Agenda Item 10: A.O.B.
Duplicated and Like-sounding 5LNCs

EUROPE - ASIA TRANS-REGIONAL SPECIAL COORDINATION MEETING

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Beijing, China

Presented by:
ICAO EUR/NAT Office
EUROCONTROL NM

Duplicated 5LNCs

❖ ICAO SARPs concerning the use of 5LNC with ICAO Annex 11, Appendix 2, paragraph 3.1 states that "Where a significant point is required at a position not marked by the site of a radio navigation aid, the significant point shall be designated by a **UNIQUE** five-letter pronounceable "name-code".

❖ As stated at SCM/1 meeting ICAO and EUROCONTROL have been conducting a rationalization process of the use of Five-Letter Name-Codes (5LNC) for the ICAO EUR/NAT Region for several years. The aim is to make the process of use of 5LNC coherent and fully coordinated for the entire ICAO EUR/NAT region through the monitoring bodies of the ICAO and RNDSG Secretariats.

Rationalisation process

❖ To conduct the review of duplicated 5LNC, the ICAO ICARD database and Jeppesen JEPPVIEW software application were consulted. This working paper presents the findings of this review and highlights the actions to be taken by the State(s) concerned. The following Annexes present:
- ✓ Annex 1 - Common criteria for replacement of duplicated 5LNCs;
- ✓ Annex 2 - List of duplicated 5LNCs within ICAO EUR/NAT Region;
- ✓ Annex 3 - List of duplicated 5LNCs with neighboring/other ICAO Regions;
- ✓ Annex 4 - Other 5LNC actions.

❖ It was reconfirmed that the duplications within ICAO EUR/NAT Region still exist contrary to Annex 11, continue to create severe difficulties and problems in ATC automated systems and might be considered as safety issue. Non-compliance with Annex 11 shall not continue and concrete actions were adopted by ICAO and EUROCONTROL.

❖ Concerning 5LNC, the decision on whether to replace a 5LNC depends on whether it is already published and used by another State (as shown in Jeppesen JEPPVIEW). Consequently, if a 5LNC is not used and if it is found compliant with ICAO requirements, the ICARD Data Manager (DM) will be able to create the 5LNC in ICARD. If it is already used and registered in ICARD, the criteria shown in Annex 1 will apply. Route planners of the States concerned are invited to register as authorized users of the ICARD and to reserve 5LNC through ICARD in the future to avoid further situations of duplicated codes.

❖ As the improvements to the airspace and ATS route network in the ICAO EUR/NAT Region is highly dynamic, it is essential that all route planners reserve 5LNC through ICARD in order to avoid situations of duplicated 5LNC, which could lead to potential safety issues. The ICAO and RNDSG Secretariats can provide more information and guidance on the use of ICARD to request 5LNC.

Common criteria for replacement of duplicated 5LNCs
(approved at RNDSG/66 and RDGE/10)

EUROCONTROL

❖ **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.

❖ **Third criteria - 5LNCs usage comparison:**
The following characteristics will receive priority:
- ✓ FIR boundary point (due to the involvement of more than one State);
- ✓ SID/STAR (more difficult to change procedures than ATS route);
- ✓ major en-route crossovers;
- ✓ upper airspace;
- ✓ lower airspace.

Note: If 5LNCs have the same third criteria, the final judgement will be made by ICAO and/or EUROCONTROL.

