

# **Publishing DMAX for GLS Approaches**

## **FAA ACF 1502**

Ron Renk  
Chief Technical Pilot – Navigation  
United Airlines

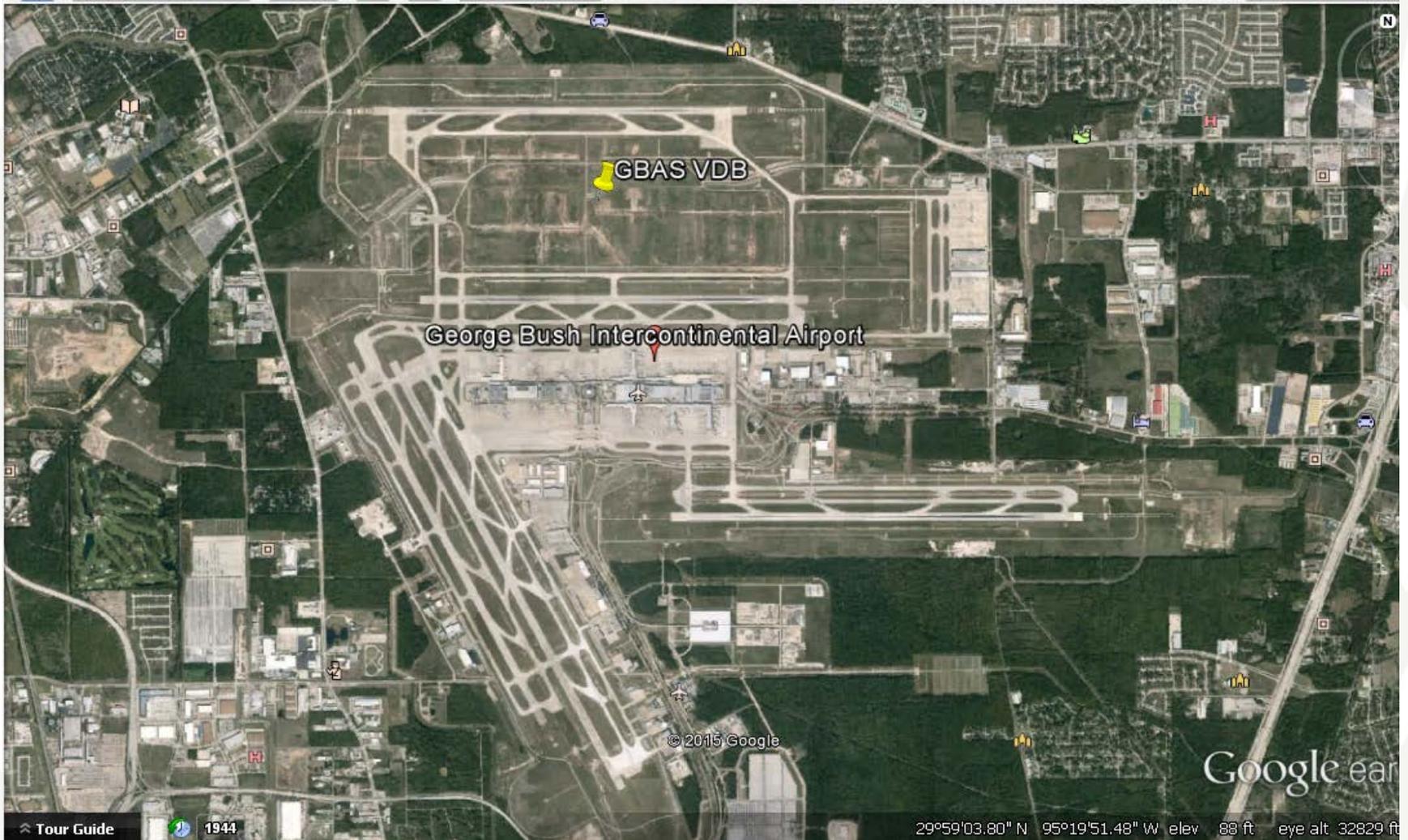
28 October 2015



# Issue Statement

- GLS ground stations have varying service volumes (DMAX) based on installation and siting. Because ATC can expect a pilot to join the final approach course (FAC) out past the service volume, pilots must use LNAV and VNAV to fly the procedure until inside the service volume. Afterwards, the APP mode should be used to complete the approach. Without charting DMax pilots have no reasonable way to know whether they need to use LNAV or APP to join the FAC nor do they have a reasonable way to know when to abandon the approach (if satellite coverage does not support the approach) until they reach the FAF.
- Unlike ILS, all GLS deviation indications are hidden from the pilot outside DMAX
- Maximum DMAX currently 23NM, but siting issues can reduce DMAX. (Example EDDF has a 16NM DMAX)

