

**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
RNAV (GPS) 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> KSAT	<u>PROCEDURE NAME</u> RNAV (GPS) Y RWY 13R	<u>ORIGINAL/AMENDMENT</u> 2	<u>CITY</u> SAN ANTONIO	<u>STATE</u> TX		
<u>AIRPORT ELEVATION</u> 809	<u>TDZE</u> 809	<u>SUPERSEDED</u> RNAV (GPS) Y RWY 13R	<u>ORIGINAL/AMENDMENT</u> 1B	<u>DATED</u> 03/02/2017	<u>MAG VAR</u> 4E	<u>EPOCH YEAR</u> 2020
<u>FACILITY</u> RNAV	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u>	<u>REQUIRED EFFECTIVE DATE</u> ROUTINE	<u>CANCEL/SUSPEND</u>		

TERMINAL ROUTES

FROM	FIX TYPE	TO	FIX TYPE	LEG TYPE	FO/FB	RNP	COURSE	DISTANCE	ALTITUDE
SWUPZ		RBNSN		TF	FB	1.00	171.68	5.00	6000
LDRON		RBNSN		TF	FB	1.00	111.66	5.00	6000
RBNSN	IAF	WORMM		TF	FB	1.00	127.45	3.49	5000
SARAI	IAF	NCLDA		TF	FB	1.00	037.54	4.75	4000
QUESO	IAF	NCLDA		TF	FB	1.00	217.56	4.69	4000
WORMM		NCLDA		TF	FB	1.00	127.48	3.49	4000
NCLDA	IF	NUGIT		TF	FB	1.00	127.53	2.53	3200
NUGIT		ALAMO		TF	FB	1.00	127.55	3.40	2200
ALAMO	FAF	RW13R	MAP	TF	FO	0.30	127.57	4.19	
RW13R	MAP	1009 MSL		CA			127.57		
1009 MSL		POYIG		DF	FB	1.00			
POYIG		EMBOW		TF	FO	1.00	170.57	13.74	3100

MISSED APPROACH

MAP:

LPV: DA
LNAV/VNAV: DA
LNAV: RW13R

MISSED APPROACH INSTRUCTIONS:

CLIMB TO 3100 DIRECT POYIG AND ON TRACK 170.57 TO EMBOW AND HOLD.

ALTERNATE MISSED APPROACH INSTRUCTIONS:

PROFILE:

1. PT	SIDE OF COURSE	OUTBOUND	FT WITHIN	MILES OF	(IAF)
2. PROFILE STARTS AT NCLDA					
3. FAC:	127.57	FAF: ALAMO	DIST FAF TO MAP: 4.19		DIST FAF TO THLD: 4.19
4. MIN ALT: NCLDA 4000, NUGIT 3200, ALAMO 2200					
5. DIST TO THLD FROM OM:	MM:	IM:	150 HAT:	200 HAT: 0.45	GS ANT:
6. MIN GP INCPT:	2200	GP ALT AT PFAF :	ALAMO 2200	OM:	MM:
7. GP ANGLE:	3.00	34:1: IS CLEAR	20:1: IS CLEAR	TCH: 57.7	IM:
8. MSA FROM: RW13R 4100					

PBN REQUIREMENTS NOTE:

RNP APCH - GPS.

NOTES:

CHART NOTE: CIRCLING NA NW OF RWYS 4 AND 13R.
CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -5°C OR ABOVE 54°C.
CHART PROFILE NOTE: VGSI AND RNAV GLIDEPATH NOT COINCIDENT (VGSI ANGLE {ANGLE}/TCH {FEET}).
CHART NOTE: FOR INOPERATIVE ALS, INCREASE LNAV/VNAV ALL CATS VISIBILITY TO RVR 6000 AND LNAV CATS C AND D VISIBILITY TO 1 7/8 SM.
CHART SPEED ICON IN PLANVIEW AT RBNSN: MAX 210 KIAS.
CHART SPEED ICON IN PLANVIEW AT NCLDA: MAX 210 KIAS.
CHART SPEED ICON IN PLANVIEW AT SARAI: MAX 210 KIAS.
CHART SPEED ICON IN PLANVIEW AT QUESO: MAX 210 KIAS.

