

**AERONAUTICAL CHARTING FORUM**  
**Charting Group**  
**Meeting 14-02 – October 28 - 30, 2014**

**RECOMMENDATION DOCUMENT**

**FAA Control # ACF-CG RD 14-02-284**

**Subject: DME-Only Facilities – Charting and MAGVAR Issues**

**Background/Discussion:**

The VOR MON program is discontinuing approximately half of the VOR facilities in the NAS by the year 2025. The Distance Measuring Equipment (DME) and Tactical Air Navigation (TACAN) portion of the facilities will be retained to enable Area Navigation (RNAV) for aircraft equipped with scanning DME receivers with inertial reference unit (IRU) avionics.

These facilities will retain the three-letter identification codes, which have geographic meaning contributing to pilot/controller situational awareness. Although the DME-only facilities can't be used for conventional VOR navigation, the familiar facility locations and 3-letter IDs can be used for RNAV operations and should therefore be charted.

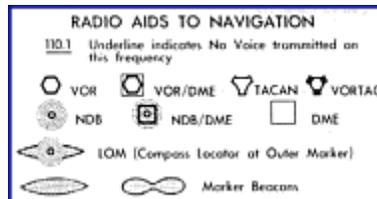
Additionally, some aircraft avionics use a "reference NAVAID", typically VOR and NDB facilities, to obtain magnetic variation. As VORs are removed, larger variations may result if the "reference NAVAIDs" are farther away from the IFP. [8260.19, paragraph 2-5-3f(2)]

**Recommendations:**

1. The ACF should recommend appropriate policy to chart DME-only facilities and retain the familiar 3-letter IDs for pilots and controllers to use for RNAV operations.
2. Additionally, the ACF should recommend appropriate policy so that RNAV IFPs can use DME-only and/or TACAN facilities as "reference NAVAIDs" to obtain MagVar values.

**Comments:**

Below is a graphic on symbols for various NAVAIDs



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**Date:** August 26, 2014

**MEETING 14-02**

Valerie Watson, AJV-344, [briefed the issue](#). Valerie stated that though a number of decisions have been made regarding the handling of DME facilities, questions still remain. She briefed that in instances where a VOR that was part of a VOR/DME has been decommissioned, the remaining DME will retain the original name, three letter identifier and DME channel. Valerie questioned whether or not the paired frequency should be retained, databased and charted. Rich Boll, NBAA, said yes, the paired frequency should be retained.

A discussion ensued regarding how DMEs are intended to be used in the NAS and when or if there is a need to publish DMEs on the charts. The general consensus is that if a DME defines something in the NAS, e.g., fix makeup, part of a route, part of the description for class airspace, it will be charted. If it is solely for DME/DME/IRU use, it does not need to be charted.

Ted Thompson, Jeppesen, emphasized that pilots don't like to see a disconnect between what is displayed on the FMS and what appears on the chart. If all DMEs are going to in the FMS even if they are only being used for DME/DME/IRU, they should be considered for charting. The rules for charting DMEs should be kept simple.

Lynette Jamison, AJR-B1, asked if there would be confusion when an uncharted DME is NOTAM'd. How would a pilot know where the DME is located geographically, and what routes and procedures are impacted? Valerie commented that today, DMEs used for Q routes are databased to the route in question and are published in the back matter of the AFDs, so pilots don't know the relationship today by looking at a chart.

Leo Eldridge, Tetra Tech, Contract Support to AJM-324, voiced support for charting all DMEs so that they could potentially be utilized as points for free flight. John Collins, GA Pilot, supported this view.

The subject of whether DMEs should/would be assigned magnetic variation was brought up. Brad Rush, AJV-344, stated that a DME has no azimuth aspect, therefore assignment of a magnetic declination value meaningless and unnecessary. If there is a TACAN associated with the DME, then the TACAN would require a magnetic declination. When asked how the ARINC 424 requirement for the use of a "reference facility" for DME/DME/IRU operations on certain leg types to be coded in the procedure would be handled, Brad responded that the FAA will establish a reference facility that matches the airport of landing/departure magnetic declination, so there is no need for a DME to have an assigned magnetic declination.

John Moore, Jeppesen, stated that there are too many unknowns to be able to make decisions at this time and suggested that a DME workgroup be formed to address the many issues and requirements that need further discussion and clarification.

It was agreed that a workgroup be formed. The following individuals signed up to participate:

<b>Stand-Alone DME Workgroup</b>		
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**STATUS: OPEN**

**ACTION:** The Stand-Alone DME Workgroup will meet to discuss the issues brought up at this ACF and report back.

**MEETING 15-01:**

Dale Courtney, AJW-292 and Chair of the DME Workgroup, [briefed the topic](#). He stated that the initial DME Workgroup meeting has taken place and a number of issues were discussed. Dale stated that the scope of the VOR MON program is to decommission an estimated 308 VORs by 2025. The program will also investigate the addition of DMEs for RNAV use to fill in coverage gaps. Dale reported that NASR can accommodate DMEs in the database as a NAVAID type, but that they will not be published as such until charting standards are established.

