THE AIRPORT CHARACTERISTICS AND OPERATION OF ARJ21-700

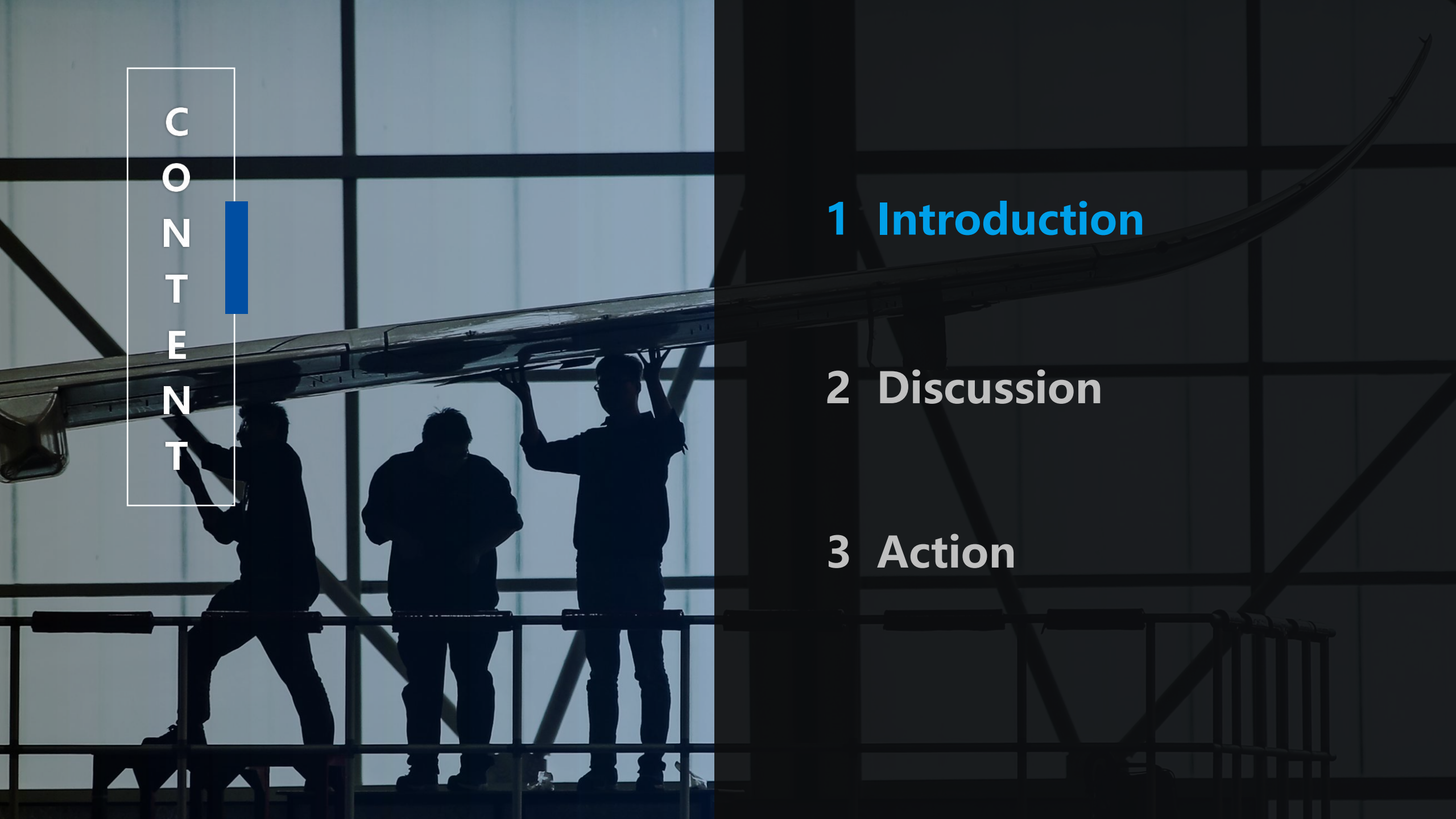
July 2023

China

Summary of Information Paper

ARJ21 is one of the commercial aircraft in short-medium range turbofan regional aircraft, and is now operating in China and Indonesia.

