

ARINC 424 NDB

Draft 4 of Supplement 23
Proposal

Location: Virtual Meeting
October 4-7, 2021

ADD TMZ & RMZ AIRSPACES

V.0

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Jonathan Archer, GAMA



SUMMARY

GAMA sent an email requesting that the Transponder Mandatory Zone (TMZ) and Radio Mandatory Zone (RMZ) airspaces be added to the ARINC 424 specification.

ADD TMZ AND RMZ AIRSPACES

1.0 INTRODUCTION/ BACKGROUND

Sam Buckwalter sent out the following email from Mr. Jonathan Archer, the GAMA Director of Engineering & Airworthiness:

GAMA was recently approached by AOPA regarding a request for an update to ARINC 424 specification. I was advised by Christine DeJong that you might be able to help.

The following extract captures the salient points of the issue to be addressed:

“We just learnt that there is an issue with IFR certified GPS-systems and their ARINC-424 database specification, as the ARINC-424 does not have TMZ (Transponder Mandatory Zones) as a classification.

This is an airspace that becomes more and more popular in Germany (and probably also in other European States), as the Transponder Mandate in combination with a specific transponder code and the requirement to monitor an ATM frequency makes the requirements for the installation of airspace C or D obsolete. <https://aopa.de/wp-content/uploads/Awareness-Kampagne-TMZ-HB.pdf> Not respecting these regulations are prosecuted as airspace infringements.

Garmin, Foreflight and Skydemon have these airspaces displayed on their Apps, but the Garmin G1000 and GTN, as well as the Avidyne units don't have the ability to display these airspaces, which we find is a clear safety issue.

So far pilots trusted to have a 1:1 picture of the airspace structure on these avionic-systems.”

Do you see any chances to have the ARINC-424 adapted in the not too distant future? Or any another solution to provide an alleviation?

If you need GAMA members to support an update or questions regarding this request, please contact me at jarcher@gama.aero | +1 202-713-6326.

Since Garmin's G100 and GTN was mentioned, I volunteered to write a proposal to get them proposed at the next ARINC 424 meeting:

I talked with Kelly Dillard and we confirmed that we have heard from multiple of our Garmin users that they want to see the Transponder Mandatory Zones (TMZ) and Radio Mandatory Zones (RMZ) added to the NavDB. I have taking a note to propose to add them at next year's ARINC NDB meeting for the ARINC 424-23 specification.

2.0 DISCUSSION and/or ACTION

Garmin proposes to add the Transponder Mandatory Zone (TMZ) and Radio Mandatory Zone (RMZ) airspaces as new Controlled Airspace (UC) airspace types.

ADD TMZ AND RMZ AIRSPACES

3.0 Legacy ARINC 424 changes as depicted (Track Changes is Helpful)

3.1 Update Chapter 5, Field Definition 5.213:

3.1.1 Add “U” for Radio Mandatory Zone (RMZ)

3.1.2 Add “V” for Transponder Mandatory Zone (TMZ)

Field Content	Description
A	Class C Airspace (was ARSA within the USA)
C	Control Area, ICAO Designation (CTA)
M	Terminal Control Area, ICAO Designation (TMA or TCA)
R	Radar Zone or Radar Area (was TRSA within the USA)
T	Class B Airspace (Was TCA with the USA)
U	Radio Mandatory Zone (RMZ)
V	Transponder Mandatory Zone (TMZ)
Z	Class D Airspace within the USA, Control Zone, ICAO Designation (CTR)

4.0 XML ARINC 424 changes as depicted (Track Changes is Helpful)

- Jira Ticket: [ARINC-270](#)
- Git Feature Branch: [feature/ARINC-270-add-tmz-rmz-airspaces](#)
- Summary of changes:

4.1 Update Enumerations.xsd, ControlledAirspaceType:

4.1.1 Add “RadioMandatoryZone” for Radio Mandatory Zone (RMZ)

4.1.2 Add “TransponderMandatoryZone” for Transponder Mandatory Zone (TMZ)

ADD TMZ AND RMZ AIRSPACES

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Types / Enumerations.xsd MODIFIED
3093 3093 <xs:enumeration value="Radar">
3094 3094 <xs:annotation>
3095 3095 <xs:documentation>Radar Zone or Radar Area (Was TRSA within the USA).</xs:documentation>
3096 3096 </xs:annotation>
3097 3097 </xs:enumeration>
3098 3098 <xs:enumeration value="ClassB">
3099 3099 <xs:annotation>
3100 3100 <xs:documentation>Class B Airspace (Was TCA with the USA).</xs:documentation>
3101 3101 </xs:annotation>
3102 3102 </xs:enumeration>
3103 + <xs:enumeration value="RadioMandatoryZone">
3104 + <xs:annotation>
3105 + <xs:documentation>Radio Mandatory Zone (RMZ)</xs:documentation>
3106 + </xs:annotation>
3107 + </xs:enumeration>
3108 + <xs:enumeration value="TransponderMandatoryZone">
3109 + <xs:annotation>
3110 + <xs:documentation>Transponder Mandatory Zone (TMZ)</xs:documentation>
3111 + </xs:annotation>
3112 + </xs:enumeration>
3103 3113 <xs:enumeration value="ClassD">
3104 3114 <xs:annotation>
3105 3115 <xs:documentation>Class D Airspace within the USA, Control Zone, ICAO Designation (CTR).</xs:documentation>
3106 3116 </xs:annotation>
3107 3117 </xs:enumeration>
3108 3118 </xs:restriction>
3109 3119 </xs:simpleType>
3110 3120 <xs:simpleType name="BoundaryVia">
3111 3121 <xs:annotation>
3112 3122 <xs:documentation>The "Boundary VIA" defines the path of the boundary from the position identified in the record to t
```

Figure 1: XML Changes to Enumerations.xsd