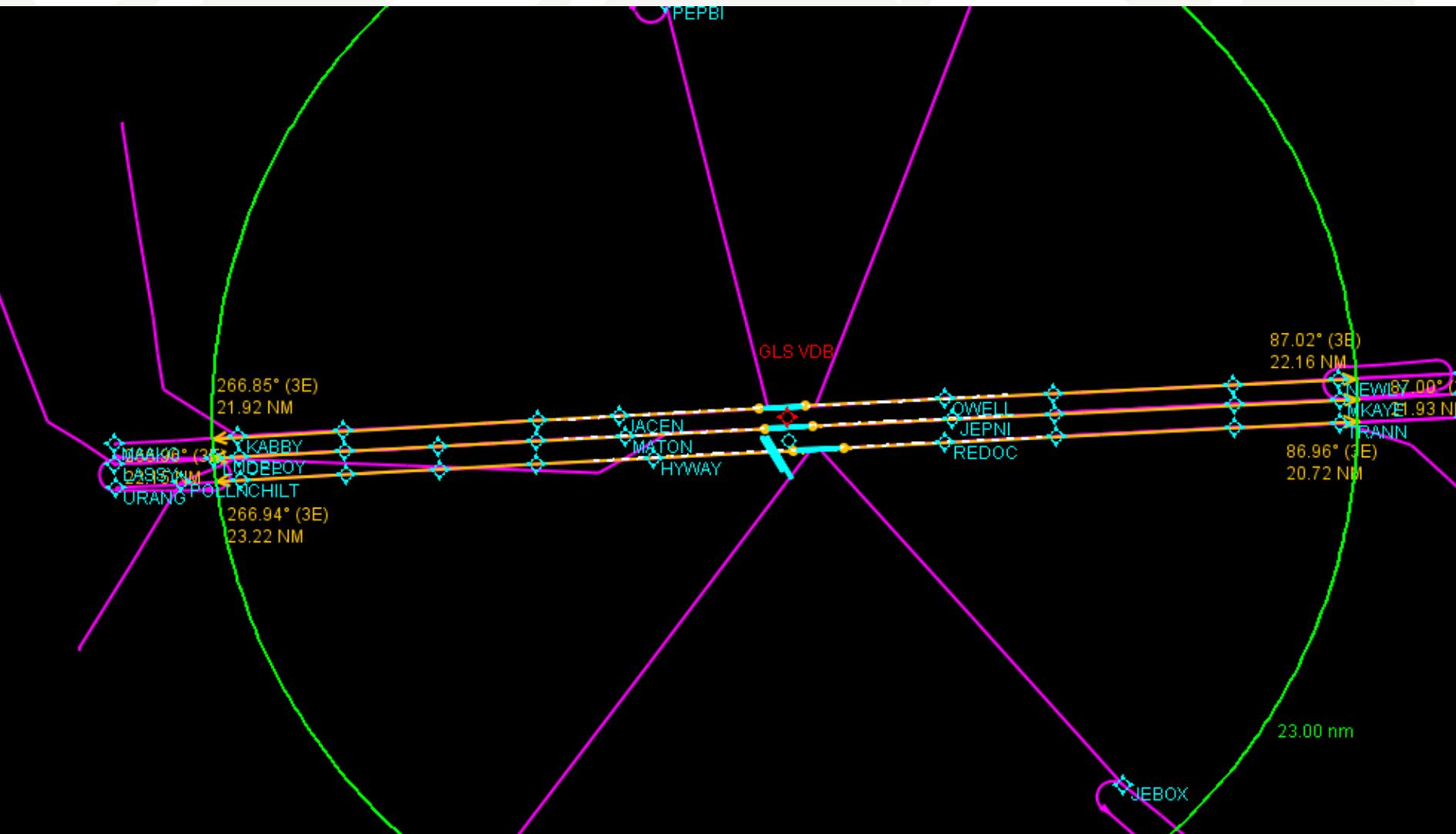
# Issue



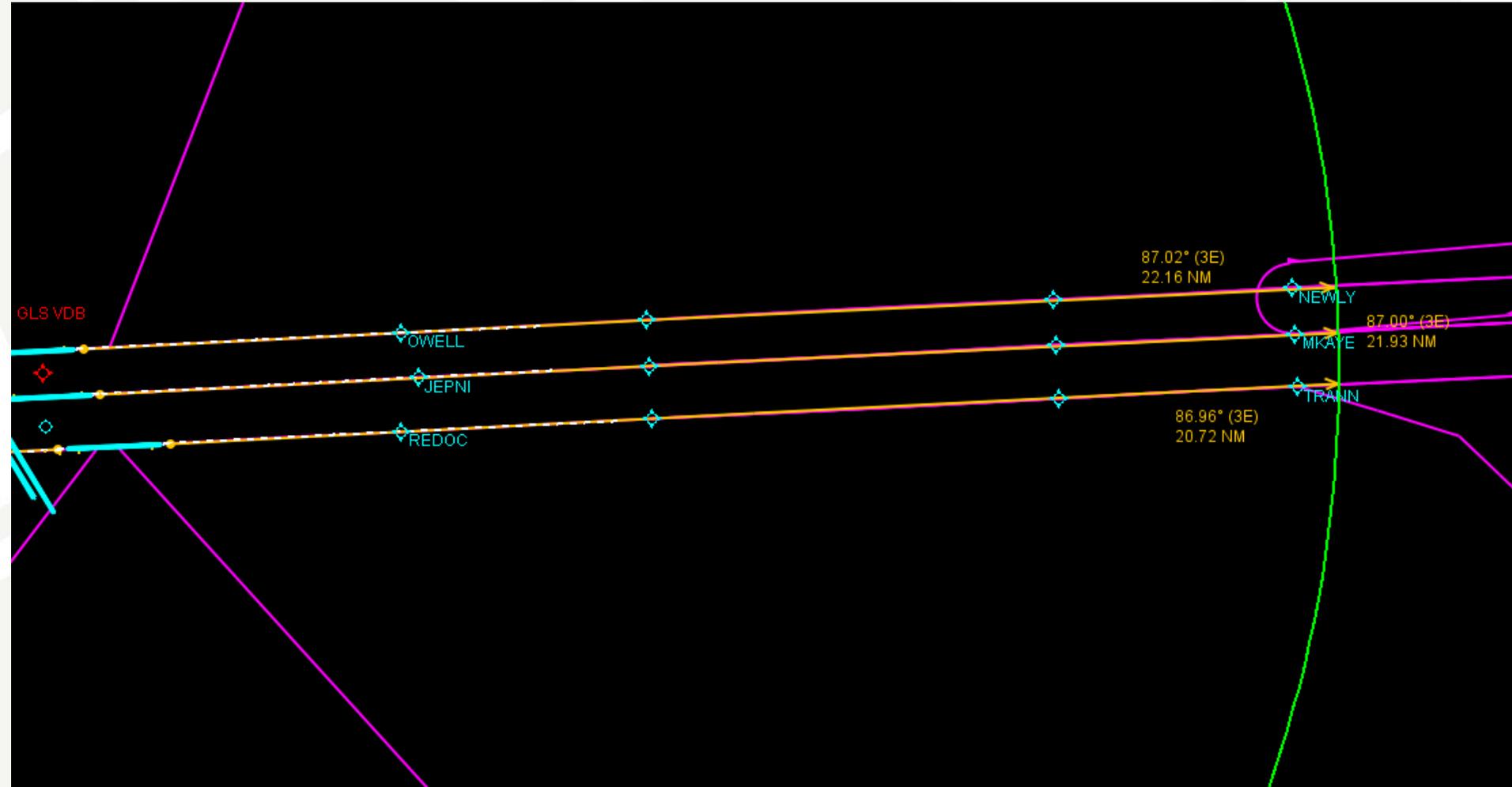