5LNC	DUPLICATE IN ICARD	FOUND IN JEPPESEN	IN USE BY	ICAO Data Manager (DM) Remarks	ICAO DM Action	RNDSG / RDGE / State Action
ATREK	NO	YES YES YES	MOLDOVA UKRAINE TURKMENISTAN	Allocated to Moldova and Ukraine.	DM to request TKM for replacement.	ERNIP/RDGE proposal 19.024
BALOK	NO	YES YES	KAZAKHSTAN RUSSIAN FEDERATION	Allocated to Kazakhstan.	DM to request RUS for replacement.	ERNIP/RDGE proposal 19.023
BANAL	YES	YES YES YES	PORTUGAL RUSSIAN FEDERATION BRAZIL	Shared code prioritized.	DM to request RUS for replacement. DM to contact other ICAO regions.	ERNIP/RDGE proposal 19.025
BEREK	YES	YES YES	GREAT BRITAIN ALGERIA	Shared code prioritized.	DM to request GBR for replacement. DM24/01 message 14-034 sent to UK.	ERNIP/RNDSG proposal 81.038
BERNO	NO	YES YES	FRANCE RUSSIAN FEDERATION	Allocated to France	DM to request RUS replacement IF used. DM will perform additional coordination.	ERNIP/RDGE proposal 19.026
BORIS	NO	YES YES	KAZAKHSTAN/ UZBEKISTAN RUSSIAN FEDERATION	Allocated to Kazakhstan/ Uzbekistan.	DM to request RUS for replacement.	ERNIP/RDGE proposal 19.027
BRAVO	NO	YES YES YES YES YES YES	GREAT BRITAIN SYRIA ITALY SPAIN CHINA INDIA x 2	Allocated to Brazil.	DM to request GBR, ESP and ITA for replacement. DM23/01 message 14-022 sent to Spain. DM23/01 message 14-027 sent to Italy. DM24/01 message 14-034 sent to UK.	ERNIP/RNDSG proposals 81.039 / 81.040 / 81.041 Spain will co-ordinate through planning unit (confirmed 31 JAN 2014).
DEDIN	NO	YES YES	BULGARIA AZERBAIJAN	Allocated to Bulgaria.	DM to request AZE for replacement. DM24/01 message 14-035 sent to Azerbaijan.	ERNIP/RNDSG proposal 81.026

List of duplicated 5LNCs with neighbouring/other ICAO Regions

5LNC	DUPLICATE IN ICARD	FOUND IN JEPPESEN	IN USE BY	ICAO Data Manager (DM) Remarks	ICAO DM Action	RNDSG / RDGE Action
AGERA	NO	YES YES	KAZAKHSTAN PAPUA NEW GUINEA	Allocated to Kazakhstan.	DM to contact other ICAO regions for replacement by Papua New Guinea.	-
AGNES	NO	YES YES	SPAIN JAPAN	Allocated to Russian Federation and USA.	DM to request ESP for replacement. DM will perform additional coordination. DM23/01 message 14-022 sent to Spain.	ERNIP/RNDSG proposal 81.049 Spain will co-ordinate through planning unit (confirmed 31 JAN 2014).
BABUR	NO	YES YES	PAKISTAN KAZAKHSTAN/RUSSIAN FEDERATION	Allocated to Kazakhstan / Russian Federation.	DM to contact other ICAO regions for replacement by Pakistan.	-
BAGIL	NO	YES YES	KAZAKHSTAN INDONESIA	Allocated to Kazakhstan.	DM to contact other ICAO regions for replacement by Indonesia.	-
BAHAR	YES	YES YES YES YES	INDONESIA PHILIPPINES USA TURKMENISTAN	Allocated to Indonesia and Turkmenistan.	DM to request TKM for replacement.	ERNIP/RDGE proposal 19.039
BAKMO	NO	YES YES	INDIA UZBEKISTAN	Allocated to Uzbekistan.	DM to contact other ICAO regions for replacement by India.	-
BAMAN	YES	YES YES	KAZAKHSTAN/CHINA CHILE	Allocated to Kazakhstan /China and Chile.	DM will perform additional coordination.	ERNIP database inclusion pending DM confirmation.
BANOS	NO	YES YES	PHILIPPINES KAZAKHSTAN	Allocated to Kazakhstan.	DM to contact other ICAO regions for replacement by Philippines.	-
BARSI	NO	YES YES	AUSTRALIA KAZAKHSTAN	Allocated to Kazakhstan.	DM to contact other ICAO regions for replacement by Australia.	-
BUTRA	YES	YES YES	LAOS/THAILAND TAJIKISTAN/UZBEKISTAN	Allocated to Laos/Thailand and Tajikistan/Uzbekistan.	DM will perform additional coordination.	ERNIP database inclusion pending DM confirmation.

