

AERONAUTICAL CHARTING FORUM
Charting Group
Meeting 09-02 – October 28-29, 2009

RECOMMENDATION DOCUMENT

FAA Control #: 09-02-222

Subject: Charting VGSI Angles - NACO charts do not provide the pilot with a ready reference for the glide path angle of the Visual Glide Slope Indicator (VGSI) which can provide safety critical information. This is especially true when the VGSI and published Vertical Descent Angle (VDA) have non-coincident angles, or for nonprecision approaches where the visual approach (e.g. 20:1) is not clear of obstacles.

Background/Discussion: With the advent of Enhanced Flight Vision Systems (EFVS) that are currently authorized to descend to 100 feet height above threshold, VGSI angle information on all nonprecision approaches would provide an additional safety benefit for pilot quick reference. Where a VGSI angle is not coincident, it is imperative for the pilot to always have knowledge of what that VGSI angle is, and whether the VDA must be abandoned in favor of a higher VGSI angle.

Examples exist where the charted VDA is 3.0 degrees and where that runway's VGSI is set at or near 4.0 degrees. The associated VGSI obstacle identification surface is very close to the VDA angle in that situation, thus making knowledge of VGSI angle critical to all aircraft operators, with or without EFVS.

The stated concern regarding the absence of VGSI information applies to all approaches but is especially applicable where, on a nonprecision approach, the VDA may not provide safe reference for the visual segment due to a higher non-coincident VGSI angle determined as a result of obstacles. Additionally it is noted that non-coincidence can be the result of different threshold crossing heights, even where path angles are the same, usually to accommodate wide-body aircraft use of the VGSI.

Additional justification to note the VGSI angle on all nonprecision instrument approach procedure (IAP) charts (even where non-coincidence is not an issue) is due to the use of constant descent angle reference by EFVS HUD equipped aircraft. The current generation of EFVS cannot differentiate VGSI colors but a flight path reference angle is a selectable requirement of the head-up guidance system. EFVS can, in the visual phase, identify that the aircraft is generally in the lateral coverage area of the VGSI as an additional reference.

Recommendations: AFS-410 recommends that the VGSI angle be published on all IAP charts. On those charts where the published vertical descent angle (VDA) or the published glide path angle (GS, VNAV path, etc.) is noted as "non-coincident" with the VGSI, the VGSI angle should be included in the Additional Flight Data note on the source 8260-series form as specified in Order 8260.19. The reference to coincidence for this recommendation would have the same tolerance as specified in Order 8260.3B relative to determining a non-coincidence between VGSI and vertical path. For example:

*VGSI (4.0°) and descent angle not coincident,
VGSI (4.0°) and ILS glidepath not coincident, etc.*

For all other approaches not addressed above, the VGSI angle may be included in the briefing strip:
VGSI angle 4.0°.

Chart providers that publish a ready reference to the VGSI information on a separate informational page or other means immediately adjacent to the approach chart pages would be considered as having met this recommendation.

Comments: This recommendation affects both Government and commercial charting specifications.

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Date: October 2, 2009

MEETING 09-02: Mr. Bryant Welch, FAA/AFS-410, presented the issue to the forum. The focus of the recommendation concerns procedures where the FAA has defined and provided the VDA, which may or may not be coincident with the VGSI. The recommendation suggests that all VGSI angles should be published on the chart. The solution involves procedure design consideration and the availability of the necessary vertical angles (VDA in relation to VGSI) as part of the 8260. It was acknowledged that the differences between VDA and VGSI angles, as a piloting technique, is explained and "cautioned against" in the AIM.

Mr. Ted Thompson, Jeppesen, explained that in order to help define the scope of the situation, in cases where Jeppesen computes and provides a VNAV angle (when not provided by the official procedure source), Jeppesen will use the VGSI vertical angle as the VNAV angle on runways where a VGSI is available and is between 2.50 degrees MIN and 3.77 degrees MAX.

