



SHAPING OUR FUTURE SKIES

**REGIONAL FOCUS:** 

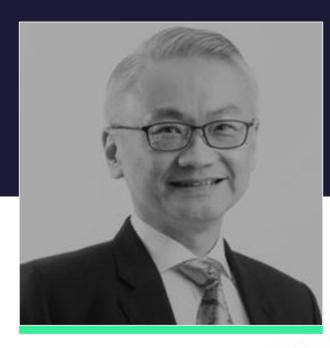


# SAFETY SIGNIFICANCE AND IMPLEMENTATION OF ALPHANUMERIC CALL SIGNS

Wednesday 01 June 2022

07:00 – 08:45 UTC



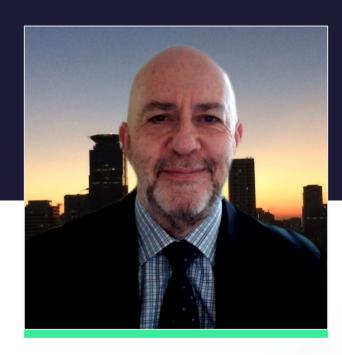


#### Mr. Poh Theen Soh

Director Asia Pacific Affairs

CANSO





#### **Mr. Shane Sumner**

Regional Officer (ATM) / AIM ICAO Asia Pacific Office



# Safety Significance and Implementation of Alphanumeric Call Signs

**NO COUNTRY LEFT BEHIND** 

#### 01 June 2022

# ICAO Regional Activities on Alphanumeric Call Signs

Shane Sumner Regional Officer Air Traffic Management/Aeronautical Information Management ICAO Asia/Pacific Regional Office <u>ssumner@icao.int</u>



## Initiation of the Asia/Pacific Alphanumeric Call Sign Project

**Aircraft Identification – Call Signs** 

Aircraft Identification in ICAO Flight Plan

#### Coded form of call sign

Used in air-ground communications Used in ground-ground coordination ICAO Doc 4444 - Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM):

Aircraft identification. A group of letters, figures or a combination thereof which is either identical to, or the coded equivalent of, the aircraft call sign to be used in air-ground communications, and which is used to identify the aircraft in ground-ground air traffic services communications.

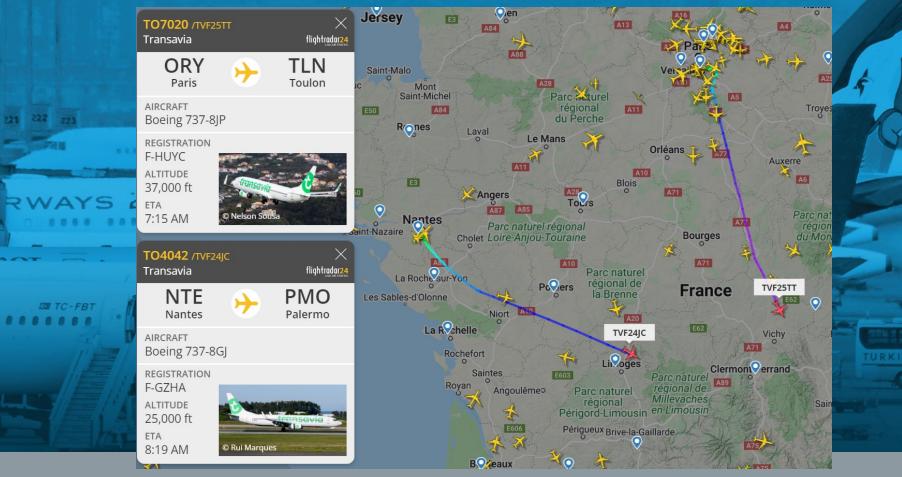
**GIA898** 





## Initiation of the Asia/Pacific Alphanumeric Call Sign Project

Aircraft Identification – Call Signs – Alphanumeric Examples 30 May 2022





ITF

Initiation of the Asia/Pacific Alphanumeric Call Sign Project Air Traffic Management Sub-Group of APANPIRG

**APANPIRG** ATM/SG/4 (July 2016) Secretariat, APAC Office IATA Working Paper AOP/SG CNS/SG **MET/SG** RASMAG ATM/SG Mitigate risk of S ACSICG PBNICG MET/IE/WG ATFM/SG AAITF AP-AA/WG AP-ADO/TF call sign confusion SWIM/TF MET/R/WG CRV/OG SAIOSEACG APSAR/WG AP-SR/WG WHM/WG SURICG **MET/S/WG** EUR and MID Region ATMAS/TF **VOLCEX/SG** DAPS/WG projects **GBAS/SBAS** 



#### UNITING AVIATION

#### **NO COUNTRY LEFT BEHIND**



ABOUT US

WHAT WE DO V

NEWSROOM

**EVENTS** 

# Call sign similarity tool

We help to de-conflict or eliminate similar call signs within a single aircraft operator's (AOs) schedule prior to the start of the summer and **EUROCONTROL** IMPLEMENTATION

winter season.

