

Supporting  
European  
Aviation



# Significant points not marked by the site of a radio navigation aid

## Current European Provisions, Contributions, Examples

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NETWORK  
MANAGER





# ICAO Provisions



## Significant points Definition (Annex 11)

- **Significant point.** A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

*Note.- There are three categories of significant points: ground-based navigation aid, intersection and waypoint. In the context of this definition, intersection is a significant point expressed as radials, bearings and/or distances from ground-based navigation aids.*

## Significant points Establishment (Annex 11)

- Significant points shall be established for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.
- Significant points should, whenever possible, be established with reference to ground-based or space-based radio navigation aids, preferably VHF or higher frequency aids. These significant points are known as “significant points marked by the site of a radio navigation aid”.
- Where such ground-based or space-based radio navigation aids do not exist, significant points shall be established at locations which can be determined by self-contained airborne navigation aids, or, where navigation by visual reference to the ground is to be effected, by visual observation. These significant points are known as “**significant points not marked by the site of a radio navigation aid**”.



## Significant points not marked by the site of a radio navigation aid Identification (Annex 11 / Doc 8168 PANS-OPS)

- Significant points shall be identified by designators.
- Where a significant point is required at a position not marked by the site of a radio navigation aid, and is used for ATC purposes, it shall be designated by a **unique five-letter pronounceable “name-code”**. These significant points are known and abbreviates as 5LNC.
- Waypoints used in support of RNAV SIDs, STARs and instrument approach procedures shall be designated by either a unique, five-letter, pronounceable “name-code” or a **five-alphanumeric name-code** (known and abbreviates as 5ANNC).

## Significant points not marked by the site of a radio navigation aid 5LNCs designation (Annex 11)



- States' requirements for unique five-letter pronounceable name-code designators shall be notified to the Regional Offices of ICAO for coordination. For this purpose, the ICAO International Codes and Route Designators (ICARD) shall be used, which allows Member States and Regional Managers the reservation and allocation of 5LNCs used for the identification of significant points not marked by the site of a radio navigation aid, while ensuring uniqueness in compliance with ICAO Annex 11, Annex 15, and PANS-OPS. These 5LNCs end up on aircraft flight decks (FMS).
- The unique five-letter pronounceable name-code designator assigned to a significant point shall not be assigned to any other significant point. When there is a need to relocate a significant point, a new name-code designator shall be chosen. In cases when a State wishes to keep the allocation of specific name-codes for reuse at a different location, such name-codes shall not be used until after a period of at least six months.



# Significant points not marked by the site of a radio navigation aid 5ANNCs designation (Doc 8168 PANS-OPS, Volume II)

- The following criteria apply when five-alphanumeric name-codes are used:
  - a) the five-alphanumeric name-code convention that is adopted shall be applicable to all aerodromes within the State;
  - b) **five-alphanumeric name-codes** should contain characters taken from the airport designator, and/or characters indicating the use of the significant point, with all combinations containing **no more than three digits**;
  - c) the convention and the rules of application shall be published in the State AIP;
  - d) the five-alphanumeric name-code shall be unique within the terminal area in which it is used;
  - e) as global uniqueness cannot be assured, all waypoints that have a five-alphanumeric name-code identifier should be clearly listed as terminal waypoints in the AIP; and
  - f) as global uniqueness cannot be assured for waypoints containing five-alphanumeric name-codes, to avoid any potential misselection by the pilot, ATC should not use waypoints designated by five-alphanumeric name-codes in any re-routing from the en-route structure into a terminal procedure.

**Table III-5-1-4. Waypoint and arc centre coordinates examples**

<i>Waypoint Identifier</i>	<i>Coordinates</i>
EF974	43°34'23.8N 116°22'54.7W
EF975	43°35'39.1N 116°20'27.9W
<i>RF Arc Centre Identifier</i>	<i>Coordinates</i>
EF991	43°32'58.2N 116°19'41.6W



# ICAO EUR/NAT - EUROCONTROL Joint Actions



# Significant points not marked by the site of a radio navigation aid Contributions (1)

## ICARD User Forum (September 2010) - 5LNCs:

- **Common criteria for replacement of duplicated points** (later accepted by ICAO).
- Initiation of duplication resolution in ECAC States of ICAO EUR/NAT Region (later accepted by ICAO).
- Initial idea for “sound-like” algorithm avoiding ambiguity (partially accepted).
- Initial list of possible “sound-like” codes ambiguity in South-East Europe.

