

# Low-Cost, High Fidelity Ground Vehicle Targets for Test & Evaluation

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- Precision Target Signatures (PTS) targets overview
- PTS target examples
- PTS deployment examples

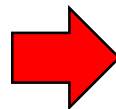


# PTS Program Overview



- The Precision Target Signatures (PTS) program investigated the feasibility of producing high fidelity, low cost targets for Test & Evaluation (T&E) applications.
- The goal of the PTS program is to produce targets that have sufficient threat representative signature fidelity for a variety of applications while maintaining low costs across the entire acquisition and deployment lifecycle.
- Targets designed and produced using the PTS design paradigm have been deployed to numerous CONUS locations and multiple OCONUS locations for both T&E and training.
- Lessons learned over a decade of development and deployments have lead to robust targets that are easy to deploy and have a multi-year life expectancy with minimal maintenance.
- PTS targets started out as 2.5-D gunnery targets and transitioned to full scale 3-D targets.

**Early PTS 2.5-D Target**



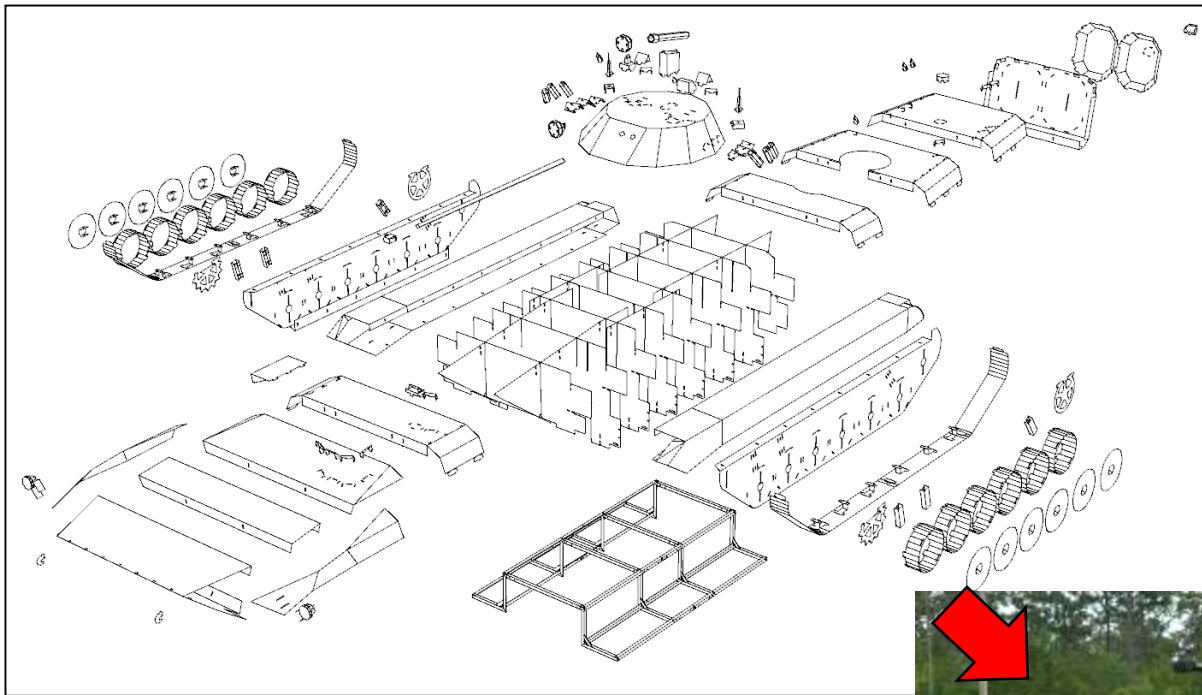
**Early PTS 3-D Target**



## What is a PTS Target?



- A PTS target is a full scale 3-D target built with corrugated plastic and point of purchase display design practices. (tabs and slots)



**Exploded View of a PTS BMP-2**

*Signature enhancements integrated as needed*

**Assembled PTS BMP-2**



# PTS Target Components



- PTS targets arrive crated in a knocked down flat state and can include a thermal signature kit, radar cross section (RCS) augmentation, and mobility hardware.