 $\triangle$  Log in Acce The use of similar call signs by aircraft operating in the same area, on the same radio frequency is referred to as 'call sign similarity.' The danger of an aircraft taking and acting on a clearance intended for another aircraft can lead to flight safety incidents.

The call sign similarity tool (CSST) allows aircraft operators to detect and then de-conflict similar call signs (according to a set of agreed rules) embedded within their aircraft operator schedules. This helps to reduce the incidence of call sign confusion events and improves the safety of the network.



Initiation of the Asia/Pacific Alphanumeric Call Sign Project Air Traffic Management Sub-Group of APANPIRG

**ATM/SG/4 (July 2016)** 

# IATA Working Paper APANPIRG/27 Conclusion

**Conclusion APANPIRG/27/15: Use of Alphanumeric Call Signs for Scheduled Airline Operations** 

That, ICAO conducts a survey of Asia/Pacific States to ascertain the status of capability to accept/process alphanumeric call signs for scheduled airline operations





#### ATM/SG/5 (Aug 2017)

Survey results لقطرية arvey results Conclusions\*

# **Conclusion ATMSG/5-5: State Readiness for Alphanumeric Aircraft Identification**

That, States are urged to ensure that ATM and related system capability, regulations, approval processes, and published procedures are implemented to enable the use of alpha numeric aircraft identification in flight plans, in any combination of alpha and/or numeric characters, by not later than 31 December 2019.

\* Commencing in 2017, Sub-Groups of APANPIRG were empowered to form technical Conclusions



Initiation of the Asia/Pacific Alphanumeric Call Sign Project

#### **Air Traffic Management Sub-Group of APANPIRG**

### ATM/SG/5 (Aug 2017)

### Survey results LECHLE RWAYS Conclusions\*

**Conclusion ATMSG/5-6: Asia Pacific Alphanumeric Call-Sign** Project

That,

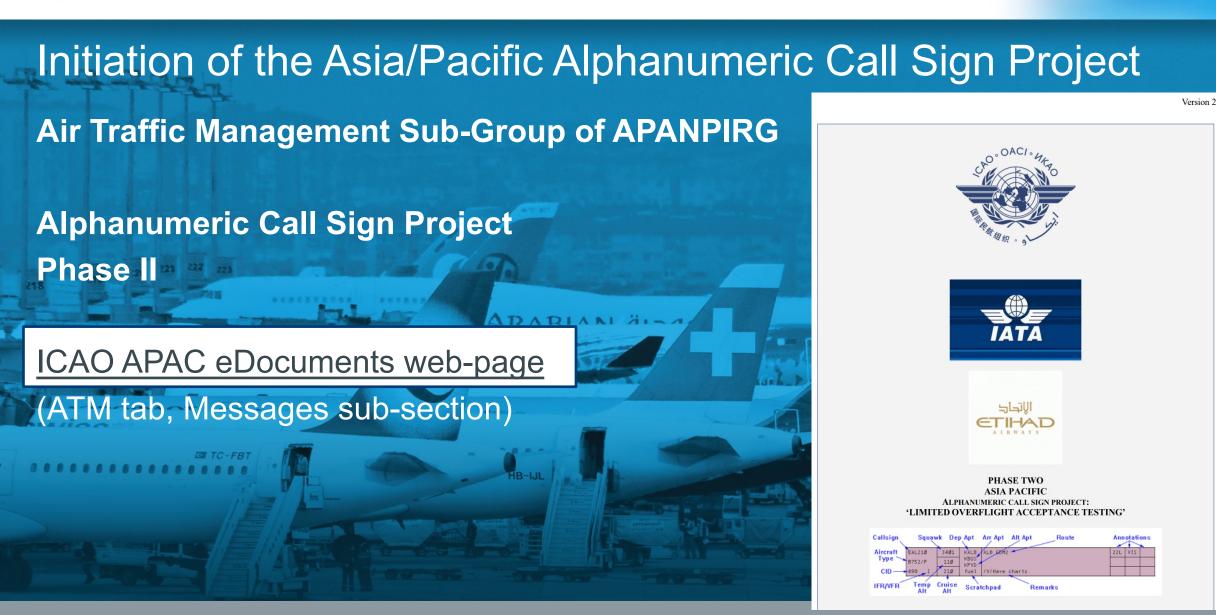
1. Phase Two of the Alphanumeric Call Sign project be commenced, using the project plan at ATM/SG/5 WP/17 Attachment A and with the participation of Australia, India, Malaysia, Maldives, Pakistan, Singapore and Sri Lanka; and