This Paper intends to share key airport characteristics of ARJ21-700 and airports operation experience, for helping to establish the good airport compatibility in APAC.

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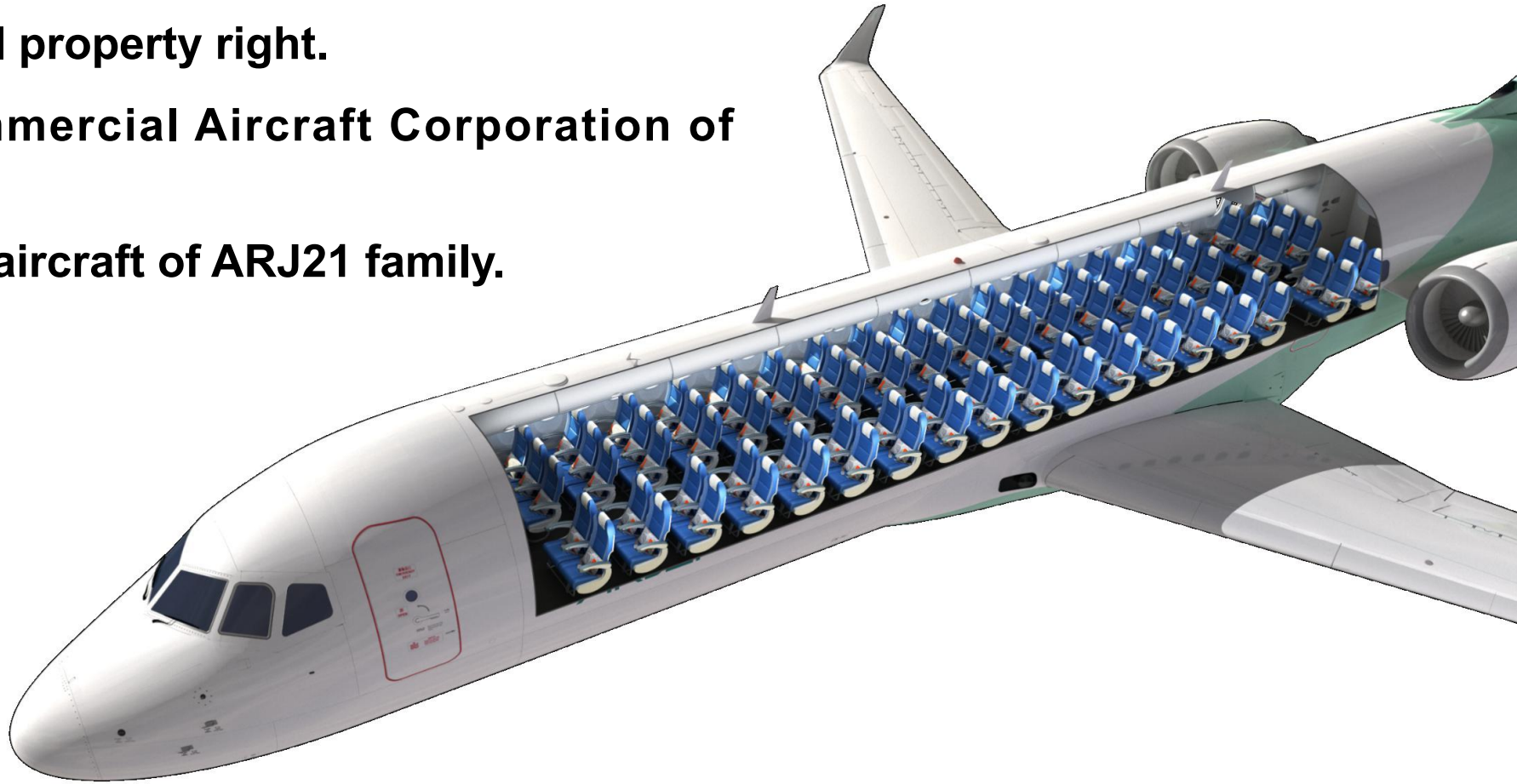
1.1 General Introduction

ARJ21, the first short-medium range turbofan regional aircraft developed by China.

