PRECISION STRIKE TO ENABLE BATTLE CONTINUITY IN SPACE AND TIME

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At the
NDIA
Gun & Missile Systems Conference
April 23, 2008 - New Orleans
Topics

- Battles of the last two decades
- The operational need for accurate fire
- The Precision Strike Systems (PSS)
- The GPS/INS guidance
  - Breaking the accuracy linkages
  - Shaping the munition trajectory
  - High velocity flight
- The PSS Family of IAI
Battles of the Last Decades

- No more tremendous collisions of divisions
- Asymmetric warfare
- No actual front-line
- Ambushing
- Indirect fire
- The enemy avoids direct contact
- Intensity is varied unexpectedly
- Time Critical Targets (TCT)

The battlefield is only “dotted” by hostile forces
The Operational Need for Accurate Fire

- Multi Targets missions
- Urban terrain
- Effective, accurate, even surgical
- Area coverage achieved by range not maneuvers
- Unanticipated intensity ⇒ The need to operate anywhere and anytime

The battlefield is only “dotted" by hostile forces
The Operational Characterization

The Requirements
- Continuity in time
- Continuity in battlespace
- Short response time
- Decreased engagement time
- Avoid collateral damage

The Answers
- 24 / 7
- All weather
- No visibility limit
- No link to range
- No restrictions on trajectory
GPS / INS
Is The Solution

Fire Control Unit

Target Locating Systems

Unclassified
Breaking the Range - Accuracy Linkage

The Dispersion Magnitude – in terms of CEP

- CEP = 10 m
- Precision Strike Systems
- Tube Artillery
- Free-flight rockets

- 0.3 % of range
- 1 % of range

Km.
Shaping the Munition Trajectory

- Vertical angle and high velocity – at impact – are key factors for penetration
- Impact angle can be pre-determined
- Will shorten range of engagement

Take Off

High Altitude

Maneuver for impact point adjustment and missile’s angle of attack

Start of maneuver for zero attack angle

Missile maneuvers into “virtual pipe” and hits the target with near zero angle of attack at the required position within the proper approach direction

Unclassified
Breaking the Azimuth Linkage

GPS / INS

Constrained line of sight / line of flight

Electro Optic / Laser

Constrained geometric for Laser Designation

Unclassified
GPS/INS = Seekerless

Not sensitive to bad weather, camouflage, smoke, chaff etc.
GPS / INS – High Velocity Flight

- Seekerless guidance  ➔ No restriction on the flight velocity
- Supersonic high-mach velocities
- Short time of flight
- High impact velocity. (Together with vertical impact – the GPS/INS guided munitions are best for striking bunkers and fortified assets)
- High terminal velocity and high angles of impact  ➔ Difficult to intercept the coming missile
IAI is Developing Seekerless Ammunition based on GPS/INS
EXTRA – EXTended Range Artillery

**Rocket**
- Length: 4000mm
- Diameter: 300mm
- Weight: 400Kg
- CEP: Better than 10m

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<tr>
<th>Warhead</th>
<th>Max.Range</th>
<th>TOF</th>
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<tr>
<td>120Kg</td>
<td>150Km</td>
<td>5-6min</td>
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EXTRA – EXTended Range Artillery

Launcher
- Any regular launcher
- Pod with 4 missiles
Questions ?