International Civil Aviation Organization

Fifth Meeting of the Surveillance Implementation Coordination Group (SURICG/5)

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Agenda Item 3: Review of regional requirements for Surveillance in the e-ANP, Seamless ANS Plan and the reported implementation status

THE SAC SIC CODE ALLOCATION MANAGEMENT AND USING IN CHINA

(Presented by China)

SUMMARY

This paper mainly introduces the allocation management and using of SAC SIC code in China.

1. Introduction

This paper mainly introduces the allocation management and using of SAC SIC code in China.

2. Overview of SAC SIC code

2.1 The identification information of the surveillance data source is mainly used to distinguish the source of various types of surveillance source information. The surveillance data source identification code is composed of two fixed 8-bit data items, which are SAC code (source area code) and SIC code (source identification code).

2.2 China's SAC code has been determined by the International Civil Aviation Organization as 22 (decimal)/16 (hexadecimal). The SIC code is composed of 8 binary numbers with a range of 0-255 (decimal), a total of 256 identifiers.

3. SAC SIC code application range

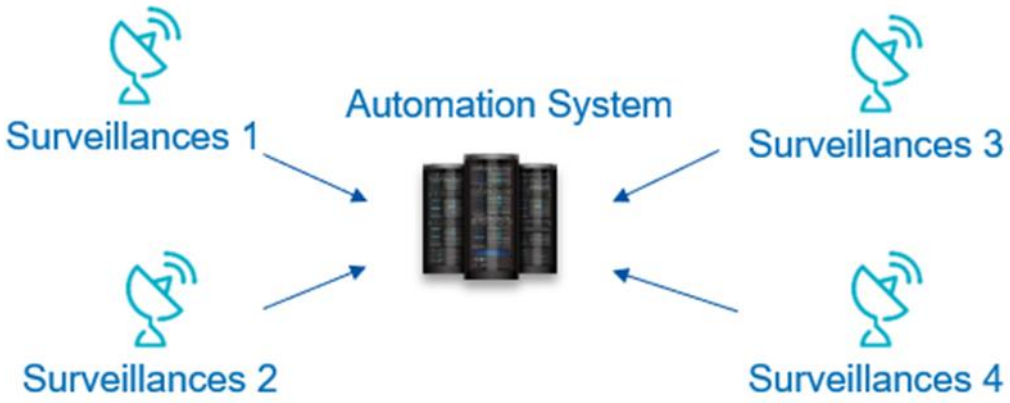
3.1 The standard configuration application of SAC and SIC codes can locate the source of surveillance data in the first time. When multiple surveillance sources are connected to a certain set of ATM Automation Systems, we can quickly ensure the source of the problem through SAC SIC code.

3.2 At present, China has formulated relevant standards to apply SAC and SIC codes. Its main scope is Radar, ADS-B ground station, MLAT system and other surveillance information detection systems, as well as ADS-B data center/station, ATM Automation System, etc.

3.3 Follows are use the Radar and ATM Automation System as examples to illustrate the application of SIC:

1) Before the newly-built Radar, ADS-B ground station and MLAT system are ready to put into operation, we will configure or adjust the offline parameters of the surveillance processing module in the ATM Automation System according to the SIC code information set by the surveillance source.

2) As shown in the figure, if the data source identification codes of the 4 radars are (22, 1), (22, 2), (22, 3), (22, 4), then the monitoring data processing in the ATM Automation System The offline parameters of the module must be matched with the identification codes of the 4 radars, so that the ATM Automation System can identify the source of the surveillance source data.



3) If the radar data source identification code does not match the parameters set by the ATM Automation System surveillance data processing module, the log record of the ATM Automation System will prompt "invalid data source", and the surveillance source information cannot be identified and processed, so it is failed.

4) If the SIC identification codes of two radars are the same (normally there is no such situation), the ATM Automation System will consider the two radars to be one radar, which will not affect the surveillance data processing, but it will increase the difficulty of the investigation of system failures and problems.

