

**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 ID</u> KCMH	<u>PROCEDURE NAME</u> RNAV (RNP) Z RWY 10R	<u>ORIGINAL/AMENDMENT</u> 2	<u>CITY</u> COLUMBUS	<u>STATE</u> OH		
<u>AIRPORT ELEVATION</u> 815	<u>TDZE</u> 809	<u>SUPERSEDED</u> RNAV (RNP) Z RWY 10R	<u>ORIGINAL/AMENDMENT</u> 1C	<u>DATED</u> 09/13/2018	<u>MAG VAR</u> 7W	<u>EPOCH YEAR</u> 2015
<u>FACILITY</u> RNAV	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u>	<u>REQUIRED EFFECTIVE DATE</u> 04/22/2021	<u>CANCEL/SUSPEND</u>		

TERMINAL ROUTES

<u>FROM</u>	<u>FIX TYPE</u>	<u>TO</u>	<u>FIX TYPE</u>	<u>LEG TYPE</u>	<u>FO/FB</u>	<u>RNP</u>	<u>COURSE</u>	<u>DISTANCE</u>	<u>ALTITUDE</u>
EPATY	IAF	AVUSE		TF	FB	1.00	101.00	3.50	4000
AVUSE		JOGMA		TF	FB	1.00	101.05	2.14	3300
HANTI	IAF	ZOGIK		TF	FB	1.00	030.55	3.70	3900
ZOGIK		JOGMA		TF	FB	1.00	071.05	2.23	3300
HELDI	IAF	RRNLD		TF	FB	1.00	170.20	3.57	3900
RRNLD		JOGMA		TF	FB	1.00	131.06	2.11	3300
HALUR	IF	TOYON		TF	FB	1.00	281.05	3.45	4900
TOYON		SHUUU		RF	FB	1.00	(2.60 NM RADIUS CW (CFFDW))	8.17	2300
WILGO	IF	CASER		TF	FB	1.00	281.28	3.51	5100
CASER		HESAR		RF	FB	1.00	(2.89 NM RADIUS CCW (CFFDS))	3.75	4000
HESAR		ARNIT		RF	FB	1.00	(2.89 NM RADIUS CCW (CFFDR))	4.07	2700
ARNIT		SHUUU	PFAF	RF	FB	1.00	(2.89 NM RADIUS CCW (CFFDR))	1.27	2300
JOGMA	IF	SHUUU	PFAF	TF	FB	1.00	101.08	3.20	2300
SHUUU	PFAF	RW10R	MAP	TF	FO	0.30	101.13	4.52	
RW10R	MAP	1400 MSL		CA			101.13		1400
1400 MSL		BOUTN LOM		DF	FO	1.00			3000

QUALITY
19
CHECKED

MISSED APPROACH**MAP:**

RNP: DA

MISSED APPROACH INSTRUCTIONS:

CLIMB TO 1400 THEN CLIMBING RIGHT TURN TO 3000 DIRECT BOUTN LOM AND HOLD.

ALTERNATE MISSED APPROACH INSTRUCTIONS:**PROFILE:**

1. PT	SIDE OF COURSE	OUTBOUND	FT WITHIN	MILES OF	(IAF)
2. PROFILE STARTS AT SHUUU					
3. FAC: 101.13	PFAF: SHUUU	DIST PFAF TO MAP:		DIST PFAF TO THLD:	
4. MIN ALT: SHUUU 2300					
5. DIST TO THLD FROM OM: 4.52	MM:	IM:	150 HAT:	329 HAT: 0.88	GS ANT:
6. MIN GP INCPT: 2300	GP ALT AT PFAF : SHUUU 2300	OM:	MM:	IM:	
7. GP ANGLE: 3.00	34:1: IS CLEAR	20:1: IS CLEAR	TCH: 54.0		
8. MSA FROM: RW10R 3100					

PBN REQUIREMENTS NOTE:

RNP AR APCH.