## ICAO / EUROCONTROL 5LNC TF/1 (November 2014) - 5LNC ways to avoid unnecessary use:

- Possible removal on internal FIR boundaries.
- Possible removal on internal control area (CTR) boundaries.
- Possible removal as ATS route crossing mainly creating illogic turns.
- Adaptation of number of codes assigned in ICARD versus used in AIP (later accepted by ICAO).
- None assignment of codes instead of “unnamed” significant points published on ATS routes.

## EUROCONTROL 7<sup>th</sup> RAiSG Meeting (November 2014) - 5ANNCs:

- General harmonisation rules for the use of 5ANNC for RNAV SID / STAR / IAP designation (not supported and later ICAO weakens the coded rules in Doc 8168 PANS-OPS).

## ICAO / EUROCONTROL 5LNC TF/2 (April 2015) - 5LNCs:

- Like-Sounding Codes resolution.
- Creation of new codes in ICARD by States.

## EANPG COG ICARD 5LNC TF/2 (September 2017) - 5LNCs:

- 5LNCs use for VFR purposes.



# Significant points not marked by the site of a radio navigation aid Contributions (2)

## **EANPG COG ICARD 5LNC TF/3 (November 2017) - 5LNCs:**

- Not supporting the idea for allowing:
  - Non-pronounceable name-codes such as alphanumeric name-codes for ATC purposes as alternative of pronounceable 5LNCs.
  - Non-uniqueness of pronounceable 5LNCs.
- Reconsideration of the use:
  - For internal ATC System purposes;
  - On ATC Sector boundaries;
  - On ATS routes crossing in order to support ATCOs requirements for having “visible” crossing points;
  - For Military purposes;
  - On internal State FIR boundaries;
  - On State FIR boundaries in ATC delegation areas;
- Further simplification of 5LNCs positions and reconsideration of existence of 5LNCs in FRA with withdrawn ATS routes;
- Development and establishment of possible new criteria on 5LNC patterns of use of consonants and vowels letters:
  - Official adoption of other possible new code patterns;
  - Use of letter “Y” only on first position and followed only by vowel letter instantaneously with use of letter “I” on first position but followed only by consonants letter.

## **RDGE/29 (November 2019) - 5LNCs / 5ANNCs:**

- Designation of significant points not marked by the site of a radio navigation aid used for VFR purposes (further incorporated in ERNIP Part 1).



# Significant points not marked by the site of a radio navigation aid

## ICAO EUR/NAT Workshop - September 2022

### Conclusions

- States, especially from outside of the EUR/NAT Region, should be reminded to comply with the State Letter 2017/101 actions to resolve the over 3800 duplicates and to include all the codes published in AIP ENR 4.4 into ICARD.
- The ICARD system has around 290.000 5LNCs in the global database, 126.000 5LNCs are currently available and it is possible to generate (with the current 4 algorithms) up to 400.000 5LNCs in ICARD. For the EUR Region 54.000 5LNCs are in the database, and 27.500 5LNCs are assigned.
- States may consider to file differences against Annex 11 for specific use/applications of 5LNCs and 5ANNCs. However, the EFOD system does not allow States to make use of filed differences against an Appendix of an ICAO Annex (Annex 11, para 2.15 and subsequent Appendix 2).
- The distinction between 5LNCs which are used in ENR and APP/TMA is made by NMOC systems and the data houses. However, CFSPs and aircraft FMS do not necessarily have the capability to differentiate between those 2 categories.
- It was clarified that the Annex 11 provisions in 2.15 (Significant points shall be established for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight) should not be interpreted in a way that would allow the use of 5ANNCs (in Approach and Terminal Areas) for Air Traffic Control Services.



# Significant points not marked by the site of a radio navigation aid

## ICAO EUR/NAT Workshop - September 2022

### Conclusions/actions for implementation 2023

- Without any changes to the current ICAO provisions in Annex 11, Annex 10, PANS-OPS, PANS-AIM the following improvements are proposed:
  - I. Encourage States to further rationalise the use of 5LNCs and release unused 5LNCs in ICARD when they are removed from the AIP.
  - II. Removal of the regional reserve lists in ICARD, so that all ICARD Users can access all globally available 5LNCs in ICARD. This will significantly enhance the number of usable (in terms of pronounceability and proximity checked) 5LNCs in all Regions. Even with the 50000 additional codes added in 2018, the current 5LNC searches return only 10 - 20% of usable codes.
  - III. Insertion of 5LNCs triple letter blocks requested by a State for ATM purposes through the ICAO Regional Office (ATM system codes which may be used for flight planning and/or Air Traffic Services) into ICARD that will be allocated to that State for specific implementation projects.



