ARINC 424 NDB
Draft 4 of Supplement 23
Proposal

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SUPPORT FOR AF LEGS ON VOR FINAL APPROACH CODING

V.0

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SUMMARY
There are some instrument approach procedures which have DME-arc to a fix (AF) path & termination legs on the final approach coding. We want to add support for the AF legs on the final approach coding, so these procedures are allowed in our NavDB.

1.0 INTRODUCTION/ BACKGROUND

There are some instrument approach procedures which have DME-arc to a fix (AF) path & termination legs on the final approach coding. For example, the KMTN VOR or TACAN RWY 15 which would require AF legs from the IAF to the MAP on the BAL 14.7 DME arc:
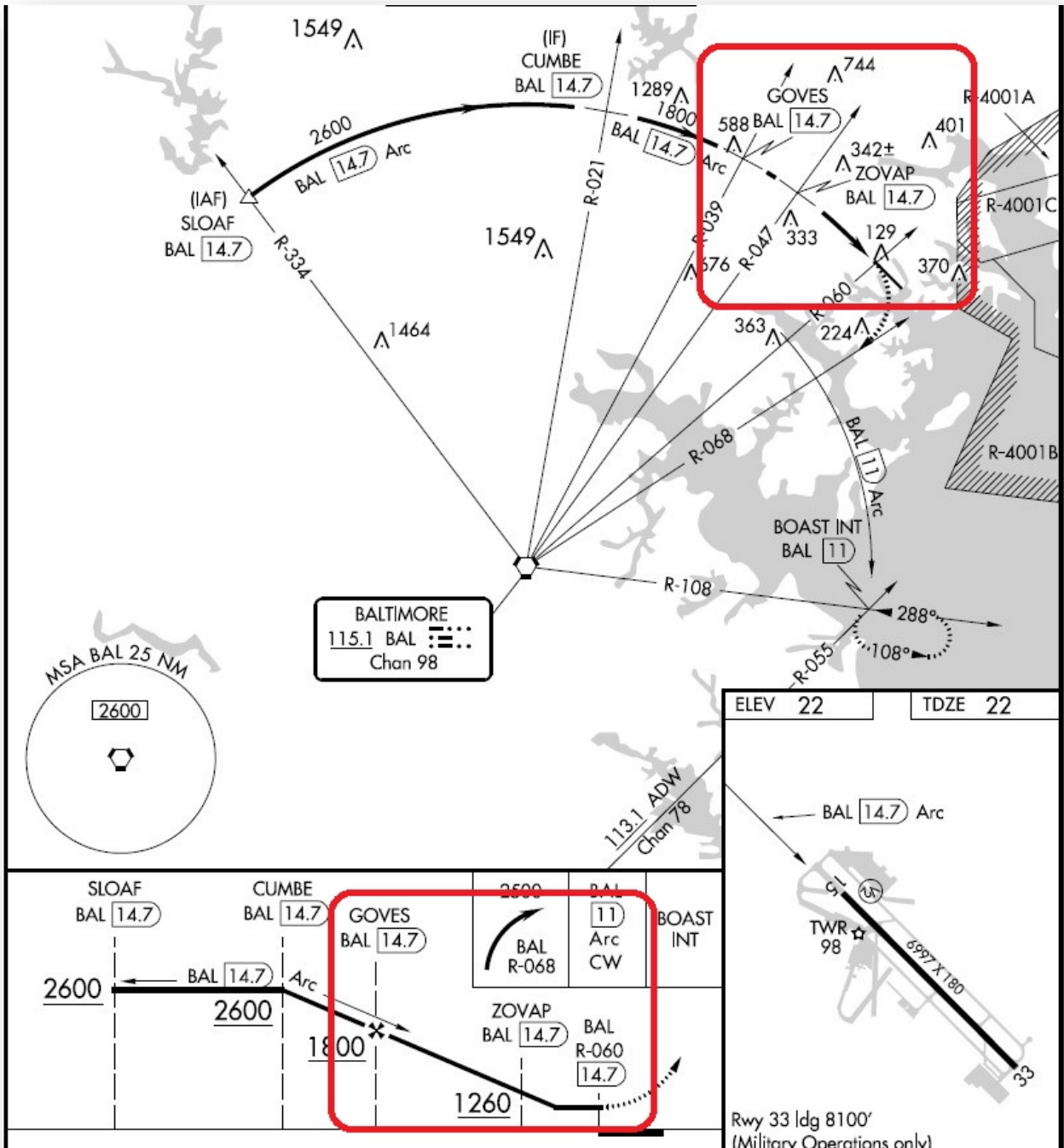

Figure 1: Example KMTN D15

But according to the current ARINC 424-23 DRAFT 3 specification, the AF legs are not allowed on the final approach coding; between the FACF and MAP.