The latest developments show additional duplicates between ICAO EUR/NAT and APAC Regions as:
GOLDO (GRC / TUR and JPN)
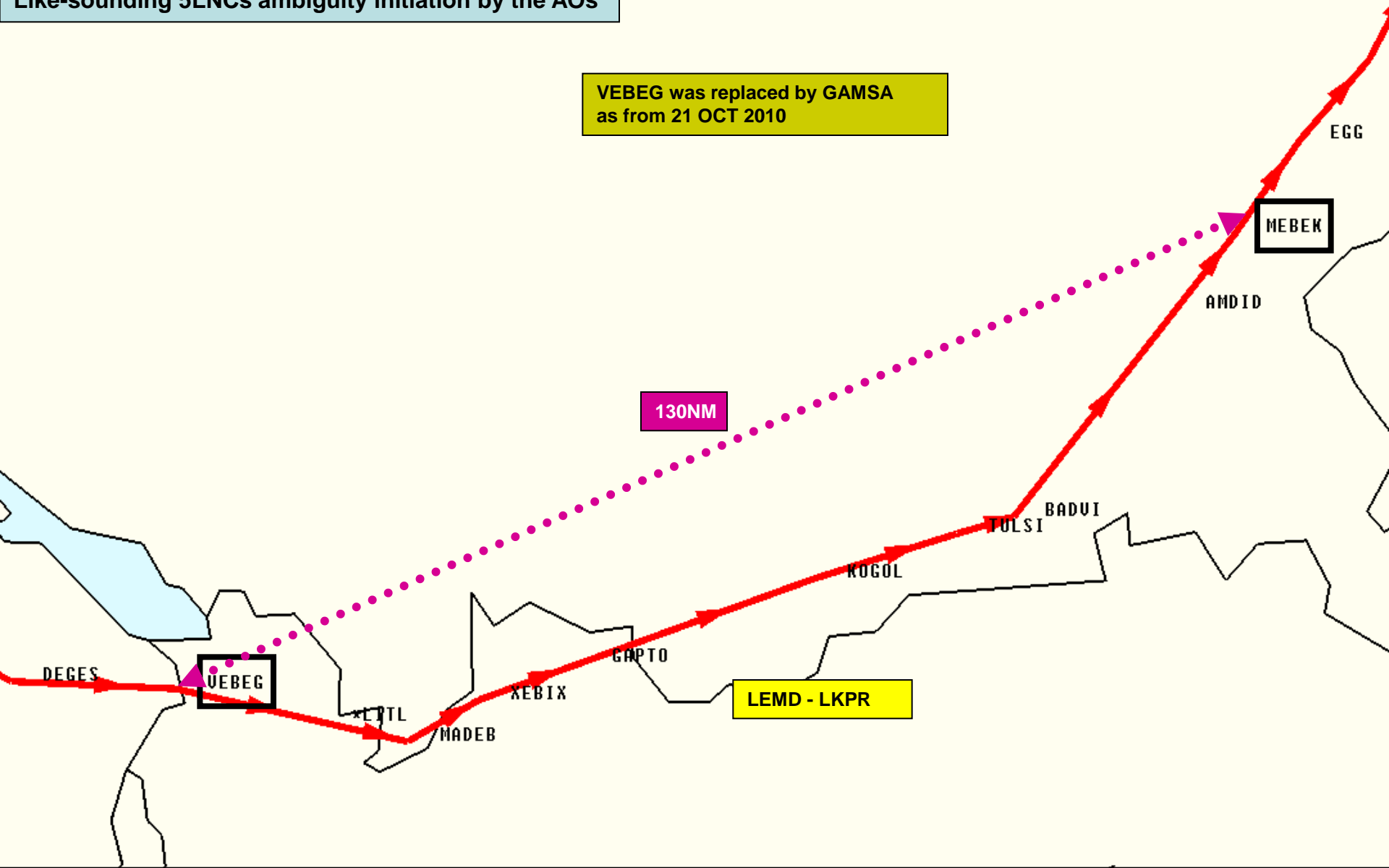**ADINA (ROU / UKR and PAK)**

Like-sounding 5LNCs

❖ ICAO Annex 11, Appendix 2, paragraph 3.3. stated that "The name-code designator shall be easily recognizable in voice communications and shall be free of **ambiguity** with those used for other significant points in the **same general area**".

❖ Progressing with the globalisation of the ICAO Five-Letter Name Code and Route Designators (ICARD) System database more instances of so called "like-sounding" 5LNCs were identified. Despite of missing definitions for "ambiguity" and "same general area" pairs of 5LNCs were encountered as problematic in radio communication which might cause safety problems.

❖ For the first time "like-sounding" 5LNCs issue in ICAO EUR/NAT Region was presented around 6 (six) years ago as an outcome from bi-lateral meeting in October 2008 with Switzerland in regard to 5LNCs pairs KONOL / KONIL and MALUS / MOLUS.

❖ The issue was presented for real actions at ICAO and EUROCONTROL meetings starting in January 2010. The main driver for raising the issue for action was an information received in November 2009 from the Deputy Director Flight Safety of one the European airlines with regard to a pair of "like-sounding" 5LNCs (VEBEG and MEBEK) - see slide 11.

