

Statistical Bulletin of Civil Aviation Industry Development in 2023

In 2023, under the strong leadership of the CPC Central Committee with Comrade Xi Jinping at its core and following the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, the entire industry fully implemented the guiding principles of the 20th National Congress of the CPC and the Central Economic Work Conference, resolutely implemented the deployment of the Party Central Committee and the State Council, and followed the requirement of grounding efforts in the new development stage, following the new development philosophy, fostering a new development paradigm and striving to achieve high-quality development. CAAC upheld the principle of pursuing progress while ensuring stability, and coordinated operation and safety, recovery and development as well as pandemic prevention and control, achieving solid progress in high-quality development of civil aviation.

I. Transport Aviation

1. Transport Turnover

In 2023, the whole industry recorded a total transport turnover of

118.834 billion ton-km, up 98.3% year-on-year. Domestic routes registered a total transport turnover of 86.733 billion ton-km, up 123.6% year-on-year, including one billion ton-km on Hong Kong, Macao and Taiwan routes, up 334.2% year-on-year. International routes witnessed a transport turnover of 32.101 billion ton-km, up 51.8% year-on-year.

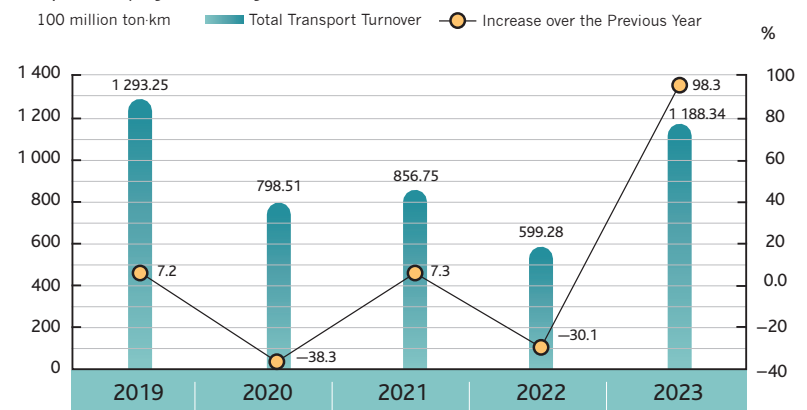


Figure 1 Total transport turnover of civil aviation industry 2019-2023

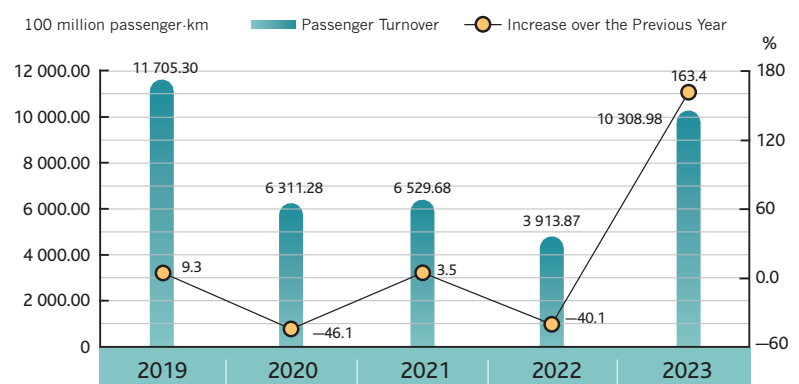


Figure 2 Passenger turnover of civil aviation industry 2019-2023

A passenger turnover of 1.031 trillion passenger-km was registered in the whole industry, up 163.4% year-on-year. The passenger turnover on domestic routes reached 907.946 billion

passenger-km, up 138.6% year-on-year, of which 9.355 billion passenger-km was achieved on Hong Kong, Macao and Taiwan routes, up 1336.2% year-on-year. The passenger turnover on international routes hit 122.952 billion passenger-km, up 1,029.4% year-on-year.

The whole industry registered a cargo and mail turnover of 28.362 billion ton-km, up 11.6% year-on-year. Domestic routes recorded 7.047 billion ton-km, up 34.7% year-on-year, including 184 million ton-km on Hong Kong, Macao and Taiwan routes, a 6.4% increase year-on-year, while international routes saw 21.315 billion ton-km, a 5.6% growth year-on-year.

2. Passenger Traffic

In 2023, the whole industry witnessed passenger traffic of 619.576 million, up 146.1% year-on-year, of which 590.517 million were achieved on domestic routes, up 136.3% year-on-year, including 6.685 million on Hong Kong, Macao and Taiwan routes, up 1 324.7% year-on-year. International routes saw a passenger traffic of 29.059 5 million, up 1 461.7% year-on-year.