NOTES:

CHART NOTE: SIMULTANEOUS APPROACH AUTHORIZED.
CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -19°C OR ABOVE 54°C.
CHART PROFILE NOTE: SEE PLANVIEW FOR MULTIPLE IF LOCATIONS.
CHART PROFILE NOTE: VGSI AND RNAV GLIDEPATH NOT COINCIDENT (VGSI ANGLE {ANGLE}/TCH {FEET}).
CHART PLANVIEW NOTE ADJACENT TO HALUR: RF REQUIRED.
CHART PLANVIEW NOTE ADJACENT TO WILGO: RF REQUIRED.
CHART NOTE: FOR INOPERATIVE ALS, INCREASE RNP 0.30 ALL CATS VISIBILITY TO RVR 6000.
CHART SPEED ICON IN PLANVIEW AT HALUR: MAX 210 KIAS.
CHART SPEED ICON IN PLANVIEW AT WILGO: MAX 210 KIAS.
CHART SPEED ICON IN PLANVIEW AT HANTI: MAX 210 KIAS.
CHART SPEED ICON IN PLANVIEW AT HELDI: MAX 210 KIAS.

ADDITIONAL FLIGHT DATA:

CHART MANDATORY 5000 AT HANTI.
CHART MANDATORY 5000 AT HELDI.
CHART MANDATORY 6000 AT HALUR.
CHART MANDATORY 6000 AT WILGO.
HOLD SW, LT, 038.00 INBOUND.



MINIMUMS:

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

ALTERNATE: NA ☐ STANDARD

CATEGORY:	A			B			C			D			E		
FINAL TYPE	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA
AUTHORIZATION REQUIRED															
RNP 0.17 DA	1138	2600	329	1138	2600	329	1138	2600	329	1138	2600	329			
RNP 0.30 DA	1214	4000	405	1214	4000	405	1214	4000	405	1214	4000	405			