❖ At all meetings EUROCONTROL presented idea for like-sounding algorithms avoiding existing ambiguity in order to be used for resolution of existing cases as well as future assignments of 5LNCs - see slide 12.

❖ EUROCONTROL also presented individual cases or lists of possible like-sounding 5LNCs ambiguity mainly in South East Europe containing same 4 (four) letters on the same position. Further analyses showed that several other pairs/triples of like-sounding 5LNCs exist inside the States. Examples like: BABIT / BADIT / BARIT located in area from 167NM till 362NM including double worldwide use of one of these 5LNCs; DELIN / DEDIN located 58NM from each other; KONOL / KONIL located 58NM from each other; KONER / KOPER located 134NM from each other, etc.

**VEBEG was replaced by GAMSA
as from 21 OCT 2010**

EGG

MEBEK

AMDID

130NM

BADVI

TULSI

KOGOL

GAPTO

DEGES

VEBEG

KRTL

XEBIX

LEMD - LKPR

MADEB

When on airway **UN871** and flying from the west to the east, Swiss ACC often provides clearance direct to *VEBEG* (Swiss/Vienna boundary). Some 130NM further away, waypoint *MEBEK* (FIR Munich) is on the same airway. We have received reports from flight crews that **due to phonetic similarity** of these two waypoints there is a **possibility of confusion** when receiving clearance from ATC. Such confusion may pose a **threat to safe operations** and therefore we would like to bring this issue into your attention.
CSA Director Deputy Flight Safety

❖ 4 (four) letters should not match if are on the same position.
  Example: "B<u>AKOV</u>" should not be used if other code is "B<u>UKOV</u>".

❖ The last 3 letters should not match.
  Examples ("n" - consonant and "y" - vowel):
  if in order of "nyn" - "NA<u>KOV</u>" should not be used if other code is "BU<u>KOV</u>";
  if in order of "yny" - "AL<u>AMI</u>" should not be used if other code is "OK<u>AMI</u>".

❖ The 1st letter, 3rd letter and 5th letter should not match.
  Examples:
  if in order of "nyn" - "<u>B</u>A<u>K</u>U<u>V</u>" should not be used if other code is "<u>B</u>U<u>K</u>O<u>V</u>";
  if in order of "yny" - "<u>A</u>L<u>A</u>M<u>I</u>" should not be used if other code is "<u>A</u>G<u>A</u>T<u>I</u>".

❖ The 2nd letter, 3rd letter and 4th letter should not match.
  Examples:
  if in order of "nyn" - "A<u>BAT</u>I" should not be used if other code is "O<u>BAT</u>O"
  if in order of "yny" - "V<u>EBE</u>G" should not be used if other code is "M<u>EBE</u>K".

❖ The already approved *(see RNDSG/66, WP/19 and RDGE/10, WP/4)* "Common criteria for replacement of duplicated 5LNCs" will be applied when proposing the withdrawals.

❖ Initial radius of proximity check could be established as 500NM.

❖ ICAO ICARD Users Forum (September 2012) took note of the problems and potential safety issues with like-sounding 5LNCs and agreed that the current system/algorithm needed to be optimised. The immediate enhancements proposed were:

 ✓ Reduction of search time for 5LNC generation to 1 min (with the possibility to continue upon confirmation) in the random proximity check function and the reduction from 30 to 5 offered codes;

 ✓ Changes to HMI progress box to display a more detailed status information on the random search function; and

 ✓ Improvements of the sound like algorithm (based on successful tests with volunteers from States, paying due attention to different language requirements world-wide, against the existing algorithm).

❖ Subsequently the EANPG/52 (November 2010) also took note of the discussions on issues related to the duplication of 5LNC and problems and potential safety issues with like-sounding 5LNCs and agreed to the User Forum conclusions that the current system/algorithm needed to be optimised.

❖ The EANPG/53 (December 2011) agreed that a State letter, issued by ICAO Headquarters, emphasizing the need for all States to use the global ICARD Database, would be the best means to increase awareness and to promote the benefits of an updated and reliable database. The following Conclusion was adopted.