Leo Eldridge, Contract Support, AJM-324, stated that approximately 2000 VOR/DME procedures will be impacted. Leo asked if the remaining DME would be charted on those amended procedures after the VOR has been decommissioned. Dale responded that yes, those DMEs would still be charted if still utilized as part of the procedure. Dale acknowledged that more work is needed to understand the full impact on VOR/DME procedures.

Vince Massimini, MITRE, asked if DMEs would be charted if they were not being used as part of an approach or as a part of establishing a fix or waypoint? Vince added that pilots will want to be able to compare what they are seeing in their FMS to the charted procedure. Dale stated that DMEs that support conventional uses will be charted because their use will be identified on FAA Form 8260-2. DMEs that only support RNAV use will not be charted, but will be databased in NASR. Valerie Watson, AJV-553, added that DME facilities used as waypoints on RNAV procedures will be charted as DMEs as per the existing charting hierarchy principle.

John Collins, GA Pilot, stated that if some DMEs are only in the database, then pilots will not be able to call up individual, uncharted DMEs to use as a means of triangulating distances to establish positions. He asked that if the DME is there, why can't it be

charted? Valerie stated that any DME used as a make-up of an enroute fix would be charted, but that those only used for RNAV backup would likely not be charted because they would be of limited use to a limited number of pilots. Chart clutter concerns regarding depiction of all DMEs were voiced by a number of audience participants. Dale mentioned the possibility of a “don’t chart” flag in the database to ensure the intent is clear.

It was identified that there needs to be a discussion with avionic manufacturers to ensure that the presence in the FMS and lack of chart depiction of DMEs doesn’t have any detrimental impact. Kevin Bridges, AIR-131, will investigate.

The DME Workgroup is made up of the following individuals:

DME Workgroup		
Name	E-mail	Phone
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## STATUS: OPEN

**ACTION:** The DME Workgroup will continue to meet to discuss the issues and Dale Courtney, AJW-292, will report.

## MEETING 15-02:

Valerie Watson, AJV-553, [reviewed the topic](#). Dale Courtney, AJW-292, informed the forum that since the last ACF, there had not been any meetings of the DME Workgroup. Dale stated that the scope of the VOR MON has changed due to the decrease in numbers of VORs to be decommissioned.

One of the recommendation is to chart the approximately 52 DMEs that will remain as a result of VOR decommissionings in MON Phase 1. Dale voiced the WG recommends that DMEs be charted using the square box symbology, shall retain the name and ident of the parent VOR/DME, will (when necessary) have a facility box with name, ident, morse code, channel and paired frequency. DMEs used as waypoints will be shown utilizing the standard hierarchy concept with the DME symbol and associated text. It was agreed that as DMEs have no azimuth, a magnetic variation of zero will be assigned.

Rich Boll, NBAA, inquired if these DMEs could be utilized by ATC. Dale stated that yes, ATC could use to them as a waypoint. Valerie voiced that as with any NAVAID, these will be entered into the NAVAID resource in NASR as NAVIAD type DME so the 3-character idents will be in the FMS and can be used as waypoints.

Gary Fiske, AJV-82, stated that ATC is against charting the DMEs if the sole purpose is for them to be used for DME backup. Dale commented that not charting them would result in the charts being inconsistent with the FMS. Ted Thompson, Jeppesen, agreed that if they are not all charted, it will cause confusion, both in creating a mismatch between charts and the FMS and for NOTAM clarity. Valerie stated that as with any NAVAID, if a DME is used on a procedure, airway or as part of a makeup, in the structure (say Enroute Low or High) of the chart product, it will be depicted.

There was consensus that for Phase 1, since there are only 52 DMEs and they are already charted VOR/DMEs, they should be charted as DMEs after the VOR is decommissioned. This policy may be revisited as the VOR MON decommissionings continue and the possible proliferation of newly commissioned DMEs commences.

Rick Mayhew, AJV-533, stated that NFDC can capture what is necessary for DMEs to be charted in NASR.

The DME Workgroup is made up of the following individuals:

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**STATUS: OPEN**

**ACTION:** Valerie Watson, AJV-553 to work with Dale Courtney, AJW-292, to develop a charting specification for DMEs.

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**MEETING 16-01:**

Valerie Watson, FAA/AJV-553, briefed the issue. Valerie stated that the IACC Requirement Document (approved by the ACF sponsored DME Workgroup) supporting depiction/publication of DME NAVAIDs has been signed and that AJV-5 is prepared to publish these facilities. She also reported that the NASR and AIRNAV databases are able to accommodate DME as a NAVAID type. Valerie asked Dale Courtney, FAA/AJW-292, if we can move forward with the DMEs that have been thus far retained as VOR/DME facilities with the VOR portion decommissioned. Dale responded yes. All outstanding items have been completed and it was agreed to close this issue.

**STATUS: CLOSED**