2. the results of Phase Two of the project be reported to ATM/SG/7

\* Commencing in 2017, Sub-Groups of APANPIRG were empowered to form technical Conclusions









# Asia/Pacific Alphanumeric Call Sign Project – Going Forward Air Traffic Management Sub-Group of APANPIRG Alphanumeric Call Sign Project

Phase II

ADARIAN ALAA

القطرية But then ways





PHASE TWO ASIA PACIFIC Alphanumeric call sign project: 'LIMITED OVERFLIGHT ACCEPTANCE TESTING'





#### UNITING AVIATION

#### **NO COUNTRY LEFT BEHIND**

APANPIRG/31 (2020) Meeting Report

#### RASMAG/25 Outcomes

Regional Airspace Safety Monitoring Salue Advisory Sub-Group of APANPIRG. 3.3.25 In response to a query from ICAO, IATA clarified that its successful similar call sign initiative that had been implemented in the Middle East (MID) Region had not been able to progress in the APAC Region. One of the reasons for this was the reluctance of aerodrome operators to implement change until an automated tool was available to accommodate alphanumeric call signs.

3.3.26 Noting the grave safety risks from such occurrences, and noting the endorsement by the ATM/SG/8 and the AOP/SG/4, APANPIRG/31 agreed to the following Conclusion:

#### Conclusion APANPIRG/31/11: Alphanumeric Call Sign Initiative

Noting:

- The extreme safety risks associated with pilot-ATC miscommunication and the number of Category D (ATC Loop Error) Large Height Deviations (LHDs);
- APANPIRG Conclusion 27/15, ATM/SG Conclusions 5-5 and 5-6 regarding the Asia/Pacific Alphanumeric Call Sign (ANCS) Project; and

3) Alphanumeric call signs are well-established call sign confusion mitigation;

That:

Leading Air Navigation Service Providers (ANSPs) and aerodrome operators, in coordination with CANSO and ACI, are urged to consider a trial to identify and overcome any barriers for the implementation of alphanumeric call signs, with a view to developing a project for the Asia/Pacific (APAC) Region.

Excerpt from the APANPIRG/31 Meeting Report on Agenda Item 3.3 - RASMAG



Asia/Pacific Alphanumeric Call Sign Project – Going Forward ICAO actions.

- Further data collection
  - Follow-up on Conclusion APANPIRG/31/11
    - Regional Air Navigation Plan
    - Regional Aviation Safety Plan

SPECIFIC REGIONAL REQUIREMENTS



### Last word....

It's not only an airspace safety matter

Call sign confusion on runways and taxiways
 Potentially severe safety consequences

Air Traffic Management deeply embedded in airport operations











#### Mr. Noel Dike

Manager Air Traffic Management

Qatar Airways

### Qatar Airways Implementation of Alphanumeric Callsigns

June 2022 Prepared by IOC ATM

معاً إلى كل مكان Going places together



nework





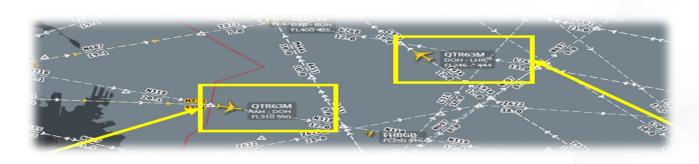


# Agenda:

Qatar Airways Callsign Deconfliction 2016-2022
 Current Challenges
 Next Steps







Increased callsign events among Gulf Carriers
 Tactical callsign assignment
 De-confliction challenges between Airlines