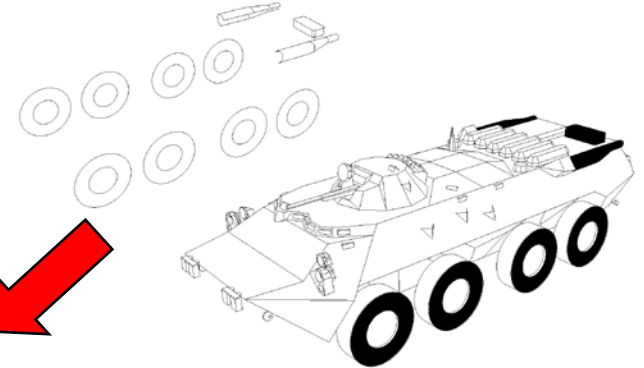
## Crated Target Components



## Fully Assembled PTS BTR-80



## Thermal Signature Kit



## Trailer Interface



## Scissor Lift Boat Trailer

# PTS Target Assembly



**Target Packed for Shipping**



**Trailer Interface ("top hat") Assembly**



**Target Sub-structure Assembly**



**Target Outer Skin Installation**



**Target Hull Accessory And Chassis Installation**



**Target Turret Assembly**



**Assembled PTS Target**



## The First PTS Targets



- The first three PTS targets were the T-72, BMP-2, and BTR-80.
- These targets were developed and validated for T&E applications. Validated signatures include visual, thermal infrared, and RCS.