# Significant points not marked by the site of a radio navigation aid

## ICAO EUR/NAT Workshop - September 2022

### Conclusions/actions for implementation 2023

- Without any changes to the current ICAO provisions in Annex 11, Annex 10, PANS-OPS, PANS-AIM the following improvements are proposed:
  - IV. Introduce new/updated pronounceability algorithms, e.g. CCVCV, CVVCV, CCVCC, CVCCC for 5LNCs and generate the codes, compare them with current 5LNCs in ICARD. This should be followed by a pronounceability verification before they are inserted into ICARD. States offered support on this task.
  - V. Update of the ICARD 5LNC User Guidelines.
  - VI. Development of a filtering option for each State to select 5LNCs which should be excluded from their future searches (simple tick box).
  - VII. Combine the use of random proximity search and selection of codes with specific letter patterns (example: list of codes starting with letter A which are available free of sound-likes).



# Significant points not marked by the site of a radio navigation aid ICAO EUR/NAT Workshop - September 2022

## Proposals

- In support of the IFPP Job Card 022.01 the following areas are proposed for inclusion:
  - I. Change to ICAO provisions to allow use of 5LNCs and 5ANNCs for Air Traffic Control Service.
  - II. Amend the provisions for the mandatory use of ICARD for coordination purposes.
  - III. Definition of pronounceability.
  - IV. Enhancement of the ICARD System functionality to include:
    - ICARD improvements from the ANConf/13 working paper.
    - Inclusion of discard bins and periodically cleaning the non-usable codes file.
    - Development of filters for more detailed searches (exclusion of codes and letter combinations, codes by pre-defined letters **XABXX**, insertion of own 5LNCs, insertion of BIBA1.....).



# Significant points not marked by the site of a radio navigation aid

## EUROCONTROL ERNIP Part 1 - 5LNCs

European Route Network Improvement Plan (ERNIP) - Part 1 Airspace Design Methodology Guidelines - General Principles and Technical Specifications for Airspace Design

<https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1>

- A unique 5LNC designates a significant point located inside or on the boundary of a controlled airspace classified as:
  - “A” or “E”, when ATC service is provided to IFR flights; or
  - “B”, “C” or “D”, when ATC service is provided to either IFR flights or VFR flights.
- A unique 5LNC designates a significant point, which is used for:
  - En-route purpose (on ATS or other routes, in free route airspace).  
*Note: Other routes also include SIDs/STARs and normally 5LNCs defining relevant SID/STAR are used also as an en-route.*
  - Terminal purpose (SIDs, STARs and instrument approach procedures - terminal waypoints).  
*Note: Normally 5LNCs defining relevant SID/STAR are not used as an en-route.*
- The relevant data for 5LNCs shall be published in:
  - ENR 4.4, when used for en-route purpose.
  - The relevant charts listed in AD 2.24, when used for terminal purpose.



# Significant points not marked by the site of a radio navigation aid

## EUROCONTROL ERNIP Part 1 - 5ANNCs

- A five-alphanumeric name-code designates a significant point used for terminal purpose (terminal waypoints).
- The principles and criteria applied for five-alphanumeric name-codes designating waypoints used in support of RNAV SIDs, STARs and instrument approach procedures are detailed in ICAO Doc 8168 PANS-OPS.
- The significant points that have a five-alphanumeric name-code identifier should be clearly listed as terminal waypoints in the AIP.
- The convention, the coded designator structure and the rules of application of 5ANNCs shall be published in AD 1.1.5 - Other Information.
- The terminal waypoints, shall be published in the relevant charts listed in AD 2.24, in tabular form or a formal textual description:
  - On the verso of the chart; or
  - A separate, properly referenced sheet:
    - i) As the next consecutive page(s) after the relevant chart, or;
    - ii) As the last page(s) after all charts related to particular aerodrome(s).



