

**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
RNAV (RNP) STANDARD INSTRUMENT APPROACH PROCEDURE**

TITLE 14 CFR PART 97.33

Bearings, headings, courses, tracks and radials are magnetic. Elevations and altitudes are in feet, MSL, except HAT, HAA, TCH, and RA. Altitudes are minimum altitudes unless otherwise indicated.
Ceilings are in feet above airport elevation. Distances are in nautical miles unless otherwise indicated, except visibilities which are in statute miles or feet RVR.

<u>AIRPORT</u> RALEIGH-DURHAM INTL	<u>AIRPORT ID</u> KRDU	<u>PROCEDURE NAME</u> RNAV (RNP) Z RWY 23L	<u>ORIGINAL/AMENDMENT</u> 3	<u>CITY</u> RALEIGH/DURHAM	<u>STATE</u> NC
<u>AIRPORT ELEVATION</u> 435	<u>TDZE</u> 435	<u>SUPERSEDED</u> RNAV (RNP) Z RWY 23L	<u>ORIGINAL/AMENDMENT</u> 2B	<u>DATED</u> 05/24/2018	<u>MAG VAR</u> 9W
<u>FACILITY</u> RNAV	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u> 25 FEBRUARY 2021	<u>REQUIRED EFFECTIVE DATE</u> ROUTINE	<u>CANCEL/SUSPEND</u>	<u>EPOCH YEAR</u> 2020

TERMINAL ROUTES THIS IS A CORRECTED COPY OF A PROCEDURE ORIGINALLY PUBLISHED IN TL 21-03.

FROM	FIX TYPE	TO	FIX TYPE	LEG TYPE	FO/FB	RNP	COURSE	DISTANCE	ALTITUDE
ESELL	IAF	DUWON		TF	FB	1.00	245.42	8.52	5000
DUWON	IAF	DINTS		TF	FB	1.00	234.27	3.14	4000
DINTS		DOCAT		TF	FB	1.00	234.24	2.41	3000
BUTTS	IAF	WARMS		TF	FB	1.00	149.99	6.30	4000
WARMS		DINTS		TF	FB	1.00	202.83	6.12	4000
DOCAT	IF	APUCU	PFAF	TF	FB	1.00	234.23	3.25	2200
KENCH	IF	LEZZY		TF	FB	1.00	056.84	2.80	5100
LEZZY		ZESBI		TF	FB	1.00	056.88	1.35	4700
ZESBI		APUCU	PFAF	RF	FB	1.00	(2.60 NM RADIUS CCW (CFVVN))	8.29	2200
APUCU	PFAF	RW23L	MAP	TF	FO	0.30	234.20	5.38	
RW23L	MAP	1100 MSL		CA			234.20		1100
1100 MSL		ZEBUL		DF	FO	1.00			2600

MISSED APPROACH

MAP:
RNP: DA

MISSED APPROACH INSTRUCTIONS:

CLIMB TO 1100 THEN CLIMBING LEFT TURN TO 2600 DIRECT ZEBUL AND HOLD.

ALTERNATE MISSED APPROACH INSTRUCTIONS:



PROFILE:

1. PT	SIDE OF COURSE	OUTBOUND	FT WITHIN	MILES OF	(IAF)
2. PROFILE STARTS AT APUCU					
3. FAC:	234.20	PFAF: APUCU	DIST PFAF TO MAP:		DIST PFAF TO THLD:
4. MIN ALT: APUCU 2200					
5. DIST TO THLD FROM OM:	5.38	MM:	IM:	150 HAT:	341 HAT: 0.91
GS ANT:					
6. MIN GP INCPT:	2200	GP ALT AT PFAF :	APUCU 2200	OM:	MM:
IM:					
7. GP ANGLE:	3.00	34:1: IS CLEAR	20:1: IS CLEAR	TCH: 55.8	
8. MSA FROM: RW23L 3400					

PBN REQUIREMENTS NOTE:

RNP AR APCH - GPS. 

NOTES:

CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -12°C OR ABOVE 54°C.
CHART PROFILE NOTE: SEE PLANVIEW FOR MULTIPLE IF LOCATIONS.
CHART NOTE: SIMULTANEOUS APPROACH AUTHORIZED, EXCEPT FOR ARRIVALS AT KENCH.
CHART NOTE: FOR INOPERATIVE ALS, INCREASE RNP 0.10 ALL CATS VISIBILITY TO RVR 5500.
CHART PLANVIEW NOTE ADJACENT TO KENCH: RF REQUIRED.
CHART PLANVIEW NOTE AT ESELL: MAX 210 KIAS.
CHART PLANVIEW NOTE AT KENCH: MAX 210 KIAS UNTIL APUCU.
CHART PLANVIEW NOTE AT DUWON: MAX 210 KIAS.
CHART PLANVIEW NOTE AT BUTTS: MAX 210 KIAS.