3. Cargo and Mail Traffic

In 2023, the whole industry transported 7.354 million tons of cargo and mail, up 21.0% year-on-year. 4.564 million tons of cargo and mail were transported on domestic routes, up 32.8% year-on-year, including 151.2 thousand tons on Hong Kong, Macao and Taiwan routes, up 2.5% year-on-year. International routes saw a cargo and mail traffic of

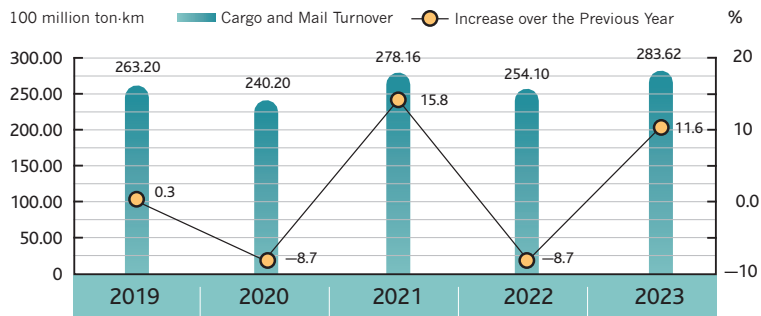


Figure 3 Cargo and mail turnover of civil aviation industry 2019-2023

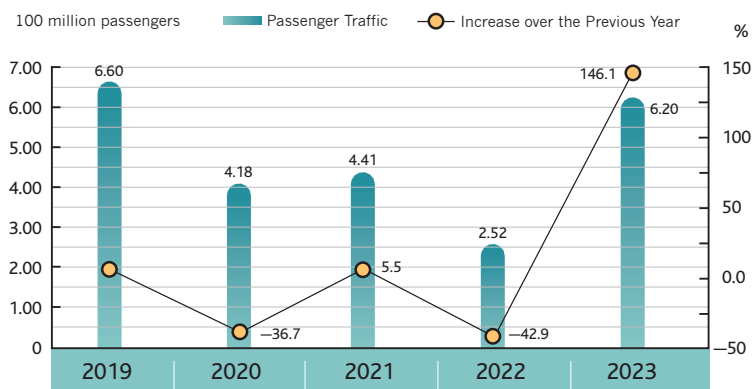


Figure 4 Passenger traffic of civil aviation industry 2019-2023

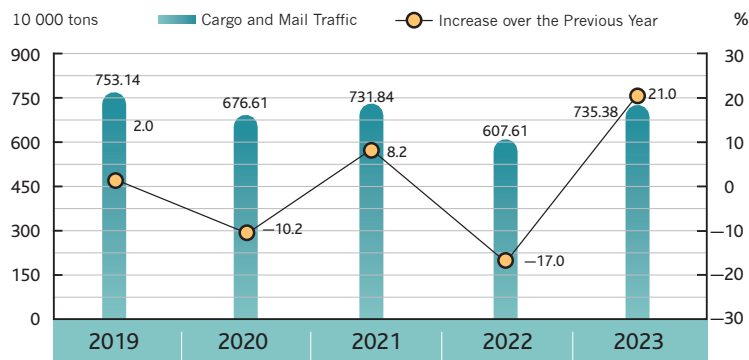


Figure 5 Cargo and mail transported by civil aviation industry 2019-2023

2.79 million tons, up 5.8% year-on-year.

4. Flight Hours and Take-offs

In 2023, transport airlines in the whole industry posted 12.209 million flight hours, up 94.5% year-on-year. 10.928 million flight hours were achieved on domestic routes, up 96.2% year-on-year, including 120.7 thousand flight hours on Hong Kong, Macao and

Taiwan routes, up 475.9% year-on-year. International routes saw 1.281 million flight hours, up 81.3% year-on-year.

In 2023, transport airlines in the whole industry performed a total of 4.922 million aircraft movements, up 91.8% year-on-year. 4.677 million aircraft movements were accomplished on domestic routes, up 89.5% year-on-year, including 51.8 thousand ones on Hong Kong, Macao and Taiwan routes, up 410.6% year-on-year. International routes saw 245.2 thousand aircraft movements, up 149.6% year-on-year.

In 2023, transport airlines in the whole industry registered 36.9 thousand flight hours for non-production purpose, including 12.4 thousand flight hours for training, and performed 53.1 thousand aircraft movements for non-production purpose.

5. Number of Transport Airlines

By the end of 2023, there were a total of 66 transport airlines in China, the same as the end of 2022, including 39 state-owned airlines and 27 private or privately held airlines in terms of ownership. Among all transport airlines, there were 13 all-cargo airlines, 8 joint venture airlines and 7 publicly listed airlines.

6. Transport Aircraft Fleet

By the end of 2023, the civil aviation industry had 4,270 registered transport aircraft, an increase of 105 over that of 2022.

Table 1 Number of transport aircraft in 2023

Aircraft Categories	Number of Aircraft	Increase from 2022	Percentage of Transport Fleet (%)
Total	4,270	105	100.0
Passenger Aircraft	4,013	71	94.0
Including:			
Wide-body Aircraft	473	1	11.1
Narrow-body Aircraft	3,276	51	76.7
Regional Aircraft	264	19	6.2
Freighters	257	34	6.0
Large Freighters	94	16	2.2
Small and Medium Freighters	163	18	3.8

7. Route Network

By the end of 2023, there were 5,206 scheduled routes in China, which included 4,583 domestic routes (including 65 routes connecting the mainland with Hong Kong, Macao and Taiwan) and 623 international routes. The total route distance (including the overlapped distance) was 12.278 million km, or 8.76 million km (excluding the overlapped distance).

