Panasonic
BUSINESS

TURBULENCE WITH TABLETS?

An Electronic Flight Bag Whitepaper

TOUGHBOOK   TOUGHPAD

Built in Risk?

The introduction of the first generation of Electronic Flight Bags (EFB) in the aviation industry delivered a range of initial benefits but we see airlines are now beginning to recognise the risks involved in deploying consumer or non-specialist tablets at the heart of their EFB solutions.

Costly failure rates are 5 times higher in regular tablets than specialised rugged devices.

Design and functionality restrictions make regular tablets frustrating to use and expensive to maintain.
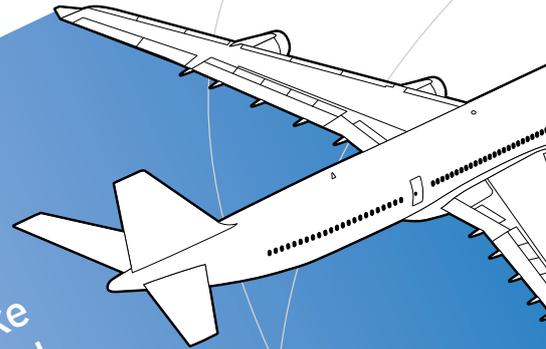
The Bag Switch

The Electronic Flight Bag has made rapid progress conquering the airline flight decks of the world and it's no wonder. The site of aircrew lugging up to 50kg of paperwork into the cabin of some of the most sophisticated aircraft ever built never sat comfortably in today's technological world. The ability to cut down on weight to save fuel, have easy access to aviation data, navigation charts and manuals as well as perform complex calculations for take-off, landing and fuel reckoning all through a tablet was too attractive an opportunity to miss.

Turbulence with Tablets

But the switch has not been smooth for airlines that chose a regular or popular consumer tablet. The hidden costs and risks of an EFB solution using a tablet not tailored for airline use are now becoming apparent.

Issues Identified

The difficulties experienced by airlines with the deployment of their first EFB solutions fall into three distinct categories:

Reliability

Fragility can lead to faults and shortened lifecycle as the tablets are exposed to heat, cold, vibration and knocks. Failure rates for non-ruggedized devices is an average 5 times higher than for ruggedized devices.

According to research into the reliability of mobile devices by the analyst group VDC, 18% of non-rugged devices need replacing in year one, the total rises to 39% by year two and 83% of devices will have been replaced by year three. Compare that to rugged devices with a 3% replacement rate in year one, 8% in year two and just 18% by year three.*

* Source: VDC Research Group

Non-Rugged

18%
18% of consumer equipment requires replacement in the first year

39%
By year 2 the total has risen to 39%

83%
By year 3 almost all devices will have been replaced

Rugged

3%
Only 3% of rugged devices require replacement in year 1

8%
Second year accumulative replacement is 8%

18%
Total replacements by year 3 is only 18%, equal to year 1 replacements for non-rugged equipment
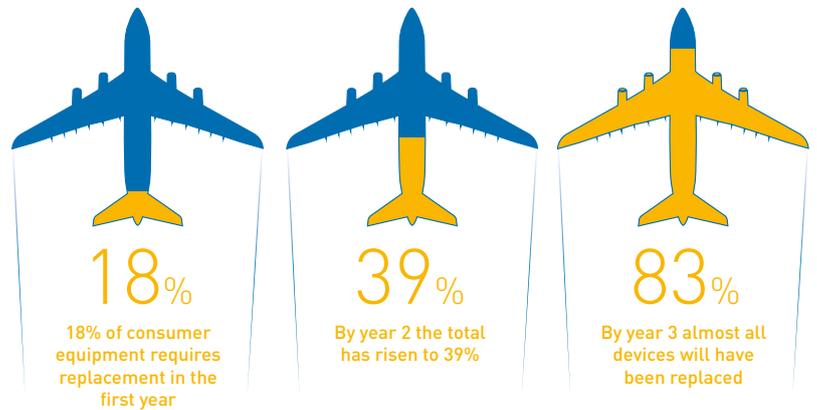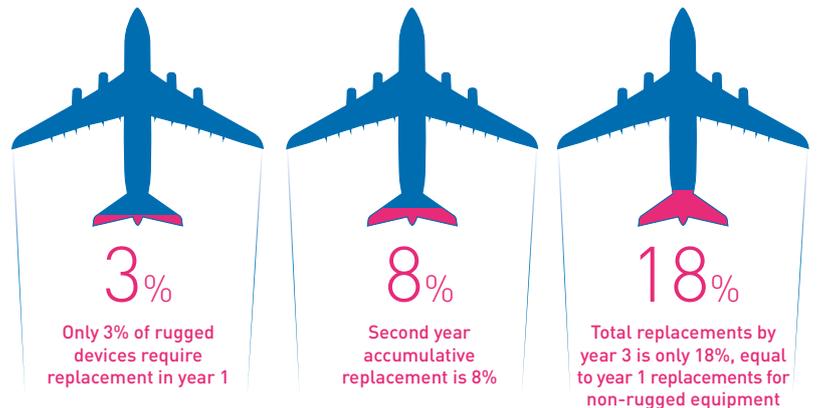
Usability

Screen glare and brightness issues with non-specialist devices can make viewing difficult for pilots in both bright sunlight and at night. The ability to quickly access and view information is a critical safety feature for an EFB but consumer tablets come with narrow adjustable brightness ranges of 50cd/m² up to 410cd/m² when 0.5cd/m² to 800cd/m² is required.

