*International Civil Aviation Organization*

**Thirteenth Meeting of the FANS Interoperability Team – Asia (FIT–Asia/13)**

Bangkok, Thailand, 06 – 09 June 2023

**Agenda Item 4: Review of ADS-C/CPDLC Operations and Performance**

# CHINA AERO SAFETY PROGRAM PROGRESS REPORT

(Presented by CHINA RMA)

**SUMMARY**

This paper introduces the result of the tests on the upgraded communication capability supported by ADCC, CTTIC, and Inmarsat, where analysis is given to proves its compliance of performance against the RCP/240 and RSP/180 specifications.

## 1. INTRODUCTION

1.1 Regulations have been published by China to stress the communications performance, stability, and security. Since 2021, Air China and Sichuan Airlines have collaborated to conduct round-trip flights to test a newly upgraded satellite communication network, the China Aero Safety Program (CASP). The test results reveal that its performance meets the ICAO requirements by providing high levels of dependability.

## 2. DISCUSSION

Background

2.1 To secure higher levels of performance and stability of communication, China is encouraging the industry to upgrade its service for safety and information security. These requirements were introduced in 2017 through a road map which outlined future for the improvements. Besides security wise requirements, the timeline expects an overall improvement in the aircraft tracking capabilities by the end of 2025. Relevant government entities have also been following the road map by issuing regulations and laws on satcom, data and cyber security in the last few years.

2.2 Conforming to the requirements, actions are taken by Aviation Data Communication Corporation (ADCC) and China Transport Telecommunications & Information Center (CTTIC) to improve the communication safety capability of their contracted aircraft. A symbolic project for the collaboration of the two entities is the CASP, which aims at providing safety and secured cockpit communication service. By now, the joint tests with Inmarsat for both the ground system and the airborne terminal static trial have seen successful results, soon after the completion of the construction.

Trial Information

2.3 An A330 (A330-300) was chosen for the tests, where it switched its original Collins Satcom data link service to ADCC. During the test, from March 10th to May 8th, 2023, 47 flights, 15 international and 32 domestic, were taken for analysis. International flights were conducted ranging from Chengdu to Melbourne, Chengdu to Cairo, Chengdu to Moscow, Chengdu to Suvarnabhumi,

encompassing the air space of Oceana, Europe, & South East Asia. 62% of all Satcom messages were transmitted through ADCC service.

2.4 The round trips between Beijing to Melbourne provides most of the international flight samples, where satellite data links connect local ATC terminals for FANS data exchange. 369 ADS-C data counts were collected for RSP180 assessment, while 82 CPDLC data counts through SATCOM were gathered for that of RCP240. Both results were evaluated against the RSP180 and RCP240 specifications required by the PBCS Manual, proving that the actual technical performance exceeded the 95% and 99.9% threshold, reaching 100%.

| Specification | RSP180 | | | |
|---|---|---|---|---|
| Control Terminal | Message Count | Average Time | 95% %<=90sec | 99.9% %<=180sec |
| BNECAYA | 304 | 20.44 | 100 | 100 |
| UPGCAYA | 236 | 14.88 | 100 | 100 |
| MELCAYA | 128 | 15.83 | 100 | 100 |
| RPHIAYA | 104 | 24.50 | 100 | 100 |
| LHWGWYA | 6 | 15.67 | 100 | 100 |
| URCGWYA | 4 | 11.25 | 100 | 100 |
| Overall | **782** | **18.46** | **100** | **100** |

**Table 1**: ADS-C transmission results against RSP/180

| Specification | RCP240 | | | |
|---|---|---|---|---|
| Control Terminal | Message Count | Average Time | 95% %<=120sec | 99.9% %<=150sec |
| UPGCAYA | 166 | 11.55 | 100 | 100 |
| BNECAYA | 40 | 10.40 | 100 | 100 |
| MELCAYA | 40 | 10.55 | 100 | 100 |
| RPHIAYA | 6 | 31.33 | 100 | 100 |
| Overall | **252** | **11.68** | **100** | **100** |

**Table 2**: CPDLC transmission results against RCP/240

Conclusion

2.5 Upon completion of the test, which proves the dependability of the specialized aeronautics security satellite system, marks the final milestone of CASP development, justifying its technical readiness.

2.6 China is informed that more tests have been planned by both DPs of Inmarsat, namely ADCC and CTTIC, for operational verification after such completion of trial, and will properly keep track of its progress in the future.

## 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.

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