- KIAH – 23NM DMAX, VDB location

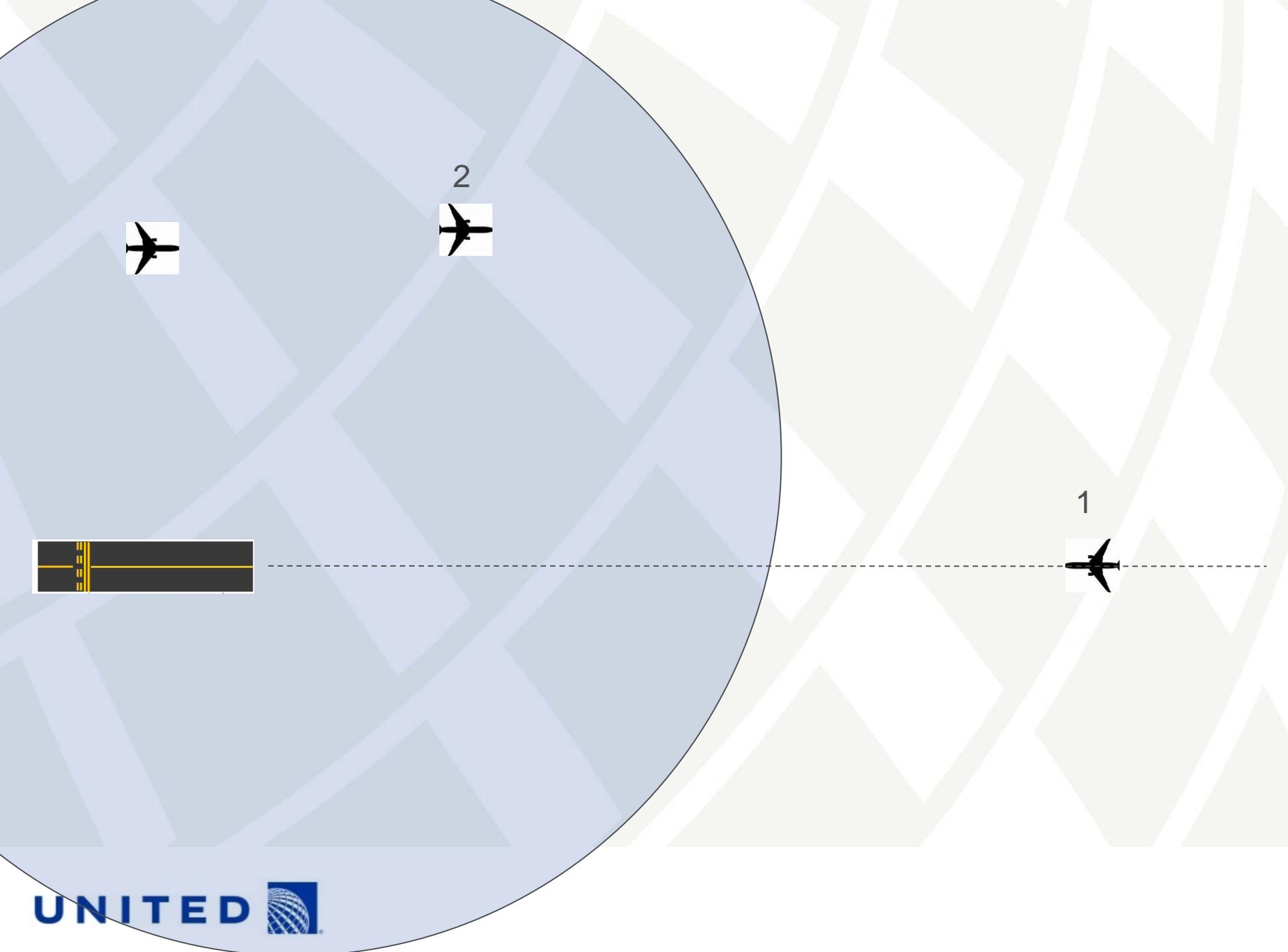


# Issue



# Issue