OATAR



Increasing Complexity
 HUB deconfliction logic
 In house deconfliction tool developed
 Increase of alphanumeric capable airports
 COVID 19 impact





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oneworld

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2021-2022

Eurocontrol CSST
 Pre-season deconfliction
 Airport co-ordination
 Callsign Working Group
 Monthly Checks
 Crew feedback

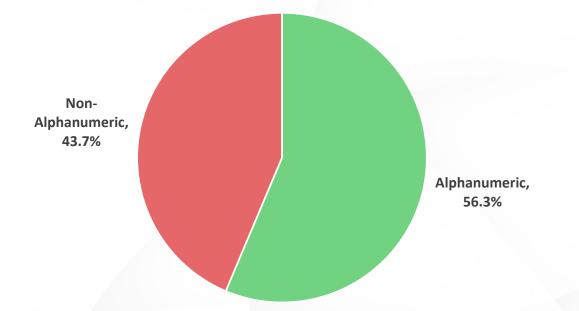






# 2021-2022

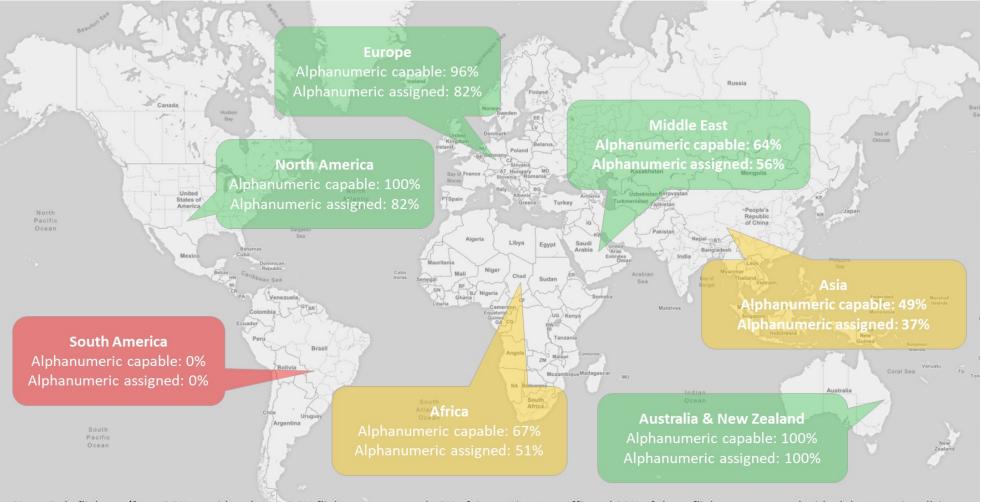
✓ 380 alphanumerics for S22
 ✓ No leading zeros
 ✓ Positive Safety Trend
 ✓ Simplified Phonetics







#### Challenges: Alphanumeric Capable Regions 2022

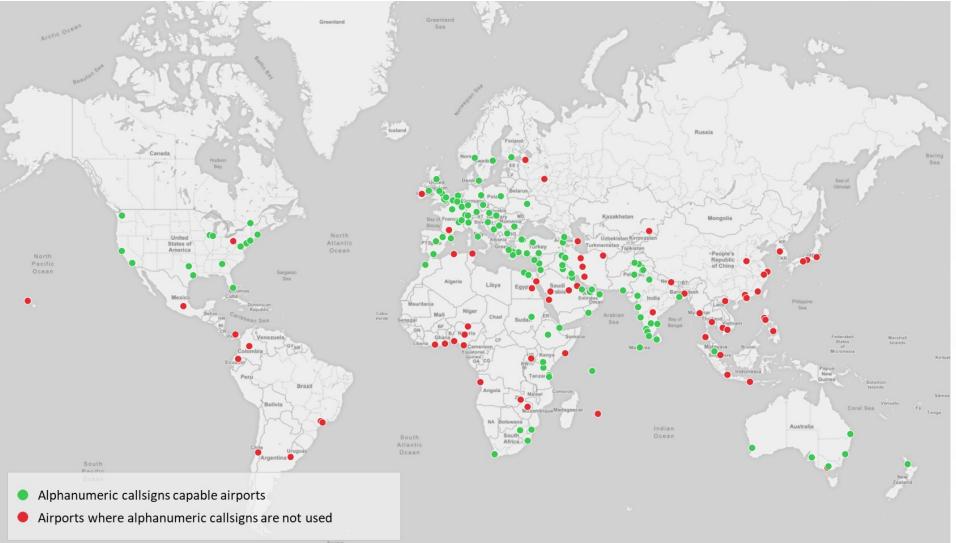


Note: Only flights to/from DOH considered; non-DOH flights represent only 8% of Qatar Airways traffic and 22% of these flights are operated with alphanumeric callsigns