CHANGES - REASONS

1. RNP 0.17 DA DECREASED FROM 1171/362 TO 1138/329; VISIBILITY DECREASED FROM RVR 3500 TO RVR 2600. - NEW OBSTACLE EVALUATION; NEW INOP VISIBILITY TABLE USED.
2. RNP 0.30 DA DECREASED FROM 1288/479 TO 1214/405; VISIBILITY DECREASED FROM RVR 5500 TO RVR 4000. - NEW OBSTACLE EVALUATION; NEW INOP VISIBILITY TABLE USED.
3. TERMINAL ROUTES: INITIAL SEGMENTS JOGER-WOTIT AND PIZZA-WOTIT REMOVED; ADDED IAF TRANSITIONS FROM EPATY, AVUSE, HANTI, ZOGIK, HELDI, AND RRNLD. - PER ATC REQUEST.
4. TERMINAL ROUTES: INTERMEDIATE WOTIT-SHOSH REMOVED; INTERMEDIATES HALUR-TOYON, TOYON-SHUUU, WILGO-CASER, CASER-HESAR, HESAR-ARNIT, ARNIT-SHUUU, AND JOGMA-SHUUU ADDED. - PER FPT REQUEST.
5. TERMINAL ROUTES: FINAL SHOSH TO RW10R UPDATED TO SHUUU TO RW10R; COURSE/DISTANCE UPDATED FROM 101.01/7.12 TO 101.13/4.52. - PFAF MOVED PER FPT REQUEST.
6. TERMINAL ROUTES: MISSED APPROACH TF LEG, RW10R TO CORED CHANGED TO DF LEG, 1400 MSL TO BOUTN LOM. - MISSED APPROACH INSTRUCTIONS UPDATED PER FPT REQUEST.
7. MISSED APPROACH INSTRUCTIONS UPDATED FROM "CLIMB TO 3000 ON TRACK 101.20 TO CORED AND HOLD" TO "CLIMB TO 1400 THEN CLIMBING RIGHT TURN TO 3000 DIRECT BOUTN LOM AND HOLD." - PER FPT REQUEST.
8. PROFILE LINE 2: UPDATED PROFILE STARTS AT WOTIT TO PROFILE STARTS AT SHUUU. - PFAF UPDATED.
9. PROFILE LINE 3: FAC UPDATED FROM 101.11 TO 101.13; PFAF UPDATED FROM SHOSH TO SHUUU. - PFAF UPDATED AND MOVED.
10. PROFILE LINE 4: UPDATED MIN ALT WOTIT 2900, SHOSH 2700 TO SHUUU 2300. - MULTIPLE IF LOCATIONS, PFAF UPDATED.
11. PROFILE LINE 5/6: UPDATED DIST TO THLD FROM PFAF: 5.78, 362 HAT: 0.98 TO DIST TO THLD FROM OM: 4.52, 329 HAT: 0.88; MIN GP INCPT UPDATED FROM SHOSH 2700 TO SHUUU 2300. - PFAF UPDATED AND MOVED, LOWEST DA UPDATED AFTER NEW OBSTACLE EVALUATION.
12. UPDATED CHART NOTE FROM "FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -18C OR ABOVE 54C" TO "FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -19C OR ABOVE 54C. - UPDATED WEATHER STUDY (2015-2019) USED FOR SLOPE CALCULATIONS AND TO DETERMINE UPPER/LOWER TEMPERATURE LIMITS FOR UNCOMPENSATED BARO-VNAV SYSTEMS.
13. REMOVED CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVALS AT JOGER ON V5 SOUTHWEST BOUND. - INITIAL FROM JOGER REMOVED.
14. ADDED CHART PROFILE NOTE: SEE PLANVIEW FOR MULTIPLE IF LOCATIONS. - IAW 8260.19I 8-6-7 B(3)B.
15. ADDED CHART PLANVIEW NOTE ADJACENT TO HALUR: RF REQUIRED. - IAW 8260.19I 4-5-3 A.
16. ADDED CHART PLANVIEW NOTE ADJACENT TO WILGO: RF REQUIRED. - IAW 8260.19I 4-5-3 A.
17. UPDATED CHART NOTE: FROM "FOR INOPERATIVE ALS, INCREASE RNP 0.17 ALL CATS VISIBILITY TO RVR 5900, INCREASE RNP 0.30 ALL CATS VISIBILTY TO 1 5/8 SM" TO "FOR INOPERATIVE ALS, INCREASE RNP 0.30 ALL CATS VISIBILITY TO RVR 6000." - ALL LINES OF MINIMA UPDATED AFTER NEW OBSTACLE EVALUATION.
18. ADDED "CHART SPEED ICON IN PLANVIEW AT HALUR: MAX 210 KIAS," "... AT HANTI: MAX 210 KIAS," "... AT HELDI: 210 KIAS," AND "... AT WILGO: 210 KIAS". - PER FPT REQUEST, IAW 8260.19I 4-6-10 G.
19. ADDED ADDITIONAL FLIGHT DATA: CHART MANDATORY 5000 AT HANTI, CHART MANDATORY 5000 AT HELDI, CHART MANDATORY 6000 AT HALUR, AND CHART MANDATORY 6000 AT WILGO. - PER FPT REQUEST; IAW 8260.19I 8-6-10 N.
20. REMOVED ADDITIONAL FLIGHT DATA: "ROUTE TYPE: A, H," "ROUTE TYPE QUALIFIER 1: F" AND "ROUTE TYPE QUALIFIER 2: S." - NO LONGER A DOCUMENTATION REQUIREMENT.
21. REMOVED ADDITIONAL FLIGHT DATA: #TCH 859 MSL (DO NOT CHART). - NO LONGER REQUIRED

3/17/2021 THIS IS AN UPDATED COPY OF THE FORM APPROVED ON 2/1/2021

1. CHANGED PUBLICATION FROM ROUTINE TO HARD DATE (4/22/2021).



AIRPORT ID
KCMH

PROCEDURE NAME
RNAV (RNP) Z RWY 10R

ORIGINAL/AMENDMENT
2

CITY
COLUMBUS

STATE
OH

COORDINATED WITH:

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

FLIGHT CHECKED BY

PENDING

Digitally signed by

OFFICE

DATE

JON DENTON

Mar 17, 2021

DEVELOPED BY

JON DENTON (BARBARA GORMAN)

Digitally signed by

OFFICE

DATE

JON DENTON

AJV-A432

11/25/2020

APPROVED BY

LONNIE EVERHART

Digitally signed by

OFFICE

DATE

TITLE
MANAGER

JON DENTON

AJV-A430

Mar 17, 2021



FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

<u>AIRPORT ID</u> KCMH	<u>PROCEDURE NAME</u> RNAV (RNP) Z RWY 10R	<u>AMDT NO.</u> 2	<u>CITY</u> COLUMBUS	<u>STATE</u> OH	<u>AIRPORT ELEVATION</u> 815	<u>FACILITY</u> RNAV
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PART A: OBSTRUCTION DATA SEGMENTS

INITIAL

FROM TO
EPATY AVUSE

<u>RNP</u> 1.00	<u>DISTANCE</u> 3.50	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>							
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
AAO	400030.00N/0831212.00W		1159	164	98	4E	1000				AC98 AT1743	4000
TERRAIN	400148.00N/0831106.00W		958 (1000)								AS1500	2500

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INITIAL

FROM TO
AVUSE JOGMA

<u>RNP</u> 1.00	<u>DISTANCE</u> 2.14	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>							
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TOWER (39-000074)	400147.00N/0830322.00W		1187	250	50	4D	1000				AC50 AT1063	3300
TERRAIN	395821.00N/0830730.00W		902 (900)								AS1500	2400

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



INITIAL

FROM
HANTI

TO
ZOGIK

<u>RNP</u> 1.00		<u>DISTANCE</u> 3.70	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>				
<u>OBSTRUCTION</u>		<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
AAO		395918.00N/0830918.00W	1136	164	98	4E	1000				AC98 AT1666	3900
TERRAIN		395845.00N/0830924.00W	938 (900)								AS1500	2400

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INITIAL

FROM
ZOGIK

TO
JOGMA

<u>RNP</u> 1.00		<u>DISTANCE</u> 2.23	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>				
<u>OBSTRUCTION</u>		<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
AAO		395948.00N/0830921.00W	1136	164	98	4E	1000				AC98 AT1066	3300
TERRAIN		400036.00N/0830900.00W	928 (900)								AS1500	2400

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



INITIAL

FROM
HELDI

TO
RRNLD

<u>RNP</u> 1.00	<u>DISTANCE</u> 3.57	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>					
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
AAO	400506.00N/0831057.00W		1155	164	98	4E	1000				AC98 AT1647	3900
TERRAIN	400400.00N/0831036.00W		948 (900)								AS1500	2400

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INITIAL

FROM
RRNLD

TO
JOGMA

<u>RNP</u> 1.00	<u>DISTANCE</u> 2.11	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>					
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
AAO	400121.00N/0830900.00W		1145	164	98	4E	1000				AC98 AT1057	3300
TERRAIN	400009.00N/0830854.00W		928 (900)								AS1500	2400

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



INTERMEDIATE

FROM
HALUR

TO
TOYON

<u>RNP</u> 1.00	<u>DISTANCE</u> 3.45	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>					
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TOWER (39-002086)	395614.00N/0830116.00W		1748	500	50	5D	500				AC50 AT2602	4900
TERRAIN	395624.00N/0825651.00W		787 (800)								AS1500	2300

COMPUTATIONS													
ALT	KIAS	KTAS	HAA	VKTW	TR	BA	DTA	COURSE CHANGE	DVEB	VEB OCS	RF CENTER FIX/DISTANCE		

SEGMENT REMARKS:

INTERMEDIATE: STEPDOWN

FROM
TOYON

TO
SHUUU

<u>RNP</u> 1.00	<u>DISTANCE</u> 8.17	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>					
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TOWER (39-002086)	395614.00N/0830116.00W		1748	500	50	5D	500				AC50	2300
TERRAIN	395648.00N/0830636.00W		875 (900)								AS1000	1900

COMPUTATIONS													
RF SEGMENT	ALT	KIAS	KTAS	HAA	VKTW	TR	BA	DTA	COURSE CHANGE	DVEB	VEB OCS	RF CENTER FIX/DISTANCE	
TOYON-SHUUU	4900	210	231.89	4085	53.45	2.60	24.53	0	0			(CFFDW)/8.17	

SEGMENT REMARKS:



INTERMEDIATE

FROM
WILGO

TO
CASER

<u>RNP</u> 1.00	<u>DISTANCE</u> 3.51	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>					
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TOWER (39-000313)	400628.00N/0830010.00W		1229	250	50	4D	500				AC50 AT3321	5100
TERRAIN	400636.00N/0825945.00W		925 (900)								AS1500	2400

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INTERMEDIATE: STEPDOWN

FROM
CASER

TO
HESAR

<u>RNP</u> 1.00	<u>DISTANCE</u> 3.75	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>				
<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TOWER (39-000313)	400628.00N/0830010.00W	1229	250	50	4D	500				AC50 AT2221	4000
TERRAIN	400739.00N/0830009.00W	938 (900)								AS1500	2400

COMPUTATIONS

RF SEGMENT
CASER-HESAR

ALT
5100

KIAS
210

KTAS
232.61

HAA
4285

VKTW
27.53

TR
2.89

BA
18.84

DTA
0

COURSE CHANGE
0

DVEB

VEB OCS

RF CENTER FIX/DISTANCE
(CFFDS)/3.75 NM

SEGMENT REMARKS:



INTERMEDIATE: STEPDOWN

FROM
HESAR

TO
ARNIT

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>				
1.00	4.07										
<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TOWER (39-001230)	395816.00N/0830140.00W	1748	500	50	5D	500				AC50 AT402	2700
TERRAIN	400400.00N/0830518.00W	892 (900)								AS1500	2400

COMPUTATIONS												
RF SEGMENT	ALT	KIAS	KTAS	HAA	VKTW	TR	BA	DTA	COURSE CHANGE	DVEB	VEB OCS	RF CENTER FIX/DISTANCE
HESAR-ARNIT	4000	210	228.73	3185	36.17	2.89	19.48	0	0			(CFFDR)/4.07 NM

SEGMENT REMARKS:

INTERMEDIATE: STEPDOWN

FROM
ARNIT

TO
SHUUU

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>					
1.00	1.27											
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TOWER (39-001230)	395816.00N/0830140.00W		1748	500	50	5D	500				AC50	2300
TERRAIN	400148.00N/0830015.00W		866 (900)								AS1000	1900

COMPUTATIONS												
RF SEGMENT	ALT	KIAS	KTAS	HAA	VKTW	TR	BA	DTA	COURSE CHANGE	DVEB	VEB OCS	RF CENTER FIX/DISTANCE
ARNIT-SHUUU	2700	210	224.27	1885	36.25	2.89	18.89	0	0			(CFFDR)/1.27 NM

SEGMENT REMARKS:



INTERMEDIATE

FROM

JOGMA

TO

SHUUU

RNP	DISTANCE	PAT	MAP	HAT	HMAS							
1.00	3.20											
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TOWER (39-001230)	395816.00N/0830140.00W		1748	500	50	5D	500				AC50	2300
TERRAIN	400209.00N/0830436.00W		872 (900)								AS1000	1900

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

FINAL

FROM

SHUUU

TO

RW10R

RNP	DISTANCE	PAT	MAP	HAT	HMAS							
0.17	4.52		RW10R	329								
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TREE (39-040944)	395922.08N/0825526.24W		908	20	3	1A		21.99:1			AC3	1138