EANPG Conclusion 53/5 - Implementation of the global ICARD database

That, the ICAO Regional Director, Europe and North Atlantic, on behalf of the EANPG, invite ICAO Headquarters to issue a State letter, with a view to emphasize the use of the global ICARD Database and compliance with ICAO provisions regarding the uniqueness of 5LNCs, inviting States to:

a) *use the Global ICAO five-letter name-codes (5LNC) and route designators (ICARD) database as the unique tool for the management of codes allocation and comply with the principles stated in Appendix 2, Section 3 of Annex 11, "Designators for significant points not marked by the site of a radio navigation aid";*

b) *communicate the name(s) of their route planning expert(s) who will become the ICARD authorized users;*

c) *coordinate with their regional office in order to clear duplicate designators and comply to the required "uniqueness of codes", as defined in Appendix 2, Section 3 of Annex 11; and*

d) <u>*replace their 5LNCs whenever there is a safety-related concern with like-sounding 5LNCs in close proximity.*</u>

❖ For the last three years following EANPG Conclusion 53/5 d) due to lack of clear criteria for "ambiguity" and "same general area" from pairs of 5LNCs encountered as problematic only few were resolved.

❖ Presented idea for like-sounding algorithms avoiding existing ambiguity was not further discussed and elaborated.

❖ Replacements were done based on States good will and mutual agreement who shall replace one of the two 5LNCs.

❖ The latest AOs report on safety related problem in radio communication was included in ERNIP DB for immediate resolution by the States concerned.

❖ Other mentioned previously problematic 5LNCs still exist and at any time might cause safety problems.

Based on EANPG Conclusion 53/5 d):

❖ Initiation of discussion and adoption of presented idea for like-sounding algorithms in order to clarify Annex 11 and define terms "ambiguity" and "same general area" for ICAO EUR/NAT Region.

❖ Creation of "like-sounding" problematic 5LNCs list inside each State and ICAO EUR/NAT Region.
  - ✓ common regional approach is required as States can not define by themselves the 5LNCs whenever there is a safety-related concern with like-sounding 5LNCs in close proximity.

❖ Replacement of "like-sounding" problematic 5LNCs.
  - ✓ EUROCONTROL to cover ECAC States;
  - ✓ ICAO to cover the rest of the EUR/NAT Region States;
  - ✓ Agreed actions to be included in ERNIP DB under new "Project Category" - 5LNC;
  - ✓ No loss of name codes as the replaced 5LNCs will be used by other States after a period of at least 6 (six) months in accordance with Annex 11.

❖ **SU<u>LOK</u>** - boundary TCP between Irkutsk FIR and Ulaanbaatar FIR
TE<u>LOK</u> - boundary TCP between Irkutsk FIR and Shenyang FIR
located **64.7NM** from each other.
Interface with ICAO EUR/NAT Region.

❖ **<u>A</u>V<u>G</u>O<u>K</u>** - boundary TCP between Khabarovsk FIR and Fukuoka FIR
<u>ARGUK</u> - boundary TCP between Khabarovsk FIR and Shenyang FIR
located **297.5NM** from each other.
Interface with ICAO EUR/NAT Region.

❖ **L<u>ORAL</u>** - point inside Lahore FIR on ATS route J159
D<u>ORAL</u> - point inside Lahore FIR on ATS route J159
located **37NM** from each other.

❖ **DU<u>KOT</u>** - point inside Delhi FIR on ATS routes W58/W65S
NI<u>KOT</u> - point inside Delhi FIR on ATS routes P628/Q2/Q5/A474/R462/W13S
located **50.6NM** from each other.

ARN TF/6 *(April 2013) Report:*

❖ *3.10 The importance of the rationalisation of the use of existing like-sounding 5LNCs in close geographical location was highlighted. It was mentioned that since September 2010 all developments are pending waiting further action by ICAO Headquarters on proposed improvements as highlighted at ICAO EUR/NAT Region ICARD Users Forum.*

❖ *3.11 The existence of 5LNCs, OVANO and IVANO in the MID ATS catalogue was highlighted by EUROCONTROL. The two points are located on same ATS route R652 one in Jeddah FIR other in Baghdad FIR separated by 367.6NM. It was also highlighted that this might be problematic in ATC communication, and <u>States were requested to consider the issue and possibly replace one of the points</u>. <u>The meeting agreed that ICAO MID Office will further consider this issue and coordinate with concerned States to alleviate the problem.</u>*

❖ Currently IVANO does NOT exist in Baghdad FIR as it was replaced by DAVAS and like-sounding problem resolved.

The Meeting is invited to:

❖ consider the content of this presentation and discuss as appropriate;

❖ support the rationalization process and efforts of ICAO EUR/NAT Office and EUROCONTROL to resolve the duplicated and like-sounding 5LNCs.

Q U E S T I O N S

END