

Techno-Quorum Series – 4.1

Design and Development of Metamaterials for Microwave Stealth Technology Applications

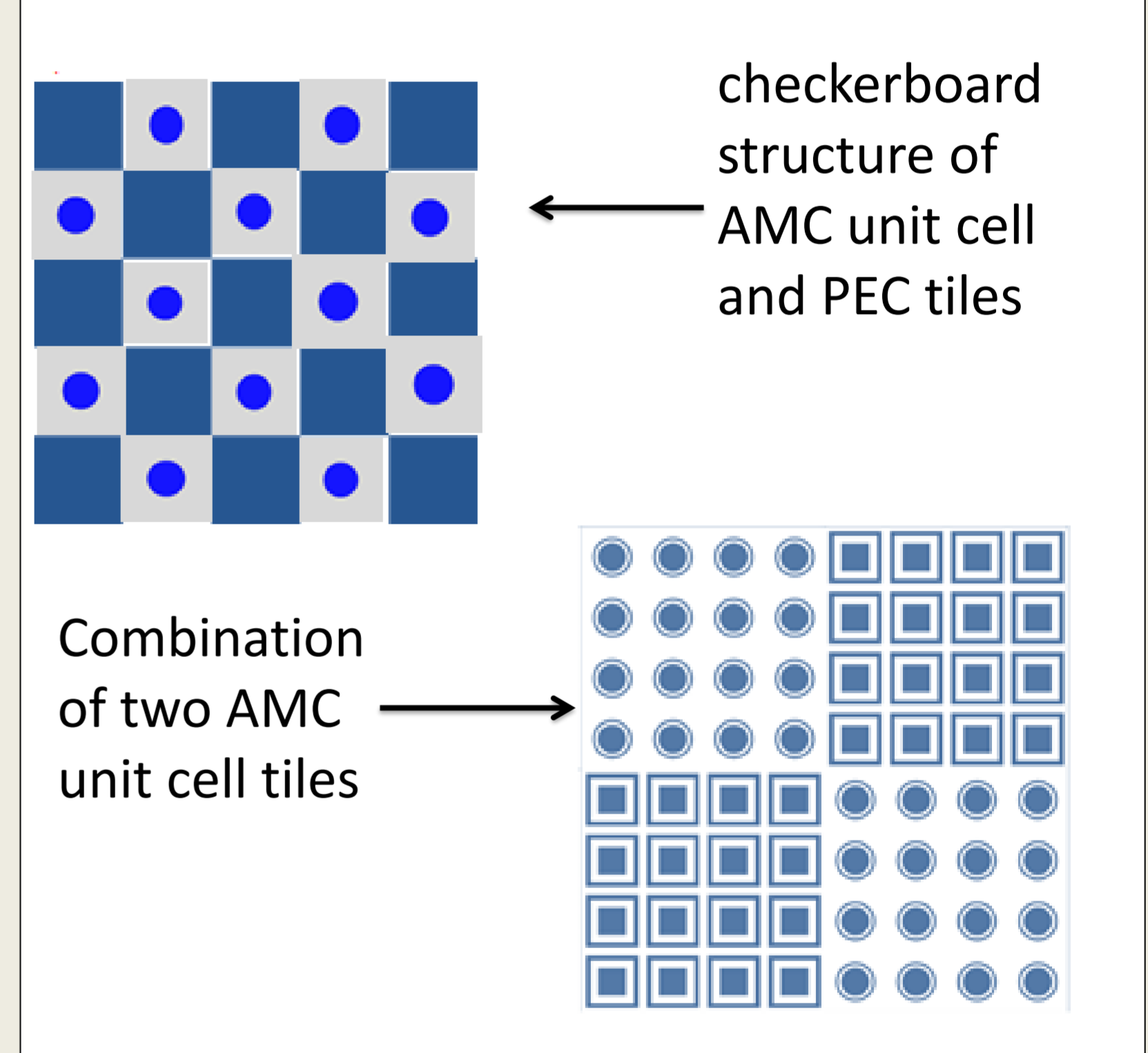
Abstract

- Radar cross section is a measure of observability of a radar target which relates the electromagnetic (EM) energy reflected or scattered from the target to the incident EM energy.
- Some portion of incident EM energy gets absorbed by the radar target and remaining get reflected and diffracted.
- The apparent size of the target object seen by the radar is summation of reflected or backscattered EM wave.
- Objective of any Stealth Technology or radar cross section (RCS) reduction or control Technique is to minimize the amount of backscattered energy towards the radar.

