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Bhutan Civil Aviation Authority
Royal Government Of Bhutan
Paro : Bhutan



BCAA/OPS/1.03/489

11 February 2022

SAFETY INFORMATION BULLETIN

Subject: Operations to aerodromes located in Bhutan with possible risk of interference from 5G ground stations

Applicability:

Aircraft Operators having their principal place of business in Bhutan.

Description:

Telecommunication service providers have been deploying 5G ground stations (or 5G base stations) in various locations in the country. These 5G ground stations are operating in the C-band, at frequencies that are close to the frequencies utilized by the radio altimeters (or radar- altimeter) installed on aircraft. This has led to concerns of potential interference of radio altimeters from 5G ground stations causing anomalous radio altimeter behavior.

BCAA is consulting other stakeholders in the country such as Bhutan Infocomm and Media Authority, Department of Information Technology & Telecom and also with the international agencies to assess the risk of 5G/radio altimeter interference for operations over the territory of Bhutanese airspace, aircraft susceptibility to such interference, the effect of such interference on aircraft system. These assessment and consultations are being done based on the information and knowledge available on actual radio-frequency conditions in the context of 5G deployment in Bhutan. At this stage, no risk of unsafe interference has been identified for operations in Bhutan.

BCAA continues to monitor the situation and based on further assessment and consultation, this SIB may be revised, as necessary.

Recommendation(s):

It is recommended that operators:

- Whilst being reminded of the obligation prescribed in BCAR-OPS 1 to comply with the laws, regulations and procedures of those States in which operations are conducted, pay particular attention to any information promulgated by the State of the Aerodrome (e.g. through NOTAMs) prohibiting instrument approach procedures. Such NOTAMs might significantly affect the

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approach and landing capability and can be issued without prior notice.

- Consider in their safety risk assessment potential interference from 5G ground stations that might impair the reliable functioning of radio altimeters installed on the aircraft. Among the
- possible mitigations, operators should:
 - Consider exposing flight crews to unreliable radio altimeter scenarios in the approach and take-off phases of recurrent flight training sessions conducted in the Flight Simulation Training Devices. Such mitigation is particularly relevant in case flight crews undergo Low Visibility Operations training.
 - Whatever the type of approach conducted, ensure awareness of the crews of the potential degradation in the performance of installed radio altimeters and of other systems dependent on data from radio altimeters.
- Ensure that events of anomalous radio altimeter behavior, including results of the defect investigation and rectification, are reported to the BCAA, and the aircraft manufacturer without delay. Reports of consistent anomalous radio altimeter behavior in approximately the same location could be an indication of potential interference. Individual cases may however be due to other causes than interference from 5G ground stations. Should such event be qualified as an occurrence, as prescribed by BCAA requirements, operators are reminded of their mandatory reporting obligation.
- Finally, operators are reminded that anomalous radio altimeter behavior can be caused by faulty radio altimeter equipment, or (e.g.) due to poor antenna bonding, water ingress or poor antenna cable connections. It is therefore essential that the appropriate maintenance actions continue to be performed in response to a report of anomalous radio altimeter behavior.

(Kinley Wangchuk)
Director