Table 2 Number of scheduled routes and mileage in China in 2023

Indicator	Value
Number of Routes	5,206
Domestic Routes	4,583
Including: Hong Kong, Macao and Taiwan Routes	65
International Routes	623
Route Mileage Including Overlapped Distance (10 000 km)	1,227.81
Domestic Routes	919.82
Including: Hong Kong, Macao and Taiwan Routes	10.16
International Routes	308.00
Route Mileage Excluding Overlapped Distance (10 000 km)	875.96
Domestic Routes	591.65
Including: Hong Kong, Macao and Taiwan Routes	10.16
International Routes	284.31

By the end of 2023, 255 domestic cities were served by scheduled flights (excluding Hong Kong, Macao and Taiwan). Chinese airlines operated scheduled international flights



connecting 127 cities in 57 countries. Scheduled flights connecting Hong Kong, Macao and Taiwan respectively from 41, 19 and 21 mainland cities were launched by airlines of the Chinese mainland.

8. Operations of Transport Airlines (Groups)

In 2023, China National Aviation Holding Corporation Limited recorded 2.605 million flight hours, up 106.3% year-on-year. It registered a total transport turnover of 25.515 billion ton-km, up 94.8% year-on-year, completing passenger traffic of 126.429 million, a year-on-year increase of 167.0%, and 1.466 million tons of cargo and mail, a 16.0% growth year-on-year.

China Eastern Airlines Corporation Limited recorded 2.348 million flight hours, up 108.7% year-on-year. It registered a total transport turnover of 22.842 billion ton-km, up 104.6% year-on-year, completing passenger traffic of 115.615 million and 1.445 million tons of cargo and mail, a year-on-year increase of 172.0% and 26.4% respectively.

China Southern Air Holding Company recorded 2.842 million flight hours, up 82.6% year-on-year. It registered a total transport turnover of 29.792 billion ton-km, up 81.9% year-on-year, completing passenger traffic of 142.201 million and 1.585 million tons of cargo and mail, a respective year-on-year increase of 127.0% and 19.5%.

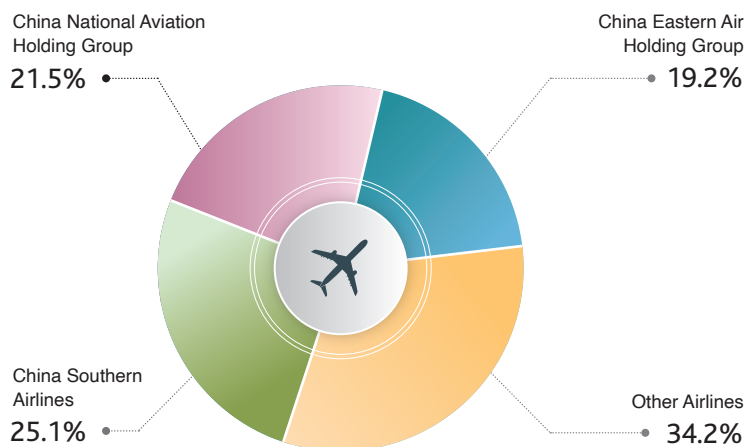


Figure 6 Share of total transport turnover by airlines (groups) in 2023

In 2023, other airlines except the above three groups recorded a total of 4.415 million flight hours, up 89.3% year-on-year, registering a total transport turnover of 40.685 billion ton-km, up 111% year-on-year, with passenger traffic of 235.331 million, up 137.2% year-on-year, and 2.858 million tons of cargo and mail, up 22.0% year-on-year.

9. Major Air Transportation Tasks

In 2023, in order to meet needs of relevant entities and ministries, CAAC carried out such major transportation tasks as transporting disaster relief supplies, and organized 459 flights operated by 15 airlines, which transported 110 thousand persons and 171 tons of materials.

10. Transport Airports

By the end of 2023, there were 259 transport airports in China (excluding the ones in Hong Kong, Macao and Taiwan), a net increase of 5 from 2022. Newly built airports in 2023 included Xiangxi Biancheng Airport (Hunan), Anyang Hongqiqu Airport (Henan), Langzhong Gucheng Airport (Sichuan), Shuozhou Zirun Airport (Shanxi) and Nagri Pulan Airport (Xizang Autonomous Region). In 2023, Jining Qufu Airport was relocated and changed its name to Jining Da'an Airport.

Classified by airfield class, among all certified airports, 15 were 4F, 39 were 4E, 37 were 4D, 163 were 4C, 4 were 3C and 1 was below 3C.