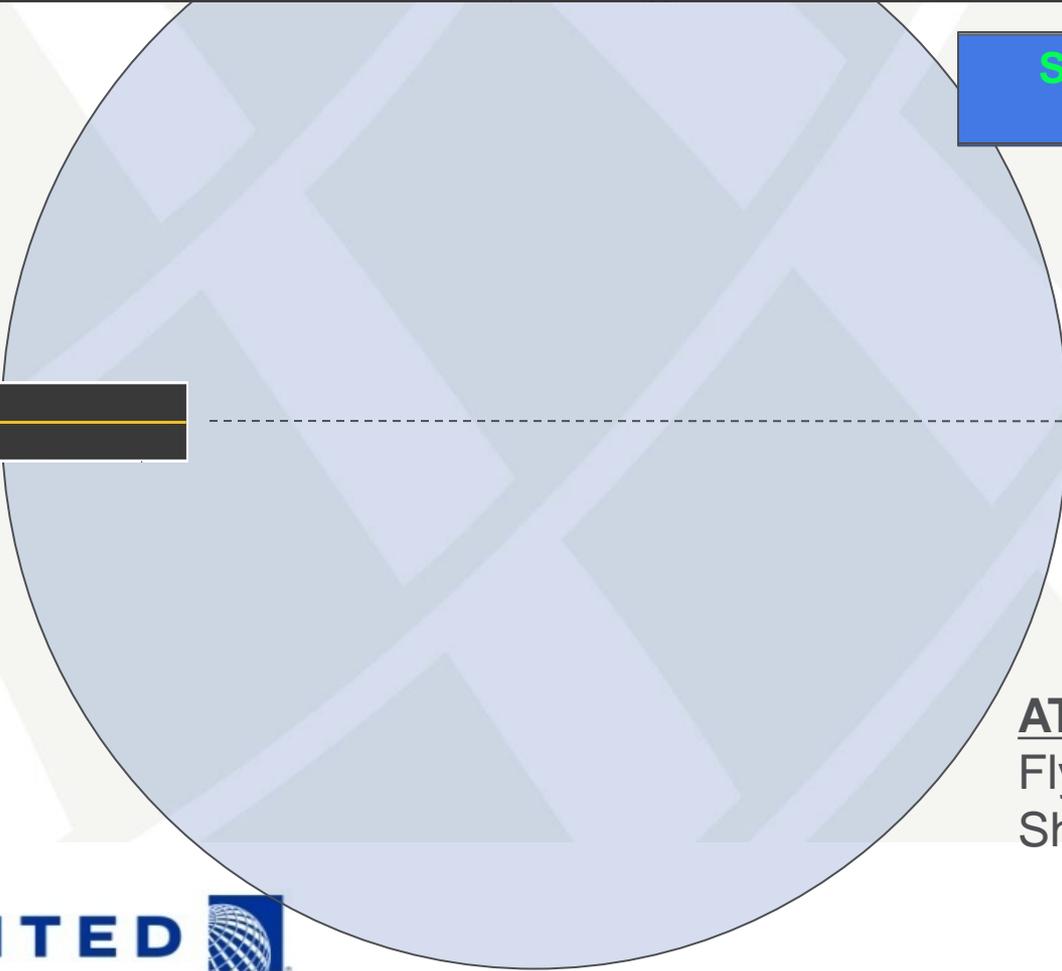
SPD	LNAV LOC	VNAV PTH G/S
-----	-------------	-----------------



