

# Transportation Security Equipment Qualification Process

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**Transportation**  
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# Qualification Process

## What is the purpose?

The Transportation Security Administration (TSA) Transportation Security Equipment (TSE) Qualification Process is the means by which **Original Equipment Manufacturers (OEMs) propose TSE systems and TSE systems performance** evaluated against requirements.

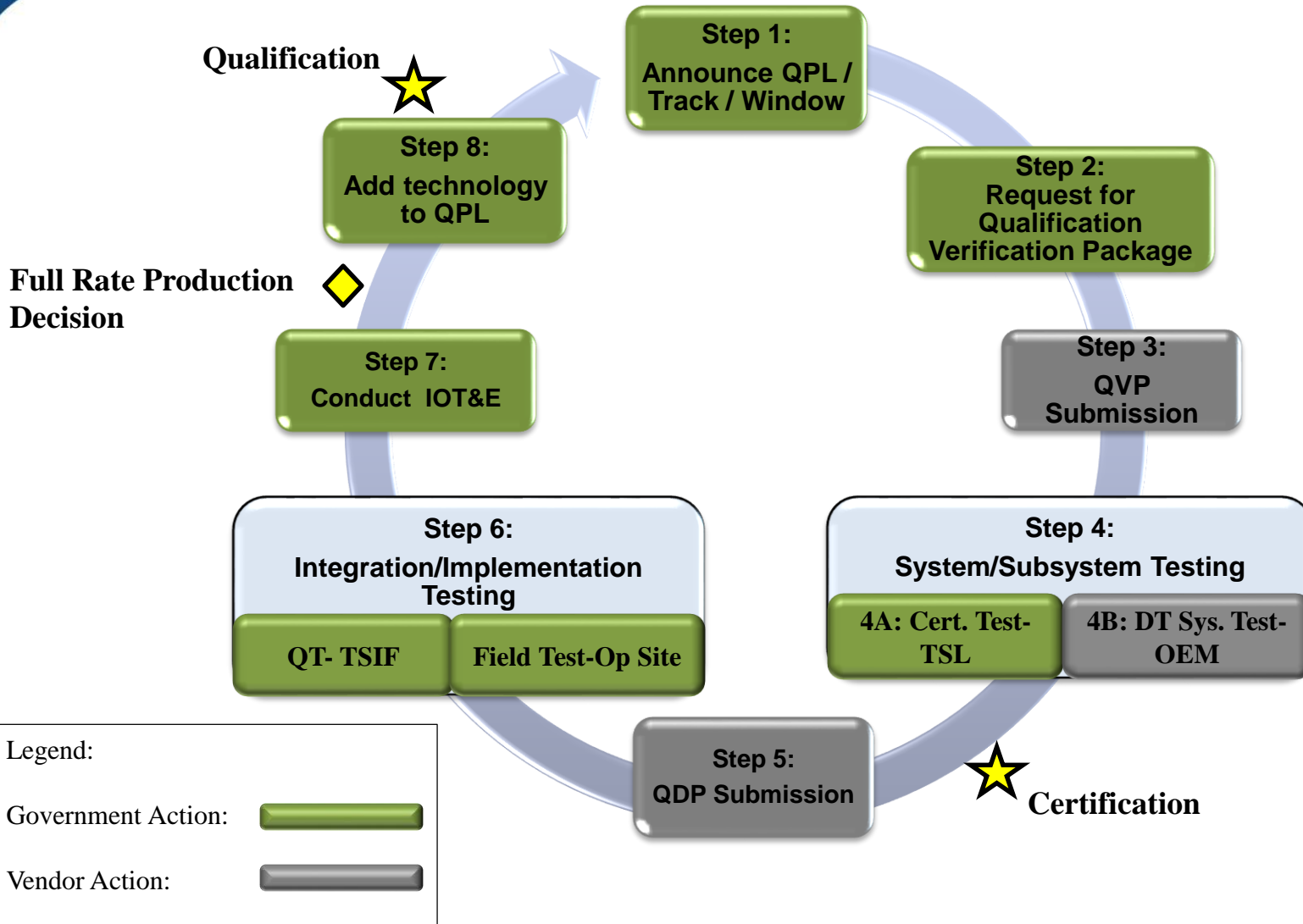
This means that only those TSE that **successfully meet TSA's requirements** shall be accepted to participate in a subsequent acquisition process.