In 2023, 6 runways, 193 parking

Table 3 Number of certified transport airports by region in 2023

Region	Number of Certified Transport Airports	Percentage of the Total (%)
Nationwide	259	100.0
Including: Northeast Region	56	21.6
East Region	44	17.0
West Region	132	51.0
Central Region	27	10.4

stands and 590 thousand square meters of terminal floorage were newly added. By the end of 2023, transport airports in China had 289 runways, 7,508 parking stands and 18.579 million square meters of terminal floorage.

11. Traffic Handled by Airports

In 2023, the civil transport airports across China handled totally passenger traffic of 1.260 billion, up 142.2% year-on-year.

Specifically, 638 million passengers were handled by airports in the east region, 143 million in the central region, 399 million in the west region, and 81 million in the northeast region, representing a year-on-year increase of 156.8%, 128.8%, 129.6% and 125.6% respectively.

In 2023, civil transport airports across China handled a total of 16.833 million tons of cargo and mail, up 15.8% year-on-year.

Specifically, 12.068 million tons of cargo and mail were handled by airports in the east region, up 12.8%; 1.515 million tons in the central region, up 20.3%; 2.668 million tons in the west region, up 24.0%; and 582.2 thousand tons in the northeast region, up 37.8%.

In 2023, civil transport airports across China saw a total of 11.708 million movements, up 63.7% year-on-year, including 9.81 million movements for commercial flights, a year-on-year increase of 89.0%.

