

RTCA Paper No. 029-18/PMC-1704  
February 14, 2018

Dr. Christopher Hegarty  
Chairman, RTCA PMC  
RTCA, Inc.  
1150 18<sup>th</sup> NW, Suite 910  
Washington, DC 20036

Dear Dr. Hegarty,

RTCA SC-206 requests RTCA Program Management Committee (PMC) approval of the attached white paper for submission to the Federal Aviation Administration (FAA) Surveillance and Broadcast Services (SBS) Program Office. The paper includes a recommendation to include a Temporary Restricted Areas (TRA) product in the Flight Information Services-Broadcast (FIS-B) Universal Access Transceiver (UAT) Data Link Services.

RTCA SC-206 Sub-Group 5 (SG-5) is currently updating DO-358 (MOPS for FIS-B). The Aircraft Owners and Pilots Association (AOPA), a SG-5 participant, indicated that the number of requests from the Department of Defense (DOD) for the use of TRA Special Use Areas (SUA) has increased in the past two years, following 18 years of no utilization. AOPA stated a strong belief in the need to depict the TRAs in the cockpit, similar to TFRs, because it expects the TRA SUAs to be utilized more frequently in the future for missile testing and Unmanned Aircraft Systems (UAS) operations.

SG-5 analyzed AOPA's request and developed the attached white paper as a recommendation. We would appreciate the endorsement of this recommendation to the FAA SBS Program Office to mitigate this safety gap. Thank you for your consideration in this matter.

Sincerely,



Eldridge Frazier  
RTCA SC-206 Designated Federal Officer  
Lead Engineer, Weather Technology in the Cockpit  
Federal Aviation Administration, NextGen Organization  
Weather Research Branch, ANG-C61

Enclosure  
Temporary Restricted Areas Over FIS-B UAT White Paper

# TEMPORARY RESTRICTED AREAS OVER FIS-B UAT WHITE PAPER

## 1 BACKGROUND

JO 7400.2L, JO 7930.2, and 14 CFR 73 provide guidance and procedures for Temporary Restricted Area (TRA) Notices to Airmen (NOTAM). TRAs have the same rules as Restricted Areas (RA); however, TRAs are not charted. Yet TRAs have the same hazards as RAs, and pilots have a responsibility to avoid them. In addition, the uncharted TRAs are for limited periods of time only. There have been four requests for TRAs from various Department of Defense (DOD) branches in the last two years, largely due to Unmanned Aircraft Systems (UAS) activity.

In June 2017, the Federal Aviation Administration (FAA) granted approval to the United States Marine Corps (USMC) for an August 2017 large scale exercise; the first approval of a TRA since 1999. The SUA NOTAMs below, announcing this airspace, were formatted in accordance with the JO 7930.2 and the Special Use Airspace Management System (SAMS) automation platform:

```
!SUAW 08/087 ZLA AIRSPACE TEMPORARY R-2509N ACT SFC-16000FT  
1708171300-1708180700
```

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!SUAW 08/088 ZLA AIRSPACE TEMPORARY R-2509W ACT SFC-8000FT  
1708171300-1708180700
```

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!SUAW 08/089 ZLA AIRSPACE TEMPORARY R-2509E ACT SFC-FL220  
1708171300-1708180700
```

Unlike Temporary Flight Restrictions (TFR), TRAs do not include boundary information in the NOTAM text and there are no georeferenced coordinates. The georeferenced coordinates are available from other sources, such as the FAA's Notices to Airmen Publication (NTAP).

## 2 PROBLEM

The Flight Information Services-Broadcast (FIS-B) Universal Access Transceiver (UAT) system does not currently have the capability to process, parse, or translate all of the distributed parts of TRA NOTAMs for graphical representation on aircraft avionics. Unfortunately, there is no existing pathway to uplink TRA geometry via the FIS-B UAT datalink without making changes to both the FIS-B ground and airborne systems. These changes will also require a revision to DO-358 documentation.

## 3 AOPA PROPOSED SOLUTION

The Aircraft Owners and Pilots Association (AOPA) proposed that the FAA modify the NOTAM policy to allow issuers using the NOTAM Entry System (NES), or comparable freeform text system, to format TRA NOTAMs the same as TFRs so that third-party automation may consistently identify and parse the text. An example of how the freeform text NOTAMs may look is provided below:

FDC X/XXXX ZLA CA..AIRSPACE NORTHEAST OF BIG BEAR CITY, CA..TEMPORARY RESTRICTED AREA R-2509W WITH AN AREA BOUNDED BY 343503N/1163610W (HECTOR VORTAC HEC19414.5) TO 342225N/116310W (HECTOR VORTAC HEC17125.5) TO 342738N/1164034W (HECTOR VORTAC HEC19322.8) TO 342759N/1164251W (HECTOR VORTAC HEC19414.5) TO 342944N/1164251W (HECTOR VORTAC HEC19414.5) BACK TO THE ORIGINAL POINT SFC-16000FT; EXCLUDING AN AREA DEFINED AS XXX SFC-XXXXXXFT. PILOTS CAN RECEIVE ADVISORIES FROM LOS ANGELES CENTER FREQ 128.15 AND RECEIVE AIRSPACE STATUS FROM USMC RANGE CONTROL TELEPHONE 760-830-3737. AIRSPACE GRAPHIC PROVIDED IN NOTICE TO AIRMEN PUBLICATION. XXXX

AOPA further proposed that the FAA ensure the format is implemented in a manner that allows FIS-B and industry providers to be able to generate a shapefile that can be uplinked to aircraft, to facilitate graphical depiction. AOPA also proposed that the FAA ensure the TRA NOTAM implementation identifies all TRAs and that the Federal NOTAM System (FNS) provide all interested parties with an authoritative data feed of TRAs.

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#### **SG-5 CONCLUSION AND RECOMMENDATION**

RTCA SC-206 SG-5 evaluated the TRA problem, received input from a FIS-B avionics manufacturer, reviewed an idea of using the existing TFR product format for TRAs, and reviewed the AOPA proposal.

A pathway for FIS-B to uplink TRAs without FIS-B ground or airborne system changes could be for the FAA to issue TRAs as TFRs. However, according to FAA regulations, this is not permitted.

After careful review of AOPA's proposal, SG-5 considers the proposal a viable short term solution, as long as the SUA NOTAM structure is used, and the FAA continues to generate these NOTAMs in a standardized format. However, this solution will require a human-in-the-loop to parse the text and format the information for uplink on the FIS-B UAT. This implementation will also require a FIS-B ground system change, airborne FIS-B software update, and a DO-358 update to define and implement this new product.

SG-5 suggests for a long term solution that the FAA issue TRA NOTAMs in a standardized format, e.g. ICAO TRA format, which will have a structured format with defined fields and georeferenced information which would enable automated parsing of the text for uplink. This long term solution would also require changes to DO-358 and the airborne software.