交通部民用航空局飛安公告

Aviation Safety Bulletin

ASB No: 111-066/O **Jan 20, 2022**

Subject:

Potential Risk of 5G C-band Signals Interference to Radio Altimeter Performance

Description:

1. Radio Altimeter (or Radar Altimeter, short as RA hereinafter) provides accurate aircraft altitude above the ground that is essential for flight operations. In case the presence of interference, it could lead to serious impact on the safety of aircraft operations. Due to the suspicion that the planned deployment of wireless broadband networks in the 3.7~3.98 GHz band in the U.S. may interfere with the normal operation of RA, the FAA has issued the Special Airworthiness Information Bulletin, SAIB, AIR-21-18R1 and the Safety Alert for Operators, SAFO 21007 to provide warnings and recommend compensation measures to operators and pilots.
2. Besides, since it has become an international trend to develop and establish the 5G signals communication, civil aviation authorities of various countries such as the United Kingdom, France, Canada, the United Arab Emirates and Australia have also issued similar warnings and related recommendations to operators and pilots in the form of aviation safety bulletins regarding the potential interference of 5G signals to aircraft radio altimeters.
3. In response to the concerns of 5G interference, in late December of 2021 CAA communicated with the National Communications Commission (NCC), expressing concern regarding the possible impact of 5G interference on flight safety. In this meeting NCC indicated that in Taiwan currently only 3.3~3.57GHz band is grant for 5G communication, while the above-mentioned frequency band which emerging interference concern has yet been opened. Nevertheless, to cope with risk of the likely band extension

on domestic 5G communication, in early January of 2022 CAA has formally advised NCC of the potential risk arisen from 5G interference on RA and the probable impairment on flight safety. CAA also recommends scrutinous deliberation before taking action on further extension of 5G communication bandwidth.

4. Operators and pilots of civil air transport enterprise and business charters operation should refer to the recommendations in this bulletin and take action accordingly to avoid 5G signal interference affecting aircraft flight safety.

Recommendations:

To operators and pilots

1. Use the Safety Management System (SMS) tools to assess the risk to each type of radio altimeter configuration and how it impacts typical flight operations.
2. Remind passengers to set all portable electronic devices to a non-transmitting mode or turn them off during flight in accordance with the CAA Public Notice(in Chinese, entitled：干擾飛航或通訊器材之種類及其使用限制規定 https://www.caa.gov.tw/Article.aspx?a=2266&lang=1).
3. Seek information from the manufacturers of the aircraft and the radio altimeter on possible effects of harmful interference due to 5G signals and possible pilot interventions.
4. Operators should ensure their pilots are aware of the potential degradation of the radio altimeter capabilities including both erroneous altimeter readings and loss of altimeter function. Study and build up any means to compensate for in-flight radio altimeter anomalies.
5. Operators and pilots should review and evaluate the effects of the 5G signal interference in areas and at airports identified by NOTAMs (Notice to Air Missions) on their overseas flight activities and locations, operational restrictions should be adhered and appropriate actions should be taken.
6. Operators and pilots who experience radio altimeter anomalies should notify air traffic control, as soon as practical. Post the flight, pilots should submit detailed reports of radio altimeter disruptions or interference events, as soon as practical, using the Flight Operation and Maintenance Voluntary

Reporting in the CAA website at
https://www.caa.gov.tw/ article.aspx?a=161&lang=2

Reference:

1. FAA SAIB: AIR-21-18R1 and SAFO 21007
   https://www.faa.gov/newsroom/faa-statements-5g
2. UK CAA SAFETY NOTICE SN-2021/017
   https://publicapps.caa.co.uk/modalapplication.aspx?catid=1&pagetype=65&appid=11&mode=detail&id=11061
3. DGAC SAFETY INFO LEAFLET N°2021/01
   https://www.ecologie.gouv.fr/sites/default/files/Safety_Info_Leaflet_2021_01_5G_interferences.pdf
4. TCCA SAFETY ALERT CASA 2021-08
   https://tc.canada.ca/sites/default/files/2021-12/CASA-ASAC-2021-08.pdf
5. UAE GCAA SAFETY ALERT 2021- 03
   https://www.gcaa.gov.ae/en/epublication/admin/Library%20Pdf/Safety%20Alerts/SAFETY%20ALERT%202021-03%20-%20REQUIREMENTS%20TO%20MITIGATE%205G%20INTERFERENCE%20OPERATIONAL%20RISKS%20-%20ISSUE%2001.pdf
6. CASA Airworthiness Bulletin AWB 34-020
   https://www.casa.gov.au/search-centre/airworthiness-bulletins/potential-interference-radio-altimeter-systems