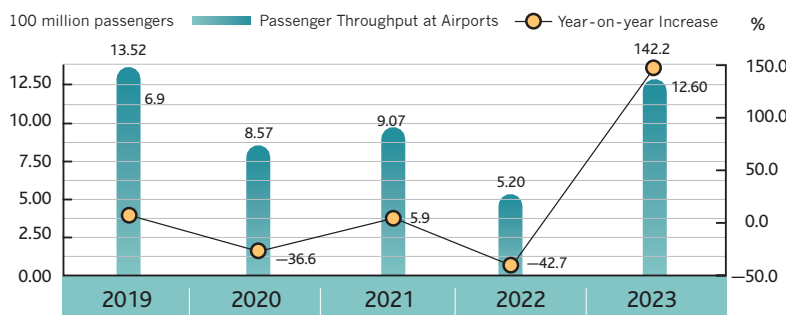


Figure 7 Passenger throughput at civil transport airports 2019-2023

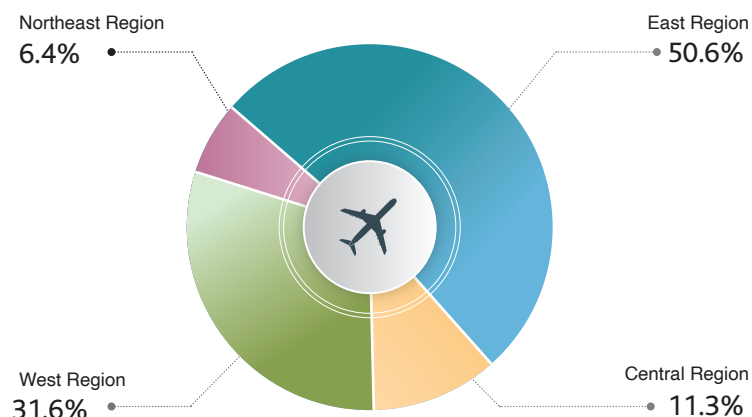


Figure 8 Passenger throughput of civil transport airports by region in 2023

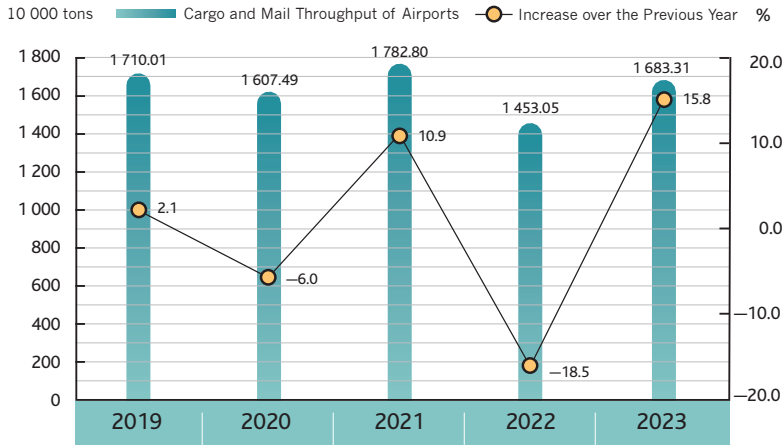


Figure 9 Cargo and mail throughput of civil transport airports 2019-2023

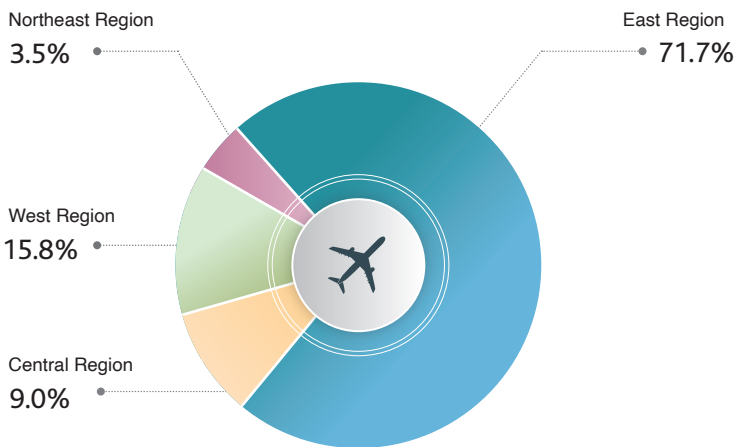


Figure 10 Cargo and mail throughput of civil transport airports by region in 2023

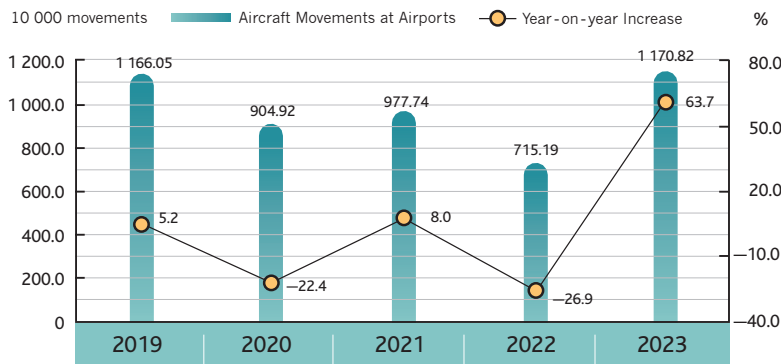


Figure 11 Aircraft movements at civil transport airports 2019-2023

In 2023, there were 38 transport airports with annual passenger throughput of 10 million or above in China. The passenger throughput of airports of Beijing, Shanghai and Guangzhou contributed 20.0% of the total passenger traffic among all airports in China, an increase of 5.0 percentage points from 2022. Specifically, the passenger throughput on international routes of airports in Beijing, Shanghai, and Guangzhou made up for 60.8% of the total among all airports in China, an increase of 10.3 percentage points from the previous year.

In 2023, China had 63 transport airports with annual cargo and mail throughput of 10 thousand tons or above. The cargo and mail traffic handled by airports of Beijing, Shanghai and Guangzhou accounted for 42.7% of the total among all airports in China, a decrease of 0.6 percentage points from 2022.

II. General Aviation

1. General Aviation Enterprises

By the end of 2023, there were 690 traditional certified general aviation enterprises, a net increase of 29 from that by the end of 2022, including 133 located in north China, 49 in northeast China, 187 in east China, 157 in central southern China, 107 in southwest China, 32 in northwest China, and 25 in Xinjiang.

2. Aircraft Fleet

By the end of 2023, there were a total

Table 4 Number of airports by passenger throughput in 2023

Annual Passenger Traffic	Number of Airports	Increase from 2022	Percentage of Total (%)
10 Million or Above	38	20	81.3
2-10 Million	36	6	11.6
Under 2 Million	185	-21	7.0

Table 5 Number of airports by cargo and mail throughput in 2023

Annual Cargo and Mail Traffic	Number of Airports	Increase from 2022	Percentage of Total (%)
100,000 Tons or Above	31	8	91.1
10,000-100,000 Tons	32	4	7.6
Under 10,000 Tons	196	-7	1.3

of 3,303 registered general aviation aircraft, including 1,398 aircraft for training.

3. General Aviation Airports

By the end of 2023, there were a total of 449 general aviation airports, including 163 ones classified as Class A.

4. Flight Hours

In 2023, across the country, the general aviation industry posted 1.371 million flight hours, up 12.4% from a year earlier, including three kinds of profit operations: 28 thousand hours of passenger transport, up 55.1% from 2022; 145 thousand hours of transport except passenger, a year-on-year increase of 34.7%; and 696 thousand hours of other general aviation activities, up 8.3% year-on-year; and 501 thousand hours of non-profit operations, a year-on-year increase of 11.2%.

5. Unmanned Air Vehicle

By the end of 2023, there were 19,825 entities carrying out UAV operation certified as general aviation enterprises, a net increase of 4,695 from that by the end of 2022, including 2,752 in north China, 1,723 in northeast China, 7,001 in east China, 3,839 in central southern China, 2,317 in southwest China, 1,531 in northwest China, and 662 in Xinjiang.

By the end of 2023, there were 929 thousand registered unmanned aircraft users, including 849 thousand individual users and 80 thousand entity users, such as enterprises, public institutions and government entities, with the number of registered unmanned aircraft totaling 1.267 million, an increase of 32.2% from that by the end of 2022.