**ATC Clearance:**  
Cleared GLS Runway 26  
approach



SPD      HDG      ALT HLD



**ATC Clearance:**  
Fly heading 230, maintain 2000,  
Short deviation for spacing



SPD	HDG LNAV	ALT HLD VNAV
-----	-------------	-----------------



**ATC Clearance:**  
Fly heading 260, maintain 2000 until established, cleared GLS Runway 26 approach



SPD      LNAV      VNAV PTH



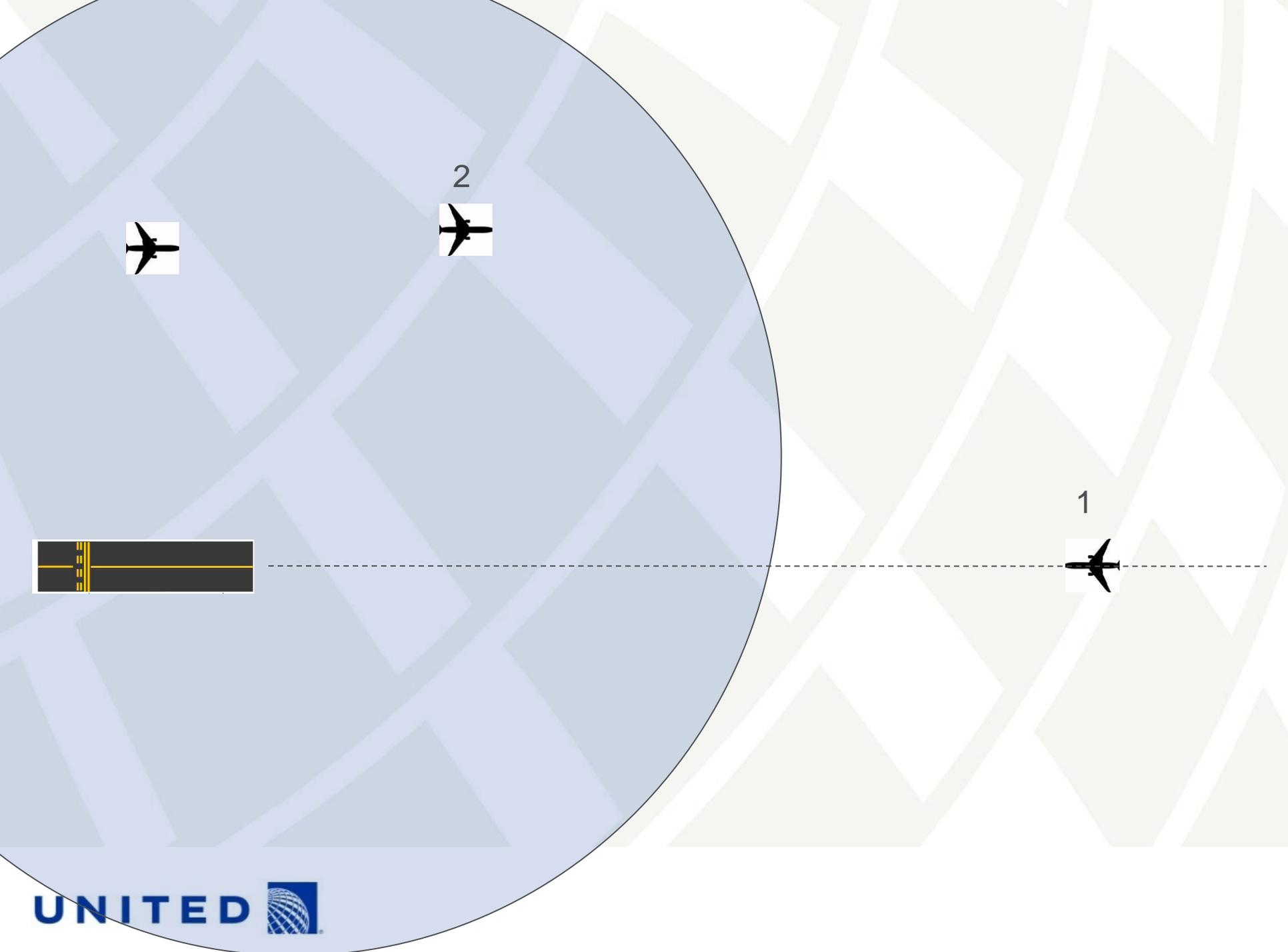
**ATC Clearance:**  
Fly heading 260, maintain 2000  
until established, cleared GLS  
Runway 26 approach



