



International Civil Aviation Organization

WORKING PAPER

A42-WP/599

TE/227

12/9/25

(Information paper)

English and Chinese only¹

ASSEMBLY — 42ND SESSION

TECHNICAL COMMISSION

Agenda Item 25: Other issues to be considered by the Technical Commission

AIRPORT EQUIPMENT CERTIFICATION MANAGEMENT SYSTEM IN CHINA

(Presented by China)

EXECUTIVE SUMMARY

This paper presents the airport equipment certification management system in China. Considering that ground service equipment (GSE), visual aids for navigation and other airport equipment impact airport operation and aircraft flight safety directly, China has established a strict standard certification and access system for airport equipment. Uncertificated airport equipment shall be prohibited from being used in the airports. This paper analyzes the potential safety impacts of various types of airport equipment, and challenges posed by technical development. And, China call on all member states attach great importance to the safety management of airport equipment, for ensuring the stable operation and the safety development of civil aviation airports jointly.

<i>Strategic Goals:</i>	This working paper relates to <i>Every Flight is Safe and Secure</i> .
<i>Financial implications:</i>	This working paper has no financial implications.
<i>References:</i>	

¹ English and Chinese versions provided by China.

1. INTRODUCTION

1.1 Airport equipment is closely related to smooth airport operation and flight safety. In order to ensure the safety, reliability, stability and applicability of airport equipment, China implements a safety standard certification management system for airport equipment and enforces it strictly. Uncertified airport equipment shall not be used in the airports in China.

1.2 The airport equipment requiring safety standard certification mainly includes,

- a) airport ground service equipment (GSE), such as passenger boarding bridge, aircraft catering vehicle, elevating equipment, etc.;
- b) visual aids for navigation, such as approach lights, PAPI (precision approach path indicator), runway lights, taxiway lights, etc.; and
- c) other airport equipment or system related to airport safety operation, such as passenger baggage handling system, FOD detection system, friction coefficient testing equipment, etc.

1.3 In terms of airport ground service equipment (GSE), there is a global common risk that it may scratch or collide with aircraft, causing damage and affecting flight safety. The relevant incidents include container loader transporter accidentally damaging the aircraft, passenger boarding bridge damaging the aircraft boarding door, and ground servicing equipment like towing truck colliding with the aircraft during approaching. For such safety risks, the International Air Transport Association (IATA) and the International Organization for Standardization (ISO) have issued numerous technical standards, and *Manual on Ground Handling* (Doc 10121) also puts forward safety requirements.

1.4 In terms of visual aids for navigation, the optical characteristics of equipment, such as luminous intensity, color temperature and emission angle, all have strict requirements. This is done to ensure reliable safety visual aids for the aircraft. Incidents involving visual aids occur in the world, such as abnormal colors of PAPI providing wrong guidance, too strong or dim runway lights and approach lighting failing to provide visual references for pilots effectively. In recent years, due to the extensive use of LED lights worldwide, the problems of pilots being dazzled by too bright LED lights have occurred multiple times, and China is also facing the same issue. Therefore, ICAO requires all member states to follow the technical parameters specified in Annex 14, which ensures consistent universal safety standards adopt globally.

1.5 Other airport equipment or system, such as passenger baggage handling system, airport lighting control and monitoring system, foreign object debris (FOD) detection equipment, are becoming increasingly important for the safe operation of airports. With the development of global airports towards large-scale and complex configurations, these systems also become more complex. Compared with traditional simple systems, incidents caused by the complex system itself are more likely to occur. For example, once a failure of the passenger baggage handling system occurs in the large airport, it will lead to a large number of baggage being stranded and flights delayed. This issue will rise safety risks and affect efficiency and service quality. For another example, the malfunction of airport lighting control and monitoring system has given us many profound lessons, such as false opening/closing, similar incidents have occurred in global and in China. Therefore, ICAO, ISO and relevant countries have formulated safety standards.

1.6 At present, China has established airport equipment management regulations and safety technical standards, requiring 64 categories of airport equipment to comply with safety technical standards. Safety certification is implemented by standardization institutions accredited by China National Accreditation Service for Conformity Assessment (CNAS), International Laboratory Accreditation Cooperation (ILAC), etc. Once the airport equipment that has passed safety certification, the qualified certification reports will be published on the public website of the Civil Aviation Administration of China (CAAC). Airport operator, air operator or ground handling service provider (GHSP) can query, purchase, and use the equipment based on these information.

2. DISCUSSION

2.1 To enable airport operator, air operator and GHSP to know the certified airport equipment accurately, the Airport Equipment Information Management System website of CAAC allows the public to query airport equipment model number, manufacturer information, equipment physical photos, key technical parameters, and accompanied by the certification qualification reports from the certifying institution, etc. The entire website is presented in both Chinese and English.

2.2 To ensure the performance indicators of airport equipment comply with safety requirement, China has currently issued 99 standards for it. In addition, based on the technological development of various types of equipment and lessons summarized from incidents, China carries out dynamic revisions every year, with the number of revised standards reaching approximately 10 per year.

2.3 In recent years, after some incidents have occurred, such as luggage tractors unhooking causing the dragged equipment crashing into aircraft, or portable water truck driving away without unplugging the connector that damage the aircraft, China immediately revised standards. The revisions stipulate that connectors on the equipment must have alarm for unplugging or quick disconnection capabilities, and luggage tractors must have traction locking. After the incident of color filter offset of precision approach path indicator (PAPI), China specified the fixing requirement for PAPI color filters. For aircraft docking equipment causing scratches or collisions, safety docking functions were stipulated, such as installing safety distance detection devices on the equipment and enforcing crawler-speed docking.

2.4 As China firmly implements global carbon reduction goals, and vigorously promotes the electrification policy for GSE, various types of GSE in China now basically have electric models. To avoid battery spontaneous combustion risk, China has formulated strict standards for batteries and electric equipment, including battery monitoring, thermal runaway alarms and performance requirement.

2.5 The airport equipment safety certification management system not only requires equipment samples to comply with technical standards, but also requires manufacturing factories to meet the requirements of quality consistency. The quality consistency need the management system certification which carried out for equipment production lines. So, only both gain the sample compliance certification and the quality consistency certification of manufacture can be informed on the Airport Equipment Information Management System website of CAAC.

2.6 With the global development of green, intelligent, and electrified civil aviation, airport equipment is evolving towards unmanned operation, full electrification, new materials, and new technologies. For example, unmanned passenger boarding bridges and unmanned luggage tractors have been widely applied at airports such as Hong Kong and Amsterdam. Electrified GSE is developing rapidly, which showing a trend of fully replacing fuel-powered vehicles. Meanwhile, the popularization of LED lights has brought new global challenges due to the dazzle problem it causes. In this regard, it is called that

all member states can pay attention and conduct joint research. To ensure the stable operation of the equipment and the safety of airport operation, the safety performance indicators of new airport equipment should be specified by establishing regulations and technical standards.

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