#### Challenges : Alphanumeric Capable Airports 2022









# Next Steps ?



Escalation of CCC as a safety hazard (ATC miscommunication & callsign confusion) Airport acceptance of alphanumerics Simplification of alphanumeric assignment Centralised approach to deconfliction

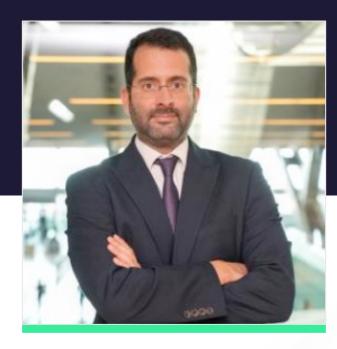
# **THANK YOU**











#### Mr. Aris Tzetitoglou

Manager Airport Operations Control Centre Hamad International Airport, Doha

#### Alphanumeric Call Signs: Safety Significance and Implementation

01 June 2022





### **About MATAR**

at all or a second

- Airport operator of 2 airports
- Hamad International Airport (OTHH / DOH): Hub OPS | Freighters
  Operations | Home base carrier Qatar Airways
- Doha international Airport (OTBD / DIA): Mainly GA/BA & MIL OPS
  I During FIFA World Cup 2022
- Both airports operated from 1 x AOCC

### **Implementation background**

Discussions started with ATC and home base carrier **2013**. Double digits annual growth, commercial partnerships, introduction of more flights number, flight numbers with additional digits increased similarities on the flight numbers.

Hence potential safety & communication risk

Implementation at HIA-OTHH-DOH 2014 right after the airport opening

AOS readiness

Prior implementation: awareness to stakeholders involved and the relevant operational (duty) teams.

Lufthansa 1<sup>st</sup> operator of alphanumeric call sign

QATAR

### **Safety significance**

- 1. Avoid miscommunication between ATC and flight crews Similarities between call sings of the same airline or similarities between more than one airline.
- 2. <u>Reduce risk that may result on flights parking on wrong parking stand</u>
- 3. Communication accuracy between AOCC and ATC via phone
- Improve the accuracy of communication between Airfield OPS and ATCO during Low Visibility

JOATA

DATA

- 5. Better communication between AOCC and Airfield OPS team on live flights
- 6. Monitoring of VHF during peak times becomes easier,
- hence accuracy of information and response improved

### Implementation

• Can our systems support Alphanumeric call signs ? Reaching out to our vendors, interfaces.

dis Alsila

- Involves systems testing.
- <u>Raise Awareness</u> to OPS teams, why are doing it ?
- Call signs accuracy in AOS:

•

Airlines submit their call sing for each season
 Pre-day of OPS notifications for call sing changes
 During day of OPS changes are communicated real time

- All call sings to are available to all airport stakeholders through information pages and in future ACDM platform
- Avoid complexity of Alphanumeric call signs (XXX1UK8E)

GA / BA using Alphanumeric call sings I ACFT REG as call sign

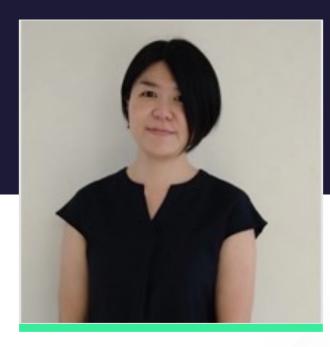


# **Thank You**



الشــركـة القـطرية لإدارة وتشــغـيــل الـمـطارات **مطـار** 





#### Ms. Itou Miho

Special Assistant to the Director, Air Traffic Control Division

JANS



## IMPLEMENATION OF MITIGATION MEASURES FOR CALL SIGN SIMILARITY IN JAPAN



### IMPLEMENTATION OF MITIGATION MEASURES FOR CALL SIGN SIMILARITY IN JAPAN

#### Agenda

- Issues caused by call sign similarity and mitigation efforts
- Mitigation measures ~Trial of operations~
  - ~Outcome of trials~
  - ~Official operations~
- Safety assessment
- Challenges and future plans
- Conclusion