# Significant points not marked by the site of a radio navigation aid Resolution - Data Storage and Tracking



## European Route Network Improvement Plan Application

[https://ext.eurocontrol.int/ernip\\_database/Index.action](https://ext.eurocontrol.int/ernip_database/Index.action)

- The European Route Network Improvement Plan application developed by EUROCONTROL is a central, interactive tool accessible via a standard web browser, integrating short (next summer), medium (< 3-5 years) and long-term (> 5 years) improvement projects planned for implementation or under development to improve the Pan-European ATS route network, airspace structure and optional use of both of them.
- Project initiatives come from the States, airspace users, ICAO and EUROCONTROL in form of requirements or concrete proposals for airspace changes. To manage this process, the short-, medium- and long-term projects are maintained in the application allowing all users to share a common picture of recorded improvement measures and their evolution, to provide transparency and to facilitate the collaborative planning process for implementation.
- Under Project Category “5LNC” all developments were recorded.

<b>Proposal ID :</b>	84.036	<b>Implementation:</b>	Planned 28 DEC 2023	<b>States &amp; Org.:</b> ESP	<b>Comments:</b> <ul style="list-style-type: none"> <li>• MAROT is with double reservation in ICARD for Russian Federation and Haiti.</li> <li>• Proposal for replacement is based on “Common criteria for replacement of duplicated 5LNCs” as point is not reserved for Spain.</li> <li>• 24 FEB 2022 was presented at RNDSG/104 as implementation date but no AIP ENR 4.4 changes.</li> </ul>
<b>Project Name:</b>	5LNC replacement by Spain			<b>Originator(s):</b> EUROCONTROL ICAO	
<b>Description:</b>	To replace existing 5LNC MAROT.			<b>Project Group:</b>	
<b>Objective:</b>	To avoid 5LNCs duplication within the ECAC area of the ICAO EUR/NAT region, to improve the aeronautical information provided and be compliant with ICAO Annex 11.			<b>Project Category:</b> 5LNC	



# Current Issues - Examples









# Significant points not marked by the site of a radio navigation aid

## 5LNC Duplication: ICAO EUR/NAT - ICAO MID

### Common criteria for replacement of duplicated 5LNCs

- *First criteria - ICARD / AIP existence comparison:*
  - in ICARD - if two or more 5LNCs are in ICARD - go to Second criteria;
  - in ICARD / not in ICARD - change should be proposed to the State/s concerned with 5LNCs not in ICARD.
- *Second criteria - ICARD status comparison:*
  - reservation (decision date) - if there are two or more 5LNCs reserved, the FIRST reserved has priority - change should be proposed to the State/s concerned following verification of the real use of the reserved 5LNC;
  - reservation / no reservation - change should be proposed to the State/s concerned with no ICARD allocation;
  - no reservation - if there are two or more not reserved 5LNCs - go to Third criteria.

Allocated codes

Code	Latitude	Longitude	Coord. States	Purpose	Creation Date	Last Modified Date	Available Date	Action	Comment
LADEN	185342N	0380506E	SDN,ERI	FIR	03/03/2005 00:00:00	26/06/2018 13:17:26		  	
LADEN	553835.88N	1101524.12E	RUS		09/08/2005 00:00:00	09/08/2005 00:00:00		  	

**In the case above, Sudan and Eritrea (ICAO MID) have priority to keep the code.**



# Significant points not marked by the site of a radio navigation aid

## 5LNC Duplication: ICAO EUR/NAT - ICAO MID

### Common criteria for replacement of duplicated 5LNCs

- *First criteria - ICARD / AIP existence comparison:*
  - in ICARD - if two or more 5LNCs are in ICARD - go to Second criteria;
  - in ICARD / not in ICARD - change should be proposed to the State/s concerned with 5LNCs not in ICARD.
- *Second criteria - ICARD status comparison:*
  - reservation (decision date) - if there are two or more 5LNCs reserved, the FIRST reserved has priority - change should be proposed to the State/s concerned following verification of the real use of the reserved 5LNC;
  - reservation / no reservation - change should be proposed to the State/s concerned with no ICARD allocation;
  - no reservation - if there are two or more not reserved 5LNCs - go to Third criteria.

