

Transport Aircraft Performance Planning (TAPP) – Year in Review

Presented to: Aeronautical Charting Forum

By: Transport Airplane Performance
Planning Working Group

Date: 29 October 2013



Federal Aviation
Administration



TAPP WG – Who are we?

- **Chartered through the FAA Aeronautical Charting Forum**
- **FAA & Industry Representation**
 - NBAA
 - Society of Aircraft Performance and Operations Engineers (SAPOE)
 - Airlines & Aircraft Manufacturers
 - FAA (Operations, Procedures, Aircraft Certification)
- **Objective:**
 - Improve understanding of transport airplane performance concepts & requirements.
 - Address industry/FAA misconceptions.
 - Integrate airplane performance & NextGen.
 - Improve overall system safety.
 - Level the playing field.



2013 Milestones

- **Coordinated with AMA-230 for use of TAPP produced training materials for Part 135 Inspector training**
- **All Part 135 Principal Operating Inspectors attending OKC training receives TAPP videos**
- **TAPP materials also improving OKC Part 25 Inspector training module**



2013 Milestones

- **TAPP efforts improving guidance for FAA and industry members alike to answer the need for improved performance oversight identified in long standing major ACF areas of concern**
- **Coordinated with U.S. Bombardier Part 142 training centers for the use of TAPP video modules in formal training programs**



2013 Deliverables

- **June 2013 – NBAA hosted Webinar Exploring several Aviation Topics of Interest**
 - Part 25 Take-off Certification
 - Declared Distances 101
 - SAFO 12005 – Clarification of Approach Categories
 - SAFO 06012 – Landing Distance Assessment
 - Runway Excursions – Data and Consequences and...
 - FAA Order 8260-3B Changes to Circling Criteria



Changes to Circling Criteria

- **Release of Change 21 to FAA Order 8260.3B “TERPS”**
- **Circling radii may have been increased to account for turning performance due to MDA density altitude and true airspeed**