By the end of 2023, there were 194,400 valid UAV pilot licenses across the general aviation industry, up 27.2% from that by the end of 2022.

In 2023, a total of 23.11 million flight hours operated by UAV, up 11.8% year-on-year.

III. Transport Efficiency and Financial Performance

1. Transport Efficiency

In 2023, the industry-wide average daily utilization of registered transport aircraft stood at 8.12 hours, up by 3.77 hours from 2022. Specifically, the average daily utilization of medium and large aircraft as well as small ones was 8.33 hours and 4.46 hours, up by 3.86 hours and 2.30 from a year earlier respectively.

In 2023, the passenger load factor of scheduled flights averaged 77.9%, up by 11.3 percentage points from 2022.

In 2023, the cargo load factor of scheduled flights averaged 67.7%, a 2.7 percentage points increase year-on-year.



Table 6 Passenger load factor and cargo load factor of scheduled flights in 2023

Indicator	Value (%)	Increase from 2022 (Percentage Points)
Passenger Load Factor of Scheduled Flights	77.9	11.3
Domestic Routes	78.8	11.9
Including: Hong Kong, Macao and Taiwan Air Routes	71.4	25.1
International Routes	71.8	14.2
Cargo Load Factor of Scheduled Flights	67.7	2.7
Domestic Routes	67.5	5.1
Including: Hong Kong, Macao and Taiwan Air Routes	55.9	1.1
International Routes	68.3	-5.8

2. Financial Performance

According to preliminary statistics, in 2023, the whole civil aviation industry witnessed the business revenue of 1.0237 trillion yuan, up by 68.3% from 2022 and the loss of 21.07 billion yuan, up by 190.74 billion yuan from a year earlier. Specifically, airlines made 676.1 billion yuan in business revenue, up by 106.4% from a year earlier, and 5.88 billion yuan in loss, down by 164.4 billion yuan from 2022; airports made 101.98 billion yuan in business revenue, up by 71.1% from 2022, and 19.89 billion yuan in loss, down by 29.04 billion yuan from 2022; and supporting enterprises made 245.65 billion yuan in business revenue, up by 11.0%, and 4.70 billion yuan in profit, down by 2.69 billion yuan from a year earlier.

According to preliminary statistics, in 2023, across the whole industry, the revenue was 5.20 yuan per ton-km, up by 0.24 yuan from the previous year. Passenger revenue per ton-km was 6.15 yuan, down by 0.07 yuan from 2022; and cargo and mail revenue was 2.20 yuan per ton-km, down by 1.11 yuan from 2022.

According to preliminary statistics, in 2023, tax payment paid by

the whole civil aviation industry stood at 40.7 billion yuan, up by 11.3 billion yuan from 2022.

IV. Aviation Safety and Service Quality

1. Aviation Safety

In 2023, the civil aviation industry achieved safe operation which remained stable and controllable, with the 10-year rolling value of the major transport accident rate per million movements standing at 0.0249, and the value of accidents per 10,000 movements in general aviation standing at 0.0358.

2023 saw 556 transport aviation incidents, including 4 severe incidents and 9 incidents attributable to human factors. In 2023, a total of 5 transport airlines experienced human factors induced incidents.

In 2023, the value of severe incidents per 10,000 flight hours was 0.0033 in transport aviation, down 31.5% year-on-year. All safety-related indicators fell within the target ranges set for the year.

2. Aviation Security

By the end of 2023, there were 74,635 security screeners and guardians across the whole civil aviation industry, up by 1,498 from 2022.

In 2023, the security entities across the country handled 600 million security checks for passengers, 270 million checked baggage, 618 million air

cargoes (excluding mail and express deliveries), and 252 million mail and express deliveries. In addition, these entities dealt with 69 cases involving in the spread of the false information endangering aviation security and operation order, and addressed 13,684 security incidents, effectively ensuring sustained aviation security. By the end of 2023, 259 consecutive months of aviation security had been achieved.

3. Flight Regularity

In 2023, passenger airlines in China operated 4.672 million flights in total, among which 4.102 million flights operated punctually, with an average flight regularity rate of 87.80%.

In 2023, major airlines operated 3.538 1 million flights in total, among which 3.104 1 million flights operated punctually, with an average flight regularity rate of 87.73%.

In 2023, the average delay of passenger flights in China was 10 minutes, 6 minutes longer than the previous year.

4. Service Quality

By the end of 2023, 257 airports had implemented paperless travel process, and airports with an annual passenger traffic of 10 million or above had been able to provide 100% paperless travel services. The rate of tracking domestic luggage during the whole process was 77.5%. In 2023, the entire industry provided convenient services to over 19 million passengers who travelled by air for the first time.