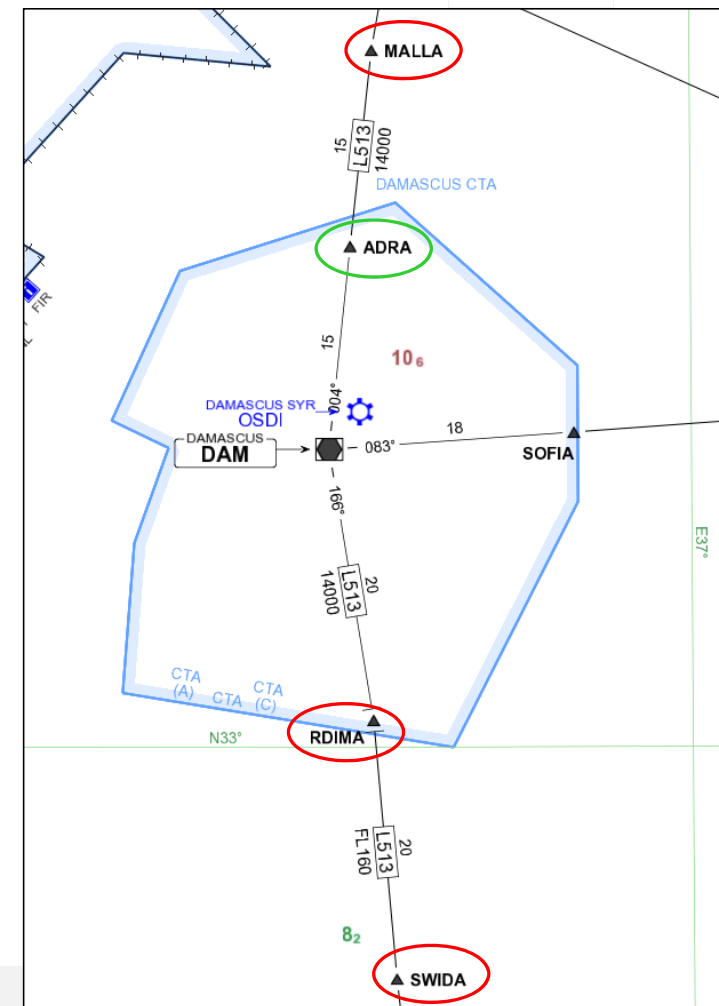
Allocated codes

Code	Latitude	Longitude	Coord. States	Purpose	Creation Date	Last Modified Date	Available Date	Comment
AKRAM	255035.88N	0475133.12E	SAU		03/03/2005 00:00:00	23/10/2022 05:33:03		Not in the MID list but in the AIP
AKRAM	395342N	0601712.12E	TKM	ENR	24/11/1998 00:00:00	08/08/2016 00:00:00	08/02/2017 00:00:00	NON-ICAO

**In the case above, Turkmenistan (ICAO EUR/NAT) has priority to keep the code.**

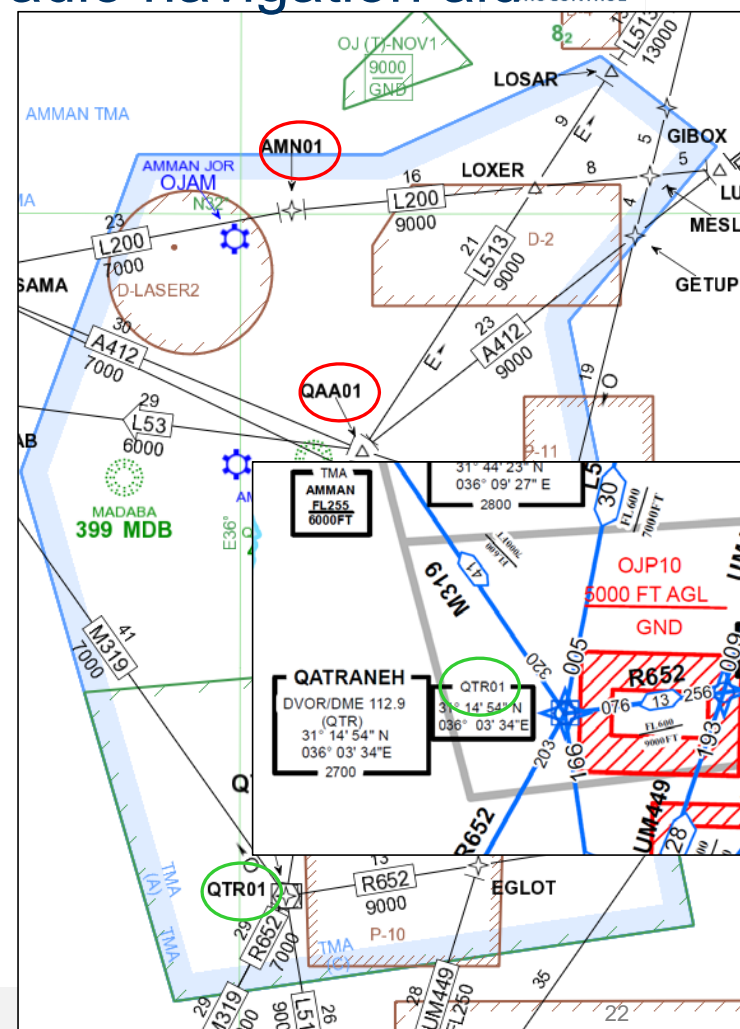
# Significant points not marked by the site of a radio navigation aid ICAO MID