Ease of use issues have been reported by many pilots frustrated with the time taken by the number of steps they have to take to reach the applications and information they need on a non-specialist device.

Battery issues can be problematic for both pilots and IT maintenance teams when non-specialist devices are designed with enclosed batteries that cannot be swapped easily by the user or replaced in the long-term by the IT teams.

Incompatibility

Integration of devices into limited space cockpits can be difficult when the manufacturers of standard tablets do not provide custom mounts and cabling connections or power solutions for aircraft.

Application incompatibility has been an issue for many airlines using standard tablets with Android-based operating systems. The vast majority of airline applications and back-office systems run on Windows operating systems. Integrating the two systems can prove time-consuming and costly and security issues are a concern.

Long-term compliance with updated EFB and equipment regulations can be an issue for airlines using standard consumer tablets, as the device manufacturers have no schedule for updating devices to meet evolving regulations.

A Frosty Reception

When a major European airline deployed a popular consumer tablet for EFB testing on a number of its regular airline routes, it found that the device received a frosty reception from pilots and ground crew on some of its most northerly routes. When the aircraft stopped over night in the cold of a Nordic airport, the devices failed to switch on when required in the morning. The IT team quickly realised that the recommended operating temperatures of the device were far too narrow for use on the flight deck of an aircraft that could be travelling between some of the coldest and hottest countries in the world in a matter of hours.

Next Generation EFB:
Built for Aviation and Tailored for Airlines

The next generation of EFB tablets from specialist industry providers have addressed many of the issues identified. In their next EFB technology deployment, airline IT buyers should be selecting against a checklist of specialist features to ensure their EFB solution is built for aviation and tailored for their airline.

Fully Rugged

Fully rugged tablets are built to withstand the punishing environment of a commercial airline flight decks limiting downtime from failures and delivering far better total cost of ownership. Rugged tablets should be meeting the following standards:

RTCA DO-160G — Standard for airbourne equipment
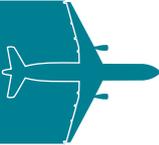
Mil-Std 810G — Military Standards (Mil-Std 810G) to demonstrate the tablet can withstand the harshest environments, including extreme temperatures
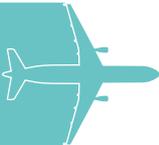
IP65 — Ingress Protection against dust and fluid
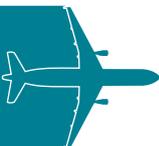
UL 1604 — Underwriters Laboratories (UL 1604) for spark-free use and battery safety in potentially hazardous environments
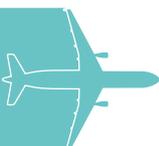
Fully compatible with EFB applications and airline systems

The latest generation of EFB tablets can run using the latest Windows 10 Pro or be downgraded to Windows 7 Pro operating system for full use of existing EFB applications and integration to important airline operation back-office systems.

The devices should also be powered by the latest generation of Intel processors to ensure the solution is future-proofed for computing power to run the next generation of EFB applications.

Batteries should be hot swappable by the user, allowing the device to continue to operate as power units are being changed and making long-term use and maintenance easy for the IT team.

Specialist Viewing Screens

Pilots must be able to see clearly what they are doing in all phases of flight, including bright sunlight and night-time low levels of light. The latest generation of specialist EFB tablets cater to this pilot need and are adjustable from 0.5cd/m² up to 800cd/m².

Easy to install

Space is at a premium on a flight deck, so EFB solutions that have been purposely designed to meet the needs of the airline should be a priority. Tablets with specialist flight deck, light-weight mounts and shortened cables are important for easy installation and efficient use of space. Power solutions should be tailored for use on an aircraft, which usually limits a maximum output of 3amps. Specialist EFB tablets are configured with this finite power potential in mind, drawing only 1.4amps to allow two devices to used at the same time – one powered and one charging.

