

The Second Webinar of the Asia/Pacific UAS/RPAS (APAC UAS/RPAS/2)

Feasibility Study and Trial of Using Drone to Enhance Efficiency in Flight Inspections at the Hong Kong International Airport

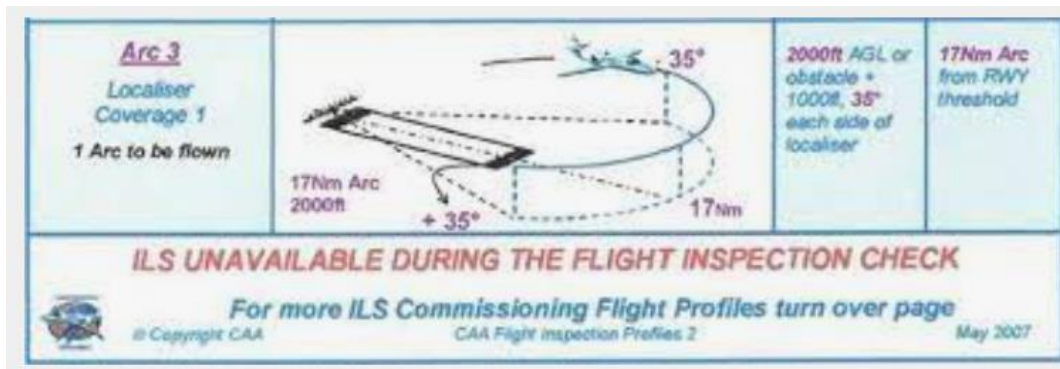
Presented by Hong Kong, China

Limitation of Conventional Flight Inspection

Day Light Operation



Disruption to airport & ATC operations during flight inspection might not be avoidable



Reachable Distance & Height of Measuring antenna

Exploring Use of Drone to Conduct Part of Flight Inspection for the HKIA



- With support from CAAC FIC & AAHK, HKCAD conducted the **first trial at HKIA** using drone to carry out part of flight inspection **in August 2023**.
- The **second trial** was conducted in Hong Kong **in May 2024** covering flight inspection profiles for both the Instrument Landing System (ILS) and Doppler Very High Frequency Omnidirectional Range (DVOR).



Conduct of Trial Flight Inspection at HKIA by Drone

- The six-rotor and four-rotor drones, equipped with a specially designed signal receiver, were adopted in the trial



Conduct of Trial Flight Inspection at HKIA by Drone

(a) Drone performing low approach profile to inspect the ILS signal



(b) Drone to perform orbiting to measure DVOR bearing error

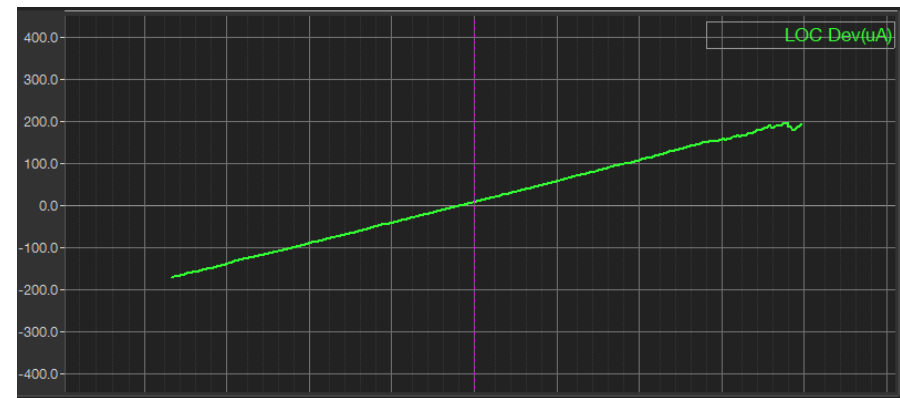
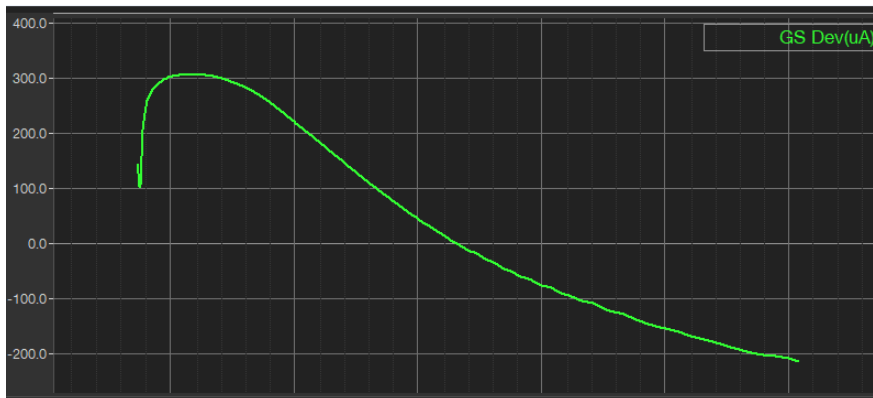


Conduct of Trial Flight Inspection at HKIA by Drone

- Remote tracking of the drone and real-time measurements



- Measurement results of GP and LOC signals

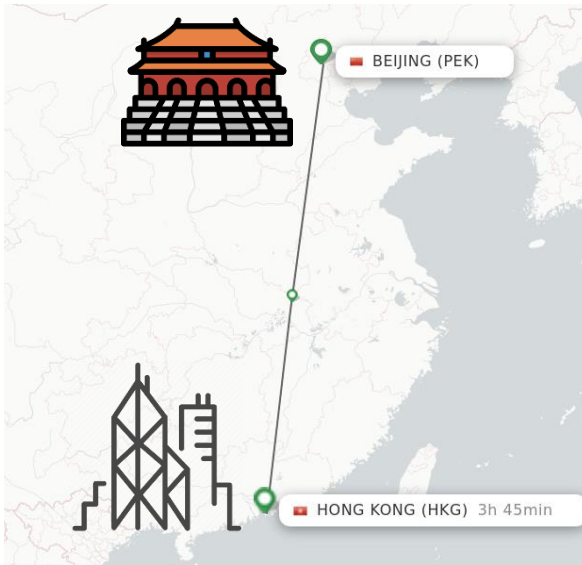


Benefits of Utilizing Drones for Flight Inspection

- Utilizing drones for part of flight inspection on navigational aids is more efficient in deployment with greater flexibility in flight manipulation while achieving zero carbon emission.



- These advantages are particularly significant for HKIA :



- The flight inspection aircraft of CAAC FIC is based far from Hong Kong
- During unpredictable weather conditions in the wet season of Hong Kong, drones demonstrated their versatility by quickly adapting to the limited time window and effectively conducting the inspection

Findings of Trial Flight Inspection at HKIA by Drone

- The inspection results obtained from the drone generally aligned with those obtained from traditional flight inspection aircraft.



- It is crucial to closely monitor the wind conditions along the flight paths and avoid performing inspection during windy days.



Thank you