- Use of significant points designated by 5LNCs (MALAA, RDIMA, SWIDA) in none compliance with Annex 11, Appendix 2, paragraph 3.1. Such 5LNCs do not exist in ICARD, not allocated to the State and apparently are invented name-codes.
- Use of significant point designated by four letter name-code (ADRA) in none compliance with Annex 11, Appendix 2, paragraph 3.1.
- All these significant points are published in AIP on relevant ATS routes on which ATC service is provided (Class A and B).
- Suggestion: All above name-codes shall be replaced by 5LNCs in accordance with provisions of Annex 11.



# Significant points not marked by the site of a radio navigation aid ICAO MID

- Use of significant points designated by 5ANNCs (QAA01, AMN01, QTR01) in none compliance with Annex 11, Appendix 2.
- These 5ANNCs apparently are invented name-codes, are published in AIP on relevant ATS routes and are collocated with “coded designators for significant points marked by the site of a radio navigation aid” - QAA, AMN, QTR.
- Suggestion: All above name-codes shall be replaced by relevant NAVIAD coded designator in accordance with provisions of Annex 11.











# Significant points not marked by the site of a radio navigation aid

## 5LNC Duplication: ICAO EUR/NAT - ICAO APAC

### Common criteria for replacement of duplicated 5LNCs

- *First criteria - ICARD / AIP existence comparison:*
  - in ICARD - if two or more 5LNCs are in ICARD - go to Second criteria;
  - in ICARD / not in ICARD - change should be proposed to the State/s concerned with 5LNCs not in ICARD.
- *Second criteria - ICARD status comparison:*
  - reservation (decision date) - if there are two or more 5LNCs reserved, the FIRST reserved has priority - change should be proposed to the State/s concerned following verification of the real use of the reserved 5LNC;
  - reservation / no reservation - change should be proposed to the State/s concerned with no ICARD allocation;
  - no reservation - if there are two or more not reserved 5LNCs - go to Third criteria.

Allocated codes									
Code	Latitude	Longitude	Coord. States	Purpose	Creation Date	Last Modified Date	Available Date	Action	Comment
<u>KANGU</u>	400000N	0323712E	TUR		24/11/1998 00:00:00	24/11/1998 00:00:00		  	
<u>KANGU</u>	162118N	1083954E	VNM		19/01/2007 00:00:00	19/01/2007 00:00:00		  	

**In the case above, Türkiye (ICAO EUR/NAT) has priority to keep the code.**



# Significant points not marked by the site of a radio navigation aid

## 5LNC Duplication: ICAO EUR/NAT - ICAO APAC

### Common criteria for replacement of duplicated 5LNCs

- *First criteria - ICARD / AIP existence comparison:*
  - in ICARD - if two or more 5LNCs are in ICARD - go to Second criteria;
  - in ICARD / not in ICARD - change should be proposed to the State/s concerned with 5LNCs not in ICARD.
- *Second criteria - ICARD status comparison:*
  - reservation (decision date) - if there are two or more 5LNCs reserved, the FIRST reserved has priority - change should be proposed to the State/s concerned following verification of the real use of the reserved 5LNC;
  - reservation / no reservation - change should be proposed to the State/s concerned with no ICARD allocation;
  - no reservation - if there are two or more not reserved 5LNCs - go to Third criteria.

