



International Civil Aviation Organization

**Middle East Air Navigation Planning and
Implementation Regional Group**

Fifteenth Meeting (MIDANPIRG/15)
(Bahrain, 8 – 11 June 2015)

Agenda Item 4.1: Update from and coordination with the RASG-MID

CALL SIGN SIMILARITY AND CONFUSION

(Presented by the Secretariat)

SUMMARY

This paper presents the outcome of the First meeting of the Call Sign Confusion Ad-Hoc Working Group (CSC WG/1) and the RASG-MID/4 meeting related to call sign confusion, and provides a progress report on the action plan agreed on by the CSC WG/1 meeting.

Action by the meeting is at paragraph 3.

REFERENCES

- CSC WG/1 Report
- MSG/4 Report
- RASG-MID/4 Report

1. INTRODUCTION

1.1 The meeting may wish to note that call sign similarity refers to two (or more) aircraft operating in the same area, on the same frequency with similar call signs. Call sign similarity could lead to call sign confusion, which might jeopardize safety

2. DISCUSSION

2.1 The call sign confusion has been addressed in coordination between MIDANPIRG and RASG-MID. In this respect, the Fourth meeting of the MIDANPIRG Steering Committee (MSG/4) (Cairo, Egypt, 24-26 November 2014), based on the outcomes of the ATM SG/1 meeting (Cairo, Egypt, 9-12 June 2014) and the CNS SG/6 meeting (Tehran, Iran, 9-11 September 2014), highlighted that, in order to reduce the level of operational call sign confusion events, and therefore improve levels of safety, several airlines moved from the concept of using a numeric (commercial) call-sign (e.g. UAE503) to the use of an alphanumeric call sign (e.g. UAE59CG).

2.2 The MSG/4 meeting recognized that many mitigation measures could be investigated to eliminate the risks associated with the call sign confusions. Accordingly, the meeting agreed to the following Conclusion:

MSG CONCLUSION 4/22: CALL SIGN CONFUSION

That,

- a) a survey based on the questionnaire at Appendix 5A related to the acceptance/processing of flight plans containing “alphanumeric” call signs ending with letter(s) be conducted;*
- b) States that have not yet done so be invited to take necessary measures to comply with ICAO Annex 10 and Doc 4444 provisions related to the acceptance of the alphanumeric call signs; and*
- c) States be invited to inform the ICAO MID Regional Office of the preferred option for the mitigation of the risks associated with the call sign confusion before 31 January 2015* meeting noted that.

2.3 In connection with the above, the MSG/4 meeting agreed, through MSG Decision 4/23: *Call Sign Confusion ad-hoc Working Group*, to the establishment of a Call Sign Confusion ad-hoc Working Group (CSC WG) in order to:

- a) analyze the results of the survey on the acceptance/processing of flight plans containing “alphanumeric” call signs ending with letter(s); and
- b) develop solutions to mitigate the risk associated with call sign confusion and similarity

2.4 The CSC WG/1 meeting was successfully held at Abu Dhabi, UAE, from 16 to 18 February 2015. The CSC WG/1 meeting Summary of Discussions is at **Appendix A**.

2.5 It is to be highlighted that the CSC WG/1 meeting agreed that the use and acceptance of alphanumeric call sign could reduce the probability of call sign similarity/confusion occurrence. The meeting developed Draft Safety Enhancement Initiative (SEI) and Detailed Implementations Plans (DIPs) related to call sign similarity/confusion and endorsed the EUROCONTROL call sign similarity rules to be used in the MID Region.

2.6 The CSC WG/1 meeting agreed that the MAEP Interim PMO should follow-up the implementation of the outcome of the CSC WG/1 meeting, monitor the conduct of FPL tests for the acceptance of alphanumeric call signs, collect call sign similarity and confusion reports and provide progress reports to the relevant MIDANPIRG and RASG-MID subsidiary bodies.

2.7 The meeting may wish to note that the CSC WG/1 meeting recognized the need for harmonization of mitigation measures related to call sign similarity and confusion at regional and global level. Accordingly, the meeting agreed to the Draft Conclusion 1/1 *CALL SIGN SIMILARITY PROVISIONS AND GUIDELINES*, inviting ICAO to consider the development of global provisions and guidelines to reduce the risk associated with call sign similarity and confusion, including necessary amendment to the ICAO FPL Format.

2.8 The meeting may wish to that the RASG-MID/4 meeting (Jeddah, Saudi Arabia, 30 March - 1 April 2015) was apprised of the outcome of the CSC WG/1 meeting. The meeting reviewed the Draft Safety Enhancement Initiative (SEI) and Detailed Implementation Plans (DIPs) related to call sign similarity/confusion emanating from the CSC WG/1 meeting.

2.9 The RASG-MID/4 meeting noted with appreciation that many of the actions included in the Draft DIPs have been completed or actioned by the MID Region ATM Enhancement Programme (MAEP) Interim Project Management Office (IPMO) and two (2) Draft DIPs include long-term actions. Accordingly, the meeting agreed that concerned stakeholders continue to work on

the subject and a progress report should be presented to the MIDANPIRG/15 meeting (Bahrain, 8-11 June 2015). The meeting tasked the RSC to consider if it would be necessary to endorse DIP(s) addressing the remaining actions related to call sign confusion and similarity, including the mid and long term actions.

2.10 The RASG-MID/4 meeting noted that the MAEP IPMO was tasked with the development of guidance material related to call sign similarity, including the EUROCONTROL call sign similarity rules. Accordingly, the meeting reviewed and endorsed the RASG-MID Safety Advisory on Guidance material related to call sign similarity developed by the MAEP IPMO, which provides a set of guidelines and similarity rules for use by airline operators and air traffic controllers. The meeting may wish to note that the RASG Safety Advisory – RSA-04, at **Appendix B**, was issued by the ICAO MID Regional Office through State Letter Ref.: ME 4-15/152 dated 26 May 2015.

2.11 The RASG-MID/4 meeting was apprised of the MAEP IPMO activities related to call sign similarity/confusion, which was endorsed as the first quickwin/initiative. A progress report on the call sign similarity initiative will be presented in a separate working paper by IATA

2.12 The RASG-MID/4 meeting emphasized the importance of the call sign similarity/confusion reporting. Accordingly, the meeting agreed that States could use the EUROCONTROL Template (Excel Sheet) as at **Appendix C**. However, the meeting encouraged States to implement simplified mechanism to trigger the reporting of call sign similarity/confusion by ATCOs. In this respect, the meeting noted with appreciation the mechanism implemented by Bahrain, as part of their SMS, to improve the reporting of ATM incidents and hazards.

2.13 The meeting may wish to note that EUROCONTROL, in accordance with the CSC WG/1 Action Plan, provided the ICAO MID Regional Office on 11 May 2015 with the EUROCONTROL Voluntary ATM Incident Reporting (EVAIR) analysis related to the identified Middle East Air Operators (AOs) with call similarities/confusions within the Europe Region, as at **Appendix D**. It is to be highlighted that call sign similarity/confusion issues were occurring not only between MID AOs and non-MID AOs but also between the same AO flights.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) encourage States and aircraft operators to implement the RASG-MID Safety Advisory- RSA-04 at **Appendix B**;
- b) review the progress report on the Action Plan emanating from the CSC WG/1 meeting, as at **Appendix E**, and take action as appropriate;
- c) urge States to:
 - i. take necessary measures to ensure that their Aircraft Operators (AOs) implement a mechanism to de-conflict call similarity between the same AO flights and thereafter between their local AOs and other Middle East AOs flights;
 - ii. report call sign similarity/confusion cases using the template at **Appendix C**;
 - iii. develop a simplified mechanism to trigger the reporting of call sign similarity/confusion by ATCOs;
- d) agree on the future work programme of the CSC WG; and
- e) agree to the following Draft Conclusion:

Why	For harmonization of mitigation measures related to call sign similarity and confusion at global level
What	To develop global provisions and guidelines to reduce the risk associated with call sign similarity and confusion
Who	ICAO
When	TBD

DRAFT CONCLUSION 15/X: CALL SIGN SIMILARITY PROVISIONS AND GUIDELINES

That, ICAO consider the development of global provisions and guidelines to reduce the risk associated with call sign similarity and confusion, including necessary amendment to the ICAO FPL Format.



INTERNATIONAL CIVIL AVIATION ORGANIZATION

FIRST MEETING OF THE CALL SIGN CONFUSION AD-HOC WORKING GROUP

(CSC WG/1)

(Abu Dhabi, UAE 16-18 February 2015)

SUMMARY OF DISCUSSIONS

1. WELCOME AND ADOPTION OF THE PROVISIONAL AGENDA

1.1 The First Meeting of the Call Sign Confusion Ad-hoc Working Group (CSC WG/1) was successfully held at the Crowne Plaza Hotel, Abu Dhabi, from 16 to 18 February 2015. The meeting was gratefully hosted by the General Civil Aviation Authority (GCAA), UAE.

1.2 The meeting was attended by a total of twenty eight (28) participants from six (6) States (Bahrain, Kuwait, Qatar, Saudi Arabia, Sudan and UAE) and two (2) International Organizations (EUROCONTROL and IATA). The list of participants is at **Attachment A** to the Summary of Discussions.

1.3 The meeting was opened by Mr. Ahmed Al Jallaf, Assistant Director General for Air Navigation Services, General Civil Aviation Authority, UAE, who extended a warm welcome to all participants to the CSC WG/1 meeting and wished them a successful meeting and a pleasant stay in Abu Dhabi. Mr. Al Jallaf thanked ICAO for organizing this meeting in UAE and restated Emirates' commitment to support the ICAO MID Regional Office and MIDANPIRG activities. He emphasized that UAE is in progress of implementing measures to mitigate the risk associated with call sign similarity and confusion, and that UAE is willing to collaborate with all stakeholders in order to agree on regional/global solution for call sign confusion.

1.4 In his opening remarks, Mr. Mohamed Smaoui ICAO, Deputy Regional Director, Middle East Office, Cairo, welcomed the participants to Abu Dhabi. He expressed his gratitude and appreciation to the GCAA and especially to H.E. Saif Mohamed Al Suwaidi, Director General of GCAA, for hosting this meeting in UAE. He extended special thanks to Mr. Ahmed Al Jallaf and all the team who participated in the preparation and facilitation of this meeting for their good cooperation and for the excellent hospitality extended to the ICAO staff and all participants. Mr. Smaoui highlighted that UAE continuous support to the ICAO MID Regional Office activities is an evidence of its active role and reflects Emirates' commitment to enhance the overall safety and efficiency of air navigation and increase capacity in the Region.