- **In accordance with international civil aviation regulations.**
- **Independent intellectual property right.**
- **Manufactured by Commercial Aircraft Corporation of China, Ltd.(COMAC).**
- **ARJ21-700 is the basic aircraft of ARJ21 family.**



1.2 ARJ21 Development

ARJ21

Type Certificate (TC) — 2014.12.30

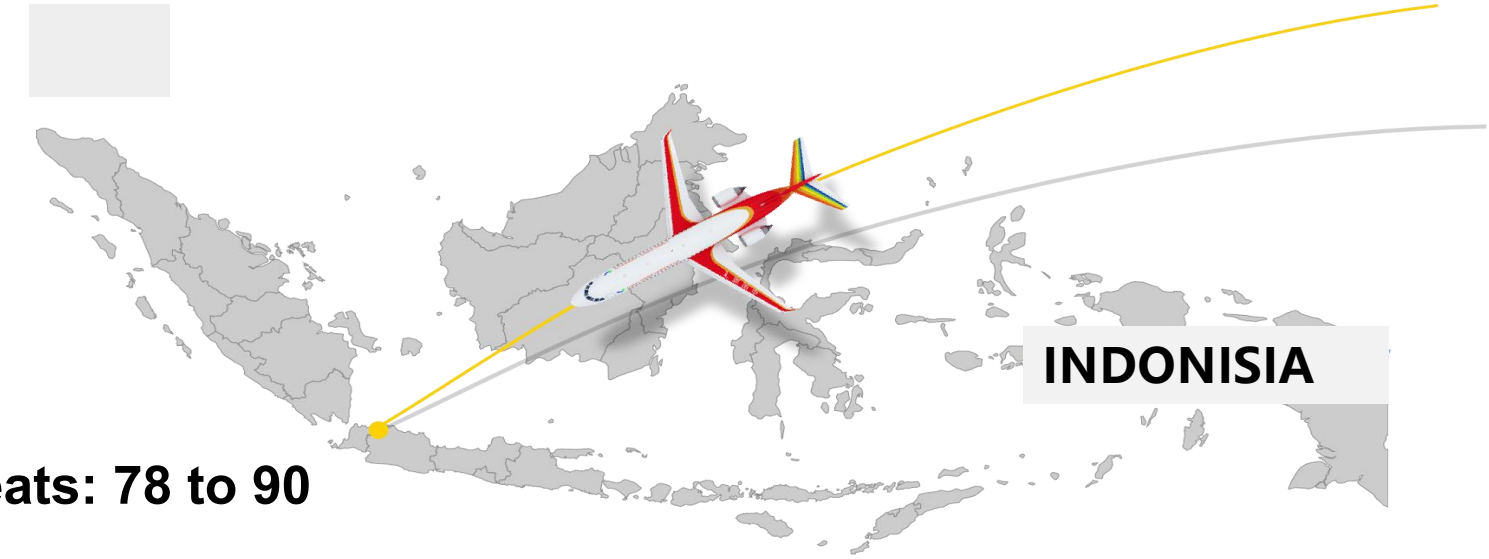
Prouction Certificate (PC) — 2017.7.9

Have been entered into route operation for seven years — 2023.07

1.3 Operation status

ARJ21-700 was officially delivered two flights to its first overseas customer in Indonesia on Dec 18th, 2022 and Jun 2023.