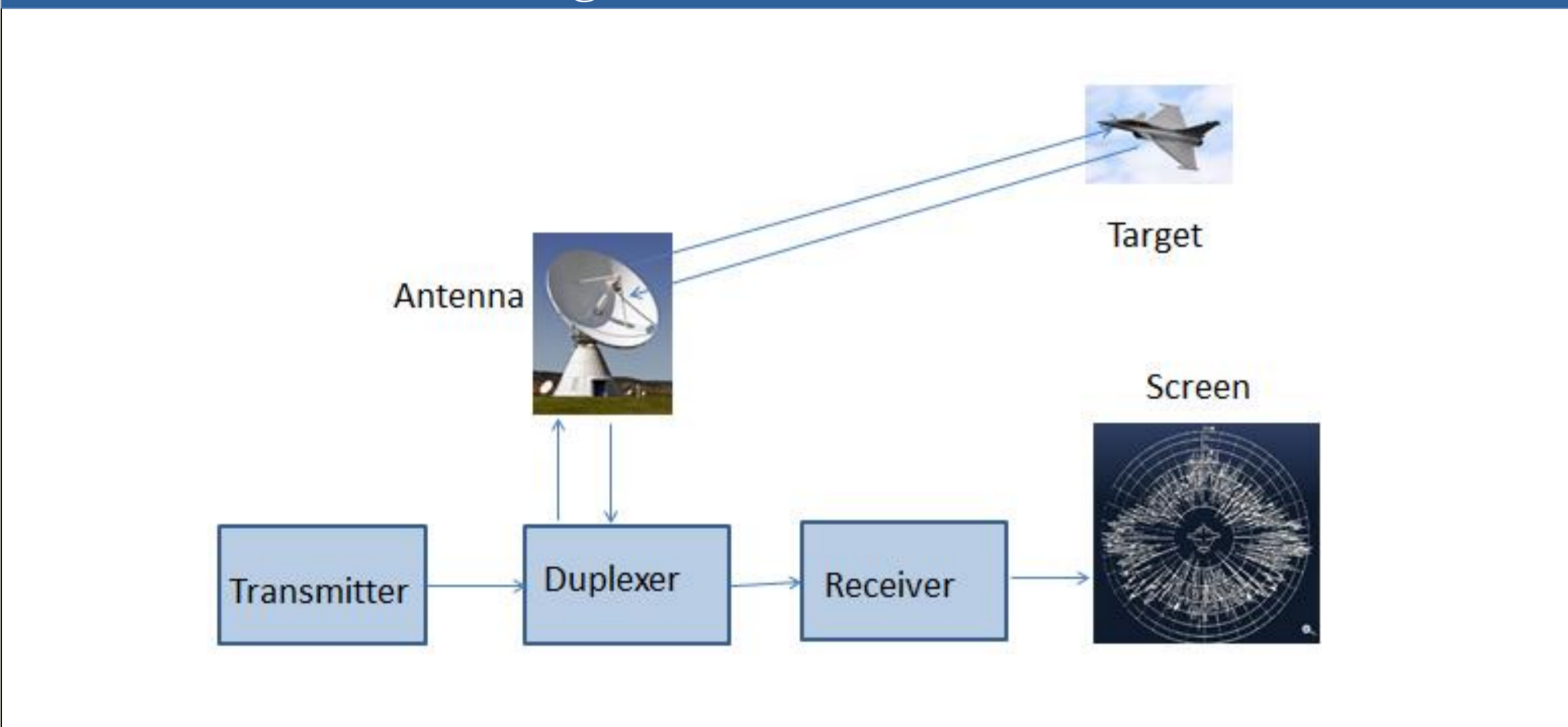
RCS Reduction Approaches

- Use of absorbing material (RAM)
- Changing the shape of target
- Active cancellation
- **Use of non absorptive metasurface of artificial magnetic conductor (AMC)**

