Real-World Examples: Federal and DoD Perimeter Protection

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What is a PIDAS?

**P** - Perimeter

**I** - Intrusion

**D** - Detection and

**A** - Assessment

**S** - System
A mutually supporting combination of barriers, clear zones, lighting, and electronic intrusion detection, assessment and access control systems constituting the perimeter of a Protected Area and designed to detect, impede, control or deny access to the Protected Area (PA).
“Hard” PIDAS Requirements

- PA will be protected by a system using Protective Forces, barriers, and intrusion detection
“Soft” PIDAS Requirements

- Number of Sensors
- Sensor types
- Sensor layout
- Zone width
- Lighting type
- Lighting placement
- Camera types
- Camera layout

Complimentary

- Broad dynamic range, light limiting, 5 vertical scan lines
## User’s Performance Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Threat</th>
<th>R</th>
<th>N</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Early Detection/Accessment of Ground-Bourne Threats</td>
<td>Unarmed Personnel</td>
<td></td>
<td>X</td>
<td>Do not want to detect unarmed personnel</td>
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<td>Personnel with Weapons</td>
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<td>X</td>
<td>Can we discriminate between armed adversaries and workers with tools?</td>
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<td>Personnel with Explosives</td>
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<td>Personnel with Radioactive Materials</td>
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<td>“Light” vehicles</td>
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<td>“Heavy” vehicles</td>
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<td>Trojan Horse vehicles</td>
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<td>Explosive vehicles</td>
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Performance

- Sensor Characteristics
  - Probability of Detection, $P_d$
  - Nuisance Alarm Rate (NAR)
  - Vulnerability to Defeat
Exterior Sensor Technologies

- Microwave
- Ultrasonic
- Active Infrared
- Passive Infrared
- Capacitance
- Sonic
- Vibration
- Fiber Optics
- Video Motion Detectors
Features of a Good Barrier System

- Provides delay after detection
- Exhibits balanced design; no weak links
- Uses delay-in-depth
- Designed for maximum credible threat
Schematic of Typical System

- Limited Area
- CCTV
  - IR
  - MW
- Sector Length Approx 75 m.
- Protected Area
  - High Pressure Sodium Lights
  - Taut Wire
  - Power Cabinet
  - CAD Box
- Perimeter Protection
Soft Requirements

Sensor types

Sensor layout

Topography

Design

Lighting layout

Camera layout

Perimeter Protection
Exterior CBRN Detection Technologies

- Chemical
- Biological
- Radiation
- Medical Surveillance
- Intrusion Detection
- Etc.
Early Warning Detection

LaserGuard  AES  CEDAR

SPIDER  PSRS  M-Star  QUPID
Perimeter Protection

- SPIDER
- PSRS
- M-Star
- QUPID
INTENT?
Summary

Questions and Answers

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