Table 7 Flight irregularity by causes in 2023

Item	% of the Total	Increase from 2022 (%)
Causes of Flight Irregularity for All Airlines	100.00	0.00
Including: Weather	60.42	-6.73
Airlines	14.68	3.63
ATC(Including Air Traffic Flow)	0.05	-0.01
Others	24.86	3.11
Causes of Flight Irregularity for Major Airlines	100.00	0.00
Including: Weather	59.97	-7.24
Airlines	15.62	4.57
ATC (Including Air Traffic Flow)	0.05	0.00
Others	24.36	2.66

By the end of 2023, the Through Flight Service Management Platform had incorporated 38 airlines, 170 airports, 246 service support entities and 5 network platforms for air ticket sales, included a total of 13,518 through flights and newly added 1 441 city pairs, making the proportion of domestic airline network connectivity increase 23%. 232 airports had joined the Civil Aviation Transfer Passenger Service Platform, with 518 thousand registered passengers on its mini-program.

In 2023, 41 airports with an annual passenger traffic of 10 million or above launched an “easy screening” service, with 4.022 million passengers using the service. 9.411 million appointments for the service were made throughout the year, and the average of screening time was 2.56 minutes, saving 44.71% of screening time compared with traditional one.

In 2023, the Consumer Affairs Center of CAAC handled 302,700 complaints about passenger services, and the



rate of the complaints responded by domestic airlines reached 100%.

V. Education and Technological Innovation

1. Education

In 2023, the universities and colleges affiliated to CAAC enrolled a total of 22,685 students, including 1,842 postgraduates, 20,739 undergraduates and junior college students, and 104 continuing education students. In addition, 2,600 flight students were enrolled.

In 2023, there were 83,952 registered students at universities and colleges affiliated to CAAC, including 4,939 postgraduates, 78,001 undergraduates and junior college students, and 1,012 continuing education students.

In 2023, a total of 20,140 students graduated from universities and colleges affiliated to CAAC, including 1,329 postgraduates, 18,154 undergraduates and junior college students, and 657 continuing education students.

2. Scientific and Technological Innovation

In 2023, 5 major projects supported by the National Key R&D Program and 18 key programs financed by the Civil Aviation Joint Research Fund under the National Natural Science Foundation of China (NSFC) were approved.

In 2023, a total of 71 scientific and

technological achievements in civil aviation sector went through evaluation, and 44 projects were awarded the CATA Technological Innovation Award.

3. New Navigation Technologies

By the end of 2023, 36 airlines in the industry implemented HUD operation, 1,492 transport aircraft were equipped with HUD, and most airports supported HUD operation, of which 119 airports backed HUD Special Category I, 23 ones HUD Special Category II, and 17 ones HUD RVR 150.

252 transport airports were capable of operating PBN flight procedures, of which 34 airports with complex terrain and airspace constraints implemented RNP AR procedures. In addition, 4,087 transport aircraft were equipped with ADS-B (OUT) system, and 56 airlines were utilizing EFB.

VI. Professionals

1. Number of Pilots

By the end of 2023, there were 61,480 pilots and 86,520 flight attendants in China's transport airlines, 3,626 and 1,827 more than that of 2022 respectively.

By the end of 2023, there were a total of 86,091 valid pilot licenses in China's civil aviation industry, a net increase of 4,661 from that by the end of 2022, including 2,514

Table 8 Statistics of civil aviation pilot licenses of China by type in 2023

Type of License	Number	Year-on-year Increase
Sport Pilot License (SPL)	2,514	580
Private Pilot License (PPL)	5,317	106
Commercial Pilot License (CPL)	48,580	2,685
Multi-crew Pilot License (MPL)	158	-18
Airline Transport Pilot License (ATPL)	29,522	1,308
Total	86,091	4,661

Sports Pilot Licenses (SPLs), 5,317 Private Pilot Licenses (PPLs), 48,580 Commercial Pilot Licenses (CPLs), 158 Multi-crew Pilot Licenses (MPLs) and 29,522 Airline Transport Pilot Licenses (ATPLs). There were 73 valid flight engineer licenses in China's civil aviation industry.

2. Other Professionals

By the end of 2023, there were 77,021 licensed aircraft maintenance staff and 11,753 licensed flight dispatchers in the industry, 8,029 and 497 more than that of 2022 respectively.

By the end of 2023, there were a total of 38,921 ATM professionals in 4 categories, 2,156 more than those of 2022, including 18,078 air traffic controllers, an increase of 1,059 over the previous year.

VII. Foreign Relations

In 2023, China had bilateral air service talks or written consultations with 13 countries or regions. By the end of 2023, 131 bilateral air service agreements between China and other countries or regions had been signed, up 2 from that by the end of 2022 (one with the Solomon Islands and the other with Bolivia), including 44 of Asia (including ASEAN), 27 of Africa, 38 of Europe (including European Union), 14 of the Americas and 8 of Oceania.

By the end of 2023, 32 countries or regions had established bilateral

airworthiness relations with China, with a total of 194 valid bilateral airworthiness documents currently.

VIII. Airworthiness Certification

In 2023, the entire industry saw 473 new aircraft complete the nationality registration, including 165 newly registered commercial aircraft and 308 general aircraft.