Easy to use

Once operational, the latest generation of EFB tablets should be easy to use.
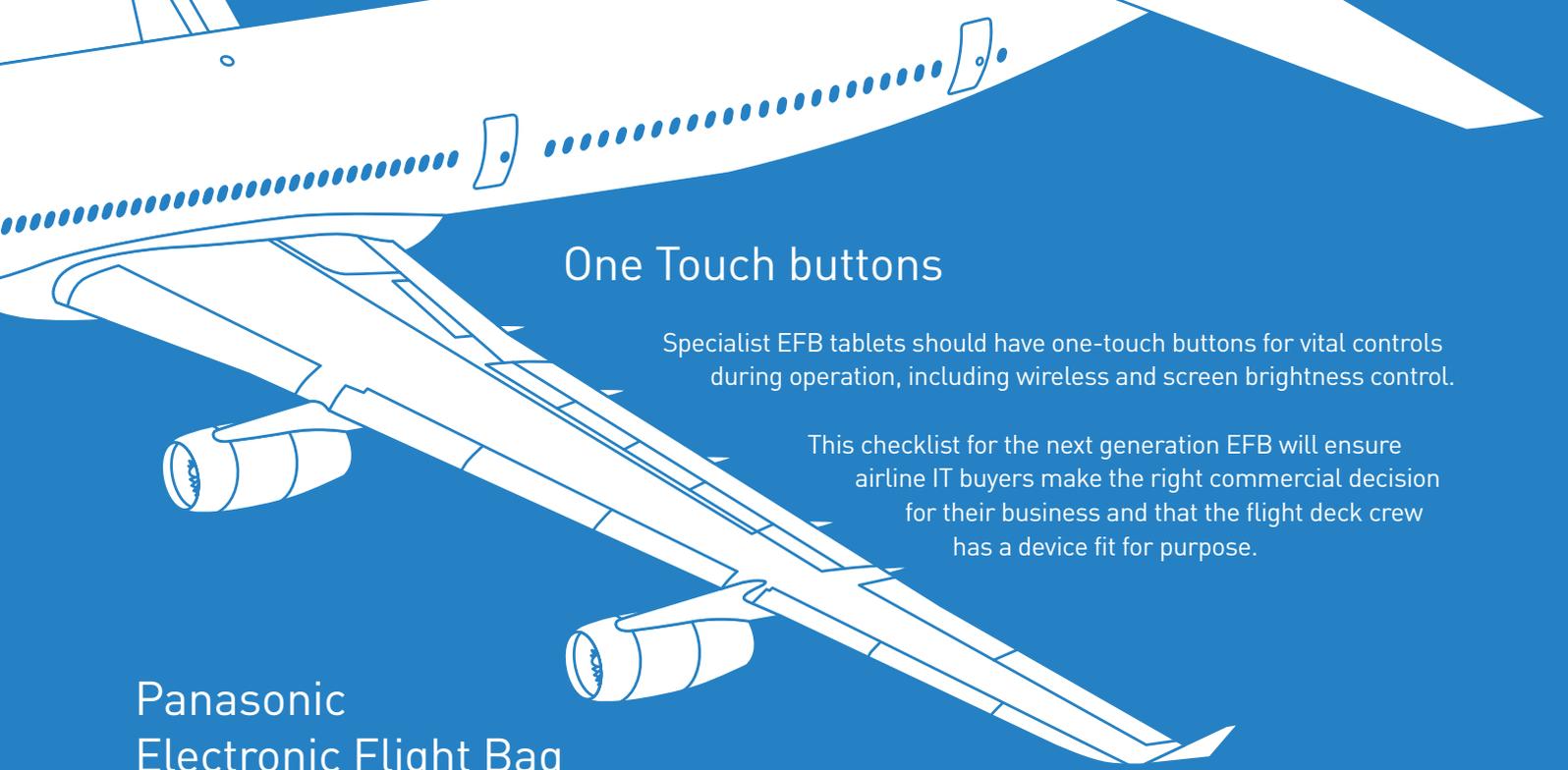
One Touch buttons

Specialist EFB tablets should have one-touch buttons for vital controls during operation, including wireless and screen brightness control.

This checklist for the next generation EFB will ensure airline IT buyers make the right commercial decision for their business and that the flight deck crew has a device fit for purpose.

Panasonic Electronic Flight Bag

The Panasonic Electronic Flight Bag is the next generation of solution for the airline industry. By listening to industry IT buyers and crew members, Panasonic has built a solution that exceeds industry safety standards, delivers unrivalled reliability and is intuitive to operate.

The Real Cost of Non-Rugged Devices*

Most companies want to see their ICT serving a minimum of 3 years. While this is an easy target to reach with desktop computers the reality is vastly different when you go mobile. Costs go further than repairs and replacements, downtime and productivity loss are major factors too.

- Mobile computers cost the most not when they're purchased or replaced, but when they fail.
- Downtime is the leading contributor to TCO.
- Device failure is the leading cause of downtime.
- Failure rates for non-ruggedized devices is an average 5 times higher than for ruggedized devices.
- Looked at in this way you can begin to see that the demands of a mobile workforce, whether or not the environment is harsh, places unsupportable demands on consumer class technology.

* Source: VDC Research Group

Panasonic BUSINESS

For more information on how Panasonic can help make your EFB solution more efficient and user-friendly visit www.toughbook.eu

TOUGHBOOK   TOUGHPAD