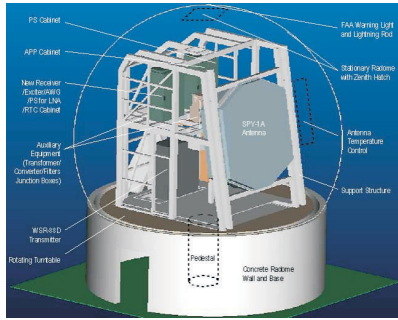


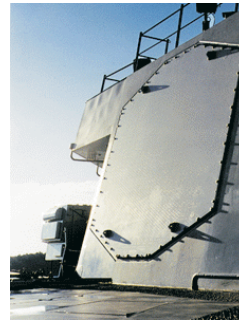
Phased Array Radars



(a)



(b)



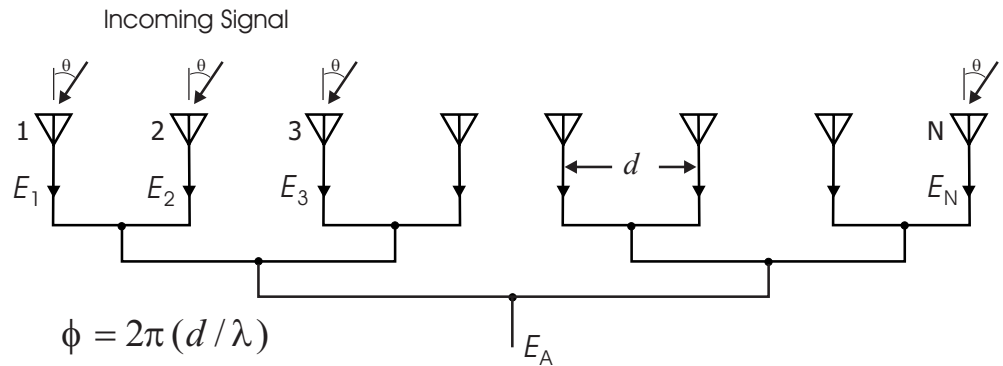
(c)



(e)



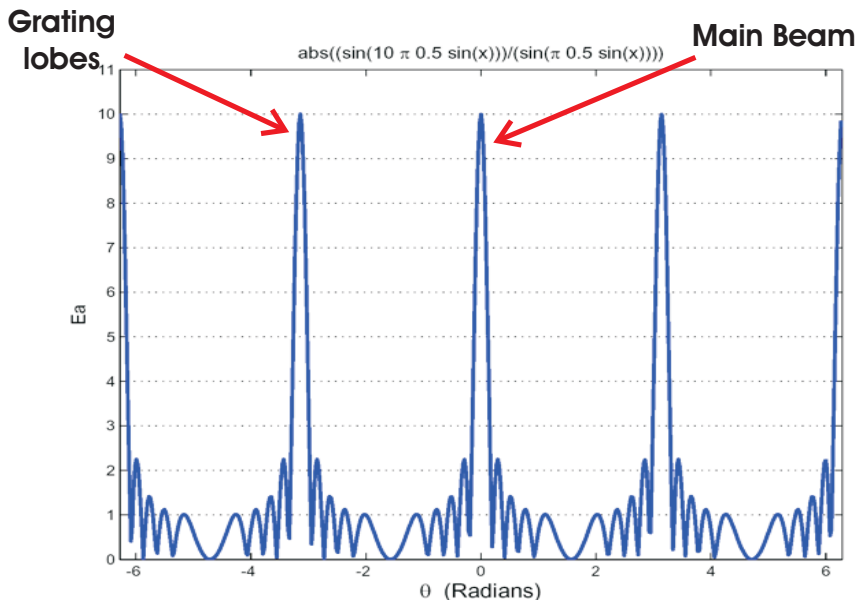
(f)



- Agile, rapid steering
- Large peak and large average power
- Multiple target tracking (military)
- Solid state transmitters
- Flush mounting for blast hardening
- Lower radar cross section
- Complex, high cost

$$\begin{aligned}
 E_A &= \sin \omega t + \sin(\omega t + \phi) + \sin(\omega t + 2\phi) + \dots + \sin[\omega t + (N-1)\phi] \\
 &= \sin \left[\omega t + (N-1) \frac{\phi}{2} \right] \frac{\sin(N\phi/2)}{\sin(\phi/2)} \\
 &= \sin \left[\omega t + (N-1) \frac{\phi}{2} \right] \frac{\sin[N\pi(d/\lambda)\sin\theta]}{\sin[\pi(d/\lambda)\sin\theta]}
 \end{aligned}$$

Field Intensity Pattern



$$|E_A(\theta)| = \left| \frac{\sin[N\pi(d/\lambda)\sin\theta]}{\sin[\pi(d/\lambda)\sin\theta]} \right|$$