

**AERONAUTICAL CHARTING FORUM**  
**Charting Group**  
**Meeting 17-01 – April 26 - 27, 2017**

**RECOMMENDATION DOCUMENT**

**FAA Control # ACF-CG RD 17-01-**

**Subject: Improving OROCA to meet FAR 91.177 Requirements**

**Background/Discussion:**

In March 2016, the FAA tasked the RTCA Tactical Operations Committee to validate the FAA's PBN Route Structure Concept of Operations. As part of this tasking, industry and FAA evaluated the utility of information provided to pilots on Low Altitude Enroute charts. With the knowledge much of the conventional route structure would be removed over the next decade and that pilots would overwhelmingly navigate off-route using random RNAV, the RTCA committee identified a gap associated with communicating to pilots how low they can fly in areas where there are no routes.

Many low-altitude operators, primarily general aviation, need to fly as low as possible to remain clear of icing or because of aircraft performance limitations. The OROCA is charted as a floor altitude for IFR operations as it provides obstruction clearance; however, the FAA provides a disclaimer in the Instrument Procedures Handbook:

“OROCAs are intended primarily as a pilot tool for emergencies and SA. OROCA's depicted on en route charts do not provide the pilot with an acceptable altitude for terrain and obstruction clearance for the purposes of off-route, random RNAV direct flights in either controlled or uncontrolled airspace.”

The RTCA committee noted that OROCA would become more important in the future as more published routes are decommissioned and as random RNAV operations increase. Ensuring pilots have a means to verify their minimum altitude, such as in cases of lost communication, will be increasingly important.

The ACF Point-to-Point Subcommittee, established at ACF 16-02, discussed the RTCA proposed solution which was to replace OROCA with a Grid MIA. No consensus was reached to bring this concept forward to ACF; however, consensus was reached that OROCA's deficiencies must be addressed. The subcommittee felt that the FAA must provide pilots with the information necessary to comply with FAR 91.177 which could be accomplished by improving OROCA.

Reviewing [IPG 96-01-155](#), the original request from ALPA to have OROCA be an altitude approved for operations, it is clear there are several concerns with utilizing OROCA as an altitude ATC could clear a pilot to. ATC does not use the OROCA for off-route altitude assignments, rather they use an MIA or other approved air traffic altitude. The subcommittee believes we should not change this practice and this recommendation should have no impact on ATC operations. The subcommittee understands OROCA is generally similar to the MIA despite OROCA not factoring in controlled airspace, communication, etc. Pilots would utilize OROCA for off-route flight planning purposes to ensure they comply with FAR 91.177 and for emergency situations where they may need to fly at that minimum altitude.

Those concerns identified by the IPG with the 1996 ALPA recommendation, and the other OROCA issues identified by this subcommittee, are listed below along with the subcommittee's rebuttal.

1. Continuous evaluation must be provided for the OROCA via the Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) program under Order 7400.2.

The FAA does not check for the impact temporary or permanent obstructions have on an OROCA value in between charting cycles. The OROCA value is updated on the 56-day cycle with no changes or notices published in between cycles. It is critical for pilots to have useful information for flight planning to determine compliance with FAR 91.177. This regulation notes that absent a Part 95 or Part 97 altitude, pilots must comply with 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown for mountainous and 1,000 feet for non-mountainous. The OROCA provides this as the chart notes states "OROCA provides obstruction clearance with a 1000-foot buffer in designated non-mountainous areas and a 2000-foot buffer in designated mountainous areas." However, the impact of off-cycle obstructions is currently not known because OROCA is not part of the OE/AAA process. Incorporating OROCA into the OE/AAA process is fundamental to improving this product and providing pilots the assurance they need that they are complying with FAR 91.177.

2. A NOTAM policy must be developed to promulgate off-cycle OROCA changes.

For OROCA to be of operational value to pilots and to assure compliance with FAR 91.177, there must be a process to alert pilots of OROCA value changes. The FAA has processes in place to ensure NOTAMs are published for changes to route values. The FAA also has a process in place to alert controllers of MIA changes due to new obstructions. Pilots must be alerted when the OROCA value changes so that they can understand the impact on their required minimum altitude compliance.