### PTS T-72



Gen 1  
2008



Gen 2  
2009



Gen 3  
2010

### PTS BMP-2



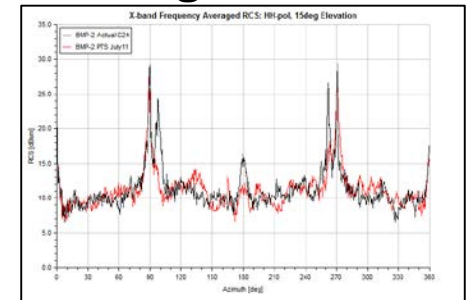
### PTS BTR-80



### IR Signature

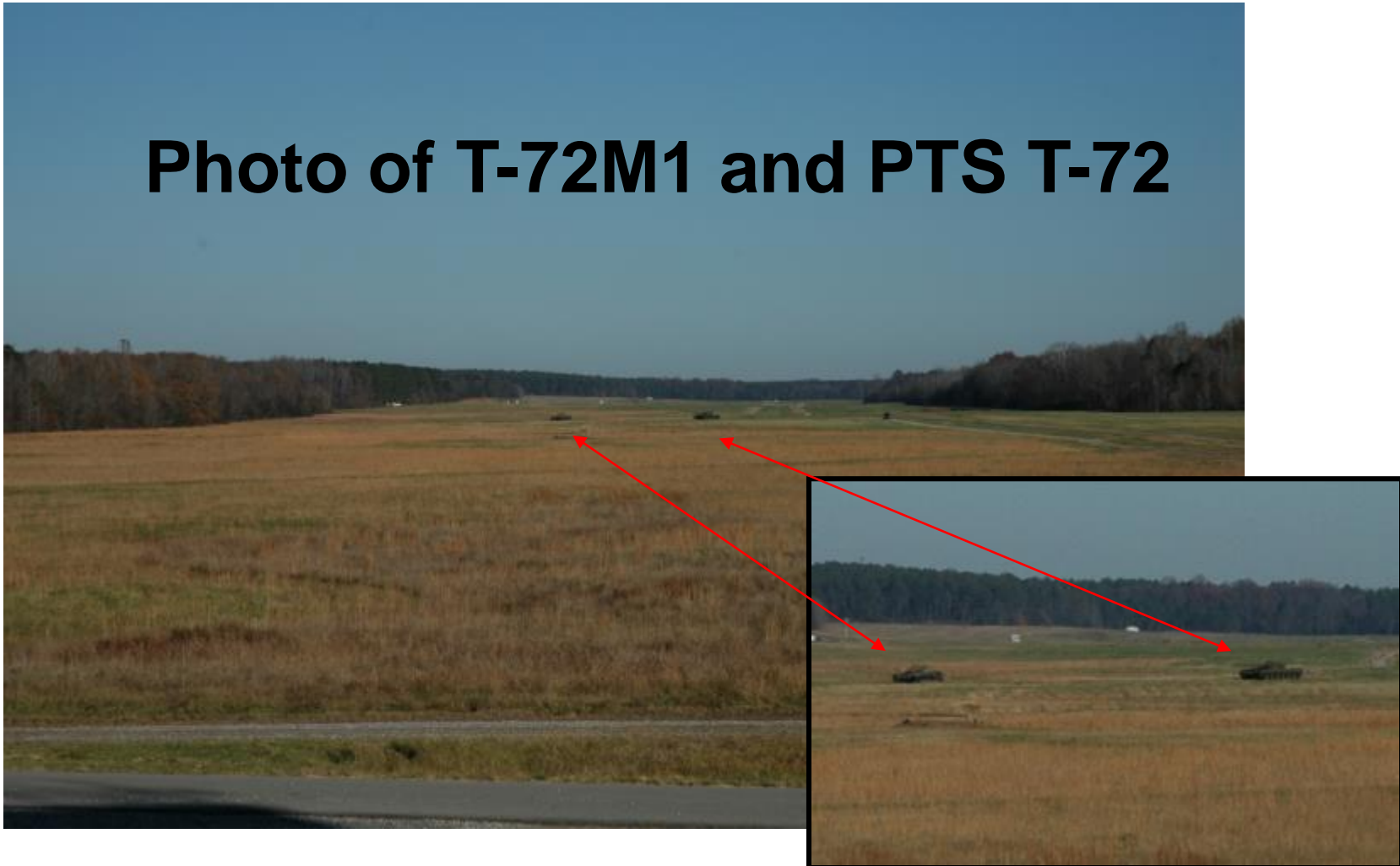


### RCS Signature Data



- A T-72M1 and a PTS T-72 were placed side-by-side 1 Km downrange with photographs collected at 09:00 on a clear, sunny day.

## Photo of T-72M1 and PTS T-72





## Remote Controlled PTS



- PTS targets have been successfully integrated onto remote control platforms for mobile operations using the Army Ground Aerial Target Control Systems (AGATCS).



Remoted T-72



Video

## Simplified PTS Targets



- PTS requirements evolved over time to include “simplified” PTS targets with less geometric fidelity yet still providing for realistic target representations.

**ZSU**



**Type 97**



**BM-21**



**Technical Vehicle**



**2S3**



**2S6**



**MT-LB**



## PTS Seaborne Target



- The PTS seaborne target is towed by a remote controlled boat and has been used for live fire exercises.
- Has an interior space suitable for placement of test instrumentation.





- PTS targets have been deployed to numerous CONUS locations and three OCONUS locations.





- Gray Eagle T&E support



- PTS targets have survived a wide range of environmental conditions from desert summers and high winds to snow.



# Summary & Conclusions



- PTS targets offer a cost savings opportunity for the T&E community where targets with threat representative visual/IR/RCS signatures can be deployed to test/training ranges as opposed to locally produced ad hoc targets.
- PTS targets offer cost savings throughout the entire target life cycle:
  - Low acquisition costs
  - Low shipping costs
  - Can be stored long term in their shipping crates and used when needed
  - Low storage footprint
  - Easily assembled and broken back down for reuse in future
  - Easily relocated on test ranges with minimal manpower
  - Recyclable materials
  - No environmental impacts
  - Easily disposed of at end of life cycle
- Multiple new PTS targets are in development including high value air defense targets.



# Questions?