1.5 Mr. Smaoui highlighted that this meeting provides an opportunity to share experience and ideas to mitigate the risk of call sign confusion and similarity. He thanked Mr. Richard Lawrence, Call Sign Similarity Project Manager, at EUROCONTROL Network Management Directorate, for his attendance to share Europe experience related to call sign similarity and confusion. Mr. Smaoui also thanked IATA, Emirates Airlines and Etihad Airways, for taking the lead in the implementation of the "Reduce Call Sign Confusion Initiative", under the framework of the MID Region ATM Enhancement Programme (MAEP).

1.6 In closing, Mr. Smaoui thanked the participants for their presence and wished the meeting every success in its deliberations.

Officers and Secretariat

1.7 Mr. Mohamed Smaoui, ICAO Deputy Regional Director, Middle East Office, acted as the Chairperson of the meeting. Mr. Elie El Khoury, Regional Officer, Air Traffic Management/Search and Rescue (RO/ATM/SAR) was the Secretary of the meeting.

Agenda

1.8 The meeting adopted the following Agenda:

- Agenda Item 1: Adoption of the Provisional Agenda
- Agenda Item 2: Introduction
- Agenda Item 3: Mitigation Measures for Call Sign Similarity and Confusion
- Agenda Item 4: Future Work Programme
- Agenda Item 5: Any other Business

2. INTRODUCTION

2.1 The meeting recalled that call sign similarity and confusion has been identified as a safety issue by the Second Meeting of the Middle East Regional Aviation Safety Group (RASG-MID/2) (Abu Dhabi, UAE, 12 – 14 November 2012).

2.2 The RADG-MID/2 meeting agreed that call sign confusion can be either aural or visual, or both. Aural confusion can occur between flight crew and controller – and sometimes between different flight crew. Visual confusion is primarily an ATC problem. It relates to Flight Progress Strips (FPS) and radar displays, where call signs are the primary means of identifying the aircraft.

2.3 The RASG-MID/2 meeting tasked the MID Annual Safety Report Team (MID-ASRT) to conduct a study of call-sign confusion to improve safety levels as part of the safety support activities. The objectives are to collect reliable data over a specified period of time, to ascertain the magnitude of the problem, and confirm the categories of contributing factors causing call sign confusion.

2.4 The meeting noted that the RASG-MID/3 (Kuwait, 27-29 January 2014) reviewed the results of the study on call sign confusion and endorsed the Second Edition of the MID Annual Safety Report (ASR), which includes the analysis and results of the study.

2.5 The meeting further noted that the subject has been addressed in coordination between MIDANPIRG and RASG-MID. In this respect, the meeting noted that based on the outcomes of the ATM SG/1 meeting (Cairo, Egypt, 9-12 June 2014) and the CNS SG/6 meeting (Tehran, Iran, 9-11 September 2014), the Fourth meeting of the MIDANPIRG Steering Committee (MSG/4) (Cairo, Egypt, 24-26 November 2014) highlighted that, in order to reduce the level of operational call sign confusion events, and therefore improve levels of safety, several airlines moved from the concept of using a numeric (commercial) call-sign (e.g. UAE503) to the use of an alphanumeric call sign (e.g. UAE59CG).

2.6 The MSG/4 meeting recognized that many mitigation measures could be investigated to eliminate the risks associated with the call sign confusions. Accordingly, the meeting agreed to the following Conclusion:

MSG CONCLUSION 4/22: CALL SIGN CONFUSION

That,

- a) a survey based on the questionnaire at Appendix 5A related to the acceptance/processing of flight plans containing “alphanumeric” call signs ending with letter(s) be conducted;*

- b) States that have not yet done so be invited to take necessary measures to comply with ICAO Annex 10 and Doc 4444 provisions related to the acceptance of the alphanumeric call signs; and
- c) States be invited to inform the ICAO MID Regional Office of the preferred option for the mitigation of the risks associated with the call sign confusion before 31 January 2015.

2.7 The meeting noted that, as a follow-up action to the above MSG Conclusion, the ICAO MID Regional Office circulated a questionnaire on call sign confusion through State Letter Ref.: AN 6/34-14/332 dated 18 December 2014. Bahrain, Egypt, Iraq, Qatar, Syria and UAE replied to the questionnaire. The Table below reflects the summary of replies:

Question	1-Does your State Regulations allow the use of alphanumeric call sign ending with a LETTER(s)	2-Does your ATM system accept the following call sign format in the FPL: - alphanumeric: e.g. ETD020 - alphanumeric ending with a LETTER(s): e.g. ETD020A, ETD21BC	3-Is the use of alphanumeric call sign ending with a LETTER(s) already implemented?	4-Do you have any restriction (technical, regulatory, procedure, etc.) on the use of alphanumeric call sign ending with a LETTER(s)?	5-Please advise what are your preferred options, plans and/or implemented measures to mitigate the risk associated with call sign confusion and similarity?	6-Does your ATM system capable to manage the call sign similarity?	7-Additional comments, if any.
Bahrain	Yes	Yes	Yes	No	No preferred option/manual measures	No	None
Egypt	Yes	Yes	Yes	No	No preferred option	Yes	None
Iraq	Yes	Yes	Yes	No	No preferred option/manual measures	No	None
Qatar	Yes	Yes	Yes	No	No preferred option/Autom atic Call sign of the 1 st aircraft	Yes	Support the CSC WG work programme
Syria	Yes	Yes	Yes	No	No preferred option	Yes	None
UAE	Yes	Yes	Yes	Yes	No preferred option/manual measures	Yes	Reference made to UAE documentation
6 Replies	6 Yes	6 Yes	6 Yes	1 Yes	No State reported their preferred option	4 Yes	-----
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2.8 The MSG/4 meeting recognized the urgency of implementing mitigation measures for the call sign confusion and similarity. Accordingly, the meeting agreed to establish a Call Sign Confusion ad-hoc Working Group (CSC WG) and agreed to the following MSG Decision:

MSG DECISION 4/23: CALL SIGN CONFUSION AD-HOC WORKING GROUP

That, a Call Sign Confusion ad-hoc Working Group be established in order to:

- a) analyze the results of the survey on the acceptance/processing of flight plans containing “alphanumeric” call signs ending with letter(s); and*
- b) develop solutions to mitigate the risk associated with call sign confusion and similarity.*

2.9 The meeting noted that the Third meeting of The RASG-MID Steering Committee (RSC/3) (Cairo, Egypt, 9 – 11 December 2014), was apprised of the outcome of the MSG/4 meeting related to call sign similarity and confusion. Accordingly, the meeting agreed that the follow-up on call sign confusion and similarity be based on the outcome of the Call Sign Confusion ad-hoc Working Group (CSC WG).

2.10 The meeting was further apprised of the ICAO provisions related to call sign included in ICAO Doc 4444-PANS-ATM and Annex 10. It was highlighted that Flight Plan Item 7 should accept aircraft identifications, not exceeding 7 alphanumeric characters and without hyphens or symbols. Alphanumeric characters (alphanumerics) is a collective term for letters and figures (digits).

3. MITIGATION MEASURES FOR CALL SIGN SIMILARITY AND CONFUSION

3.1 The meeting noted that call sign similarity refers to two (or more) aircraft operating in the same area, on the same frequency with similar call signs. Call sign similarity could lead to call sign confusion, which might jeopardize safety.

3.2 The meeting noted that UAE has established a National Working Group (WG) to address the safety issues associated with call sign confusion and is willing to share the outcome of this WG for the benefit of safety in the Region. The meeting was apprised of UAE measures implemented at Sheikh Zayed Centre (SZC), which provided the possibility to the air traffic controllers to enter a Radio Telephony Call Sign (RTCS) to a flight plan. This is done through the creation of an additional field to the FPL in the ATM system. Once an RTCS has been added, it is shown in the flight label on the radar display instead of the original call sign. The original call sign is maintained internally as it is used for billing and logging, etc. The meeting noted that GCAA issued several documents related to call sign similarity/confusion including AIC Nr. 001/15, at **Appendix A**.

3.3 The meeting received with appreciation a presentation by Emirates Airlines (EK) related to their initiatives to reduce call sign similarity and confusion. The meeting was apprised of the results of the survey carried out by EK. Five (5) airlines pointed out that they do not/cannot use alphanumeric call signs in the MID Region, and that the acceptance of alphanumeric call signs represented a challenge for a number of States. In particular, it was highlighted that the use of alphanumeric call signs might be not accepted by the authorities dealing with ATC, overflight permissions and airport slots. In this respect, it was emphasized that the mitigation measures related to call sign similarity and confusion should involve all stakeholders (Aircraft Operators, ANSPs, Airports, Overflight permissions, regulators, international organizations, etc.)

3.4 The meeting recognized the need for guidance material and provisions related to call sign similarity and confusion. Moreover, it was highlighted that global solution is required to mitigate the risk associated with call sign confusion. Accordingly, the meeting emphasized that the ongoing work in the MID Region in addition to the European experience, could pave the way for a global change. In this respect, it was underlined that call sign similarity and confusion should be taken into consideration during the next amendment of the ICAO FPL Format.

3.5 The meeting was apprised of EUROCONTROL experience related to call sign similarity and confusion. The meeting noted that EUROCONTROL developed a Call Sign Similarity Tool (CSST) based on a set of rules, at **Appendix B**, to determine what is considered as a call sign similarity.

3.6 The meeting received with appreciation EUROCONTROL presentations related to the following topics:

- a) Call sign similarity (CSS) Project Overview;
- b) CSS Rules;
- c) CSS Tool (CSST); and
- d) CSS Performance Monitoring.

3.7 The meeting noted that the CSST could be used by the MID Aircraft Operators (AOs) to identify and de-conflict call sign similarity. Moreover, the meeting noted that the CSST could be possibly customized to meet the MID Region needs.

3.8 The meeting agreed that the MAEP Interim PMO should follow-up the implementation of the outcome of the CSC WG/1 meeting, monitor the conduct of FPL tests for the acceptance of alphanumeric call signs, collect call sign similarity and confusion reports and provide progress reports to the relevant MIDANPIRG and RASG-MID subsidiary bodies.