This is the first time for China's jet to enter the overseas market. Four airports, such as Ngurah Rai International Airport and Morowali Industrial Park Airport, have been opened routes.The safety and reliability of the aircraft have been verified.



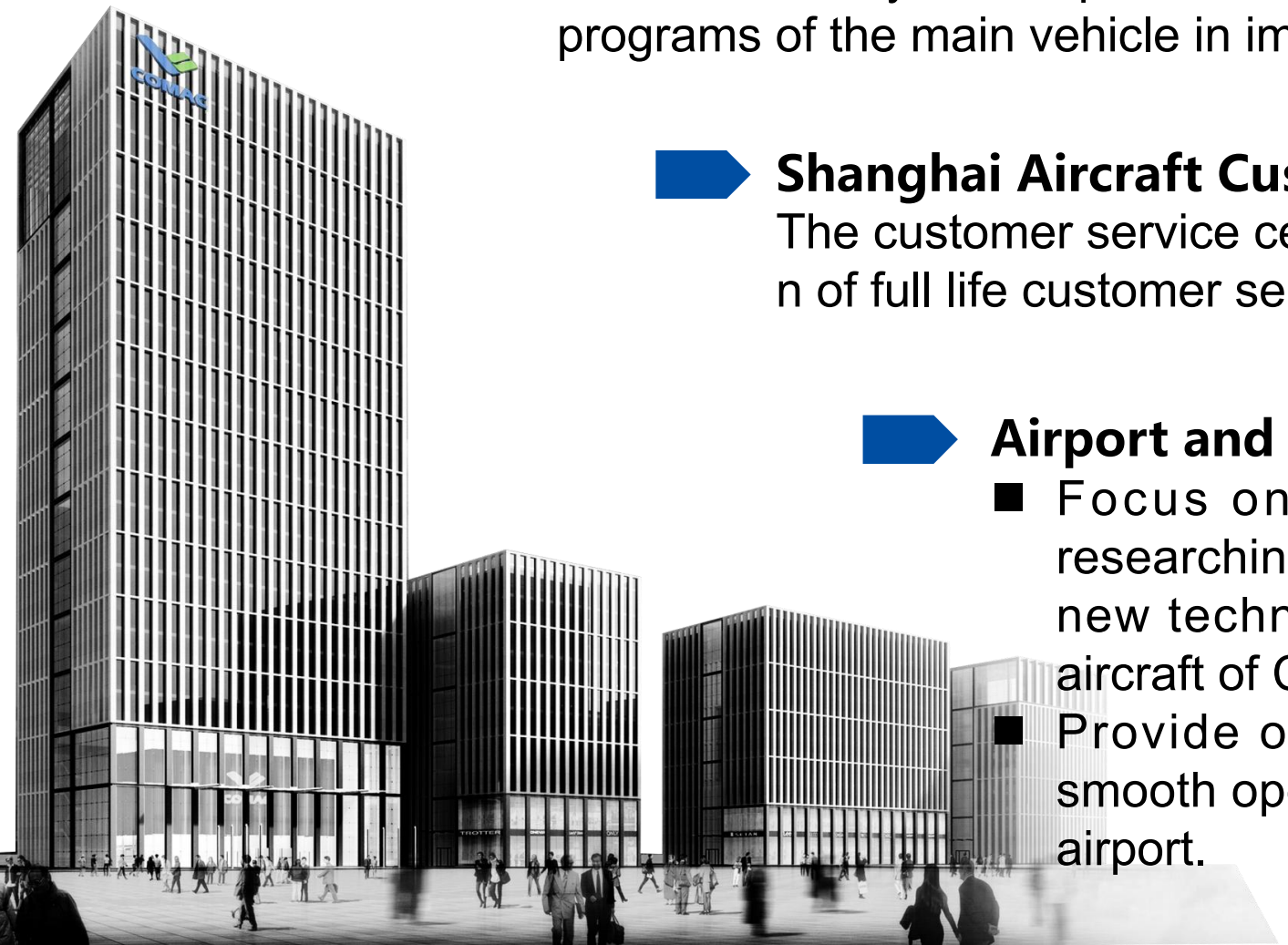
Seats: 78 to 90

Range: 2,225 - 3,700 km

- Delivered 106 aircrafts
- Carried more than 7.2 million passengers
- over 370 routes and 132 citiies