3. OROCA use should be coordinated through AGC to determine if the OROCA satisfies FAR 91.177 and whether it should be placed under Part 95.

The subcommittee does not believe OROCA needs to fall under Part 95 as OROCA is in direct response to FAR 91.177 and this value will not be utilized by air traffic; it is information for pilots. We do not believe coordination with AGC is warranted. The OROCA value provides the altitude clearance required by FAR 91.177; however, the values are currently not updated in between cycles and those changes are not communicated to users (via NOTAM). This creates the issue of the OROCA being out of date as soon as it is published as pilots cannot be sure that they are complying with FAR 91.177. The subcommittee believes AGC's concerns will be addressed by the resolution of the other OROCA issues, namely OE/AAA and NOTAM policy.

4. The existing OROCA grid size is too large to be of value.

The subcommittee discussed the granularity of the grid size (1 degree x 1 degree in CONUS) and found consensus that the existing grid size works as it does not overload the pilot and is comparable to the Grid MORA. The subcommittee did see a benefit in changing the Alaska OROCA grid size (Alaska is currently 2 degrees x 2 degrees) to be reduced to the same size as CONUS. Alaska stakeholders provided input and saw value in their grid being smaller because the high terrain has a significant impact on enroute altitudes.

5. Controller and pilot guidance must be updated.

Once OROCA is supported by the FAA as an altitude that assures compliance with FAR 91.177, pilot guidance would need to be updated in the AIM and Instrument Procedures Handbook to inform pilots. ATC would continue to use other values when clearing pilots so their guidance would not need to change nor the way they operate. The pilot's guidance would continue to address the pilot's expectation of altitude clearance and differentiate that OROCA is not an altitude ATC would clear an aircraft to except incidentally. Furthermore, the ATC cleared altitude may be higher or lower than the OROCA value.

**Recommendations:**

1. The FAA should provide for the continuous evaluation of OROCA values via the Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) program under Order 7400.2.
2. The FAA must issue NOTAMs for those OROCA values that change off-cycle. These NOTAMs should be associated with an ARTCC and identify the impacted grid square using lat/long.
3. The existing OROCA grid size should be maintained for CONUS and the Alaska grid size should be changed to be the same size as CONUS (1 degree x 1 degree).
4. The FAA should update the AIM and Instrument Procedures Handbook to inform pilots that OROCA values assure compliance with FAR 91.177 but are not an altitude ATC will clear an aircraft to fly except incidentally.

**Comments:**

While investigating the options pilots have today to determine FAR 91.177 compliance, the subcommittee identified the issue that NOTAMs are not issued for temporary obstructions that do not impact an airway or instrument approach but that may impact a pilot's requirement to fly 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown for mountainous and 1,000 feet for non-mountainous. There is no method available to a pilot today to use FAA products and determine they meet FAR 91.177 compliance should they fly off-route because no notice is provided to the pilot of a temporary obstruction. The subcommittee does not desire each temporary obstruction to warrant the issuance of a NOTAM as we believe a single NOTAM, at most, for each OROCA grid value would efficiently resolve this issue and communicate to pilots their FAR 91.177 compliance altitude. The lack of a NOTAM for temporary obstructions impacts the Maximum Elevation Figure (MEF) provided on Sectional charts and other charting products and mechanisms.

Those non-FAA organizations that support this Recommendation Document:

AOPA  
ForeFlight  
Jeppesen  
NBAA

Please send completed form and any attachments to:  
[Valerie.s.watson@faa.gov](mailto:Valerie.s.watson@faa.gov) and cc: [alex.ctr.rushton@faa.gov](mailto:alex.ctr.rushton@faa.gov)

**Deleted:** ¶  
**Submitted by:** . Rune Duke ¶  
**Organization:** . On behalf of the ACF Point-to-Point Subcommittee¶  
**Phone:** . . 202-509-9515¶  
**E-mail:** . . rune.duke@aopa.org ¶  
**Date:** . ¶

P