8260.19 guidance already provides for a chart note "VGSI and glidepath not coincident" to be published in the profile section when the VGSI and glidepath angles/vertical descent angles are not coincident (angles within 0.2 degrees and TCH values with 3 ft.). Ms. Watson pointed out that even when the glideslope is 3.00 and the VGSI is 3.00, the angles may not be coincident due to differing TCH. In such cases, providing users with the numerical VGSI may be cause it to be incorrectly interpreted as coincident with the glideslope/path.

Ms. Valerie Watson and Mr. Brad Rush, FAA/AeroNav Services, each pointed out the impact of monitoring and maintaining VGSI data on 8260s and the affect on chart revisions.

Mr. Bill Hammett, Contract Support for FAA/AFS-420, suggested that additional information be added to the airport diagram or alternatively, perhaps the FAA should consider a more comprehensive airport information page for the TPP much like the Jeppesen 10-1.

Mr. John Moore, FAA/AeroNav Services, summarized that the recommendation does not address all aspects of the issue and also affects procedure design criteria as well as charting.

Mr. Welch was requested to go back to the proponent, Ms. Terry Stubblefield, FAA/AFS-410, and brief the results of the discussion within the ACF and attempt to clarify the focus of the concern and help define the intended scope.

ACTION: Mr. Bryant Welch will clarify the scope of the issue and report back at the next ACF.

MEETING10-01: Ms. Terry Stubblefield, FAA/AFS-410, was present and summarized the basis of the recommendation. Essentially, the request is to chart both the VGSI angle/TCH and the VNAV/VDA angle on the approach chart.

Mr. Richard Boll, NBAA, supports having VGSI angle and TCH associated with the VGSI on chart.

Ms. Valerie Watson, FAA/AeroNav Svc, commented that VGSI and TCH are currently published in NFDD and A/FD. Putting the information on an 8260 verses the NFDD would make VGSI and TCH a procedural process which would mean any changes would have to be done through a P-NOTAM. There was no resolution on the provisions of and maintenance of VGSI data and equipment. This still needs to be resolved.

Mr. Tom Schneider, FAA/AFS-420, said he would take a look at a change to the .19 to include non-coincident VDA and VGSI angles with an associated TCH.

ACTION: Mr. Tom Schneider will report back at the next ACF.

MEETING 10-02: Mr. Tom Schneider, FAA/AFS-420, said the 8260.19E is complete and has drafted AIM language which will go out soon.

Ms. Valerie Watson, FAA/AJV-3B, said the IACC Spec RD adding VGSI Angles and TCH to all existing non-coincident profile notes, has been signed and will be implemented on a day-forward basis.

STATUS: CLOSED

MEETING 13-01: Upon request from Brad Rush, AJV-3, [RD 09-02-222](#) was reintroduced for consideration by the ACF Charting Group. Valerie Watson, AJV-3B, briefed the item in Brad's absence and voiced his request that the FAA Order 8260.19 guidance be more specific in stating that in cases when the non-coincident profile note is specified for charting, that the *numerical values* for the VGSI angle and TCH NOT BE SHOWN on the 8260-series source document. The intent is for the numerical information to be taken from the NASR database. Annotation of this chart note has caused confusion for procedure designers and requires clarification.

Robert Goodson, NGA, asked whether revision to the VGSI information is published in the daily NFDD. Valerie responded yes.

Tom Schneider, AFS-420, stated that he would add clarifying language to FAA Order 8260.19.

STATUS: OPEN

ACTION: Tom Schneider, AFS-420, to modify FAA Order 8260.19 and report back at next ACF.

MEETING 13-02:

Valerie Watson, AJV-3, briefed the topic, stating that the requested clarification to FAA Order 8260 .19 that numerical values for VGSI Angle and TCH not be annotated on the instrument flight procedure source document(s) is satisfactory in the draft version of the Order and that this issue may be closed.

STATUS: CLOSED