Data Source：COMAC June 2021

1.4 Introduction of Manufacturer



Commercial Aircraft Corporation of China, Ltd. (COMAC)

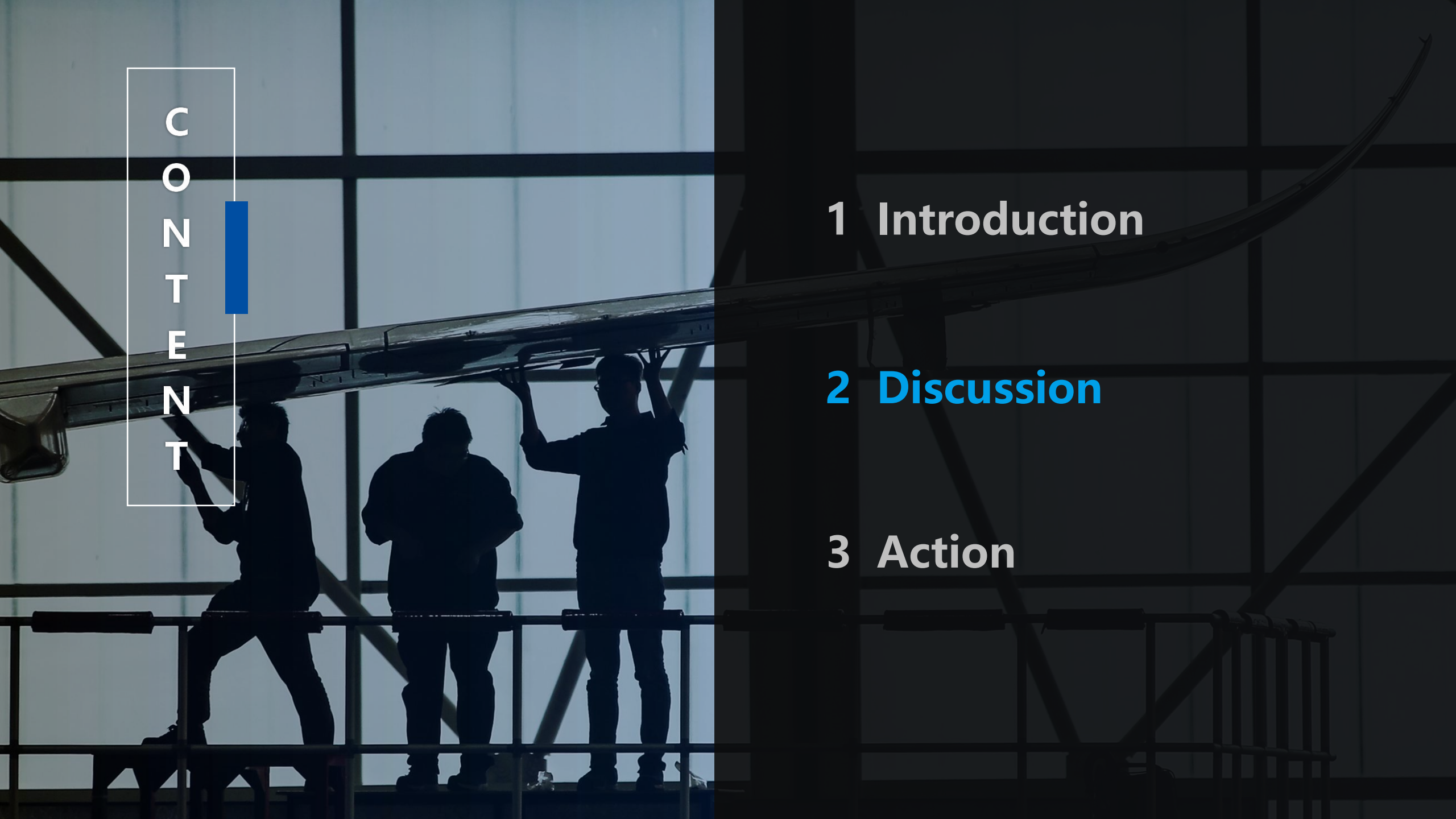
With the steady development of aviation industry, China has started the programs of the main vehicle in implementing large civil aircraft.