3.9 The meeting emphasized the importance of the reporting of the call sign similarity/confusion. Accordingly, the meeting agreed that States could use the EUROCONTROL Template (Excel Sheet) at **Appendix C**, for reporting purposes. However, the meeting encouraged States to implement simplified mechanism to trigger the reporting of call sign similarity/confusion by ATCOs. In this respect, the meeting noted with appreciation the mechanism implemented by Bahrain, as part of their SMS, to improve the reporting of ATM incidents and hazards.

3.10 The meeting agreed that the use and acceptance of alphanumeric call sign could reduce the probability of call sign similarity/confusion occurrence.

3.11 Based on the above, the meeting developed Draft Safety Enhancement Initiative (SEI) and Detailed Implementations Plans (DIPs) related to call sign similarity/confusion to be presented to the RASG-MID/4 meeting (Jeddah, Saudi Arabia, 30 March – 1 April 2015) for endorsement. The Draft DIPs and their associated actions are reflected in the following Tables:

Safety Enhancement Initiative (SEI)	Implementation of measures to mitigate the risks associated with call sign similarity and confusion.
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Call Sign Similarity and Confusion Detailed Implementation Plans

DIP 1	Action		Responsible	Deliverables	Timeline
States to accept Alphanumeric call sign, including the overflight permissions and airports slots	1	Flight Plan Tests to identify the States that are not capable to accept alphanumeric call signs. 1- ATM Systems 2- Overflight permissions 3- Airports 4- Bilateral tests	IATA	FPL Tests results	Apr.2015
	2	Agree on a call sign to be used for testing purposes	CSC WG/1	TEST1AB to be used as Test Call Sign	Feb. 2015
	3	Identification of the States that do not accept the use of alphanumeric call sign (due to regulatory constraints)	IATA ICAO	List of States	Jun. 2015
	4	Concerned States be urged to accept the use of alphanumeric call sign	ICAO States	State Letter Regulations	May 2015 TBD
	5	Concerned States be urged to upgrade their systems to accept alphanumeric call sign	ICAO States	State Letter ATM System capability	May 2015 MID/Long Term
	6	Training/awareness of relevant personnel dealing with FPLs (AOs, regulators, ATCOs, personnel granting overflight permissions and airports slots, etc.)	AOs States IATA/ICAO	Training/ awareness campaign Workshop	Continuous Early 2016
	7	IATA and ICAO to follow-up the issue with the identified States and provide assistance as appropriate.	IATA ICAO		As appropriate

DIP 2	Action		Responsible	Deliverables	Timeline
Sharing of experience and inter-regional coordination	1	Sharing experience with EUROCONTROL with regard to call sign similarity/confusion (exchange of reports, list of AOs using the CSST, mitigation measures implemented by ANSPs and AOs, etc.)	EUROCONTROL ICAO	Exchange of information	Continuous
	2	Encourage States and AOs to participate in the EUROCONTROL CSS User Group	IATA ICAO	Nr. of States and AOs	Continuous
	3	UAE to provide feedback on the measures implemented in UAE	UAE	Feedback	Dec. 2015

DIP 3	Action		Responsible	Deliverables	Timeline
Follow-up, coordination and reporting of the issues related to call sign similarity/confusion	1	Assignment of Focal Points (Use the INFPL Focal Point as a starting point)	ICAO	Focal Points	Mar. 2015
	2	States/ANSPs be encouraged to investigate and implement simplified reporting tool to trigger call sign similarity/confusion reports, in order to improve reporting.	ICAO States	State Letter Feedback	Mar. 2015 Jun. 2015
	3	Reporting of call sign similarity/confusion to the MAEP Interim PMO, using the EUROCONTROL excel sheet	ANSPs AOs	CS Similarity and Confusion Reports	Jul. 2015
	4	The MAEP Interim PMO to follow-up the subject and provide regular progress reports	MAEP Interim PMO	Progress reports	Continuous
	5	EUROCONTROL to check EVAIR for MID Region Carriers data	EUROCONTROL	MID Region Carriers data in EVAIR	Apr. 2015

DIP 4	Action		Responsible	Deliverables	Timeline
Development of call sign similarity rules and Guidance Materials	1	Agree on call sign similarity rules	CSC WG/1	Endorse EUROCONTROL Rules	Feb. 2015
	2	Development of guidance material related to call sign similarity, including call sign rules, for endorsement by RASG-MID, taking into consideration the Europe experience.	MAEP Interim PMO	Guidance material including the call sign rules through RASG-MID Safety Advisory	Mar. 2015

DIP 5	Action		Responsible	Deliverables	Timeline
Communications issues leading to call sign confusion	1	Amendment of the applicability of the ASBU Module Trajectory Based Operations (TBO) included in the MID Region Air Navigation Strategy	MIDANPIRG	Updated version of the MID Air Navigation Strategy	2018
	2	Use of CPDLC at regional/sub-regional level	States IATA		2018-2023
	3	Enhance communications skills and ELP	States States/AOs ICAO	Regulation, Procedures/ Training Workshop	Continuous 2015/2016

DIP 6	Action		Responsible	Deliverables	Timeline
Ensure that the EUROCONTROL CSST is suitable for use in the MID Region	1	AOs to be encouraged to start the identification and de-conflict call sign similarity, using tools such as the EUROCONTROL CSST. (Trial and familiarization for the winter 15/16 schedule with target full implementation for the schedule of summer 2016).	AOs/IATA		Oct. 2015
	2	IATA/Etihad Airways to try the EUROCONTROL CSST and provide feedback.	IATA/EY	Trial Feedback	Jun. 2015
	3	AOs to be encouraged to participate in inter-regional call sign similarity identification and de-confliction.	AOs/IATA		MID/Long Term

DIP 7	Action		Responsible	Deliverables	Timeline
Regional dynamic tool to identify potential call sign similarity	1	Establishment of MID IFPS or similar project as a first step.	MAEP	MID IFPS	Long Term
	2	Development of the dynamic tool that identifies potential call sign similarity	MAEP	MID CSST	Long Term

3.12 The meeting recognized the need for harmonization of mitigation measures related to call sign similarity and confusion at regional and global level. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION I/I: CALL SIGN SIMILARITY PROVISIONS AND GUIDELINES

That, ICAO consider the development of global provisions and guidelines to reduce the risk associated with call sign similarity and confusion, including necessary amendment to the ICAO FPL Format.

4. FUTURE WORK PROGRAMME

4.1 The meeting agreed that the outcome of the CSC WG/1 meeting be presented to the RASG-MID/4 meeting and a progress report be presented to MIDANPIRG/15 (Bahrain, 8-11 June 2015). Accordingly, the meeting agreed that MIDANPIRG/15 should decide on the future work programme of the CSC WG.

5. ANY OTHER BUSINESS

5.1 Nothing has been discussed under this Agenda Item.

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CALL SIGN SIMILARITY**1 INTRODUCTION**

1.1 The presence of similar call signs by aircraft operating in the same area, at the same time, and on the same frequency may at times give rise to potential and actual confusion and misunderstanding between pilots and ATCOs, resulting in errors that may lead to safety related incidents. This hazard is usually referred to as "Call Sign Similarity".

1.2 Call sign similarity is one of the major causes for aircraft taking a clearance not issued for them or ATC issuing a clearance to an aircraft it was not intended to.

1.3 Airlines mainly use their IATA commercial flight numbers as call sign. However, because they tend to be allocated in batches of sequential and very similar numbers, Call Sign Similarity can occur.

1.4 Several airlines have switched to alphanumeric call signs reasonably successfully in recent years.

2 PURPOSE

2.1 The purpose of this AIC is to recommend the best courses of action in order to minimize the risk of Call sign confusion, and to mandate procedures for reporting and managing occurrences when call sign similarity leads to actual call sign confusion.

3 GUIDELINES - Airline Operators (AO)

3.1 Call signs shall be allocated in accordance with ICAO Annex 10 and Doc 8585. Additional measures include:

3.1.1 Avoid use of phonetically similar call signs on the same RTF frequency at the same time, within own company;

3.1.2 Avoid certain formats that are especially likely to lead to confusion: number sequences beginning with a low number; long number sequences (Maximum four); repeated digits; and letter sequences which correspond with the last two letters of the destination ICAO location indicator.

3.1.3 Co-ordinate advance planning, whenever possible, with other Operators (ideally prior to commencement of summer and winter season) to reduce to a minimum any similar numeric and alphanumeric elements of call signs;

3.1.4 After implementation ensure there is a tactical response system to review and amend call signs where necessary;

3.1.5 Consider starting flight number element sequences with a higher number e.g. 6 and above;

3.1.6 Avoid multiple use of the same digit e.g. ABC555;

3.1.7 Consider a more random system of call sign/flight number allocation different from the allocated aircraft commercial flight schedule number e.g. Operator ticket/flight number AB 555 Call sign ABC 5LF;

3.1.8 If similar numbered call signs are inevitable, allow a significant time and/or geographical split between aircraft using similar call signs;

3.1.9 Avoid use of similar/reversed digits/letters in alphanumeric call signs e.g. ABC 87MB and ABC 78BM;

3.1.10 In alphanumeric call signs avoid phonetic letters that can be confused with another operator designator prefix e.g. D - Delta (The Airline).

3.2 Implement a call sign de-confliction program within your airline, to review and if necessary amend call signs.

3.3 When call sign similarity between two or more aircraft leads to actual call sign confusion, which have or potentially could have compromised the safety of the aircraft, the occurrence shall be reported through the GCAA online (www.gcaa.gov.ae) incident reporting system (Reporting of Safety Incidents – ROSI) or through the operator's ASR (the operator will subsequently file the report in the ROSI system).

4 GUIDELINES - Flight Crew

4.1 Use correct RTF procedures and discipline at all times.

4.2 Do not use read back for confirmation if in doubt about an ATC instruction,

4.3 Positively confirm instructions with ATC if any doubt exists between flight crew members.

4.4 Always use headsets during times of high RTF loading. Always wear a headset when members of the flight crew are involved in other tasks and may not be monitoring the RTF.

4.5 Do not clip transmissions.

4.6 Always question unexpected instructions for any particular stage of flight.

4.7 Advise ATC if any of the following situations is observed:

4.7.1 Two or more aircraft with similar call signs are on the RTF frequency;

4.7.2 It is suspected that an aircraft has taken a clearance not intended for it;

4.7.3 It is suspected that another aircraft has misinterpreted an instruction;

4.7.4 A blocked transmission is observed.

4.8 At critical stages of flight actively monitor ATC instructions and compliance with them."

4.9 Use full RTF call signs at all times, unless call sign abbreviation has been introduced by ATC.

4.10 When call sign similarity between two or more aircraft leads to actual call sign confusion, which have or potentially could have compromised the safety of the aircraft, the occurrence shall be reported through the GCAA online (www.gcaa.gov.ae) incident reporting system (Reporting of Safety Incidents – ROSI) or through the operator's ASR (the operator will subsequently file the report in the ROSI system)..

