

**57<sup>th</sup> CONFERENCE OF  
DIRECTORS GENERAL OF CIVIL AVIATION  
ASIA AND PACIFIC REGIONS**

*Incheon, Republic of Korea  
4 – 8 July 2022*

**AGENDA ITEM 4: AIR NAVIGATION**

**NEED FOR PROPER GUIDANCE TO ESTABLISH AND  
UPGRADE THE ATS AIRSPACE CLASSIFICATION**

Presented by Nepal

**INFORMATION PAPER**

**SUMMARY**

At present, ICAO Annex 11 and Air Traffic Services Planning Manual (Doc 9426) have some provisions concerning airspace matter. However, these documents do not provide clear-cut guidance for the establishment or upgradation of ATS airspace classification.

This paper presents the need of necessary updates in the existing ICAO documents that guide the States to establish or upgrade the ATS airspace class taking into account all necessary CNS/ATM and other factors, and hence, seeks ICAO's needful initiatives in this regard.

## **NEED FOR PROPER GUIDANCE TO ESTABLISH AND UPGRADE THE ATS AIRSPACE CLASSIFICATION**

### **1. INTRODUCTION**

1.1 Annex 11- Air Traffic Services was adopted by the ICAO Council in 1950 which pertains to the establishment of airspace, units, and services necessary to promote a safe, orderly and expeditious flow of air traffic, including the classification of airspace, and the provision of classification of airspace has been adopted in the annex since 1999. The last version of the annex has been appeared as 15th Ed. in 2018 with 52nd AMDT in 2021.

1.2 Similarly, ATS Planning Manual, Doc 9426 was developed by the Secretariat in 1984 which was aimed at providing guidance for the planning and implementation of the ATS System, including that for airspace organization. The last version of the manual appeared as 1st Ed., 5thAMDT almost 30 years back in December 1992.

1.3 However, clear-cut guidance for the progressive development of ATS airspace classes is missing in both the documents, especially with regard to the considerations for technological advancement in navigation and surveillance systems.

### **2. DISCUSSION**

2.1 Annex 11 and Doc 9426 provide some useful information and guidance about the airspace class and airspace organization, but they do not provide concise and easy-to-implement guidance for the establishment and upgradation of ATS airspace class based on the available or necessary infrastructures.

2.2 Appendix 4 to the Annex 11 only considers ‘Type of flight’, ‘Separation provided’, ‘Service provided’, ‘Speed limitation’, ‘Radio communication requirement’, and ‘ATC clearance’ as the factors for establishing or identifying ATS airspace class from Class G to Class A.

2.3 Other factors such as navigation and surveillance infrastructures that could contribute to the effective operation of airspace seemed overlooked.

2.4 Navigation and surveillance systems play significant roles in the safety and efficiency of airspace operations, and they are the enablers of the airspace concept too. Such systems are the main supports for ATCOs to ensure the applicable separation in airspace classes as determined in the Annex. As such, the requirements for navigation and surveillance should also be taken into consideration while establishing or upgrading the airspace class. However, this aspect is missing in the Annex.

2.5 Lack of clear-cut guidance is leading the States like Nepal in a state of confusion or dilemma to establish and upgrade their ATS airspace class using their subjective judgment. So, there is a lack of harmonization in the process of airspace classification which may lead to over- or under-classification of the airspace.

2.6 As such, despite what it is mentioned in the Annex 11, it is better if there could be some additional guidance for the States to enhance and harmonize the process of progressive development of the airspace classes. Such additional guidance should contain, including the others, the following aspects:

- a) Navigation and surveillance requirements for airspace classification. It seems logical that the last two columns as suggested below are to be incorporated in the table of Appendix 4 to the Annex 11,

**Appendix 4 to the Annex 11**

Class	Type of flight	Separation provided	Service provided	Speed limitation	RAD COM requirement	ATC CLR	NAV requirement	SUR requirement

Details of which are given below with necessary justification:

Class	Navigation Requirement	Surveillance Requirement	Justification
A	Yes, with redundant NAV coverage	Yes	Being the most restrictive airspace class, it is logical to facilitate the airspace by NAV (redundancy) and SUR systems so as to ensure the safe operation of only IFR flights within the airspace concerned.
B	Yes, with redundant NAV coverage	Yes	As both IFR and VFR traffics are allowed and separation is required between all traffic, it is logical to have NAV (redundancy) and SUR systems within the airspace concerned.
C	Yes	Yes	As IFR flight is to be separated from IFR and VFR, and VFR/VFR traffic avoidance advice, it is logical to facilitate the airspace by NAV and SUR systems.
D	Yes	Yes, if practicable	As separation is required between IFR/IFR only and traffic avoidance advice for VFR/VFR on request, it is logical to facilitate the airspace by NAV system, and SUR systems, if practicable.
E	Yes, if practicable	No	As separation is required between IFR/IFR only and other restrictions are very limited, it is logical to facilitate the airspace by NAV if practicable, SUR not mandated.
F	No	No	As having less restrictions in the airspace class and separation is not mandatory even for IFR/IFR traffic, NAV and SUR are not proposed mandatory in the airspace.
G	No	No	As being least restrictive airspace class, and IFR and VFR traffic require just FIS, NAV and SUR are not proposed mandatory in the airspace.

b) Other aspects that could be considered in the guidance are:

- Volumes and types of traffic operating- real or projected in the particular airspace class.
- Requirements for necessary aircraft equipage such as for GNSS, ADS-B, TCAS, Transponder, etc.
- Requirements for ATS Surveillance Safety Nets.
- Requirements for necessary lateral and/or vertical dimensions of the airspace, as appropriate.
- RPAS and other general aviation activities like paragliding, hang-gliding, ultralights, hot air balloon, etc.
- Other factors as appropriate.

### **3. ACTION BY THE CONFERENCE**

3.1 The Conference is invited to note the information contained in this Paper.

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