ADDITIONAL FLIGHT DATA:

CHART MANDATORY 6000 AT KENCH.
CHART MANDATORY 6000 AT ESELL.
CHART MANDATORY 6000 AT BUTTS.
CHART MANDATORY 4000 AT WARMS.
HOLD E, RT, 271.06 INBOUND.
DISTANCE TO THLD FROM 341 HAT: 0.91 NM.



MINIMUMS:

TAKEOFF: SEE FAA FORM 8260-15A FOR THIS AIRPORT

ALTERNATE: NA ☐ STANDARD

<u>CATEGORY:</u>	<u>A</u>			<u>B</u>			<u>C</u>			<u>D</u>			<u>E</u>		
<u>FINAL TYPE</u>	<u>DA/MDA</u>	<u>VIS</u>	<u>HAT/HAA</u>	<u>DA/MDA</u>	<u>VIS</u>	<u>HAT/HAA</u>	<u>DA/MDA</u>	<u>VIS</u>	<u>HAT/HAA</u>	<u>DA/MDA</u>	<u>VIS</u>	<u>HAT/HAA</u>	<u>DA/MDA</u>	<u>VIS</u>	<u>HAT/HAA</u>
AUTHORIZATION REQUIRED															
RNP 0.10 DA	776	3000	341	776	3000	341	776	3000	341	776	3000	341			
RNP 0.30 DA	826	3500	391	826	3500	391	826	3500	391	826	3500	391			

1/12/2021: THIS IS A CORRECTED COPY OF THE FORM APPROVED ON 11/9/2020.

1.CORRECTED PBN REQUIREMENT NOTE TO ADD "GPS".