SPD      LNAV      VNAV PTH

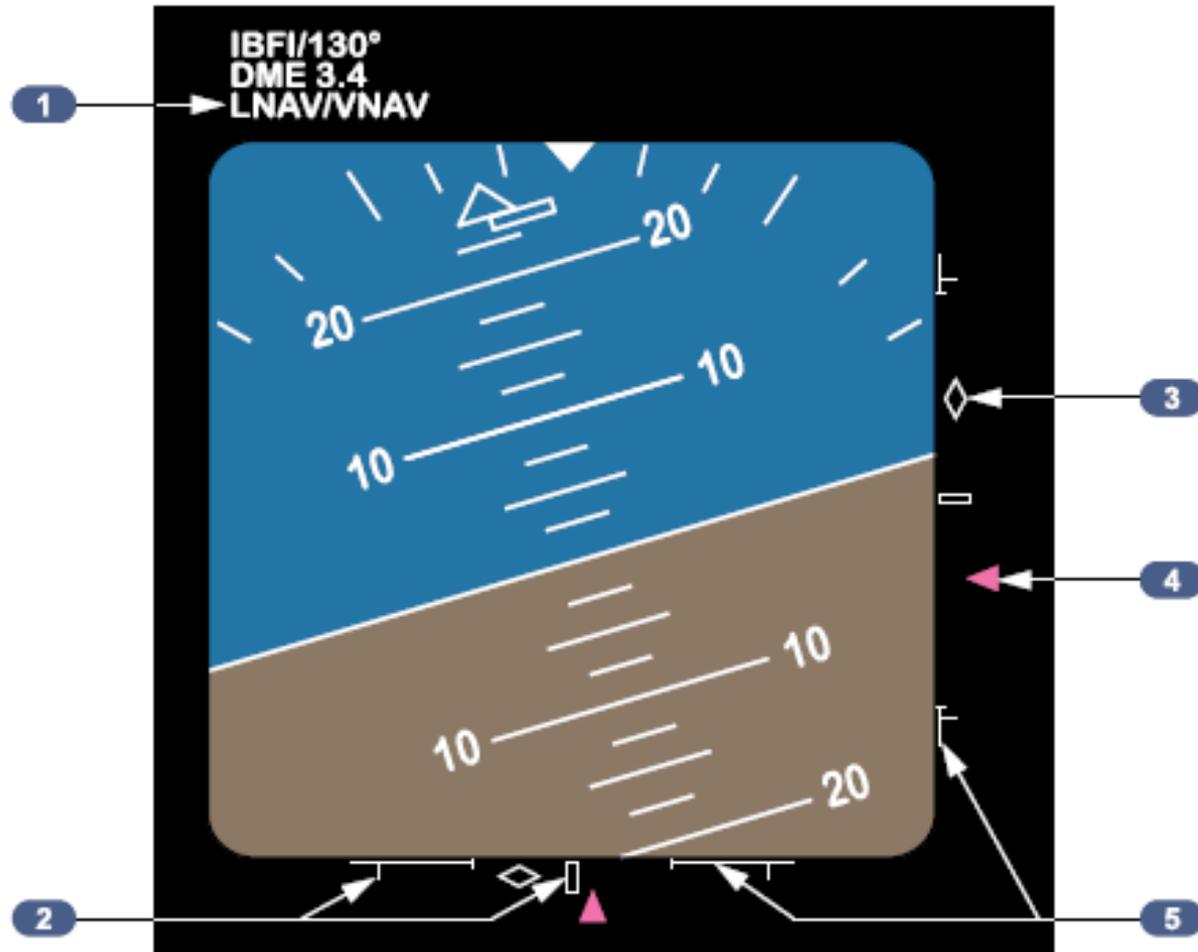


What about inside 23 NM?  
What about CAT III when they forget!!!



# Issue

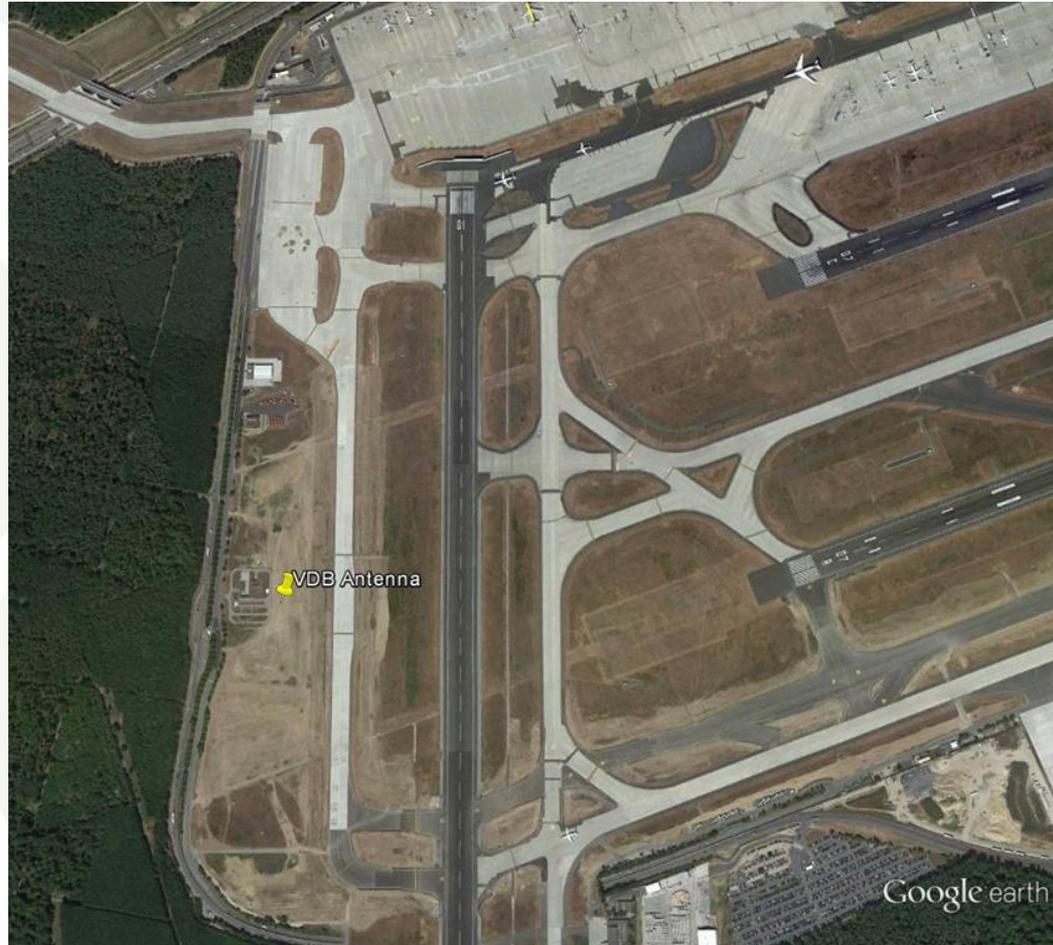
- Ghost pointers for ILS not available for GLS until inside DMAX when using RNAV feeder.
- No pointers at all if on ATC vector