Shanghai Aircraft Customer Service Co.,Ltd

The customer service center of COMAC, responsible for implementatio n of full life customer service for aircraft.

Airport and Air Traffic Management Institute (AAI)

- Focus on the activities of aircraft in the airport, researching relevant policies, regulations, standards and new technologies, solving the compatibility issues of aircraft of COMAC in the airport.
- Provide operational support to ensure the safe and smooth operation and good compatibility of aircraft in the airport.



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2.1 ARJ21-700 Key Characteristics for Airport

ICAO CODE: AJ27

- The basic ARJ21-700 has Standard Range Version (STD) and Extended Range Version (ER). More derivative type like cargo aircraft is under developing.
- The Aircraft Reference Code of STD is 3C，and ER is 4C.
- Before the aircraft enter into route, it is necessary to pay attention to the following characteristic data.

2.1 ARJ21-700 Key Characteristics for Airport

2.1.1 Length of Runways

ARJ21-700 has various requirement of length of the runway at different altitudes, with an increasing of 8 to 12 m for every 100 ft (30.5 m) elevating altitude.

Altitude	Length of Runway (ISA+15℃)		
	Not operational	Payload/Range Restrictions	Operational
0 to 500ft	<1,578m(5,177ft)	1,578 to 2,205m(5,177 to 7,234ft)	≥2,205m(7,234ft)
501 to 1,000ft	<1,618m(5,308ft)	1,618 to 2,264m(5,308 to 7,427ft)	≥2,264m(7,427ft)
1,001 to 1,500ft	<1,653m(5,423ft)	1,653 to 2,320m(5,423 to 7,611ft)	≥2,320m(7,611ft)
1,501 to 2,000ft	<1,695m(5,561ft)	1,695 to 2,384m(5,561 to 7,821ft)	≥2,384m(7,821ft)
2,001 to 2,500ft	<1,739m(5,705ft)	1,739 to 2,446m(5,705 to 8,025 ft)	≥2,446m(8,025 ft)
2,501 to 3,000ft	<1,781m(5,843ft)	1,781 to 2,510m(5,843 to 8,235 ft)	≥2,510m(8,235 ft)
3,001 to 3,500ft	<1,820m(5,971ft)	1,820 to 2,564m(5,971 to 8,412ft)	≥2,564m(8,412ft)

Note: The upper limit of payload/range restrictions depends on 43,500kg (95,901 lb) of ER type maximum takeoff weight, and the lower limit is 37,000kg (81,571 lb), which both with dry smooth runway, zero wind and no slope.

2.1 ARJ21-700 Key Characteristics for Airport

2.1.2 Width of Runways

The standard runway width for ARJ21-700 is 45 m(148 ft).

It has Payload Restrictions from 30 to 45 m.