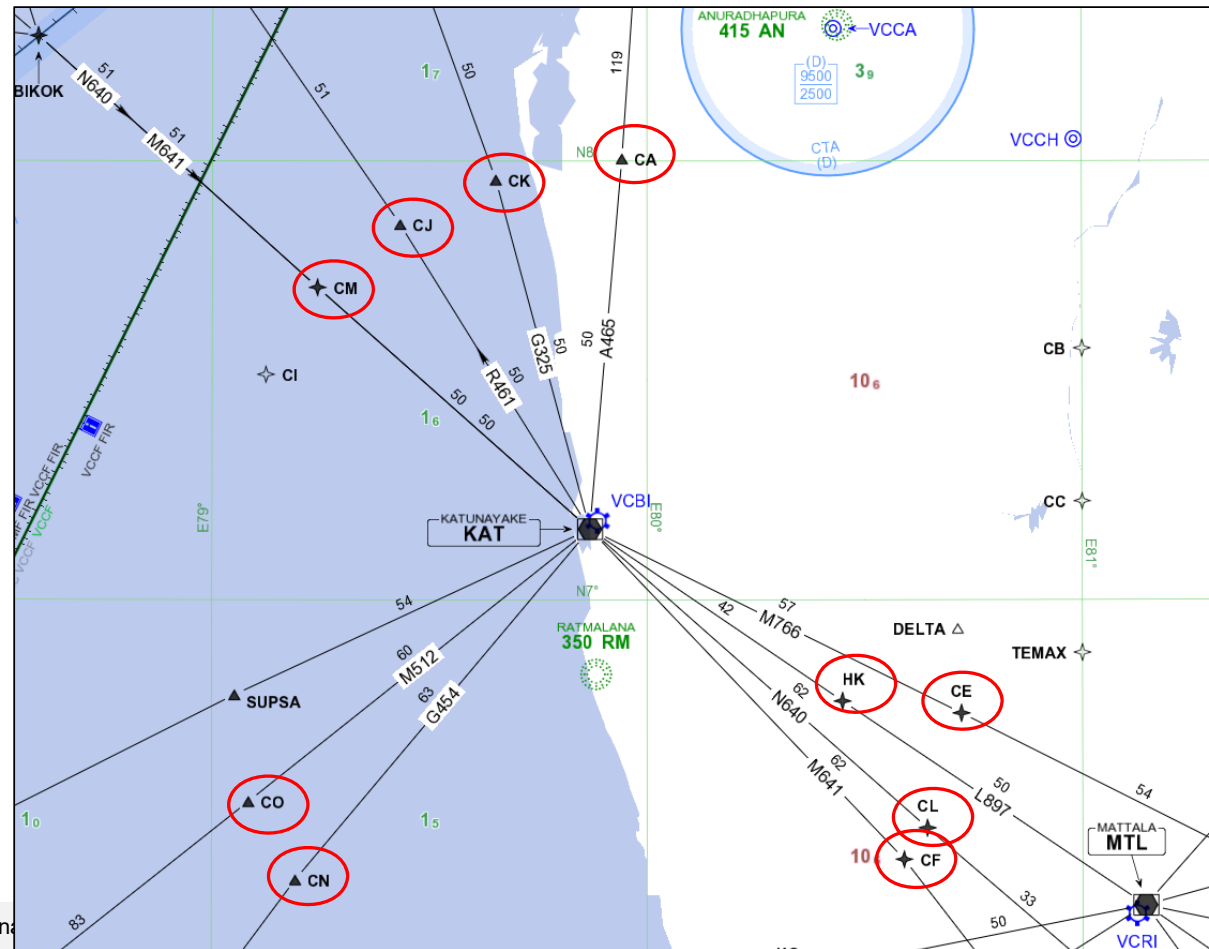
Allocated codes

Code	Latitude	Longitude	Coord. States	Purpose	Creation Date	Last Modified Date	Available Date	Action	Comment
<u>DIRAX</u>	443307.92N	0002715.84W	FRA		24/11/1998 00:00:00	24/07/2017 06:53:38			
<u>DIRAX</u>	110006.70N	1003248.30E	THA	ENR	19/01/2007 00:00:00	26/07/2017 02:09:19			Coordinates error