COMPUTATIONS

TF TURN FIX

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

2300

165

175.15

1485

53.45

0.00

0

0

0

2917.6

21.99:1

SEGMENT REMARKS:



FINAL

FROM

SHUUU

TO

RW10R

RNP	DISTANCE	PAT	MAP	HAT	HMAS							
0.30	4.52		RW10R	405								
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TREE (39-048653)	400014.76N/0825529.71W		928	20	3	1A		21.97:1			AC3	1214

COMPUTATIONS

TF TURN FIX	ALT	KIAS	KTAS	HAA	VKTW	TR	BA	DTA	COURSE CHANGE	DVEB	VEB OCS	RF CENTER FIX/DISTANCE
	2300	165	175.15	1485	53.45	0.00	0	0	0	3933.22	21.97:1	

SEGMENT REMARKS:

MISSED APPROACH

FROM

RW10R

TO

1400 MSL

RNP	DISTANCE	PAT	MAP	HAT	HMAS							
0.30-1.00					1053							
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
								ASC				1400

COMPUTATIONS

ALT	KIAS	KTAS	HAA	VKTW	TR	BA	DTA	COURSE CHANGE	DVEB	VEB OCS	RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



MISSED APPROACH

FROM
1400 MSL

TO
BOUTN LOM

<u>RNP</u> 0.30-1.00	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u> 1053				
<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
							ASC				3000

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

MISSED APPROACH

FROM
RW10R

TO
1400 MSL

<u>RNP</u> 0.17-1.00	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u> 977				
<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
							ASC				1400

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



MISSED APPROACH

FROM

1400 MSL

TO

BOUTN LOM

RNP

DISTANCE

PAT

MAP

HAT

HMAS

0.17-1.00

977

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
							ASC				3000

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

MISSED APPROACH: LEVEL SURFACE

FROM

DA

TO

BOUTN LOM

RNP

DISTANCE

PAT

MAP

HAT

HMAS

0.30-1.00

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
						ASC					3000
TOWER (39-002086)	395614.00N/0830116.00W	1748	500	50	5D	1000				AC50	2800
TERRAIN	395021.00N/0831330.00W	951 (1000)								AS1500	2500

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



MISSED APPROACH: LEVEL SURFACE

FROM

DA

TO

BOUTN LOM

RNP	DISTANCE	PAT	MAP	HAT	HMAS							
0.17-1.00												
OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT	
						ASC					3000	
TOWER (39-002086)	395614.00N/0830116.00W	1748	500	50	5D	1000				AC50	2800	
TERRAIN	395021.00N/0831330.00W	951 (1000)								AS1500	2500	

COMPUTATIONS	ALT	KIAS	KTAS	HAA	VKTW	TR	BA	DTA	COURSE CHANGE	DVEB	VEB OCS	RF CENTER FIX/DISTANCE
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SEGMENT REMARKS:

CIRCLING

☐ ALL CATS

☐ CAT A

☐ CAT B

☐ CAT C

☐ CAT D

☐ CAT E

☒ NOT AUTHORIZED

MSA

CENTER

RW10R

RADIUS

25

SECTOR	OBSTRUCTION	COORDINATES	BEARING	DISTANCE	ELEV MSL	HORZ	VERT	AC	ROC	OCS	ADJUSTMENTS	MIN ALT
360-360	TOWER (39-000604)	400933.02N/0825522.74W	003	09.4	2049	250	50	4D	1000		AC50	3100

MSA REMARKS:

NOTES/EXPLANATIONS FROM PROCEDURE SEGMENTS:

PROCEDURE DESIGNED PER ATC REQUEST.
MANDATORY ALTITUDES REQUIRED BY ATC.
PFAF COORDINATES PROVIDED BY CEN FPT.