## This will achieve the following objectives:

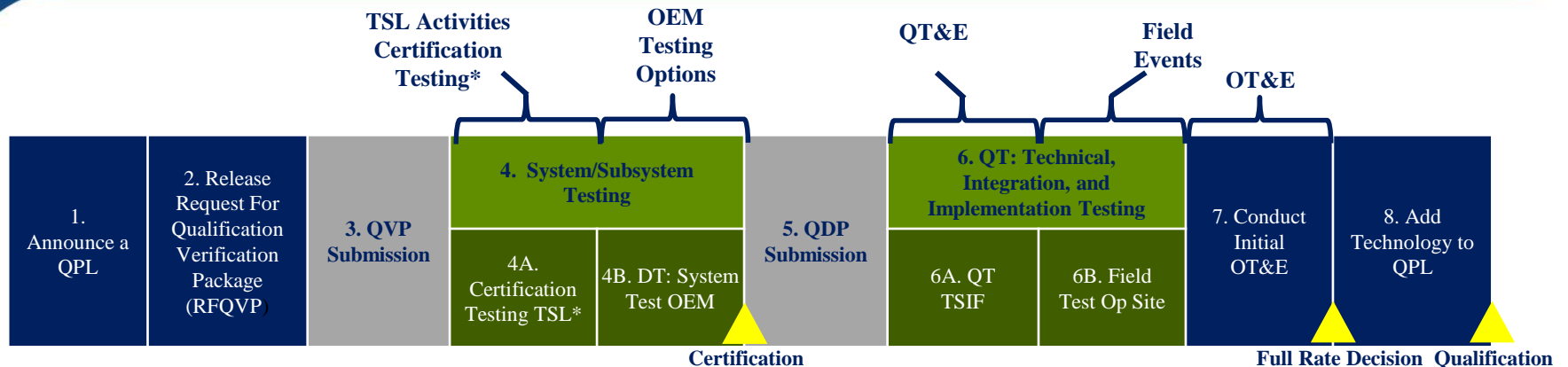
- Streamline the acquisition process by **ensuring TSE maturity before entering formal Test & Evaluation (T&E)** within TSA's TSE Qualification Process
- Incorporate OEM's testing options (i.e. 3rd party testing, OEM testing) within the TSE Qualification Process to **decrease TSA T&E costs and timelines**, allowing TSA to better allocate constrained resources
- **Accelerating implementation schedules**, reduce procurement delays, and reduce time-to-deploy



# Qualification Process – 8 Steps



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- Each test phase provides a specific insight when combined defines the system capabilities, limitations, mission performance, and TSA utility
  - ✓ **Developmental Testing (DT):** DT is generally performed during system development. At TSA, DT is typically the responsibility of the vendor. As such, the TSA OTA performs no DT in support of evaluation activities.
  - ✓ **Qualification Testing (QT):** Rather, TSA performs QT of final, vendor-submitted systems. QT is the final, or near final, verification of system conformance to functional specifications, in an optimized laboratory environment, prior to OT. CERT\* and Technical Testing are sub-elements of the overall QT of a system.
  - ✓ **Operational Testing (OT):** Validates that system and operations risks are minimized, and certifies system is effective and suitable in its operational environment and intended uses.
- Ensures Traveling Public and Transportation Security Officer (TSO) safety before final procurement decision is reached




# Qualification Process OEM Submissions

## Steps 2 - 5



### Request For Qualification Verification Package (RFQVP)

TSA will post the RFQVP in FedBizOpps (FBO) containing the **Qualification Management Plan (QMP)** (Step 2) which provides guidance for OEM Qualification Verification Package (QVP) (Step 3) and Qualification Data Package (QDP) (Step 5) submissions and the details/expectations of the TSE Qualification Process

#### Qualification Verification Package (Step 3)

-  Initial vendor submission into the TSE Qualification Process
-  Establishes the system's configuration management baseline for Certification Testing (Step 4A) & System / Subsystem Testing (i.e. 3<sup>rd</sup> party, OEM) (Step 4B)
-  OEM provides test plans and procedures traced to TSA Requirements

#### Qualification Data Package (Step 5)

-  Second vendor submission in the Qualification Process
-  Establishes the system's configuration management baseline for testing at the TSIF

TSA reviews QVP and QDP submissions, ultimately accepting or rejecting the packages

# QVP Submission

## Steps 3 & 5

### Substantiation of Test Results

The QVP (Step 3) submission includes OEM test plans and procedures traced to TSA requirements, and the OEM and TSA Program Managers discuss and agree to the method to substantiate (A, B, or C) each requirement. TSA reviews QVP & QDP (Step 5) submissions, ultimately accepting or rejecting the packages