Not operational	Payload Restrictions	Operational
<30 m (98 ft)	30 to 45m (98 to 148 ft)	≥45m (148 ft)

2.1 ARJ21-700 Key Characteristics for Airport

2.1.3 ACNs for ARJ21-700

ARJ21-700	Flexible pavement				Rigid pavement			
	high	medium	low	ultra low	high	medium	low	ultra low
STD	20	21	24	27	22	23	25	26
ER	22	23	26	30	24	26	27	29

2.1 ARJ21-700 Key Characteristics for Airport

2.1.4 Plateau Performance

Outstanding Plateau Performance

- TO&LD altitude is **14472 ft/4411m**, covering **all high plateau airports** in China
- **More takeoff weight** at typical airports (MTOW at KMG)
- **More payload** on typical routes (KMG-PEK with 90pax and CTU-LXA with over 70pax)

2.1 ARJ21-700 Key Characteristics for Airport

2.1.5 Ground clearance of Passenger and Service Door

- The passenger door height of the ARJ21-700 in the empty state is 2,385 (-40℃) ~2,461 (15℃) mm above ground, which is 2,254 (forward limit of center of gravity, -40℃) ~2,356 (rear limit of center of gravity, 15℃) mm above the ground in maximum taxiing weight state.

- The service door height of the ARJ21-700 in the empty state is 2,364 (-40℃) ~2,440 (15℃) mm above ground, which is 2,233 (forward limit of center of gravity, -40℃) ~2,341 (rear limit of center of gravity, 15℃) mm above the ground in maximum taxiing weight state.

2.2 Ground Servicing

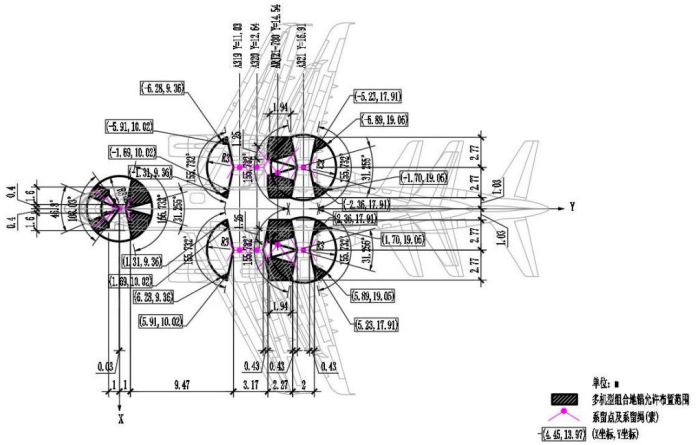
In order to improve the passenger boarding bridge docking rate and APU substitution of ARJ21 for reducing carbon emissions, AAI is devoted to working with equipment manufacturers to develop products with a wider range of application, that can achieve universal use for regional and trunk aircraft. Meanwhile, customized renovation for boarding bridge have been implemented at multiple airports in China.

2.2 Ground Servicing

For establishing the good airport compatibility of ARJ21, AAI assists servicing providers to modify ground support equipment without reducing generality.

- lengthening pipelines of lavatory service vehicle for more abundant operating space.

- developing new catering trucks for more quick and convenient operation.