PART B: SUPPLEMENTAL DATA

COMMUNICATIONS WITH
ZID ARTCC, CMH APP CON, CMH TOWER

<u>WX SERVICE</u> ASOS	<u>LOCATION</u> KCMH	<u>HRS OPERATION</u> 24	<u>ALTIMETER SOURCE</u> KCMH	<u>DISTANCE</u> 0	<u>SERVICE-A</u> Y	<u>ADJUSTMENTS</u> 0
<u>BACK-UP WX SERVICE</u>	<u>LOCATION</u>	<u>HRS OPERATION</u>	<u>ALTIMETER SOURCE</u>	<u>DISTANCE</u>	<u>SERVICE-A</u>	<u>ADJUSTMENTS</u>

WX REMARKS:
BACKUP ALTIMETER NOT ESTABLISHED DUE TO REDUNDANT WEATHER SOURCES AT AIRPORT.

<u>PRIMARY NAVAID</u>	<u>MONITOR POINT</u>	<u>HRS OPERATION</u>	<u>CAT</u>
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<u>APPROACH AND RUNWAY LIGHTING SYSTEM</u>	<u>RUNWAY MARKINGS</u>	<u>RUNWAY VISUAL RANGE</u>
RW10L - MALSR, HIRL, PAPI-4L	PIR-G	APPROACH, ROLL OUT
RW10R - TDZ, MALSR, HIRL, C/LINE, PAPI-4L	PIR-G	APPROACH, ROLL OUT
RW28L - TDZ, MALSR, HIRL, C/LINE, PAPI-4L	PIR-G	APPROACH, ROLL OUT
RW28R - MALSR, HIRL, PAPI-4R	PIR-G	APPROACH, ROLL OUT

<u>GLIDESLOPE ANGLE</u> 3.00	<u>ELEV RWY THRESHOLD</u> 804.9	<u>TCH</u> 54.0	<u>ELEV GS ANTENNA</u>	<u>DISTANCE FROM RWY</u>	<u>VGSI ANGLE</u> 3.00	<u>TCH</u> 70.2
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FINAL APPROACH COURSE AIMING

RUNWAY THRESHOLD	<input checked="" type="checkbox"/>	FT FROM THRESHOLD	DISPLACED THRESHOLD DISTANCE
ON CENTERLINE	<input checked="" type="checkbox"/>	FT FROM CENTERLINE	

CRITICAL TEMPERATURES

<u>CRITICAL LOW</u> -19C	<u>CRITICAL HIGH</u> +54C	<u>ACT</u> -19C	<u>APT ISA</u> +13.39C
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CRITICAL TEMPERATURE REMARKS:
AVERAGE COLD TEMPERATURE DERIVED FROM 5-YEAR HISTORY (2015-2019).
CRITICAL LOW TEMPERATURE BASED ON ACT.
DESCENT RATE (FPM): STANDARD TEMP 966 HIGH TEMP 1274.

"VISUAL PORTION OF FINAL" PENETRATIONS

HELICOPTER 'VISUAL PORTION OF FINAL' PENETRATIONS



and/or
5280-FT "PROCEED VFR" SEGMENT LEVEL SURFACE AREA PENETRATIONS

PENETRATIONS REMARKS:

PART C: GENERAL REMARKS:
VDP NOT ESTABLISHED - RNP PROCEDURE.
PRECIPITOUS TERRAIN EVALUATION COMPLETED.
VEGETATION HEIGHT: 100 FT PER FPT.



AIRPORT ID KCMH	PROCEDURE NAME RNAV (RNP) Z RWY 10R	AMDT NO. 2	CITY COLUMBUS	STATE OH	AIRPORT ELEVATION 815	FACILITY RNAV
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PART D: AIRSPACE