Requirement A	Requirement B	Requirement C
OEM provides a Certificate of Compliance (CoC) that their TSE meets the requirement with no substantiation data required	OEM provides a CoC and produces test results (substantiation data) demonstrating the TSE meets the requirement	OEM provides an independent 3 <sup>rd</sup> Party CoC and 3 <sup>rd</sup> Party test results (substantiation data) demonstrating the TSE meets the requirement

TSA has authority to witness test execution for B/C levels of substantiation



# System/Subsystem Testing

## Step 4

### System / Subsystem Testing

Verifies that the System Under Test (SUT) meets all technical requirements and comprised of two test events intended to be conducted in parallel

#### Certification Testing (Step 4A)



Government T&E of explosives and narcotics detection equipment



Conducted at the TSL



Includes Probability of Detection (Pd) and Probability of False Alarm (Pfa) in comparison to the Detection Standard (DS)

#### DT System Test (Step 4B)



Testing conducted at the **vendor facilities** **and/or a 3rd party test organization facility** to verify system meets all technical requirements



Determines the maturity of the system design and used to determine system readiness to proceed into QT

# Qualification Process T&E Options for Step 4B

## Where We Are Today

*Inconsistent levels of system maturity and the inability of Transportation Security Equipment (TSE) to meet defined requirements have led to a cyclical “test-fix-retest” loop, resulting in acquisition delays and increased costs.*

### Current Efforts to Invest In

Create efficiencies in TSA's existing testing processes

## Opportunities to Enhance Testing

### Bold Opportunities to Explore

Reduce the overall amount of tests required to evaluate TSE

#### In-House Vendor Testing

*Avoid the costs and delays of transporting TSE by sending government resources to conduct testing and testing oversight at vendor locations.*

- + Can supplement both TSA and third party testing; has demonstrated success with the Checked Baggage and Checkpoint programs

Considerations:

- Requires cross-organizational alignment to standardize the process across programs
- Requires TSA testing oversight or oversight by a TSA-approved third party organization

#### 3rd Party Testing / Gov't Partner

*Increase confidence in TSE prior to TSA testing by requiring/allowing vendors to use a Third Party Test organization / Government Partner (e.g., Tyndall, Huntsville, FFRDCs, Gov't COEs).*

- + May limit the cost and time delays of multiple “test-fix-retest” loops; offers additional resources for testing execution and surge support

Considerations:

- Requires time / resource investments for approval of third party testers, approval of T&E documentation, and TSA testing oversight
- Assumes industry capacity can meet the breadth of TSA testing needs
- TSA intends to also use third parties to test capabilities in the future

#### Data Sharing

*Avoid duplication by leveraging existing test data through the creation of data sharing agreements with international government entities.*

- + May minimize the amount of new testing required for TSE deployed globally, reducing the overall time needed for testing

Considerations:

- Requires standardization of requirements and testing procedures
- Requires time / resource investments to establish data sharing agreements and validate data is comparable for TSA use

#### Modeling & Simulation

*Use Modeling & Simulation (M&S) to augment live testing and support evaluations that cannot be assessed in a live environment.*

- + May minimize certain live test requirements, reducing the resource costs associated with live testing and the overall time needed for testing

Considerations:

- Depends on availability of test data from vendors or test execution teams
- Requires ongoing DHS accreditation for M&S
- May not be applicable for all testing requirements

## The Potential Impacts



### Minimized Delays

Creates standardized processes for engaging vendors throughout the acquisition lifecycle to address potential issues early on



### Additional Resources

Expands testing capacity by further integrating agency efforts with industry and government partners



### Expedited Testing

Uses existing data to augment test events and potentially reduce the total amount of test runs required



# Qualification Process 3<sup>rd</sup> Party update

## What will the TSE Qualification Process do?

- ✓ Incorporate the benefits of 3<sup>rd</sup> Party Testing into the **system lifecycle** within the requirements release process
- ✓ Provide **review gates** and **achievable milestones** to support contract structures and system readiness to advance
- ✓ Incorporate **DHS DOT&E best practices** for system success

### 3<sup>rd</sup> Party Testing

As part of this TSE Qualification Process, TSA will approve 3<sup>rd</sup> Party Testing organizations as part a **TSE Vendor's Qualification Verification Package** that includes the Vendors' test approach, location, resources, timeline, plans, and procedures.