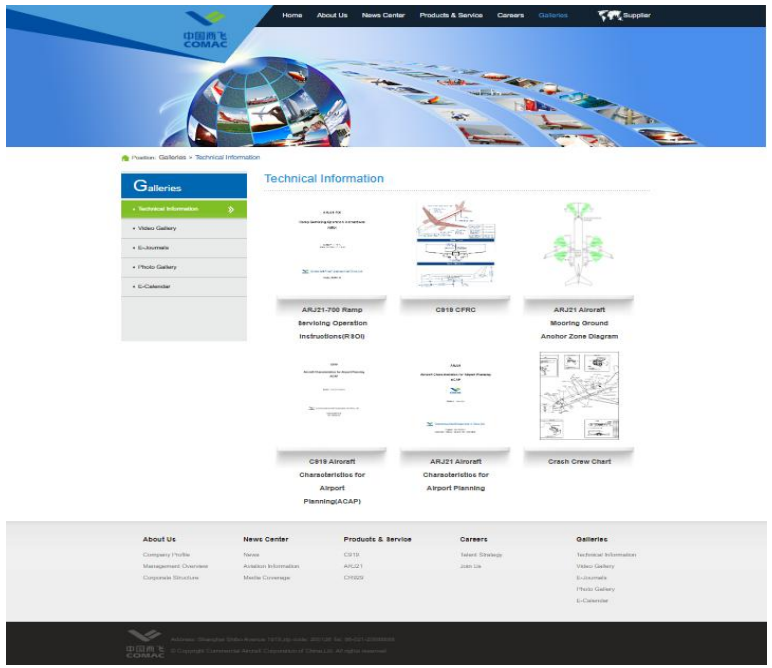


- calculating universal mooring layout for adding adaptive mooring apron.

- growing towbarless trucks with Non-Technical Objection for more towing choice.

2.3 Futher Discussion

Along with the increasing of ARJ21-700 fleet size in certain regions and the world, it is expected that airports can take the operation requirements of ARJ21 into consideration while constructing airports or reconstructing airport facilities and ground support equipment.
More information and characteristics of ARJ21 can be obtained from COMAC website. Web link: http://english.comac.cc/Galleries/Technical/.



- ARJ21 Aircraft Characteristics for Airport Planning
- Crash Crew Chart
- ARJ21-700 Ramp Servicing Operation Instructions (RSOI)
- ARJ21 Aircraft Mooring Ground Anchor Zone Diagram

3 Action

a) Call on airports and related units considering the operating requirement of ARJ21 aircraft during airport design and operation.

b) If ARJ21 expands local routes in APAC, it will be much helpful for aircraft operators to get information on airport service units and ground support equipment. Call on airports and related units providing the information for building a safer and more efficient operation environment to ARJ21.

c) Any requirement and questions on airport compatibility of ARJ21, welcome to send the mail to airport.compatibility@comac.cc.

ARJ21
From basic configuration to Derivative

Business Jet

Cargo

Medical Aircraft

Emergency Aircraft

Fire Fighter

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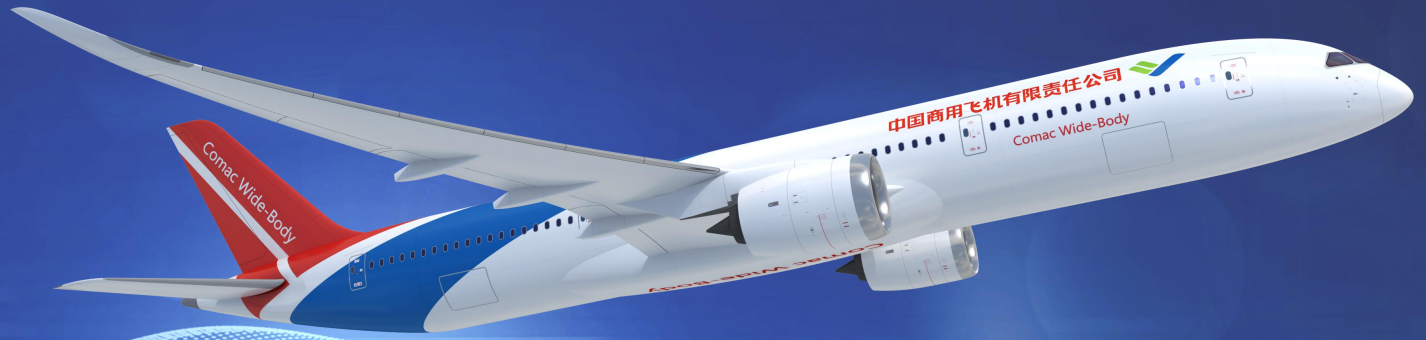
New Trunk Star
C919

New Long Range Wide-Body Worth Expecting



Advanced Technology

Extreme Comfortable

Outstanding Economy

More Eco-friendly


THANK YOU !