**In the case above, France (ICAO EUR/NAT) has priority to keep the code.**

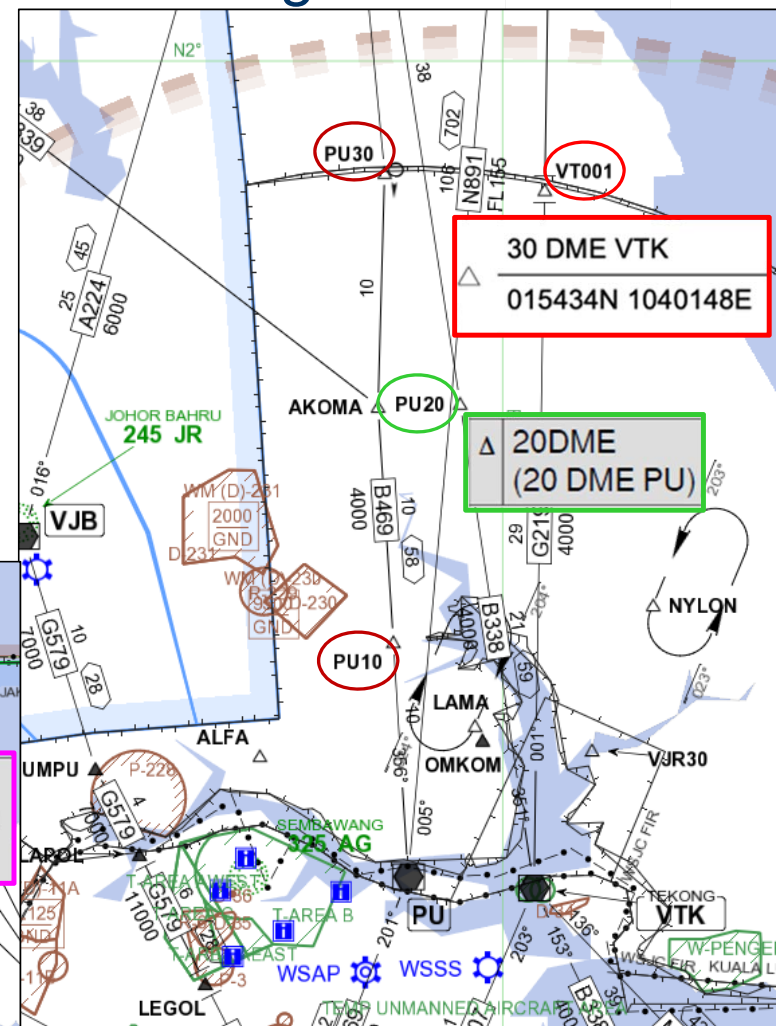
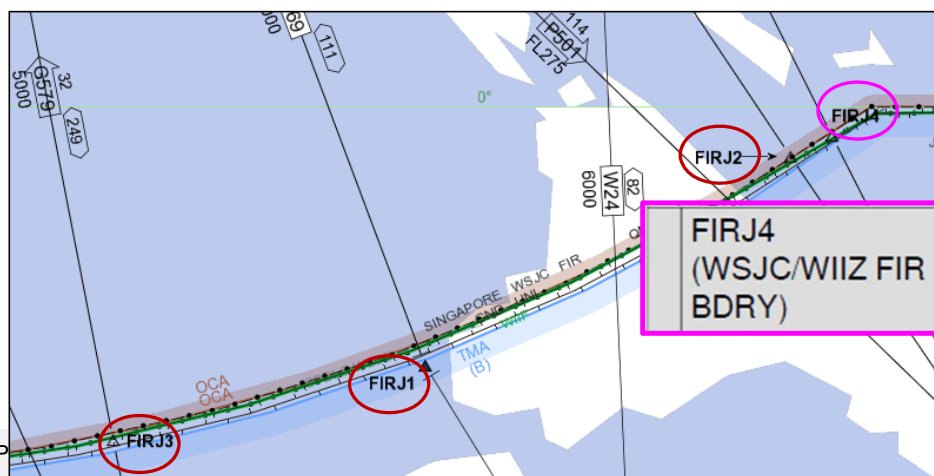
# Significant points not marked by the site of a radio navigation aid ICAO APAC

- Use of significant points designated by two letter name-codes (CM, CJ, CR, HK, etc.) in none compliance with Annex 11, Appendix 2, paragraph 3.1.
- All these significant points are published in AIP on relevant ATS routes on which ATC service is provided (Class A).
- Suggestion: The two letter name-codes shall be replaced by 5LNCs in accordance with provisions of Annex 11.



# Significant points not marked by the site of a radio navigation aid ICAO APAC

- Use of significant points designated by reference to NAVAIDs (30 DME VTK, 20 DME PU, etc.) or 5ANNCs (FIRJ1, FIRJ2, etc.) in none compliance with Annex 11, Appendix 2, paragraph 3.1.
- All these significant points are published in AIP on relevant ATS routes on which ATC service is provided (Class A and/or B).
- Suggestion: All above name-codes shall be replaced by 5LNCs in accordance with provisions of Annex 11.





# *QUESTIONS*