DOCKET #

ALL DISTANCES TO 1/100NM; ELEVATION TO NEAREST 100 FEET; COORDINATES TO 1/100 SECOND; DEG TO 1/100 DEGREE

DISTANCE FROM	THLD	TO 1000FT POINT	3.27
WIDTH OF	FINAL	SEGMENT AT 1000FT POINT	1.20
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1000FT POINT	094.13
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1000FT POINT	900
DISTANCE FROM	THLD	TO 1500FT POINT	5.92
WIDTH OF	INTERMEDIATE	SEGMENT AT 1500FT POINT	4.00
TRUE COURSE OF	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	094.08
HIGH TERRAIN IN	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	900

THRESHOLD
COORDINATES
(IF STR-IN)

395937.15N/0825433.04W

ARP COORDINATES

395949.01N/0825331.77W

RUNWAY APCH END
AND DIST FURTHEST
FROM ARP

RUNWAY 28L DISTANCE 0.93 NM

FAF
COORDINATES

395956.85N/0830025.38W

FIX NAME
COORDINATES

REMARKS

1500 FT POINT IN TF SEGMENT JOGMA-SHUUU: 1.40 NM FROM PFAF.

QUALITY
19
CHECKED

FAA Form 8260-9 / (11/16) Supersedes Previous Edition

Electronic Version

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DOCKET #

ALL DISTANCES TO 1/100NM; ELEVATION TO NEAREST 100 FEET; COORDINATES TO 1/100 SECOND; DEG TO 1/100 DEGREE

DISTANCE FROM	THLD	TO 1000FT POINT	3.27
WIDTH OF	FINAL	SEGMENT AT 1000FT POINT	1.20
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1000FT POINT	094.13
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1000FT POINT	900
DISTANCE FROM	THLD	TO 1500FT POINT	7.69
WIDTH OF	INTERMEDIATE	SEGMENT AT 1500FT POINT	4.00
TRUE COURSE OF	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	*
HIGH TERRAIN IN	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	900

THRESHOLD
COORDINATES
(IF STR-IN)

395937.15N/0825433.04W

ARP COORDINATES

395949.01N/0825331.77W

RUNWAY APCH END
AND DIST FURTHEST
FROM ARP

RUNWAY 28L DISTANCE 0.93 NM

FAF
COORDINATES

395956.85N/0830025.38W

FIX NAME
COORDINATES

REMARKS

*1500 FT POINT IN RF SEGMENT TOYON-SHUUU: 3.17 NM FROM PFAF; 2.60 NM RADIUS.
IF TOYON: 395445.39N/0830054.12W; CNF CFFDW: 395721.13N/0830039.98W.



DOCKET #

ALL DISTANCES TO 1/100NM; ELEVATION TO NEAREST 100 FEET; COORDINATES TO 1/100 SECOND; DEG TO 1/100 DEGREE

DISTANCE FROM	THLD	TO 1000FT POINT	3.27
WIDTH OF	FINAL	SEGMENT AT 1000FT POINT	1.20
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1000FT POINT	094.13
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1000FT POINT	900
DISTANCE FROM	THLD	TO 1500FT POINT	5.19
WIDTH OF	INTERMEDIATE	SEGMENT AT 1500FT POINT	4.00
TRUE COURSE OF	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	*
HIGH TERRAIN IN	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	900

THRESHOLD
COORDINATES
(IF STR-IN)

395937.15N/0825433.04W

ARP COORDINATES

395949.01N/0825331.77W

RUNWAY APCH END
AND DIST FURTHEST
FROM ARP

RUNWAY 28L DISTANCE 0.93 NM

FAF
COORDINATES

395956.85N/0830025.38W

FIX NAME
COORDINATES

REMARKS

*1500 FT POINT IN RF SEGMENT ARNIT-SHUUU: 0.67 NM FROM PFAF; 2.89 NM RADIUS.
IF ARNIT: 400018.64N/0830159.70W; CNF CFFDR: 400249.94N/0830009.13W



PART E: PREPARED BY

<u>NAME</u> JON DENTON (BARBARA GORMAN)	<u>OFFICE</u> AJV-A432	<u>DATE</u> 11/25/2020	<u>TITLE</u> AERONAUTICAL INFORMATION SPECIALIST
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