TSA will **no longer look to pre-approve** 3<sup>rd</sup> Party Testing organizations or require them to be ISO 17025 compliant

TSA **will approve** 3<sup>rd</sup> Party Testing organizations as **part of the approval of the OEM's QVP** during the Qualification Process

**In addition, TSA has successfully applied various aspects of the 3<sup>rd</sup> Party Testing process to TSE in the legacy qualification process**

# Summary and Key Benefits of Enhancements

## Advantages of TSA's TSE Qualification Process



- ✓ Institutes a more **collaborative system design** & testing approach with industry
- ✓ Potential to **reduce time-to-deploy** new technology and improves ability to counter emerging threats



- ✓ Establishes **early involvement with industry**, facilitating an improved, mature system design to meet TSA needs



### **Generates a consistent Acquisition approach:**

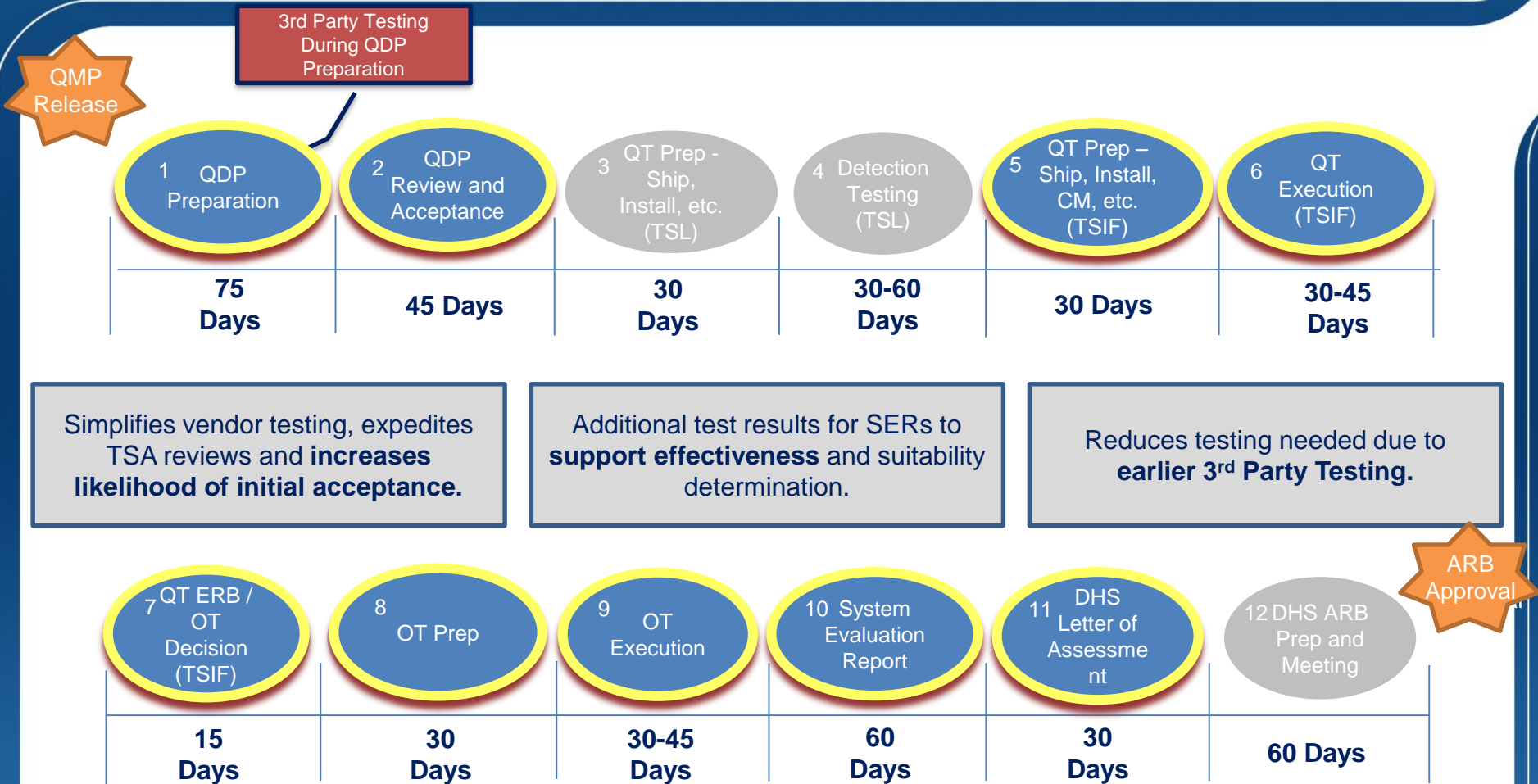
- ✓ Requirements Management – Document Review and Approval for new tracks
- ✓ Compliant with DHS Administrative Directive 102 instruction
- ✓ Standardize industry engagement and Qualification Process across TSA programs



- ✓ Provides a consistent T&E approach across **TSA Acquisition Programs**

Questions?

# Benefits of 3rd Party Testing to Current T&E Process



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**Reduces the Likelihood of Retests!**