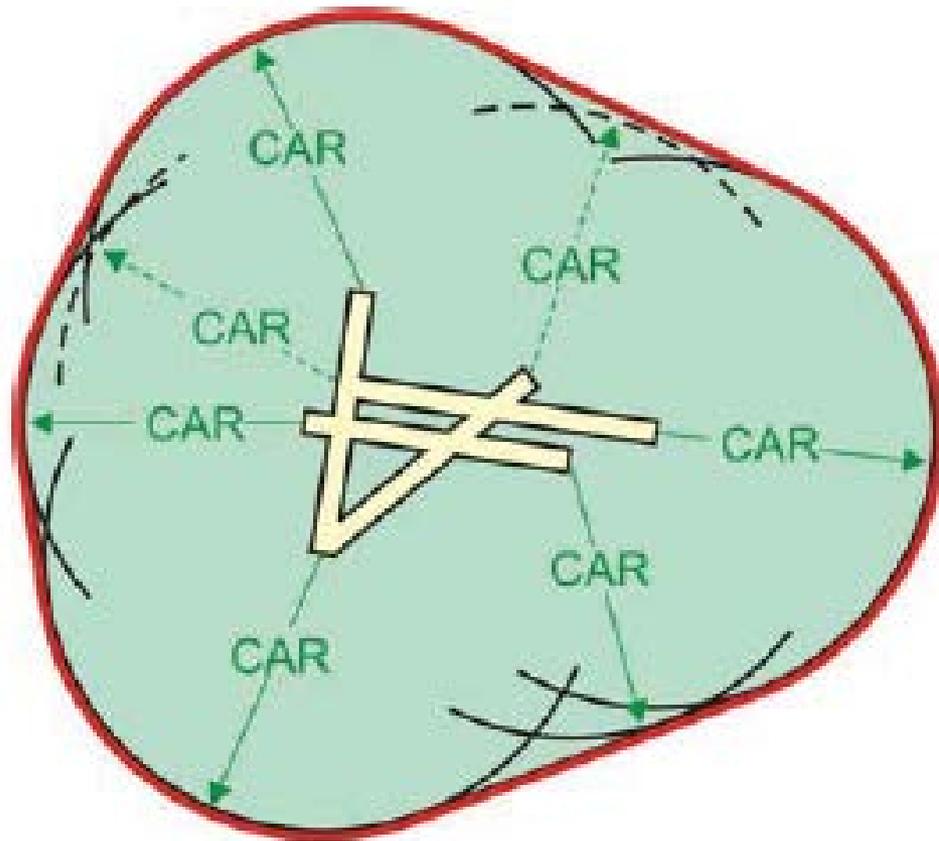


Circling Specifics

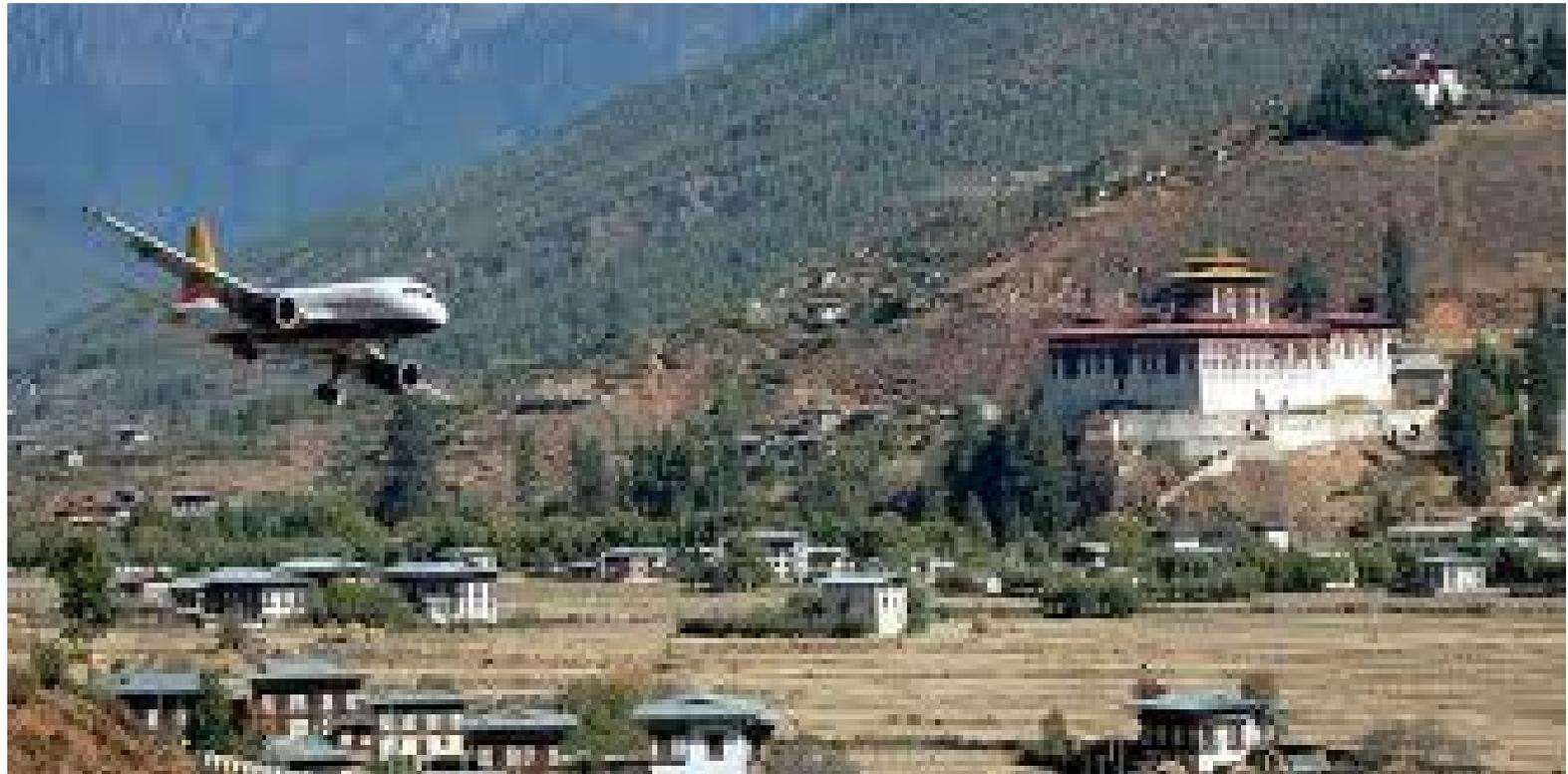
- **Circling Minimum Descent Altitude in Obstacle Evaluation Area provides 300 ft Required Obstacle Clearance**
- **Based upon the height of the MDA (MSL), the radius of the obstacle evaluation area may have expanded by over 1 mile (i.e. additional obstacles to consider for safe clearance)**



Typical Obstacle Evaluation Area



“Cleared to Circle”



Graphical Depiction NGA Products

13122

TERMS/LANDING MINIMA DATA

CIRCLING APPROACH OBSTACLE PROTECTED AIRSPACE

The circling MDA provides vertical clearance from obstacles when conducting a circle-to-land maneuver within the obstacle protected area. Circling approach obstacle protected areas extend laterally and longitudinally from the centerlines and ends of all runways at an airport by the distances shown in the following tables. The areas are technically defined by the tangential connection of arcs drawn at the radius distance shown from each runway end.