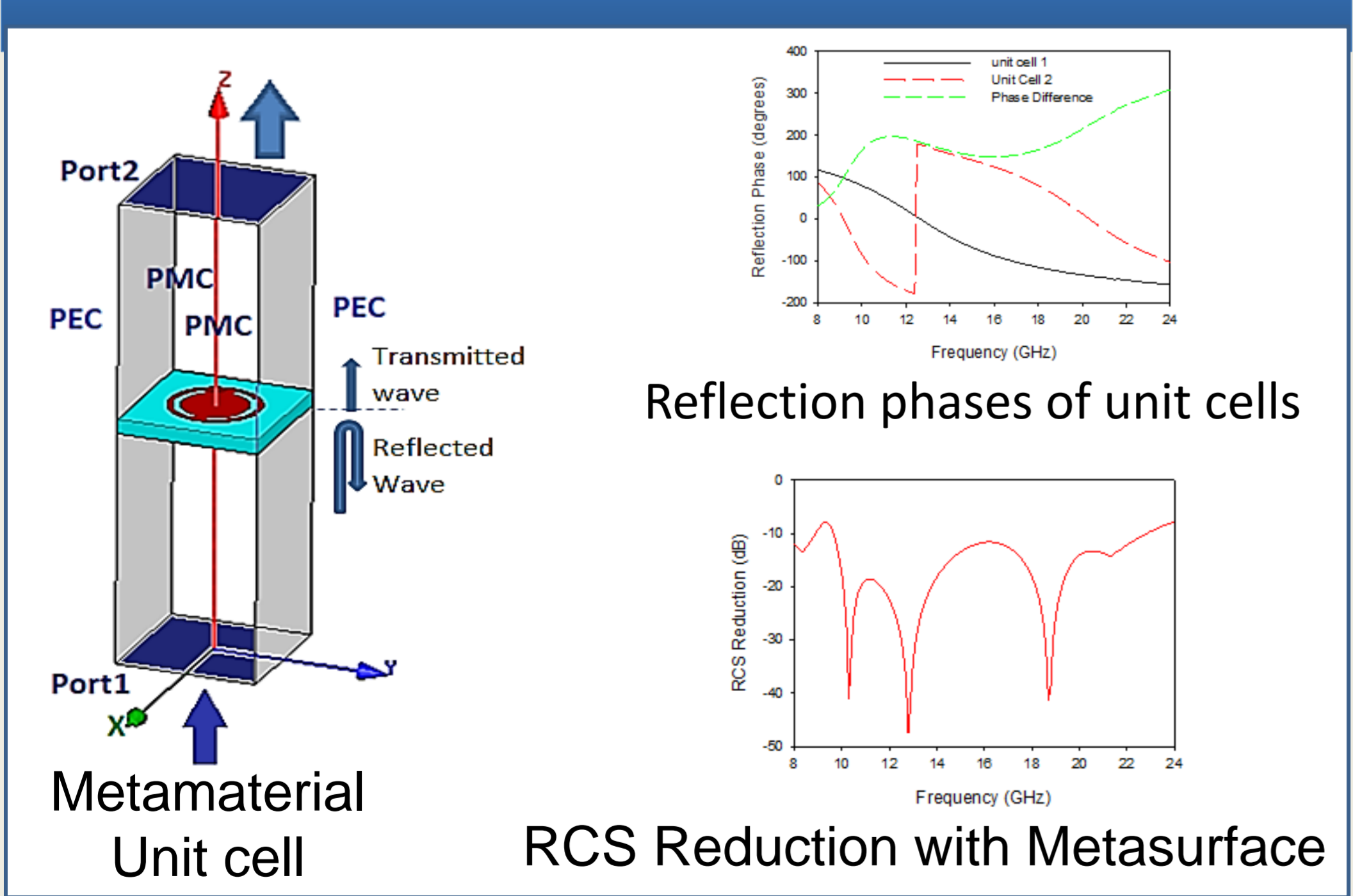
Design of non absorptive metasurfaces of artificial magnetic conductor (AMC)



Block Diagram for Radar Cross Section



Simulation setup and Results



Effect of Metasurface on RCS