5 GUIDELINES – Air Traffic Service Provider

5.1 Exercise particular caution when language difficulties may exist.

5.2 Advise adjacent FIR/sectors/ATS units whenever call sign similarity may potentially lead to call sign confusion between aircraft planned to enter their areas of responsibility.

5.3 The similarity of some aircraft call signs on the same frequency can cause confusion which may lead to an incident. Controllers shall warn pilots concerned and, if necessary, instruct one or both aircraft to use alternative call signs while they are on the frequency. (ICAO PANS-ATM Doc 4444 –, Chapter 12.3.1.5 and 15.7.5 refers – see NOTE 1 and 2 below).

5.4 Do not Clip transmissions.

5.5 Do not use read back time to execute other tasks.

5.6 Ensure clearances are read back correctly.

5.7 Monitor flight crew compliance with RTF call sign use.

5.8 Use correct RTF phraseology, procedures and discipline at all times.

5.9 A transmission could be blocked when two or more aircraft are responding to the same clearance. Typically the controller would hear a partial or garbled read back. If a blocked transmission is suspected, ensure that both aircraft retransmit their messages and confirm carefully that a clearance has not been taken by an aircraft for which it was not intended.

5.10 Ensure that aircraft operators are made aware of any actual or potential Call Sign Similarity reported by air traffic controllers.

5.11 When call sign similarity between two or more aircraft, or vehicles and ground personnel, leads to actual call sign confusion, which have or potentially could have compromised the safety of the aircraft, the occurrence shall be reported through the GCAA online (www.gcaa.gov.ae) incident reporting system (Reporting of Safety Incidents – ROSI).

NOTE 1: Change of radiotelephony call sign for aircraft

- An ATC unit may instruct an aircraft to change its type of RTF call sign, in the interests of safety, when similarity between two or more aircraft RTF call signs are such that confusion is likely to occur.
- Any such change to the type of call sign shall be temporary and shall be applicable only within the airspace(s) where the confusion is likely to occur.
- To avoid confusion, the ATC unit should, if appropriate, identify the aircraft which will be instructed to change its call sign by referring to its position and/or level.
- When an ATC unit changes the type of call sign of an aircraft, that unit shall ensure that the aircraft reverts to the call sign indicated by the flight plan when the aircraft is transferred to another ATC unit, except when the call sign change has been coordinated between the two ATC units concerned.
- The appropriate ATC unit shall advise the aircraft concerned when it is to revert to the call sign indicated by the flight plan.

NOTE 2: Phraseology

CHANGE OF CALL SIGN	
... to instruct an aircraft to change its type of call sign	a) CHANGE YOUR CALL SIGN TO (new call sign) [UNTIL FURTHER ADVISED];
... to advise an aircraft to revert to the call sign indicated in the flight plan	b) REVERT TO FLIGHT PLAN CALL SIGN (call sign) [AT (significant point)].

6 Guidelines for Airport Operators

6.1 Ensure user airport information systems can cope with conversion of call signs (for ATC use) back to commercial flight numbers for passenger and airport use.

7 CONCLUSION

7.1 UAE Air Traffic Services Providers shall:

7.1.1 Establish procedures for the management and reporting of occurrences when call sign similarity leads to actual call sign confusion, and reference the procedure in the ATS Operations Manual, e.g. LATSI;

7.1.2 Reinforce the management of Call Sign Similarity with ATCO's: implementing related available resources from Eurocontrol All Clear Tool kit <http://www.skybrary.aero/index.php/Toolkit:ALLCLEAR>

7.1.3 Establish the management of Call Sign Similarity as part of the syllabus for the ATCO Annual ECT.

7.1.4 Distribute this AIC to the ATCOs workforce, as well the Eurocontrol All clear Top5Tips <http://www.skybrary.aero/bookshelf/books/116.pdf> and <http://www.skybrary.aero/index.php/Toolkit:ALLCLEAR>

7.2 UAE Operators shall:

7.2.1 Establish procedures for the management and reporting of Call Sign Similarity;

7.2.2 Reinforce the management of Call Sign Similarity with aircrew: implementing related available resources from Eurocontrol All Clear Tool kit <http://www.skybrary.aero/index.php/Toolkit:ALLCLEAR> ;

7.2.3 Distribute this AIC to the Flight Crew workforce as well the Eurocontrol All clear Top5Tips <http://www.skybrary.aero/bookshelf/books/116.pdf>

7.2.4 Implement a call sign de-confliction program within your airline, to review and if necessary amend call signs.

7.2.5 Use the Call Sign Similarity Tool (CSST) to de-conflict similar call signs embedded in their schedules and so reduces the incidence of Call Sign Similarity events. <https://www.eurocontrol.int/services/call-sign-similarity-css-service>

8 REFERENCES

8.1 ICAO ANNEX 10 Volume II Section 5.2.1.7

8.2 ICAO Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services

8.3 ICAO Doc 4444 – Procedures for Air Navigation Services Air Traffic Management

8.4 ICAO Doc 9432 – Manual of Radiotelephony

8.5 EUROCONTROL / ICAO Phraseology Reference Guide [All Clear Safety Initiative]

8.6 UAE CAR PART VIII SUB PART 4; CAR 4.33 + CAR 4.24

8.7 UAE GCAA CAAP 47 Radio Telephony and Three Letter Designations

8.8 UAE GCAA CAAP 22 Reporting of Safety Incidents

8.9 UAE GCAA CAAP 69 UAE Radio Telephony Standards

9 Other resources and reference

9.1 EUROCONTROL - Call Sign Similarity (CSS) Service

9.2 CAP 704 Aircraft Call Sign Confusion Evaluation Safety Study

APPENDIX B

EUROCONTROL Call Sign Similarity Rules**Current OPS NM18.5**

There are **21** rules currently implemented in the EUROCONTROL Call Sign Similarity Tool (CSST) OPS as Global recommended rules.

They are divided into three categories: Level One, Two and Three.

SIMILARITY RULES LEVEL ONE

Level One rules apply to a single call sign (entity conflict).

1	Acceptable ATC Flight Formats	n,nA,nAA,nn,nnA,nnAA,nnn,nnnA,nnnn
2	Avoid Triple Repetition	444, 1444
3	FL Values Avoid Use of 200-480 at end	ABC1350, ABC200
4	Avoid Use of the letter S at the end of a Flight ID (To avoid confusion with the number 5 on flight strip or radar display)	ABC13S
5	Include anywhere O, I (Avoid confusion with 0 (zero) and 1 One on flight strip or radar display)	ABC12OB, ABC456I
6	UKNATS Local Rule (Avoid PH, PK, PD, PF at end of call sign in airspace EGP*)	ABC34PH
7	UKNATS Local Rule (Avoid AC,BB, CC,FF, GW, HI, JJ, KK, LC, LF,LL at end of call sign <u>landing</u> at aerodrome EG*)	ABC64LL destination EG*
8	Avoid QNH_QFE values HIGH 1000-1030	ABC1000, ABC1013
9	Avoid QNH-QFE LOW 985-999	ABC985, ABC986
10	Avoid exact match of 28G	ABC28G request from SENASA Spain

SIMILARITY RULES LEVEL TWO (applying to flights which overlap)

Level Two rules apply to flights which overlap in time and space according to the buffer times and airspace profile.

1	Avoid Identical Bigrammes		IB345BB and AF231BB
2	Identical Final Digits	(used with parameter 0) Conflict when the last 3 digits of CS1 are equal to the last 3 digits of CS2. Note the difference with the normal identical final digits 3: whereas before AFR123A and AFR123B would not have been caught the new behaviour '0' will catch it. Conflict when the last 3 characters of CS1 and CS2 are digits and are equal.	
3	Avoid Identical Flight ID	To avoid same Flight ID being used or proposed twice in the schedule for different CFN's.	e.g. you cannot have CFN1234 = FIN12A CFN3655 = FIN12A.

			In the same schedule
4	Anagrams	Contains normal anagram behaviour plus: Conflict when the distinct characters of CS1 are present in CS2 and when the distinct characters of CS2 are present in CS1. Example AFR155A vs. AFR511A. Partial anagrams are also considered (4 v 4) 1180 v1008	123 v 321 4 v 444 12 v 612
5	Parallel Characters	<p>a) parallel characters 3 e.g. 2365 vs 1365 or 1235 vs 1435</p> <p>b) when length of CS1 = length of CS2: Identical Final Two characters (alpha or numeric)</p> <p>d) When: CS1 = 3 characters and CS2 = 4 characters, CS1 = 3 characters and CS2 = 5 characters, CS1 = 4 characters and CS2 = 4 characters, CS1 = 4 characters and CS2 = 5 characters , CS1 = 5 characters and CS2 = 5 characters:</p> <ul style="list-style-type: none"> First character + last character equal in both CS + one more additional character in common e.g. (AFR1025 AFR1295), (AFR102A AFR12QA). First character + second character equal in both CS + one more additional letter in common e.g. AFR102A AFR10AB. When length CS1 is (3) and CS2 is (4): First character + second character equal + both CS contain at least one letter e.g. AFR10A and AFR10CD. <p>e) When CS length 2 vs. 3 , 2 vs. 4, 2 vs. 5:</p> <ul style="list-style-type: none"> Conflict when the longest CS contains the CS length 2 e.g. AFR10D and AFR101B <p>f). When CS length 2 vs. 2, 1 vs. 2, 1 vs. 3,</p> <ul style="list-style-type: none"> Conflict when both CS start with the same character or end with the same character <p>Length 2 vs. 4 should only be a conflict when first 2 digits are identical and same position (example 12 vs. 1234 would be conflict but 12 versus 2134 is not a conflict).</p>	
6	2 letter anagram	Avoid Call Signs having last two letters as anagram	ABC31BA vs. ABC56AB
7		Length 2 vs.: Length 3 with first and last symbol in common	4A v 41A
8		Length 3 vs. 3: one digit in common and same last letter	89A v 91A
9		Length 4 vs. Length 4: one digit and 1 letter in common (does not apply where bigrammes are involved ex. 56EV vs. 26AV)	123A v 516A

SIMILARITY RULES APPLYING TO ALL FLIGHT PAIRS

Level 3 rules apply even if flights don't overlap.

