



DG DIRECTIVE 12-2016

Issued: 24th August 2016

SUBJECT

ADDITIONAL REQUIREMENTS TO MITIGATE CALL-SIGN SIMILARITY AND CONFUSION, AND GNSS INTERFERENCE OPERATIONAL RISKS

APPLICABILITY

AIRCRAFT OPERATORS (INCLUDING APPROVED TRAINING ORGANISATIONS OPERATING AIRCRAFT) AIR TRAFFIC CONTROL UNITS

EFFECTIVE DATE

24th August 2016

PURPOSE:

This DG DIRECTIVE is issued to address two major operational risks raised by the international aviation community:

- Call sign similarity and confusion; and
- GNSS interference and disruption.

BACKGROUND:

Call-sign confusion

In its [report](#), Eurocontrol presented the analysis of 535 reported occurrences related to communication problems in Europe. Similar call-sign was the most common contributing factor in the overall data sample of reported communication occurrences.

The GCAA mandatory occurrence database shows that, since 2010 and among 31 reports of call sign confusion received:

- 14 out of 31 involved 2 or more call signs of the same airline (almost 50%);
- 16 out of 31 happened within UAE airspace (very close to Aircraft Operators' Home Base);
- The same call sign confusion event (i.e. involving same aircraft operators) occurred at 5 months apart; and
- 24 out the 31 had happened at very close distance from the departure airport and final destination (80%); and
- 30 out the 31 happened while the ATC didn't report actual or potential call sign similarity to the Flight Crew (97%).



The above figures demonstrate that:

- not all UAE aircraft operators and controllers report events consistently, and thus it may provide wrong indication to the GCAA on the effectiveness of the actions taken so far on this operational risk. This is reflected in the fact that only 1 call sign confusion incident on the database was reported by both the ATC and airline while, from 1st Jan 2016 through 27th Jul, a total of 49 call-sign confusion events were reported by UAE ATCs; and;
- the trend of call-sign confusion may be reduced if Aircraft Operators conduct an assessment within their own flight numbering system and with other aircraft operators operating from/to same airports.

GNSS Interference:

ICAO MID Regional Office, through the CNS Sub-Group, is projecting to collect data of actual interference causing disruption to flight navigation. This topic has been recently stressed again by the International Community which led:

- ICAO to issue State Letter 74/2016 after a GNSS interference incident affecting the safety of international air navigation in the Incheon FIR had recurred;
- ANAC to issue [Special Airworthiness Bulletin](#) following an in-service event leading to loss of both GPS information data due to a GPS constellation signal instability as specified by NOTAM 02/17 in Oakland FIR.

REQUIREMENTS:

Call-sign confusion

Mandatory Requirement 1:

- (a) Aircraft Operators shall implement a mechanism to de-conflict call similarity within their own flights, and as well with flights of other Aircraft Operators flying from/to the same destinations or using the same routes.*
- (b) This mechanism shall ensure that a constant review of their flight numbering system is conducted and a different flight number is assigned to a service where currently there are similar flight numbers that may or have led to RTF call-sign confusion.*

Recommendation 1:

The mechanism required by above requirement should comply with [CALL SIGN SIMILARITY 'RULES'](#) as published by ICAO MID and should be designed to cater for normal or abnormal situations (such as flight delays).

Mandatory Requirement 2:

Aircraft Operators and ATCUs shall comply with [UAE AIC 01-2015](#) or any superseding AIC or other publications.



Mandatory Requirement 3:

Aircraft Operators shall report to the GCAA (using ROSI) call sign similarity and confusion cases including the following information:

- *Call signs of aircraft concerned;*
- *aircraft type;*
- *date and time in UTC;*
- *sector or geographical location;*
- *RTF frequency;*
- *phase of flight;*
- *was there actual confusion and for whom? Or was it a similarity?*
- *was there a high risk of potential confusion, and why?*
- *where actual call sign confusion occurred, what were the safety implications? e.g. Conflict Alert (TCAS/STCA), loss of separation, increased Workload.*

Mandatory Requirement 3:

ATCU shall develop a simplified mechanism to trigger the reporting of call sign similarity and confusion by ATCOs and thus ensure that similarity and confusion reports reach the GCAA.

GNSS Interference

Mandatory Requirement 4:

Aircraft Operators shall be prepared to use non-GNSS navigation aids and to review all current NOTAMs when flying in area affected by GNSS interference and in particular the Korean Peninsula Incheon (RKRR) Flight Information Region (FIR). Aircraft Operators may find additional guidance in ICAO Doc 9849 - 7.13.2 Mitigation strategies.

Mandatory Requirement 5:

Aircraft Operators experiencing GNSS navigation system interference and disruption shall report those occurrences to the GCAA and State of Occurrence. Reports shall contain information as described in Attachment B.