In 2023, the airworthiness certification departments in civil aviation issued a total of 191 design approvals, 44 production approvals and 18 approvals for aviation fuel and chemical products.

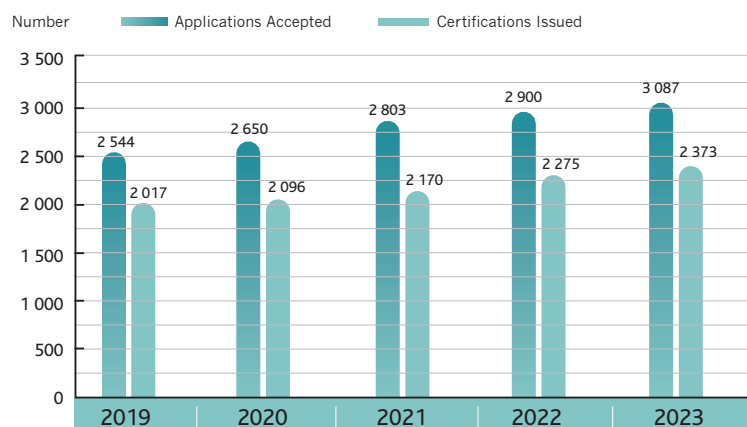


Figure 12 Number of type certification and validation of type certification 2019-2023

In 2023, one mandatory national standard in the field of civil aviation was approved and issued, or Portable Aviation Child Restraint Device, and a total of 30 industry standards were issued throughout the year.

As of the end of 2023, in total, there are 37 national standards for civil aviation (2 mandatory ones and 35 recommended ones) and 297 industry standards that are currently effective.

IX. Investment in Fixed Assets

In 2023, a total investment in fixed assets reached 193.326

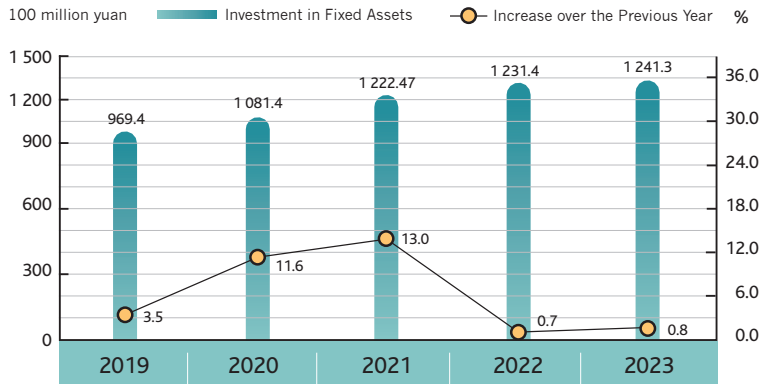


Figure 13 Investment in civil aviation infrastructure development and technological upgrading 2019-2023

billion yuan in civil aviation, including 124.13 billion yuan in civil aviation infrastructure development and technological upgrading, up 0.8% year-on-year.

X. Green Development

In 2023, the fuel consumed per ton-km in China's civil aviation industry was 0.292 kg, down by 14.3% from 2005 (the baseline year for energy conservation and emissions reduction in the industry). The energy consumption and the carbon dioxide emission per passenger for airports experienced a decrease of 38.4% and 60.5% respectively compared with the baseline (the average of three years from 2013 to 2015).

In 2023, 1.466 million flights used temporary routes, cutting the flight distance by 41.958 million km, saving 219 thousand tons of fuel and reducing carbon dioxide emissions by 689 thousand tons.

By the end of 2023, the airports had 12,790 electric vehicles that be used only inside the airports, accounting for 26.4% of the total vehicles, and 5,802 recharging facilities. Since the inception of the Blue Sky Protection Campaign in 2018, the industry completed 162 projects with a total investment of 3.827 billion yuan, saved approximately 1.64 million tons of aviation fuels, equivalent to a reduction of 5.17 million tons of CO₂ emissions, as well as reduced 20,000 tons of various kinds of air pollutants.

In 2023, the use of clean energy at airports remained at a high level, with electricity, natural gas and thermal power accounting for 89.0%, and clean energy such as solar energy and geothermal energy accounting for 1.0% of the total energy consumption.

XI. Legal and Credit System Development

In 2023, 1 administrative regulation was completed and issued (the Interim Regulation on the Administration of the Flight of Unmanned Aircraft), and 2 rules were revised or abolished (the Administrative Rules on Simultaneous Approaches to Parallel Instrument Runways revised and the Administrative Rules on Joint Restructuring and Restructuring of Civil Aviation Enterprises and Airports abolished).

In 2023, there were a total of 273 cases involving administrative punishments; according to the Civil Aviation Industry Credit Management Measures, 2 organizations and 8 natural persons were included in the CAAC Credit Information Record.

XII. The Trade Union

In 2023, 4 entities were awarded the national May 1st Labor Certificate, 8 individuals the national May 1st Labor Medal and 15 groups the honorary title of the Vanguard of National Workers. ■