1	Same Flight ID needs same CFN	Similar to the avoidance of identical Flight ID rule above but applies to flights even when they don't overlap/conflict. This is to avoid the same Flight ID being used twice in the schedule for two different CFNs. Example, if you change FIN 2345 to Flight ID FIN45G then the tool will raise a warning if you try to again use FIN45G for another CFN e.g. FIN 6555 and FIN45G will raise warning because you already used it for FIN2345.	
2	Unique Numeric Flight ID	A flight with a numeric Flight ID and having a CFN different from its Flight ID cannot have a Flight ID equal to the CFN of another flight in the schedule	CFN 1234 ATC Flight ID 565 CFN 565 ATC Flight ID 45Y

Buffer Times: Aerodrome 10 minutes – 40 minutes, Airspace arrival time 10 minutes- 40 minutes.

Case	Reporting ANSP or AO	Place of occurrence (Airport, sector, etc)	Date of occurrence (26/04/2013)	Time (UTC)	Call signs (one line for each)	Departure airport (ICAO 4- letter code)	Arrival airport (ICAO 4- letter code)	Type of aircraft (ICAO type design)	Aircraft Operator (ICAO 3- letter code)	Type of Occurrence (CSS or CSC)	AO using CSST (YES or NO)
1											
2											
3											
4											
1											
2											

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RASG-MID SAFETY ADVISORY – 04

(RSA-04)

May 2015

GUIDANCE MATERIAL RELATED TO CALL SIGN SIMILARITY

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Disclaimer

This document has been compiled by the MID Region civil aviation stakeholders to mitigate the risk associated with call sign confusion. It is not intended to supersede or replace existing materials produced by the National Regulator or in ICAO SARPs. The distribution or publication of this document does not prejudice the National Regulator's ability to enforce existing National regulations. To the extent of any inconsistency between this document and the National/International regulations, standards, recommendations or advisory publications, the content of the National/International regulations, standards, recommendations and advisory publications shall prevail.

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GUIDANCE MATERIAL RELATED TO CALL SIGN SIMILARITY

INTRODUCTION

Call sign similarity and confusion has been identified as a safety issue by the Second Meeting of the Middle East Regional Aviation Safety Group (RASG-MID/2) (Abu Dhabi, UAE, 12 – 14 November 2012).

The MIDANPIRG Steering Committee (MSG/4) recognized the urgency of implementing mitigation measures for the call sign similarity and confusion and agreed to establish a Call Sign Confusion ad-hoc Working Group (CSC WG) to develop solutions to mitigate the risk associated with call sign confusion. The CSC WG developed Draft Safety Enhancement Initiative (SEI) and Detailed Implementation Plans (DIPs) related to call sign similarity/confusion of which DIP 4 item 2 calls for the development of call sign similarity rules and guidance material.

The purpose of this Safety Advisory is to develop a clear set of guidelines and call sign similarity rules for Aircraft Operators (AOs) and Air Traffic Controllers (ATC) that could reduce the probability of call sign similarity/confusion occurrence.

DESCRIPTION

An aircraft call sign is a group of alphanumeric characters used to identify an aircraft in air-ground communications. The rules governing the use of aircraft call signs are laid down in ICAO Annex 10: Aeronautical Communications, Volume II - Communication Procedures, Chapter 5. Relevant paragraphs are summarized below.

Three different types of aircraft call sign may be encountered (see table below), as follows:

- Type (a) The characters corresponding to the registration marking of the aircraft (e.g. ABCDE). The name of the aircraft manufacturer or model may be used as a prefix (e.g. Airbus ABCDE);
- Type (b) The telephony designator of the aircraft operating agency, followed by the last four characters of the registration marking of the aircraft (e.g. Rushair BCDE);
- Type (c) The telephony designator of the aircraft operating agency, followed by the flight identification (e.g. Rushair 1234).

Examples of Full Call Signs and Abbreviated Call Signs				
	Type (a)		Type (b)	Type (c)
Full Call Sign	ABCDE	Airbus ABCDE	Rushair BCDE	Rushair 1234
Abbreviated Call Sign	ADE or ACDE	Airbus DE or Airbus ABDE	Rushair DE or Rushair BDE	No abbreviated form

The full call sign must be used when establishing communications. After satisfactory communication has been established, abbreviated call signs may be used provided that no confusion is

likely to arise; however, **an aircraft must use its full call sign until the abbreviated call sign has been used by the ground station.**

Most airline call signs belong to type (c) for which there is no abbreviation. An aircraft is not permitted to change its call sign during flight, **except** temporarily on the instruction of an air traffic control unit in the interests of safety.

In order to avoid any possible confusion, when issuing ATC clearances and reading back such clearances, controllers and pilots must always add the call sign of the aircraft to which the clearance applies.

The use of similar call signs by aircraft operating in the same area and especially on the same RTF frequency often gives rise to potential and actual flight safety incidents. This hazard is usually referred to as “call sign confusion”.

ICAO DOC4444 CHANGE OF RADIOTELEPHONY CALL SIGN FOR AIRCRAFT:

An ATC unit may instruct an aircraft to change its type of RTF call sign, in the interests of safety, when similarity between two or more aircraft RTF call signs are such that confusion is likely to occur.

Any such change to the type of call sign shall be temporary and shall be applicable only within the airspace(s) where the confusion is likely to occur.

To avoid confusion, the ATC unit should, if appropriate, identify the aircraft which will be instructed to change its call sign by referring to its position and/or level.

When an ATC unit changes the type of call sign of an aircraft, that unit shall ensure that the aircraft reverts to the call sign indicated by the flight plan when the aircraft is transferred to another ATC unit, except when the call sign change has been coordinated between the two ATC units concerned.

The appropriate ATC unit shall advise the aircraft concerned when it is to revert to the call sign indicated by the flight plan.

The following are some examples of the more common causes for call sign confusion:

- Airlines allocate commercial flight numbers as call-signs; these are normally consecutive and therefore similar (e.g. RUSHAIR 1431, RUSHAIR 1432, etc.)
- Airlines schedule flights with similar call signs to be in the same airspace at the same time.
- Call signs coincidentally contain the same alphanumeric characters in a different order (e.g. AB1234 and BA 2314).
- Call signs contain repeated digits (e.g. RUSHAIR 555).

RECOMMENDED SOLUTIONS

- Many larger airlines operate call sign de-confliction programmes. These involve reviewing company call signs to ensure that aircraft with similar call signs are not likely to be routinely in the same airspace at the same time, and a process to systematically resolve ongoing issues arising from reports of similar call signs from their flight crew, ANSPs or other operators
- Airline Operators with high flight densities in particular airspace should consider routinely using a combination of numeric and alphanumeric call sign formats.
- Airline Operators should observe the following guidance in selecting call signs:

- Avoid the use of similar call signs within the company;
- Where practicable, proactively co-ordinate with other operators to minimize similar numeric and alphanumeric elements of call signs;
- Avoid call signs with a four-number sequence; all-numeric call signs should be limited to a maximum of three digits;
- Do not use the same digit repeated more than once (e.g. RUSHAIR 555);
- If letter suffixes are to be used with a preceding number sequence, limit the full string to a maximum of four alphanumeric components and, to the extent possible, coordinate letter combinations with other airspace and airport users;
- Do not use alphanumeric call signs which have their last two letters as the destination's ICAO location indicator (e.g. RUSHAIR 25LL for a flight inbound to London Heathrow);
- If similarly-numbered call signs are unavoidable within a company, allow a significant time (at least 3 hours at any shared-use vicinity) and/or geographical split between aircraft using them;
- Do not use similar/reversed digits/letters in alphanumeric call-signs (e.g. RUSHAIR 87MB and RUSHAIR 78BM).
- For short haul flights, avoid using number sequences for particular routes which begin the day with.01 and then continue sequentially through the day.

CALL SIGN SIMILARITY 'RULES'

Agreement on and publication of 'Similarity' is a relative term and means different things to different people. The CSC WG/1 recommended the use of the call sign similarity rules of EUROCONTROL; this was later endorsed by the RASG-MID/4 meeting. The following table provides details on the similarity rules adopted by the MID Region.

MID Region Call Sign Similarity Rules

Based on the EUROCONTROL - OPS NM18.5 (currently 21 rules implemented in the EUROCONTROL Call Sign Similarity Tool (CSST) OPS as Global recommended rules).

The call sign similarity rules are divided into three categories: Level One, Two and Three.

SIMILARITY RULES LEVEL ONE

Level One rules apply to a single call sign (entity conflict).

1	Acceptable ATC Flight Formats	n,nA,nAA,nn,nnA,nnAA,nnn,nnnA,nnnn
2	Avoid Triple Repetition	444, 1444
3	FL Values Avoid Use of 200-480 at end	ABC1350, ABC200
4	Avoid Use of the letter S at the end of a Flight ID (To avoid confusion with the number 5 on flight strip or radar display)	ABC13S
5	Include anywhere O, I (Avoid confusion with 0 (zero) and 1 One on flight strip or radar display)	ABC12OB, ABC456I

6	UKNATS Local Rule (Avoid PH, PK, PD, PF at end of call sign in airspace EGP*)	ABC34PH
7	UKNATS Local Rule (Avoid AC,BB, CC,FF, GW, HI, JJ, KK, LC, LF,LL at end of call sign <u>landing</u> at aerodrome EG*)	ABC64LL destination EG*
8	Avoid QNH_QFE values HIGH 1000-1030	ABC1000, ABC1013
9	Avoid QNH-QFE LOW 985-999	ABC985, ABC986
10	Avoid exact match of 28G	ABC28G request from SENASA Spain

SIMILARITY RULES LEVEL TWO (applying to flights which overlap)

Level Two rules apply to flights which overlap in time and space according to the buffer times and airspace profile.