Mandatory Requirement 6:

- a) ATCUs receiving reports from flight crew of experience of GNSS interference and disruption shall report those occurrences to the GCAA. Reports shall contain information as described in Attachment A;*
- b) ATCUs shall have a process in place to identify areas which are frequently subject to GNSS Interference and disruption and raise a NOTAM accordingly to warn aircraft operators of this hazard.*

CONTACTS:

For Aircraft operators: fops@gcaa.gov.ae

For Air Traffic Control Services: ana@gcaa.gov.ae



ATTACHMENT A

GNSS INTERFERENCE REPORTING FORM TO BE USED BY ATS PERSONNEL

Originator of this Report:	
Organisation:	
Department:	
Street / No.:	
Zip-Code / Town:	
Name / Surname:	
Phone No.:	
E-Mail:	
Date and time of report:	
Description of Interference	
Affected GNSS Element:	<input type="checkbox"/> GPS <input type="checkbox"/> GLONASS <input type="checkbox"/> other constellation <input type="checkbox"/> EGNOS <input type="checkbox"/> WAAS <input type="checkbox"/> other SBAS <input type="checkbox"/> GBAS (VHF data-link for GBAS)
Observability of the interference:	Interference was noticeable: <input type="checkbox"/> only on board of aircraft <input type="checkbox"/> only on ground <input type="checkbox"/> both
Source of initial interference report:	Pilot [], Engineer/Technician [], Other []
Degradation of GNSS performance:	<input type="checkbox"/> Large position errors (details): <input type="checkbox"/> Loss of integrity (RAIM warning/alert): <input type="checkbox"/> Complete outage <input type="checkbox"/> Loss of satellites in view/details: <input type="checkbox"/> Lateral indicated performance level changed from: ___ to ___ <input type="checkbox"/> Vertical indicated performance level changed from: ___ to ___ <input type="checkbox"/> Indicated Dilution Of Precision changed from ___ to ___ <input type="checkbox"/> Information on PRN of affected satellites (if applicable) <input type="checkbox"/> Low Signal-to-Noise (Density) ratio <input type="checkbox"/> other
In case of Report by Pilot:	
Airline Name:	
Aircraft Type and Registration:	
Flight Number:	



Airway/route flown:	
Coordinates of the first point of occurrence / Time (UTC):	UTC: Lat: Long:
Coordinates of the last point of occurrence / Time (UTC):	UTC: Lat: Long:
Flight level or Altitude at which it was detected:	
Affected ground station [e.g. GBAS]	Name/Indicator; Lat: Long:
In case of Report by ATS Personnel	
Coordinates of the first point of occurrence / Time (UTC):	UTC: Lat: Long:
Coordinates of the last point of occurrence / Time (UTC):	UTC: Lat: Long:
Affected area:	
Affected flight route:	
Problem duration:	Days, Hours, Minutes, Seconds _____ _____ <input type="checkbox"/> continuous <input type="checkbox"/> intermittent
Information on Presumed Source of Interference	
Presumed location of interference source:	Lat/Long: or Nearest City or Landmark
Interfering frequency (if known)	
Signal strength and reference bandwidth: (if known)	
Further descriptions of the interference case:	<input type="checkbox"/> Spectrum plot <input type="checkbox"/> Map Other material:



ATTACHMENT B

GNSS INTERFERENCE REPORTING FORM TO BE USED BY PILOTS

Originator of this Report:	
Organisation:	
Department:	
Street / No.:	
Zip-Code / Town:	
Name / Surname:	
Phone No.:	
E-Mail:	
Date and time of report	
Description of Interference	
Affected GNSS Element	<input type="checkbox"/> GPS <input type="checkbox"/> GLONASS <input type="checkbox"/> other constellation <input type="checkbox"/> EGNOS <input type="checkbox"/> WAAS <input type="checkbox"/> other SBAS <input type="checkbox"/> GBAS (VHF data-link for GBAS)
Aircraft Type and Registration:	
Flight Number:	
Airway/route flown:	
Coordinates of the first point of occurrence / Time (UTC):	UTC: Lat: Long:
Coordinates of the last point of occurrence / Time (UTC):	UTC: Lat: Long:
Flight level or Altitude at which it was detected:	
Affected ground station (if applicable)	Name/Indicator; [e.g. GBAS]
Degradation of GNSS performance:	<input type="checkbox"/> Large position errors (details): <input type="checkbox"/> Loss of integrity (RAIM warning/alert): <input type="checkbox"/> Complete outage <input type="checkbox"/> Loss of satellites in view/details: <input type="checkbox"/> Lateral indicated performance level changed from: ___ to ___ <input type="checkbox"/> Vertical indicated performance level changed from: ___ to ___ <input type="checkbox"/> Indicated Dilution Of Precision changed from ___ to ___ <input type="checkbox"/> information on PRN of affected satellites (if applicable) <input type="checkbox"/> Low Signal-to-Noise (Density) ratio <input type="checkbox"/> other