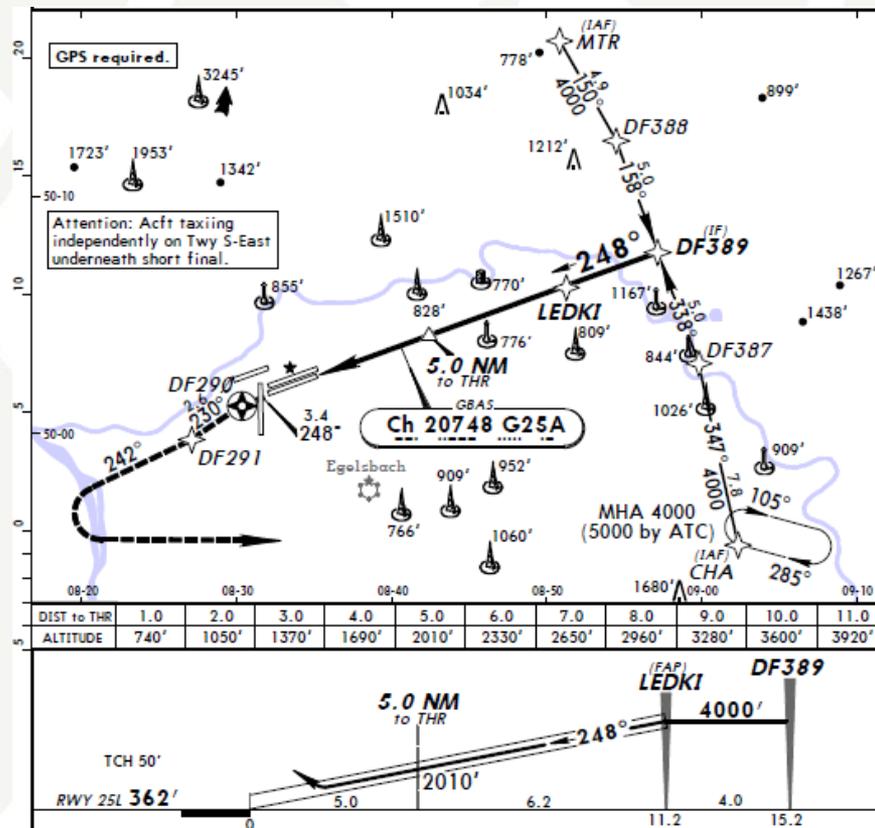
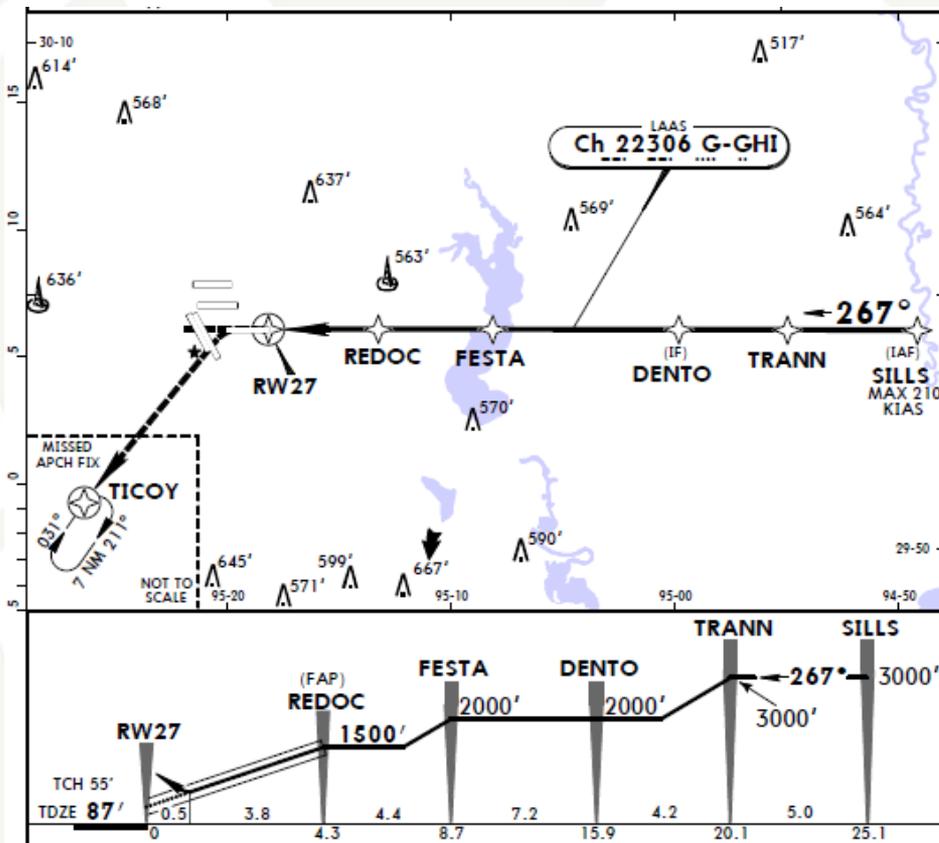
737-6100-030