1	Avoid Identical Bigrammes		IB345BB and AF231BB
2	Identical Final Digits	(used with parameter 0) Conflict when the last 3 digits of CS1 are equal to the last 3 digits of CS2. Note the difference with the normal identical final digits 3: whereas before AFR123A and AFR123B would not have been caught the new behaviour '0' will catch it. Conflict when the last 3 characters of CS1 and CS2 are digits and are equal.	
3	Avoid Identical Flight ID	To avoid same Flight ID being used or proposed twice in the schedule for different CFN's.	e.g. you cannot have CFN1234 = FIN12A CFN3655 = FIN12A. In the same schedule
4	Anagrams	Contains normal anagram behaviour plus: Conflict when the distinct characters of CS1 are present in CS2 and when the distinct characters of CS2 are present in CS1. Example AFR155A vs. AFR511A. Partial anagrams are also considered (4 v 4) 1180 v1008	123 v 321 4 v 444 12 v 612
5	Parallel Characters	a) parallel characters 3 e.g. 2365 vs 1365 or 1235 vs 1435 b) when length of CS1 = length of CS2: Identical Final Two characters (alpha or numeric) d) When: CS1 = 3 characters and CS2 = 4 characters, CS1 = 3 characters and CS2 = 5 characters, CS1 = 4 characters and CS2 = 4 characters, CS1 = 4 characters and CS2 = 5 characters , CS1 = 5 characters and CS2 = 5 characters:	

		<ul style="list-style-type: none"> First character + last character equal in both CS + one more additional character in common e.g. (AFR1025 AFR1295), (AFR102A AFR12QA). First character + second character equal in both CS + one more additional letter in common e.g. AFR102A AFR10AB. When length CS1 is (3) and CS2 is (4): First character + second character equal + both CS contain at least one letter e.g. AFR10A and AFR10CD. <p>e) When CS length 2 vs. 3 , 2 vs. 4, 2 vs. 5:</p> <ul style="list-style-type: none"> Conflict when the longest CS contains the CS length 2 e.g. AFR10D and AFR101B <p>f). When CS length 2 vs. 2, 1 vs. 2, 1 vs. 3,</p> <ul style="list-style-type: none"> Conflict when both CS start with the same character or end with the same character <p>Length 2 vs. 4 should only be a conflict when first 2 digits are identical and same position (example 12 vs. 1234 would be conflict but 12 versus 2134 is not a conflict).</p>	
6	2 letter anagram	Avoid Call Signs having last two letters as anagram	ABC31BA vs. ABC56AB
7		Length 2 vs.: Length 3 with first and last symbol in common	4A v 41A
8		Length 3 vs. 3: one digit in common and same last letter	89A v 91A
9		Length 4 vs. Length 4: one digit and 1 letter in common (does not apply where bigrammes are involved ex. 56EV vs. 26AV)	123A v 516A

SIMILARITY RULES APPLYING TO ALL FLIGHT PAIRS

Level 3 rules apply even if flights don't overlap.

1	Same Flight ID needs same CFN	Similar to the avoidance of identical Flight ID rule above but applies to flights even when they don't overlap/conflict. This is to avoid the same Flight ID being used twice in the schedule for two different CFNs. Example, if you change FIN 2345 to Flight ID FIN45G then the tool will raise a warning if you try to again use FIN45G for another CFN e.g. FIN 6555 and FIN45G will raise warning because you already used it for FIN2345.	
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2	Unique Numeric Flight ID	A flight with a numeric Flight ID and having a CFN different from its Flight ID cannot have a Flight ID equal to the CFN of another flight in the schedule	CFN 1234 ATC Flight ID 565 CFN 565 ATC Flight ID 45Y
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Buffer Times: Aerodrome 10 minutes – 40 minutes, Airspace arrival time 10 minutes- 40 minutes.

REFERENCES

- ICAO Annex 10 and Doc 4444.
- Eurocontrol OPS NM18.5
- Industry best practice

APPENDIX C

Call Sign Similarity/Confusion Reporting Template

Case	Reporting ANSP or AO	Place of occurrence (Airport, sector, etc)	Date of occurrence (26/04/2013)	Time (UTC)	Call signs (one line for each)	Departure airport (ICAO 4- letter code)	Arrival airport (ICAO 4-letter code)	Type of aircraft (ICAO type design)	Aircraft Operator (ICAO 3-letter code)	Type of Occurrence (CSS or CSC)	AO using CSST (YES or NO)
1											
2											
3											
4											
1											
2											



EVAIR Analysis

Call Sign Similarity/Confusion of Mideast AOs within ECAC 2008 – Apr 2015

Introduction

EUROCONTROL Call Sign Similarity (CSS) project and its User Group, consisted of Air Operators (AOs) and Air Navigation Service Providers (ANSPs), mandated EUROCONTROL Voluntary ATM Incident Reporting (EVAIR) to make monitoring of the Call Sign Similarity/Confusion (CSS/C) occurrences and in that regard the efficiency of the CSS de-confliction tool.

For the analysis EVAIR uses reports provided by Air Operators (AOs) through their Safety Management System (SMS) and ANSPs reports provided through their SMSs.

Following the mandate of the CSS project, EVAIR have been making different CSS and Call Sign Confusion (CSC) analysis. Herewith we provide statistics related to the Mideast AOs and their involvement in the CSS/C occurrences within ECAC airspace. The analyses cover the period 2008 – Apr 2015.

For the mentioned period EVAIR received for the ECAC airspace in total 13005 reports. The majority of them were provided by ANSPs (12668) and the rest of 337 by AOs. For the below statistics we used absolute figures.

Mideast AOs monitored by EVAIR

For this analysis EVAIR monitored the 10 Mideast airlines for which we got reports:

1. Emirates Airline – UAE
2. Etihad - ETD
3. Gulf Air - GFA
4. Iran Air - IRA
5. Kuwait Airways - KAC
6. Mahan Air - IRM
7. Middle East Airline - MEA
8. Qatar Airways - QTR
9. Royal Jordanian - RJA
10. Saudi Arabian Airlines – SVA

Total Mideast AOs CSS/C reports for the ECAC region

For the mentioned period in total Mideast AOs participated within ECAC airspace with 985 occurrences. In 712 of them CSS/C was with the AOs outside Mideast region while in 273 it was with themselves or other Mideast AOs. (Figure 1)

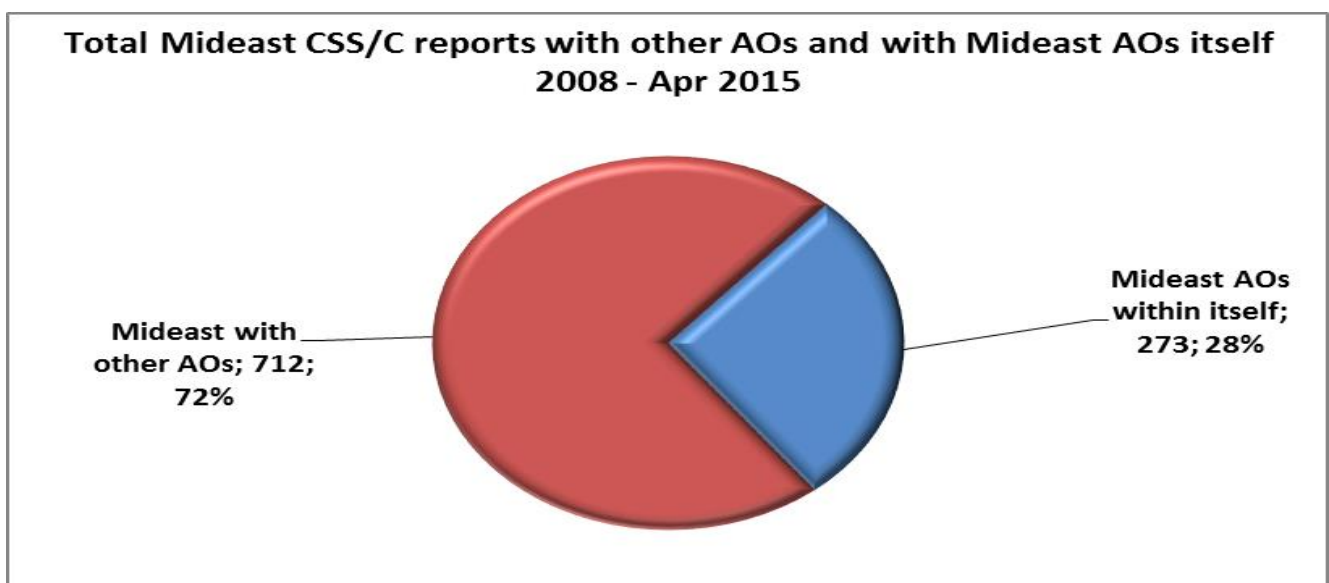


Figure 1

Mideast AOs CSS/C with AOs outside Mideast and with themselves when operating within ECAC

Figure 2 shows reports where Mideast AOs were involved in CSS/C when flying through the ECAC airspace. The graph shows CSS/C Mideast AOs had with all AOs operating within ECAC airspace and CSS/C with their own company. Reports within the same AO mean that EVAIR monitored in this regard CSS/C within each of 10 monitored AOs and then added them into the total number of the CSS/C of Mideast AOs thus getting the value as shown in the Figure2.

EVAIR identified occurrences where within one occurrence there were two, three or four AOs with their similar call signs or two to four flights of the same AO.



Explanation of the titles in the Figures from 2 to 6:

2CS other AO – One occurrence with two similar or confusing call signs (CSs) between two flights of two different AOs one of them being Mideast AO. All of them flying within the same ECAC airspace sector and the same time.

2CS Same AO – One occurrence with two similar or confusing CSs of the same Mideast AO flying within the same ECAC airspace sector and the same time.

3CS other AO – One occurrence with three similar or confusing CSs between three AOs of which at least one was Mideast AO. All of them flying within the same ECAC airspace sector and the same time.

3CS same AO – One occurrence with three similar or confusing CSs between the same Mideast AO flying within the same ECAC airspace sector and the same time.

4CS other AO – One occurrence with four similar or confusing CSs between four AOs of which at least one was Mideast AO. All of them flying within the same ECAC airspace sector and the same time.

4CS same AO – One occurrences with four similar or confusing CSs between the same Mideast AO flying within the same ECAC sector and the same time.

Figure 2 shows that 70% of the CSS/C occurrences had two AOs of which one was Mideast AO and the other outside Mideast area. There were 25% of the occurrences with two Mideast AOs. The rest of 5% were CSS/C with three or four call signs within the same occurrence and between Mideast and AOs outside Mideast and Mideast AOs between themselves.

