## smiths detection

**CONVERTING TO ECAC STANDARD 3** A step-by-step guide of key phases

### SITUATIONAL BACKGROUND

The European Commission passed a legislative framework requiring all hold baggage screening (HBS) in Europe be equipped with European Civil Aviation Conference (ECAC) Standard 3 approved explosives detection systems (EDS) by 2018 in the UK, 2020 for the rest of Europe and 2022 in specific circumstances. The new standard was implemented to detect higher levels of threats, while lowering operational false alarm rates (FAR).

Upgrading from Standard 2 to Standard 3-approved systems requires redesigning and reconfiguring your Baggage Handling Systems (BHS). Why? In many Standard 2 configurations, the first level of screening is handled by a standard X-ray system, while a more powerful, Computed Tomography (CT) technology is used at Level 3. With the new mandate, Standard 3 approved machines (typically containing CT technology) will now be used right at Level 1.

PROCESS	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
TYPICAL STANDARD 2 PROCESS	AUTOMATIC X-RAY STD 1 OR STD 2	ALARMED IMAGES SENT TO OPERATOR 2D 2D 0PERATOR CLEAR RATE-80%**	UNCLEARED BAGS SENT TO CT	ALARMED IMAGES SENT TO OPERATOR 3D DEPERATOR CLEAR RATE-90%**	FINAL EXAMINATION
TYPICAL STANDARD 3 PROCESS HI-SCAN 10080 XCT	AUTOMATIC EVALUATION FAR-20%	ALARMED IMAGES SENT TO OPERATOR 2D & 3D EVALUATE STATE 2A OPERATOR CLEAR RATE 2B OPERATOR CLEAR RATE -90%**	FINAL EXAMINATION	BENEFITS  LESS COMPLEXITY LESS OPERATORS MORE SPACE LESS POWER CONSUMPTION LESS MAINTENANCE OVERALL MORE EFFICIENT OPERATION MORE ADVANCED SECURITY STANDARD	
TYPICAL STANDARD 3 PROCESS CTX 9800 DSI	AUTOMATIC EVALUATION FAR-20%	ALARMED IMAGES SENT TO OPERATOR 3D DECEMBER OPERATOR CLEAR RATE-90%**	FINAL EXAMINATION		

#### **STANDARD 2 VERSUS STANDARD 3 OVERVIEW**

\* The figures contained in this flow diagram are all estimated and will in practice depend on airport specific operations. Smiths Detection is not liable for false alarm rates (FAR) or clear rates that are beyond Smiths Detection control.

\*\* Operator clear rates are dependant on the Operator Screening Protocols provided by the airports and/or national regulators.

#### **STEPS OF THE PROCESS IN CONVERTING TO STANDARD 3**

To provide a sense of what the overall conversion process looks like, here are the different phases to consider. The timing of each one depends on the size and scope of your airport, and the number of machines you will be installing. However, the UK's Department for Transport (DfT) recently reported that upgrading from Standard 2 to Standard 3, start to finish, takes about four years.

- Define process parameters and technology requirements. Consider what the plan is for your system – not just for today, but also how it needs to evolve in the next ten to fifteen years.
- 2. Review current technology capabilities. Start to define your requirements by reviewing future roadmaps and the current marketplace.
- **3.** Tender and evaluate EDS suppliers. Be clear on your technology requirements and consider how to integrate with existing IT systems.
- 4. Conduct site visits. As part of the evaluation, ask each EDS supplier for performance data as well as the opportunity for live site visits where their systems are running or site visits to suppliers' manufacturing and development locations.
- 5. Select the EDS supplier. This needs to be done early in the process as the rest of the operations will be designed around the chosen system. The type of EDS machine you purchase impacts tracking zones, screener decision points, and the overall BHS design.
- 6. Get stakeholders on board. Identifying and engaging all of your stakeholders early better ensures you get the right inputs for each phase of the project. These inputs also help identify in advance any challenges to overcome.
- 7. Design specs and design competition. Details of the screening process need to be considered early, such as the process for exception bags (no image bags, lost track bags, timeout bags), process for resolution of alarmed bags, the ability to rescreen, and what overall IT upgrades are needed.
- **8. Select the BHS.** Choose a BHS provider with a track record in integrating your preferred CT technology.
- 9. Scheme and production design. The right system design optimises baggage flow at the maximum throughput capacity. It also seeks to balance loads between redundant routes, avoiding both die-back towards the check-in areas, as well as bottlenecks between the screening levels.
- **10.** Supplier production design and build. BHS system integrator develops design with the HBS design team before commencing production.

- **11. Approve concept of operations.** Once the design is set, the overall concept of operations gets vetted and approved.
- **12. Pre-testing.** This step helps mitigate risk and prevent site rework (saving time and money) with a virtual BHS/EDS interface emulation or simulation to prove out the interface before live integration.
- **13.** Set a phasing and contingency plan. Make sure phasing is achievable within existing operational constraints. Plan for major construction to be done during off-peak calendar periods.
- 14. Deal with machine logistics. Standard 3 approved systems are bigger and heavier than Standard 2 machines. Good EDS supplier project managers will walk the route ahead of time, helping plan for any access issues before delivery.
- **15. Installation.** The average installation of an EDS machine is broken into three phases, with breaks in between to enable others (BHS, etc.) to complete their work.
- 16. Testing. A Site Acceptance Test (SAT) is conducted, checking the EDS installed system against its physical and performance specs. This is followed by an Integrated SAT on the combined BHS/EDS system. Finally, a Live Operation Test ensures the entire system is ready to go.
- **17.** Communication to promote staff engagement. Create and implement a communication plan to let staff in all departments know what is expected of them and what changes the new system will bring.
- **18. Training.** Throughout all phases, make sure to schedule a series of training events for operators or screeners, technicians, and each staff member that will be impacted.
- 19. Go live. Once the system is operational, service and support teams should proactively schedule ongoing preventative maintenance checks. The goal: optimising and extending the lifecycle of your investment for the next fifteen to twenty years.

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