## Issue

- DMAX is not always the same. At EDDF they installed the VDB near dense wooded area that limits DMAX at EDDF to 16NM.
- How does a pilot know when they are inside 23 NM that the lack of deviations is due to reduced service volume?

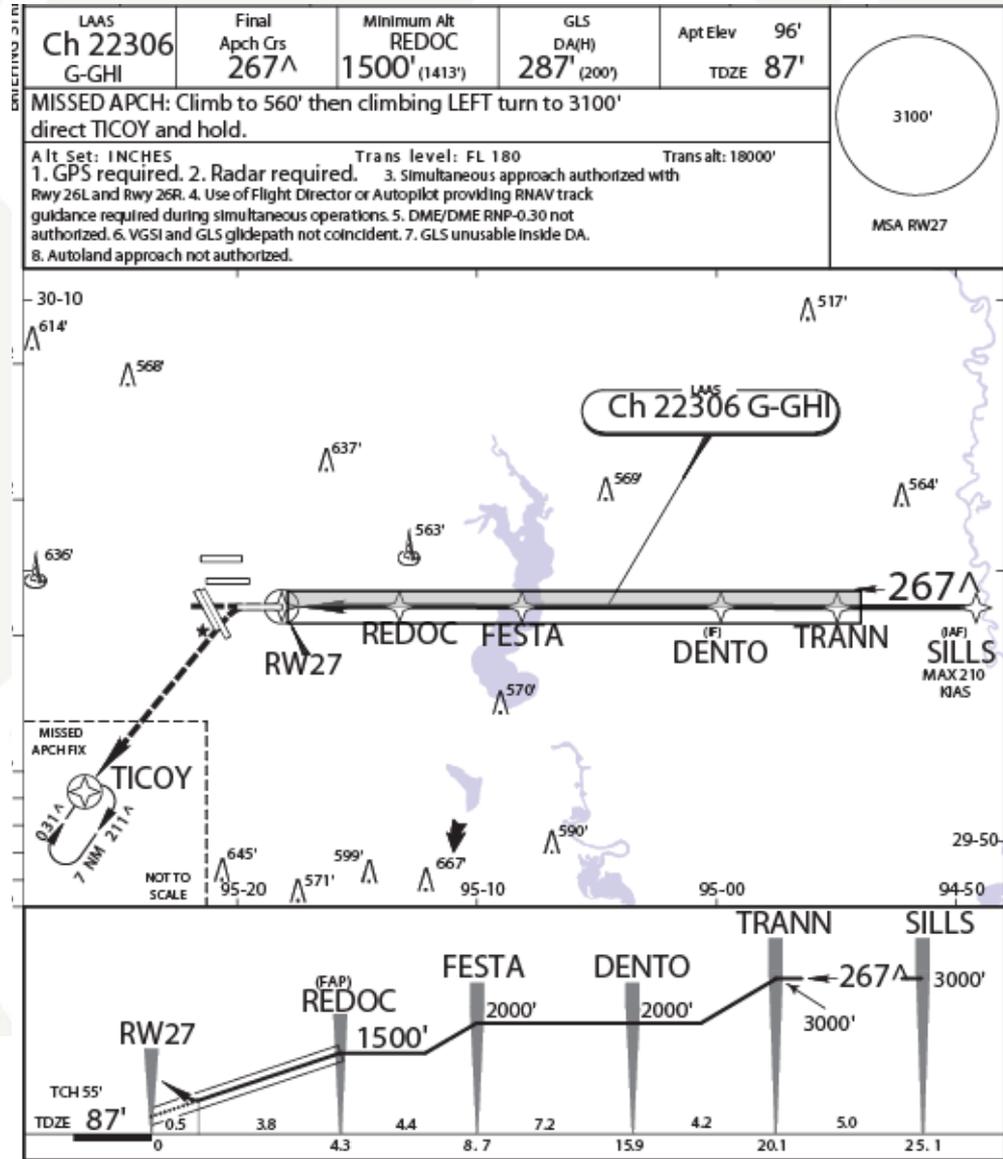


# What Do We Do Today



# Solutions - Ideas

- “Feather” like concept



# Solutions - Ideas

- ARC thru FAC
- How does chart provider know where to chart DMAX?