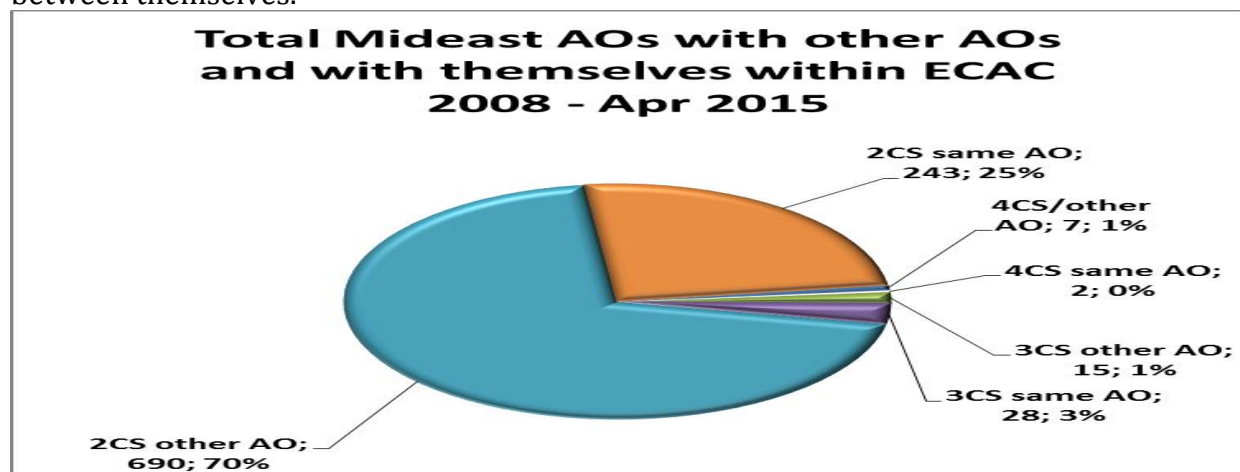


Figure 2

Figures 3,4,5,6 show the analysis for a few AOs from the list of the 10 Mideast monitored AOs. Due to confidentiality reasons we do not give their names but marked them with the figures 1,2,3,8. If we get the approval from the 10 airlines list we would publish their names.

Regarding the principles of the statistics for the separate AOs, they are the same as for the graph 2. E.g. AO1 had 77% or 281 CSS/C occurrences with another AO either Mideast or outside Mideast area. 20% or 73 CSS/C occurrences happened with another flight of their own company. 2% or 6 occurrences happened when three flights with the similar or confusing call signs of the same company were flying within the same ECAC airspace sector and the same time. One occurrence was recorded within the same airspace sectors and the same time where four flights of the same company participated.