Procedure	Beginning Leg	Ending Leg
SID Runway Transition	CA, CD, CF, CI, CR, DF, FA, FC, FD FM, IF, VA, VD, VI, VM, VR	AF, CF, DF, FM, HA, HF HM, IF², RF, TF, VM
SID Common Route	CA¹, CD¹, CF¹, CI¹, CR¹, DF¹, FA, FC, FD, FM, HF⁵, IF, VA¹, VD¹, VI¹, VM¹, VR¹	AF, CF, DF, FM, HA, HF, HM, IF², TF, RF, VM
SID Enroute Transition	FA, FC, FD, HF, IF	AF, CF, DF, HA, HF, HM, RF, TF
STAR Enroute Transition	FC, FD, HF, IF	AF, CF, DF, HM, HF, RF, TF
STAR Common Route	FC, FD, FM, HF, IF	AF, CF, DF, FM, HF, HM, IF², RF, TF, VM
STAR Runway Transition	FC, FD, FM, HF, IF	AF, CF, DF, FM, HF, HM, IF⁴ RF, TF, VM
Approach Transition	FC, FD, FM HF, IF, PI	AF, CF, CI³, HF, HM, PI, RF, TF, VI³
Final Approach Coding	IF	CF, RF, TF
Missed Approach	AF, CA, CD, CF, CI, CR DF, FA, FC, FD, FM, HA, HM, RF, TF, VA, VD, VI, VM, VR	AF, CA, CF, DF, FM, HM, RF, TF, VA, VM

Figure 2: Attachment 5 Table 1.2

8.3   Final Approach Path Coding - VOR-based Procedures

The following rules apply to the Final Approach Coding of non-precision VOR-based approach procedures. These procedures may include VOR, VORDME, VORTAC, TACAN, and **VOR/DME** RNAV procedures.

8.3.1   Final Approach Coding must be coded using IF and CF or TF[1] legs only.

8.3.2   Final Approach Coding must include both a FAF and missed approach fix. The missed approach fix may be a runway or helipad fix or a designated missed approach point. Coding of a FACF is defined in Rule 6.2.5.

[1]   In general CF legs are used in final approach coding. TF legs are used in FMS and GPS Approach Procedures, some types of MLS Procedures and in other procedure types where the determination has been made that a TF will work better than a CF.

Figure 3: Attachment 5 8.3 Rules

2.0 DISCUSSION and/or ACTION

Garmin proposes to add the AF leg to be allowed on the final approach coding so these approach procedures can be coded and provided to our customers.

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

3.1 Update Attachment 5, Table 1.2 to include AF legs as an ending leg in the final approach coding

Procedure	Beginning Leg	Ending Leg
SID Runway Transition	CA, CD, CF, CI, CR, DF, FA, FC, FD FM, IF, VA, VD, VI, VM, VR	AF, CF, DF, FM, HA, HF HM, IF[2], RF, TF, VM
SID Common Route	CA[1], CD[1], CF[1], CI[1], CR[1], DF[1], FA, FC, FD, FM, HF[5], IF, VA[1], VD[1], VI[1], VM[1], VR[1]	AF, CF, DF, FM, HA, HF, HM, IF[2], TF, RF, VM
SID Enroute Transition	FA, FC, FD, HF, IF	AF, CF, DF, HA, HF, HM, RF, TF
STAR Enroute Transition	FC, FD, HF, IF	AF, CF, DF, FM, HF, HM, IF[2], RF, TF, VM
STAR Common Route	FC, FD, FM, HF, IF	AF, CF, DF, FM, HF, HM, IF[2], RF, TF, VM
STAR Runway Transition	FC, FD, FM, HF, IF	AF, CF, DF, FM, HF, HM, IF[4], RF, TF, VM
Approach Transition	FC, FD, FM HF, IF, PI	AF, CF, CI[3], HF, HM, PI, RF, TF, VI[3]
Final Approach Coding	IF	**AF,** CF, RF, TF
Missed Approach	AF, CA, CD, CF, CI, CR DF, FA, FC, FD, FM, HA, HM, RF, TF, VA, VD, VI, VM, VR	AF, CA, CF, DF, FM, HM, RF, TF, VA, VM

3.2 Update Attachment 5, Rule 8.3.1 to allow AF legs to be coded on the VOR final approach coding

8.3.1 Final Approach Coding must ~~be coded using~~**use an** IF **leg followed by AF,**~~and~~ CF or TF[1] legs only.

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

- Jira Ticket: N/A

- Git Feature Branch: N/A

- Summary of changes: N/A