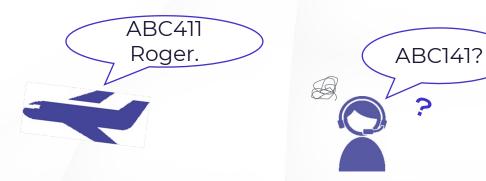


### ISSUES CAUSED BY CALL SIGN SIMILARITY AND MITIGATION EFFORTS

#### Issues

- The risk of call sign confusion caused by call sign similarity is recognized.
- The issues affects both pilots and ATC.
- <u>Misunderstanding</u> or <u>mishearing</u> of flight numbers occurs.







### ISSUES CAUSED BY CALL SIGN SIMILARITY AND MITIGATION EFFORTS

#### Mitigation

Jul/2001 Mitigation measures started. ANSP : Notify airlines of similar call-sign cases reported by ATC. Domestic Airlines : Take action such as changing the call sign.

Aug/2009 ANSP started additional mitigation measures.

Dec/2010 A countermeasures committee was set up with stakeholders

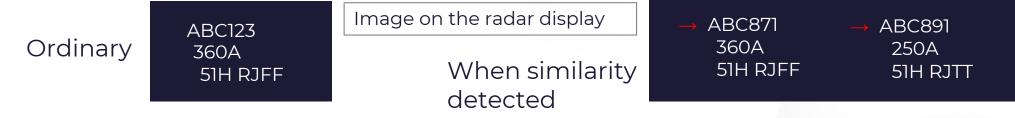






## **MITIGATION MEASURES ~SYSTEM~**

#### **Countermeasure on ATC system**



Conditions for determining call sign similarity

1) Identical numeral portions (except for flights with a single-digit numeral portion)

AAA12 - BBB12 CCC456 -DDD456

2) Three digits of the numeral portion are in the same sequence.

#### EEE456 - HHH4576

#### GGG756 - GGG7564

3) If the numeral portion has two or three digits, Two of the digits match in the same sequence, and the other unmatched digits are matched with other digits of the same call sign.

#### MMM12 - NNN312

#### 000456 - PPP645

4) If the numeral portion is 4-digit, Two of the digits match in the same sequence, and the other unmatched digits are identical.

SSS4765 - TTT4576

UUU7456 - VVV7456



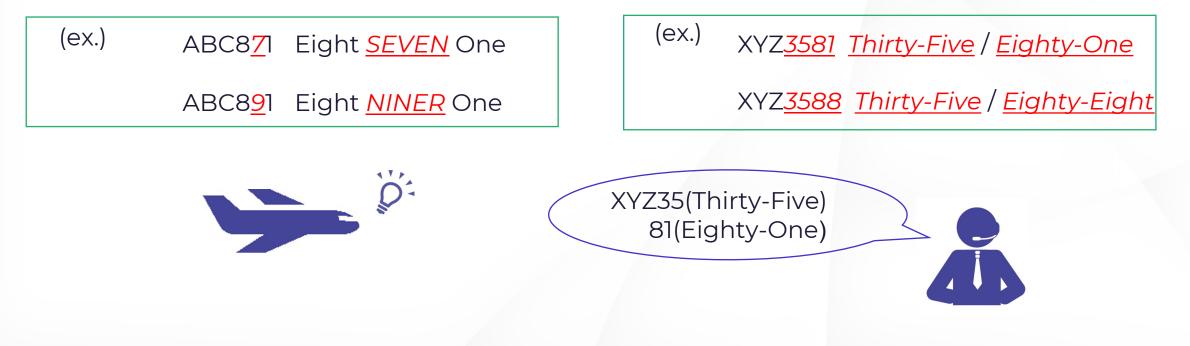
### MITIGATION MEASURES ~ANSP OPERATIONS~

#### A. Improvement of pronunciation

①Emphasize specific digits.

2)Separate by digits.

Per annex 10II 5.1.1.1, this was performed as a response to a runway incrusion by a similar call sign.





### MITIGATION MEASURES ~ANSP OPERATIONS~

### **B.** Temporary change of call sign in flight

• Instruct an aircraft to change its type of call sign temporary in accordance with PANS-ATM Doc4444 15.7.6.





### MITIGATION MEASURES ~ANSP & AIRLINES OPERATION~

#### C. Operation of suffix-added call sign

- ANSP designate suffix flights and inform Airlines after coordination.
- Airline submit its flight plan with an alphabet or "0" added to call sign in FPL item 7.