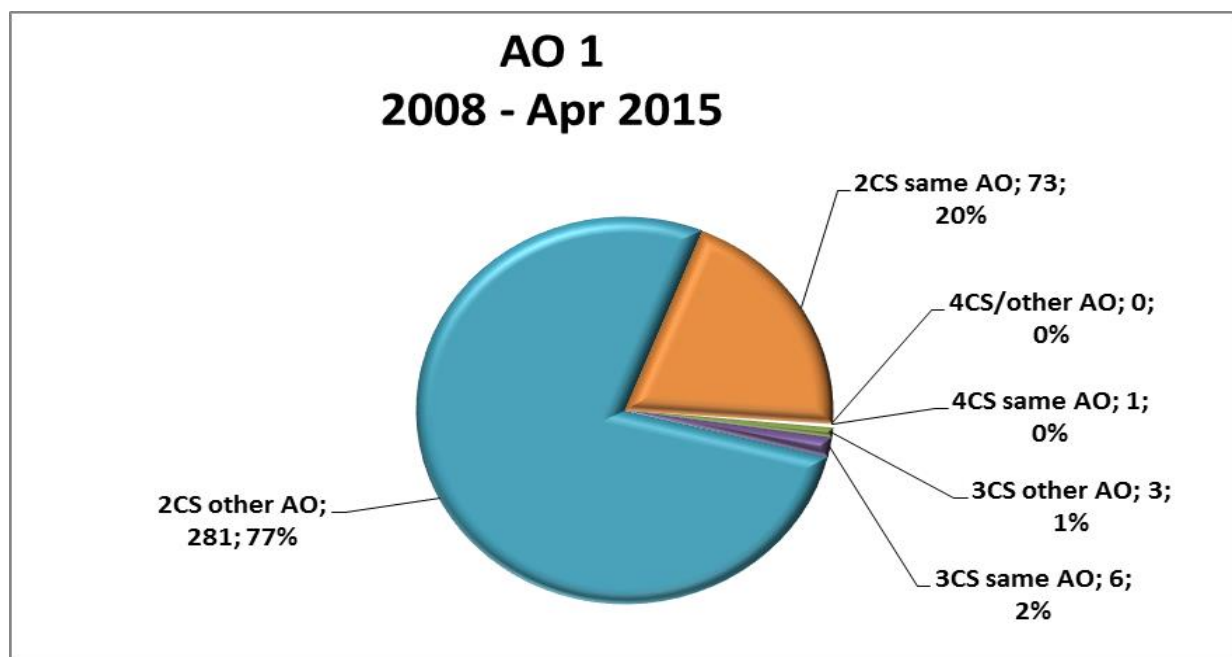


Figure 3

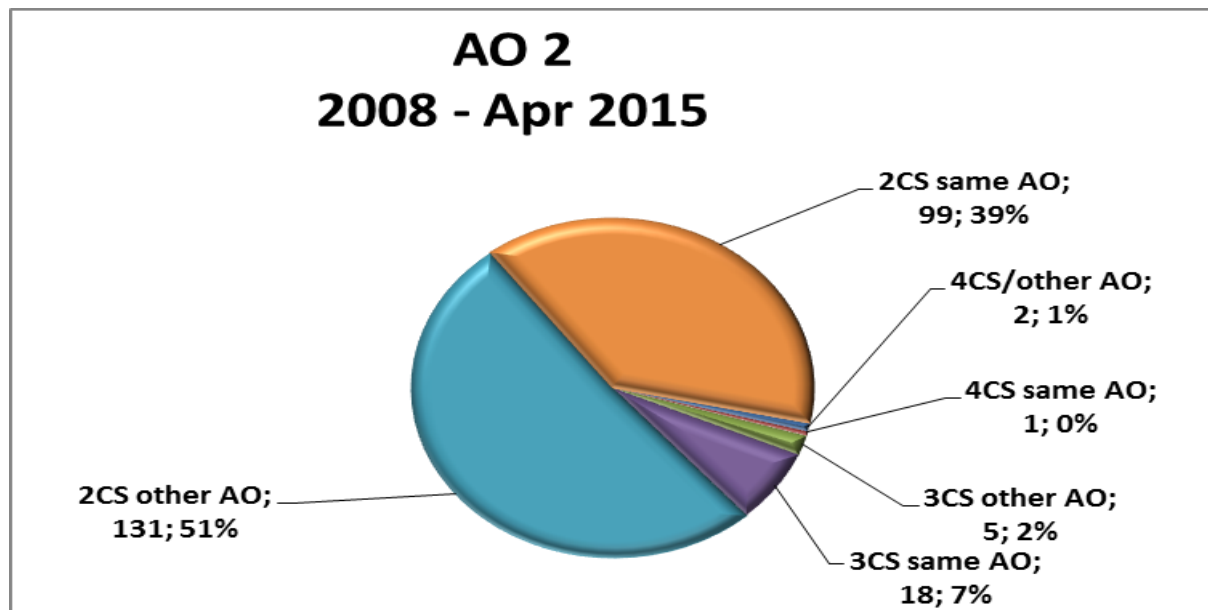


Figure 4

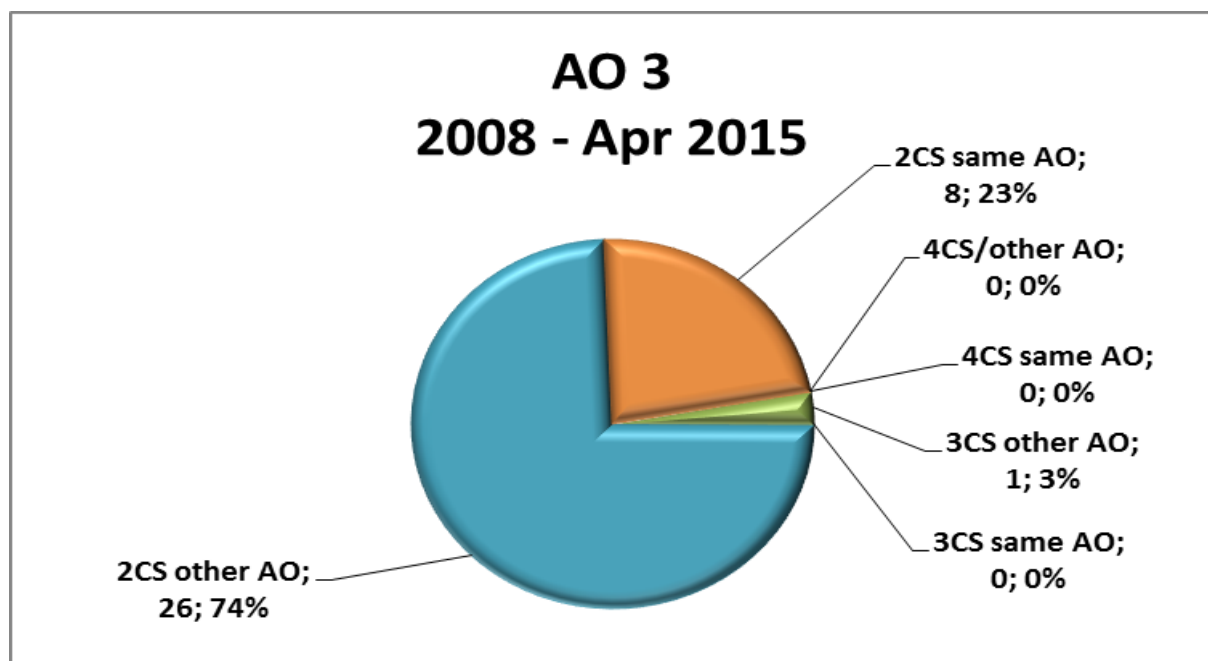


Figure 5

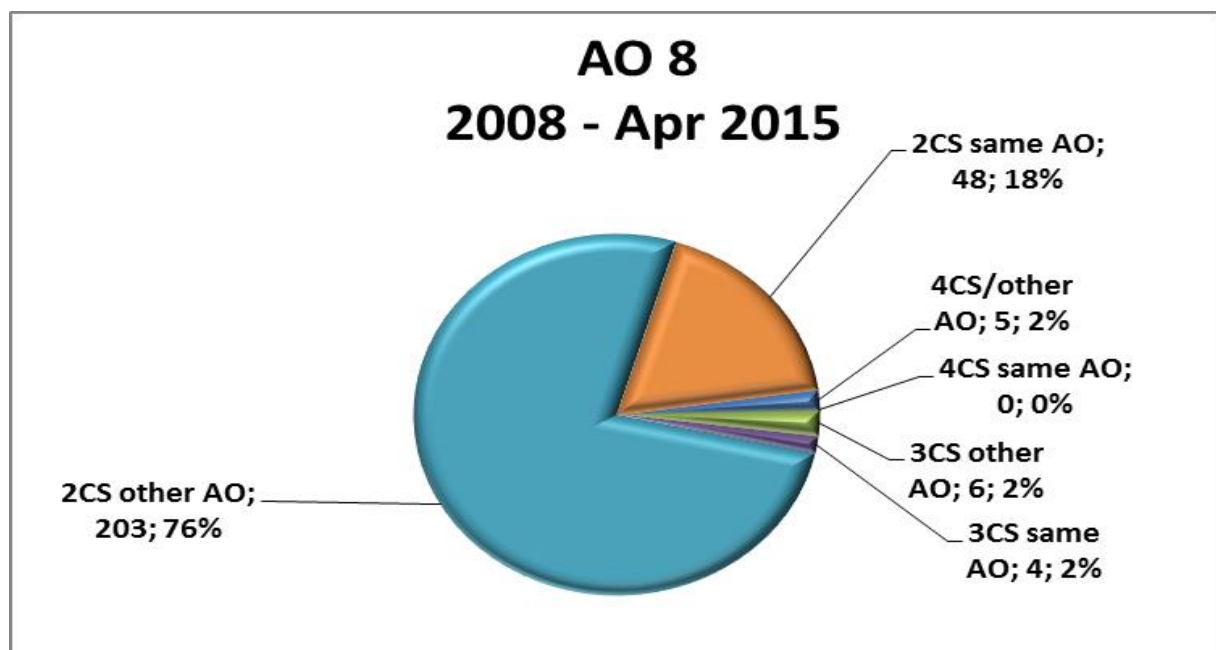


Figure 6

Our statistics show that in the majority of cases when flying through the ECAC airspace Mideast AOs have CSS/C problems with the AOs outside Mideast. However, problems related to the similar call signs exist between Mideast AOs and within the same airline. It is interesting that in certain number of occurrences we recorded the same Mideast operator having three to four flights with similar call signs flying within the same airspace sector and the same time.

APPENDIX E

Progress Report on the Actions agreed on during the First meeting of the Call Sign Confusion ad-hoc Working Group (CSC WG/1)
(Abu Dhabi, UAE 16-18 February 2015)

The Table below reflects the summary of replies to the questionnaire on call sign confusion through State Letter Ref.: AN 6/34-14/332 dated 18 December 2014:

Question	1-Does your State Regulations allow the use of alphanumeric call sign ending with a LETTER(s)	2-Does your ATM system accept the following call sign format in the FPL: - alphanumeric: e.g. ETD020 - alphanumeric ending with a LETTER(s): e.g. ETD020A, ETD21BC	3-Is the use of alphanumeric call sign ending with a LETTER(s) already implemented?	4-Do you have any restriction (technical, regulatory, procedure, etc.) on the use of alphanumeric call sign ending with a LETTER(s)?	5-Please advise what are your preferred options, plans and/or implemented measures to mitigate the risk associated with call sign confusion and similarity?	6-Does your ATM system capable to manage the call sign similarity?	7-Additional comments, if any.
Bahrain	Yes	Yes	Yes	No	No preferred option/manual measures	No	None
Egypt	Yes	Yes	Yes	No	No preferred option	Yes	None
Iran	Yes	Yes	Yes	Yes	No preferred option/manual measures	No	None
Iraq	Yes	Yes	Yes	No	No preferred option/manual measures	No	None
Lebanon	Yes	Yes	Yes	No	No preferred option/manual measures	No	Note 1
Qatar	Yes	Yes	Yes	No	No preferred option/Automat ic Call sign of the 1 st aircraft	Yes	Support the CSC WG work programme
Syria	Yes	Yes	Yes	No	No preferred option	Yes	None
UAE	Yes	Yes	Yes	No	No preferred option/manual measures	Yes	Reference made to UAE documentation
8 Replies	8 Yes	8 Yes	8 Yes	1 Yes	No State reported their preferred option	4 Yes	-----
	----	---	---	7 No		4 No	

Note 1 Lebanon: call sign ending with a letter(s) when needed must be regulated through a global plan to determine the letters added in order to be allocated according to countries and companies abbreviations

Call Sign Similarity and Confusion Action Plan

Objective 1	Action		Responsible	Deliverables	Timeline	Progress
States to accept Alphanumeric call sign, including the overflight permissions and airports slots	1	Flight Plan Tests to identify the States that are not capable to accept alphanumeric call signs. 1- ATM Systems 2- Overflight permissions 3- Airports 4- Bilateral tests	IATA	FPL Tests results	Apr.2015	Test 1 and 2 completed under the MEAP IPMO
	2	Agree on a call sign to be used for testing purposes	CSC WG/1	TEST1AB to be used as Test Call Sign	Feb. 2015	Completed under the MEAP IPMO
	3	Identification of the States that do not accept the use of alphanumeric call sign (due to regulatory constraints)	IATA ICAO	List of States	Jun. 2015	Completed under the MEAP IPMO
	4	Concerned States be urged to accept the use of alphanumeric call sign	ICAO States	State Letter Regulations	May 2015 TBD	Pending the identification of the States (Sug. to closed)
	5	Concerned States be urged to upgrade their systems to accept alphanumeric call sign	ICAO States	State Letter ATM System capability	May 2015 MID/Long Term	Pending the identification of the States (Sug. to closed)
	6	Training/awareness of relevant personnel dealing with FPLs (AOs, regulators, ATCOs, personnel granting overflight permissions and airports slots, etc.)	AOs States IATA/ICAO	Training/ awareness campaign Workshop	Continuous Early 2016	To be decided by next RSC
	7	IATA and ICAO to follow-up the issue with the identified States and provide assistance as appropriate.	IATA ICAO		As appropriate	Pending the identification of the States

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Objective 2	Action		Responsible	Deliverables	Timeline	Progress
Sharing of experience and inter-regional coordination	1	Sharing experience with EUROCONTROL with regard to call sign similarity/confusion (exchange of reports, list of AOs using the CSST, mitigation measures implemented by ANSPs and AOs, etc.)	EUROCONTR OL ICAO	Exchange of information	Continuous	Ongoing
	2	Encourage States and AOs to participate in the EUROCONTROL CSS User Group	ICAO	Nr. of States and AOs	Continuous	Ongoing
	3	UAE to provide feedback on the measures implemented in UAE	UAE	Feedback	Dec. 2015	Ongoing

Objective 3	Action		Responsible	Deliverables	Timeline	Progress
Follow-up, coordination and reporting of the issues related to call sign similarity/confusion	1	Assignment of Focal Points (Use the INFPL Focal Point as a starting point)	ICAO	Focal Points	Mar. 2015	Completed
	2	States/ANSPs be encouraged to investigate and implement simplified reporting tool to trigger call sign similarity/confusion reports, in order to improve reporting.	ICAO States	State Letter Feedback	Mar. 2015 Jun. 2015	
	3	Reporting of call sign similarity/confusion to the MAEP Interim PMO, using the EUROCONTROL excel sheet	ANSPs AOs	CS Similarity and Confusion Reports	Jul. 2015	In progress under the MEAP IPMO Tests
	4	The MAEP Interim PMO to follow-up the subject and provide regular progress reports	MAEP Interim PMO	Progress reports	Continuous	Refer to MIPMO working paper
	5	EUROCONTROL to check EVAIR for MID Region Carriers data	EUROCONTR OL	MID Region Carriers data in EVAIR	Apr. 2015	Completed

Objective 4	Action		Responsible	Deliverables	Timeline	Progress
Development of call sign similarity rules and Guidance Materials	1	Agree on call sign similarity rules	CSC WG/1	Endorse EUROCONTROL Rules	Feb. 2015	Completed Endorsed by RASG-MID/4 meeting
	2	Development of guidance material related to call sign similarity, including call sign rules, for endorsement by RASG-MID, taking into consideration the Europe experience.	MAEP Interim PMO	Guidance material including the call sign rules through RASG-MID Safety Advisory	Mar. 2015	Completed RSA-04 issued on 26 May 2015

Objective 5	Action		Responsible	Deliverables	Timeline	Progress
Communications issues leading to call sign confusion	1	Amendment of the applicability of the ASBU Module Trajectory Based Operations (TBO) included in the MID Region Air Navigation Strategy	MIDANPIRG	Updated version of the MID Air Navigation Strategy	2018	
	2	Use of CPDLC at regional/sub-regional level	States IATA		2018-2023	To be decided by next RSC
	3	Enhance communications skills and ELP	States States/AOs ICAO	Regulation, Procedures/ Training Workshop	Continuous 2015/2016	To be decided by next RSC

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Objective 6	Action		Responsible	Deliverables	Timeline	Progress
Ensure that the EUROCONTROL CSST is suitable for use in the MID Region	1	AOs to be encouraged to start the identification and de-conflict call sign similarity, using tools such as the EUROCONTROL CSST. (Trial and familiarization for the winter 15/16 schedule with target full implementation for the schedule of summer 2016).	AOs/IATA		Oct. 2015	In progress under the MEAP IPMO
	2	IATA/Etihad Airways to try the EUROCONTROL CSST and provide feedback.	IATA/EY	Trial Feedback	Jun. 2015	In progress under the MEAP IPMO
	3	AOs to be encouraged to participate in inter-regional call sign similarity identification and de-confliction.	AOs/IATA		MID/Long Term	In progress under the MEAP IPMO

Objective 7	Action		Responsible	Deliverables	Timeline	Progress
Regional dynamic tool to identify potential call sign similarity	1	Establishment of MID IFPS or similar project as a first step.	MAEP	MID IFPS	Long Term	To be implemented under the framework of MAEP
	2	Development of the dynamic tool that identifies potential call sign similarity	MAEP	MID CSST	Long Term	In progress under the MEAP IPMO

- END -