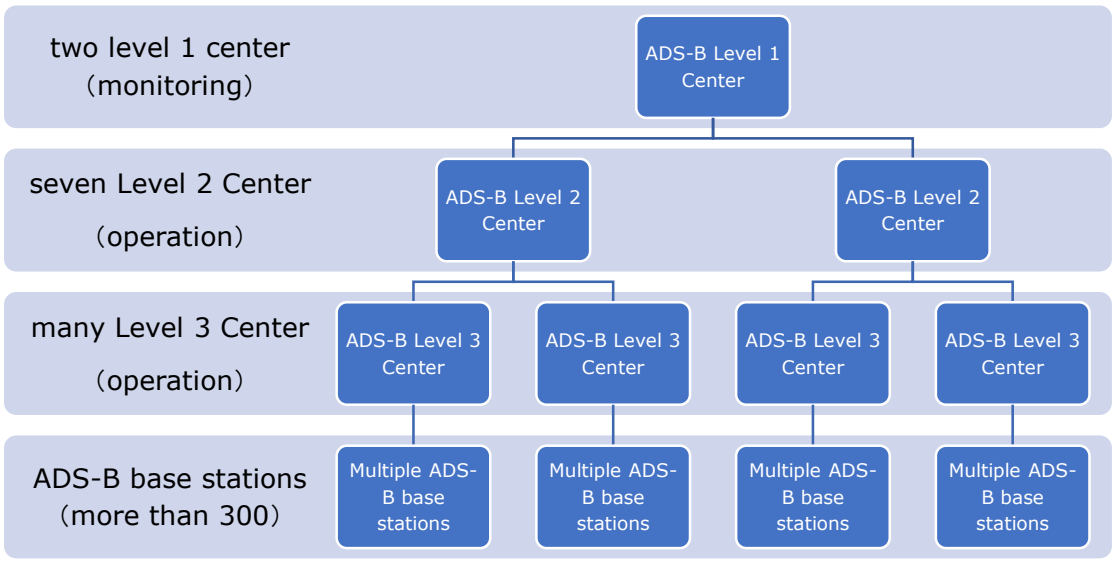
4. SAC SIC allocation management and multiple application

4.1 Now, CAAC ATMB has about 140 sets Radars, more than 300 sets ADS-B ground stations, and about 20 sets MLAT; And more than 40 sets ADS-B data processing center/data station, 90 sets air traffic control ATM Automation System.

4.2 In view of such huge surveillance data identification code configuration requirements and the limited SIC identification code resources, CAAC ATMB has multiplexed SIC codes according to different air traffic control application systems and the network structure of surveillance data sources.

4.3 And take the radar equipment, ADS-B ground station connected to the ADS-B data processing center/data station and the ATM Automation System as an example to introduce the SIC identification code multiplexing scheme.

1) China's ADS-B system architecture, as shown in the figure below



2) In order to ensure the smooth and normal operation of the integration of radar and ADS-B in the ATM Automation System, all ADS-B ground station data is filtered, optimized, and fused through the ADS-B data center/data station and then connected into the ATM Automation System.

3) ADS-B data center/data station is the integrated ADS-B track data after fusion processing, connect to the ATM Automation System with radar data respectively for operation; In fact, each ADS-B data center/ data station can be simply regarded as a radar.

4) Therefore, ADS-B data center/data station and radar equipment share China's 256 SICs identification code resources for unified allocation and management.

5) Since the ADS-B ground station is not directly connected to the ATM Automation System, the ADS-B ground station SIC identification code is used in the ADS-B data center/data station system, so it reuses code resources and also enjoys 256 SICs identification code resources in China.

6) In addition, from the perspective of the number of radar equipment and the geographic location of the construction, in order to ensure that up-building radar equipment has the corresponding SIC identification code for distribution, China has also planned to multiplex SICs identification code in the ATM Automation Systems based on the geographic location of China's radar construction.to make sure that when a radar is connected to the ATM Automation System in an adjacent control area, it does not have the same SIC parameters as the other surveillance equipment set in the system.

5. Problems and Suggestions for SAC SIC Allocation

5.1 With China MLAT system, Tower Integrated Automation System, and National Air Traffic Flow Management System and other equipment are put into operation. In the future, 256 SIC codes do not meet the operational needs of China's air traffic control equipment operation.

5.2 It is recommended that ICAO can redistribute more SAC codes to increase the available resources of China SAC_ SIC codes.

5.3 It is estimated that according to the principle of China future system allocation, better to use about 5 SAC codes (not counting the current SAC 22) to distinguish the different types of surveillance source information, to ensure the stable ATC operation in China.

6. ACTION BY THE MEETING

The paper is invited to

a) Note the information contained in this paper, and

b) Discuss any relevant matters as appropriate.

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