## **OUTCOME OF TRIALS**

Following these trials, interviews were conducted with both airlines and ATC.

A. Improvement of pronunciation

B. Temporary change of call-sign in

Inadequate effectiveness for both Airlines and ATC.

Effective for mishearing Difficult to use during busy times.

The most endorsed!

C. Operation of suffix-added call sign

**Pilots** 

Suffixes are useful for preventing mishearing. There is less chance of a threat being created.

Both pilots and ATC were aware of the presence of similar call signs and mistakes.

Realizing the effectiveness of alphabetical addition, began suffix flight operation.



## **OFFICIAL OPERATIONS**

How to select flights for suffix addition?

JANS started official suffix operation Feb/2012.

• Survey for similar call sign cases by ANSP at the end of March and October every year.

The criteria for this similar call sign extraction were established by the regulator.

- ANSP designate suffix flights and inform Airlines after coordination.
- Airlines submit flight plans with a suffix added to call sign as in FPL item 7.









## SAFETY ASSESSMENT

#### Trial $\sim$ Operation started $\sim$ Recently

For trial  $\rightarrow$  ANSP and airlines coordinated on how to hold a trial.

After trial → Interview conducted.

Since start of official operation.

→ •ANSP conducts survey at the end of March and October every year.

Similar call sign cases that "may be confused" or "actually made a call sign error."

•No incidents occurred on suffix flights.

Comparison of the number of safety reported cases related to similar call sign and traffic volume attributed to similar between from 2014 to 2019.



Flights in FUKUOKA FIR



## **ISSUES AND FUTURE PLAN**

#### Issues to be addressed...

• The character limitation of FPL item 7 of the flight plan form.

ABC323 →ABC323<u></u> suffix OK



ABC3232→ No suffix!

• Restricted to routes that can be designated for Suffix operations.

Airport company's system cannot accept flight plan with suffix added to call sign as in FPL item 7.

→This operation is limited to domestic flights by Japanese airlines and between airports operated by government.



\*\*Airports in Japan are managed by different administrators.

They are divided into direct management by the government(JCAB), by Airport companies, and by others (e.g., military).



## **ISSUES AND FUTURE PLAN**

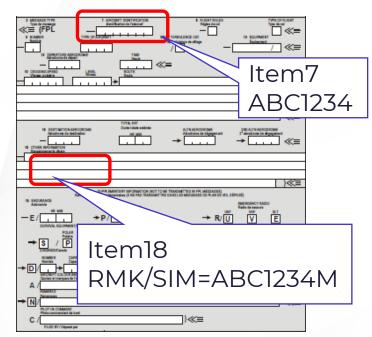
#### As a middle-term breakthrough plan for domestic airline companies.

- Survey for similar call sign cases by ANSP at the end of March and October every year. No Change
- ANSP designate suffix flights and inform Airlines after coordination.
  No Change
- Airlines submit flight plans with <u>suffix added to call sign as item7</u>.
  Change

Schedule flight No. ABC1234 → item 7 call sign added suffix → item 18

And The system for control read item18 and displays the call sign with suffix to the controller.

JANS is considering expanding suffix operations by this operation.







## CONCLUSION

**Consideration for the future....** 

As JANS has demonstrated in reduction of cases related to call sign similarity.

# JANS believes that using the alphabet in call signs contributes to the safety of flights.

We are looking forward to using the alphabet in the APAC region.

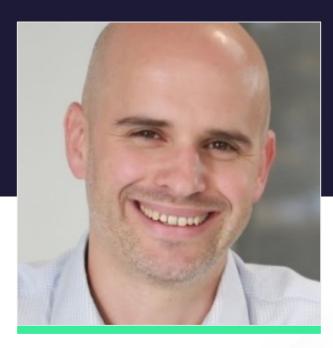
## **THANK YOU**











#### Mr. James Williamson

Chief Executive Officer

Veovo

## Joint ACI IATA CANSO Alphanumeric Callsign Webinar

James Williamson, CEO Veovo, 1<sup>st</sup> June 2022

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Veovo

### Why are you here James?

I'm here to give the tech perspective of the how

Quick intro to Veovo and our experience with the callsign evolution

Why shift to alphanumeric callsigns may cause a technical issue

How airports we work with overcome these challenges

Recommendations and thoughts for the future

### **Our Vision**

Veovo imagines a world where people go brilliantly.

