MITIGATION OF BLIND SPEEDS — DOPPLER EFFECT & AMTI RADAR

1. INTRODUCTION

Modern radar systems rely on Doppler processing to determine target velocity. Blind speeds occur when Doppler frequencies fall into MTI filter nulls, causing moving targets to disappear. AMTI radar solves this problem.

2. DOPPLER EFFECT

$fd = 2vr / \lambda$

3. BLIND SPEED DERIVATION

$vn = \lambda n / (2T)$

4. MITIGATION TECHNIQUES

- Staggered PRF

- Multiple PRF

- Frequency Diversity

- Pulse Pair Processing

5. AMTI RADAR

AMTI cancels platform motion Doppler and clutter.

6. REFERENCES

Skolnik – Radar Handbook

Richards – Principles of Modern Radar