CHANGES - REASONS

1. RNP 0.10 DA/HAT INCREASED FROM 774/339 TO 776/341; VISIBILITY DECREASED FROM RVR 4000 TO 3000. - NEW OBSTACLE EVALUATION; NEW VISCHECK VALUES.
2. RNP 0.30 DA/HAT DECREASED FROM 870/435 TO 826/391; VISIBILITY DECREASED FROM RVR 5000 TO 3500. - NEW OBSTACLE EVALUATION; NEW VISCHECK VALUES.
3. IAF TRANSITION PAINS REMOVED. IAF TRANSITIONS ESELL AND BUTTS ADDED. - PER FPT/ATC REQUEST.
4. DOCAT (IF) TO WOMEB (PFAF) UPDATED TO DOCAT (IF) TO APUCU (PFAF). COURSE/LENGTH UPDATED FROM 234.25/7.31 TO 234.23/3.25. - POINT WOMEB CANCELLED. WOMEB REPLACED WITH APUCU TO MATCH ILS OR LOC RWY 23L/RNAV (GPS) Y RWY 23L PER FPT REQUEST.
5. KENCH (IF) TO LEZZY COURSE/LENGTH UPDATED FROM 054.21/2.87 TO 056.84/2.80. - KENCH MOVED PER ATC REQUEST; LEZZY MOVED PER FPT REQUEST.
6. LEZZY TO ZESBI COURSE/LENGTH UPDATED FROM 054.24/0.68 TO 056.88/1.35. - LEZZY MOVED PER FPT REQUEST.
7. ZESBI TO WOMEB (PFAF) UPDATED TO ZESBI TO APUCU (PFAF). - WOMEB REPLACED WITH APUCU TO MATCH ILS OR LOC RWY 23L/RNAV (GPS) Y RWY 23L PER FPT REQUEST.
8. WOMEB (PFAF) TO RW23L (MAP) UPDATED TO APUCU (PFAF) TO RW23L. COURSE/LENGTH UPDATED FROM 234.19/4.75 TO 234.20/5.38. - WOMEB REPLACED WITH APUCU TO MATCH ILS OR LOC RWY 23L/RNAV (GPS) Y RWY 23L PER FPT REQUEST.
9. RW23L (MAP) TO PECIT UPDATED TO RW23L (MAP) TO 1100 MSL, 1100 MSL TO ZEBEL. - MISSED APPROACH UPDATED PER FPT REQUEST.
10. MISSED APPROACH INSTRUCTIONS UPDATED FROM "CLIMB TO 3300 ON TRACK 234.19 TO PECIT AND HOLD" TO "CLIMB TO 1100, THEN CLIMBING LEFT TURN TO 2600 DIRECT ZEBUL AND HOLD." - PER FPT REQUEST.
11. UPDATED PROFILE STARTS AT WOMEB TO PROFILE STARTS AT APUCU; PROFILE LINE 3: FAC CHANGED FROM 234.19 TO 234.20; PFAF UPDATED FROM WOMEB TO APUCU. - WOMEB REPLACED WITH APUCU TO MATCH ILS OR LOC RWY 23L/RNAV (GPS) Y RWY 23L PER FPT REQUEST.
12. UPDATED PROFILE LINE 4: MIN ALT CHANGED FROM WOMEB 2000 TO APUCU 2200. - PER FPT REQUEST.
13. UPDATED PROFILE LINE 5: DIST TO THLD FROM OM: FROM 4.75 TO 5.88; DISTANCE TO THLD FROM 339 HAT: 0.89 TO 341 HAT: 0.91; AND "DISTANCE TO THLD FROM 339 HAT: 0.89 NM" REMOVED FROM ADDITIONAL FLIGHT DATA. - WOMEB REPLACED WITH APUCU PER FPR REQUEST; RNP 0.30 DA INCREASED DUE TO NEW CONTROLLER.
14. UPDATED PROFILE LINE 6: MIN GP INCPT: FROM 2000 TO 2200; GP ALT AT PFAF: FROM WOMEB 2000 TO APUCU 2200. - WOMEB REPLACED WITH APUCU PER FPR REQUEST.
15. UPDATED PROFILE LINE 7: 34:1 IS NOT CLEAR TO 34:1 IS CLEAR. - NO 34:1 PENETRATIONS EXIST.
16. PBN REQUIREMENTS NOTE: RNP AR APCH ADDED; PBN REQUIREMENTS NOTE: RNP AR APCH REMOVED. - IAW 8260.58A TABLE 1-2-1.
17. UPDATED CHART NOTE FROM "FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -9C OR ABOVE 54C" TO "FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -12C OR ABOVE 54C. - IAW 8260.19H 8-6-9 S; UPDATED WEATHER STUDY (2014-2018) USED FOR SLOPE CALCULATIONS AND TO DETERMINE UPPER/LOWER TEMPERATURE LIMITS FOR UNCOMPENSATED BARO-VNAV SYSTEMS.
18. ADDED CHART NOTE: FOR INOPERATIVE ALS, INCREASE RNP 0.10 ALL CATS VISIBILITY TO RVR 5500. - NEW INOP VISIBILITY TABLE USED.
19. CHART SPEED ICON IN PLANVIEW AT PAINS: MAX 230 KIAS REMOVED. CHART SPEED ICON IN PLANVIEW AT BUTTS: MAX 210 KIAS ADDED. CHART SPEED ICON IN PLANVIEW AT ESELL: MAX 210 KIAS ADDED. - PER FPT REQUEST.
20. ADDITIONAL FLIGHT DATA: CHART MINIMUM 5000 AT KENCH UPDATED TO CHART MANDATORY 6000 AT KENCH. CHART MANDATORY 6000 AT PAINS REMOVED. CHART MANDATORY 6000 AT ESELL AND CHART MANDATORY 6000 AT BUTTS ADDED. - PER FPT REQUEST. - PER FPT REQUEST; IAW 8260.19H 8-6-11 O.
21. ADDITIONAL FLIGHT DATA: DELETED "ROUTE TYPE: A, H," "ROUTE TYPE QUALIFIER 1: F" AND "ROUTE TYPE QUALIFIER 2: S." - NO LONGER A DOCUMENTATION REQUIREMENT.
22. CHART FAS OBST: 491 TREE, 554 TREE REMOVED. CHART: 435 BLDG REMOVED. - NO LONGER REQUIRED.
23. ADDITIONAL FLIGHT DATA: UPDATED MISSED APPROACH HOLD FROM "HOLD SW, RT, 054.04 INBOUND" TO HOLD E, RT, 271.06 INBOUND. - PER FPT REQUEST.
24. REMOVED CHART NOTE: USE OF FD OR AP PROVIDING RNAV TRACK GUIDANCE REQUIRED DURING SIMULTANEOUS OPERATIONS. - NO LONGER REQUIRED.
25. REMOVED CHART PLANVIEW NOTE: RADAR REQUIRED FROM LEZZY TO ZESBI. - NO LONGER REQUIRED.
26. ADDITIONAL FLIGHT DATA: REMOVED "CHART LOC RWY 5L." - NOT REQUIRED ON RNP PROCEDURES.

04/28/2020: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON: 01/03/2020:

1. ADDED IAF TO DUWON IN TERMINAL ROUTES.
2. CHANGED CHANGES-REASONS #10. MISSED APPROACH CLIMB TO ALTITUDE FROM 1000 TO 1100.

COORDINATED WITH:

A4A ☒ **ALPA** ☒ **AOPA** ☒ **APA** ☒ **HAI** ☐ **NBAA** ☒ **OTHER:** ZDU, RDU APP CON, RDU ATCT, AMGR

FLIGHT CHECKED BY
THOMAS ROBERT CONKLIN

Digitally signed by
WARDELL HENNING

OFFICE
FIOG

DATE
03/04/2020

Nov 09, 2020

DEVELOPED BY
WARDELL HENNING (BARBARA GORMAN)

Digitally signed by
WARDELL HENNING

OFFICE
AJV-A432

DATE
01/03/2020

Nov 09, 2020

APPROVED BY
LONNIE EVERHART

Digitally signed by
WARDELL HENNING
Nov 09, 2020

OFFICE
AJV-A430

DATE

TITLE
MANAGER

QUALITY
18
CHECKED