Where queues, delays, bottlenecks and boredom are replaced by experiences that delight.

### **Our Mission**

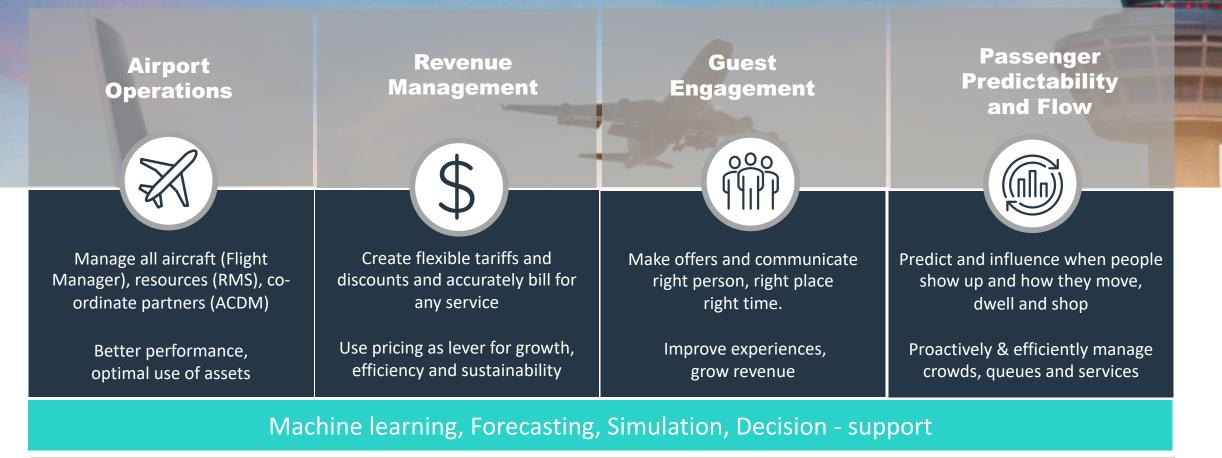
Enable the world's most intelligent airports and transport hubs.

Deliver technologies that enable brilliant experiences and optimised operations - through smart decisions powered by real data and joined up thinking





### **Veovo Intelligent Airport Platform**



Real data from across the ecosystem

### Why can callsigns cause a technical challenge?

In the airport we have several key systems that interact



System suppliers have to support integration so that aircraft can be tied to callsigns and IATA codes - but often without easy access to a "single source of truth"

Veov

### What have we traditionally done?

- Store and link Callsign, IATA code, Registration and Code Shares
- Schedules are based on IATA codes
- Our airports use **definable rules** to convert IATA codes to the expected Callsign
  - **Simple case** is IATA code replaced with ICAO code e.g. BA1234 -> BAW1234
  - But even today IATA code may have a "one to many" relationship with ICAO codes
    - E.g. QF1234 -> QFA1234 but QF5678 -> QFK5678 (as operated by regional subsidiary)
    - In this case we often replicate the airline callsign rules (e.g. QFA or QFK based on aircraft type)
  - And we have boundary cases (eg delayed flights) which have alternative Callsigns

But this doesn't work for callsigns where the flight number changes to alphanumeric...



### So how do we now handle the shift to Alphanumeric call signs

Various integration options combined with system ' smarts'

#### If there is **no ATC or airline feed**

Look at historical call signs and create a new rule e.g. BA1234 -> BA12EX

Manually deal with exceptions

#### Integration with ATC feed (e.g. FPL)

Match ATC message (with callsign) using "finger print" E.g. Tail number, date, time, Dep airport, Arr Airport



A **modern AIDX feed** (from Airline or ATC) containing Callsign, IATA code and flight no.

In the future, **Eurocontrol B2B** will make the pairing available as a central source (in addition to the current Callsign Similarity tool)

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	BAE	British Airways	6	1								
tand	BAF	British Aerospace Ltd	0	2								
tand	LINV .											

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### **Recommendations and thoughts**

- This is not a complex problem but can be a trickier due to legacy and lack of coordination
- The right integrations are key
- Co-operation of ANSP, Airlines and Airports makes it easier
- Regional solutions like Eurocontrol B2B can really simplify the change



## **THANK YOU**











## **QUESTIONS AND ANSWERS**

## **THANK YOU**