STANDARD CIRCLING APPROACH MANEUVERING RADIUS

Circling approach protected areas developed prior to late 2012 used the radius distances shown in the following table, expressed in nautical miles (NM), dependent on aircraft approach category. The approaches using standard circling approach areas can be identified by the absence of the  symbol on the circling line of minima.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)				
	CAT A	CAT B	CAT C	CAT D	CAT E
All Altitudes	1.3	1.5	1.7	2.3	4.5

EXPANDED CIRCLING APPROACH MANEUVERING AIRSPACE RADIUS

Circling approach protected areas developed after late 2012 use the radius distance shown in the following table, expressed in nautical miles (NM), dependent on aircraft approach category, and the altitude of the circling MDA, which accounts for true airspeed increase with altitude. The approaches using expanded circling approach areas can be identified by the presence of the  symbol on the circling line of minima.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)				
	CAT A	CAT B	CAT C	CAT D	CAT E
1000 or less	1.3	1.7	2.7	3.6	4.5
1001-3000	1.3	1.8	2.8	3.7	4.6
3001-5000	1.3	1.8	2.9	3.8	4.8
5001-7000	1.3	1.9	3.0	4.0	5.0
7001-9000	1.4	2.0	3.2	4.2	5.3
9001 and above	1.4	2.1	3.3	4.4	5.5

Comparable Values of RVR and Visibility

The following table shall be used for converting RVR to ground or flight visibility. For converting RVR values that fall between listed values, use the next higher RVR value; do not interpolate. For example, when converting 1800 RVR, use 2400 RVR with the resultant visibility of $\frac{1}{2}$ mile.

RVR (feet)	Visibility (statute miles)	RVR (feet)	Visibility (statute miles)
1600	$\frac{1}{4}$	4500	$\frac{3}{8}$
2400	$\frac{1}{2}$	5000	1
3200	$\frac{3}{8}$	6000	$1\frac{1}{4}$
4000	$\frac{3}{4}$		



Graphical Depiction Jeppesen Products



IMPLEMENTATION OF NEW CIRCLING CRITERIA BASED ON TERPS 8260.3B CHANGE 21

Background

The FAA has modified the criteria for circling approach areas via TERPS 8260.3B Change 21. The circling approach area has been expanded to provide improved obstacle protection. As a result, circling minima at certain airports may increase significantly.

Standard Circling Approach Maneuvering Radius

Circling approach areas developed prior to 2011 used the radius distances (in NM) as depicted in the following table. The distances are dependent on the aircraft approach category.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)				
	CAT A	CAT B	CAT C	CAT D	CAT E
All altitudes	1.3	1.5	1.7	2.3	4.5

Expanded Circling Maneuvering Airspace Radius

Circling approach areas for approach procedures developed beginning in 2013 use the radius distances (in NM) as depicted in the following table. These distances, dependent on aircraft category, are also based on the circling altitude which accounts for the true airspeed increase with altitude.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)				
	CAT A	CAT B	CAT C	CAT D	CAT E
1000 or less	1.3	1.7	2.7	3.6	4.5
1001 – 3000	1.3	1.8	2.8	3.7	4.6
3001 – 5000	1.3	1.8	2.9	3.8	4.8
5001 – 7000	1.3	1.9	3.0	4.0	5.0
7001 – 9000	1.4	2.0	3.2	4.2	5.3
9001 and above	1.4	2.1	3.3	4.4	5.5

Affect on Jeppesen Charts

Charts where these criteria have been applied can be identified by the symbol  in the CIRCLE-TO-LAND minima box.

CIRCLE-TO-LAND	
Circling not authorized East of Rwy 3R/21L.	
Max Kts	MDA(H)
90	1580' (495') - 1
120	1580' (495') - 1 1/2
140	1580' (495') - 1 1/2
165	1640' (555') - 2

The new minima will be published on approach procedure charts on an as-revised basis as the new criteria are applied by the FAA and issued via their source documents.



NGA Graphical Depiction



G CIRCLING	540-1 483 (500-1)	540-1½ 483 (500-1½)	640-2 583 (600-2)
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Jeppesen Graphical Depiction

CIRCLE-TO-LAND	
Circling not authorized East of Rwy 3R/21L.	
Max Kts	MDA(H)
90	1580' (495') - 1
120	
140	1580' (495') - 1½
165	1640' (555') - 2



2013 Deliverables (cont'd)

- **October 2013 – NBAA 2013 Conference covered several related Topics of Interest**
 - Part 25 Airplane Landing Performance Certification vs. Operating Rules
 - Wet and Contaminated Runway Landing Planning
 - Runway Excursions – Data and Consequences and...
 - FAA and Industry “roundtable” with NBAA members



Summary

- **TAPP Working Group has a long-term commitment to address aircraft performance planning priorities which are long standing ACF Issues**
- **Joint FAA and Industry group program will ensure thorough treatment of key subjects**
- **Outcome will provide a safer, level playing field for all Part 91, 91K and 135 operators**



Questions and Comments?

- **Contact Bruce McGray:**
Bruce.McGray@FAA.Gov
(202) 385-4937