ADDITIONAL FLIGHT DATA:

HOLD S, RT, 344.00 INBOUND.
FAS OBST: 1220 AAO 293525N/0983149W.
CHART A-635.
CHART VDP AT 1.86 NM TO RW13R.
WAAS CHANNEL # 82409
REFERENCE PATH ID: W13A
LTP HAE: 221.3 M



MINIMUMS:

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

ALTERNATE: NA ☐ STANDARD - CAT D 800-2 1/4

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
LPV DA	1009	1800	200	1009	1800	200	1009	1800	200	1009	1800	200			
LNAV/VNAV DA	1221	4000	412	1221	4000	412	1221	4000	412	1221	4000	412			
LNAV MDA	1480	2400	671	1480	2400	671	1480	1 1/2	671	1480	1 1/2	671			
CIRCLING	1480	1	671	1480	1	671	1480	2	671	1520	2 1/4	711			

CHANGES - REASONS

1. TERMINAL ROUTES: REMOVED ROUTES FROM WERUD TO HASDO, JATAH TO HASDO, HASDO TO YEBUP, AND YEBUP TO RW13R - PER ATC REQUEST AND REDESIGN.
2. TERMINAL ROUTES: ADDED ROUTES SWUPZ TO RBNSN, LDRON TO RBNSN, RBNSN TO WORMM, SARAI TO NCLDA, QUESO TO NCLDA, WORMM TO NCLDA, NCLDA TO NUGIT, NUGIT TO ALAMO, ALAMO TO RW13R - PER ATC/FPT AND REDESIGN.
3. TERMINAL ROUTES: RW13R MAP CHANGED FROM 1107 MSL COURSE 127.56 TO 1009 MSL COURSE 127.57 - NEW EVALUATION, NO CHANGE TO MISSED APPROACH DESIGN.
4. PROFILE LINE 2: REMOVED HOLD NW HASDO, RT, 127.51 INBOUND, 3500 FT. IN LIEU OF PT (IAF) AND ADDED PROFILE STARTS AT NCLDA - PER ATC/FPT AND REDESIGN
5. PROFILE LINE 3: FAC CHANGED FROM 127.56 TO 127.57, FAF CHANGED FROM YEBUP TO ALAMO, DIST FAF TO MAP AND DIST FAF TO THLD CHANGED FROM 5.97 TO 4.19 - NEW FAF LOCATION AND FAF FIX PER ATC/FPT AND REDESIGN.
6. PROFILE LINE 4: CHANGED FROM HASDO 3500, YEBUP 2800 TO NCLDA 4000, NUGIT 3200, ALAMO 2200 - PER ATC/FPT AND REDESIGN.
7. PROFILE LINE 5: ADDED 200 HAT: 0.45 - NEW EVAL AND REDESIGN.
8. PROFILE LINE 6: MIN GP INCPT CHANGED FROM 2800 TO 2200 AND GP ALT AT PFAF CHANGED FROM YEBUP 2800 TO ALAMO 2200 - PER ATC/FPT AND REDESIGN.
9. PROFILE LINE 7: ADDED 20:1 IS CLEAR - NEW EVAL.
10. PROFILE LINE 8: ADDED RW13R 4100 - PER ATC/FPT AND REDESIGN.
11. REMOVED CHART NOTE DME/DME RNP-0.3 NA - REPLACED WITH PBN REQUIREMENTS NOTE: RNP APCH - GPS PER 8260.19I 8-6-8B.(2).
12. NOTES: CHANGED CHART NOTE FROM CHART NOTE: CIRCLING NA WEST OF RWYS 4 AND 13R TO CIRCLING NA NW OF RWYS 4 AND 13R - 8260.19I 8-6-11.O.(5)(C).
13. CHANGED CHART NOTE FROM CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -2°C (29°F) OR ABOVE 54°C (130°F) TO CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -5°C OR ABOVE 54°C - UPDATED HISTORICAL WEATHER AND 8260.19I 8-6-9.R.
14. CHART NOTE: CHANGED FROM FOR INOPERATIVE ALS, INCREASE LPV ALL CATS VISIBILITY TO RVR 4500, LNAV/VNAV ALL CATS VISIBILITY TO 1 3/4 SM, AND LNAV CATS C AND D VISIBILITY TO 2 1/2 SM TO CHART NOTE: FOR INOPERATIVE ALS, INCREASE LNAV/VNAV ALL CATS VISIBILITY TO RVR 6000 AND LNAV CATS C AND D VISIBILITY TO 1 7/8 SM. - NEW EVAL, UPDATED MINIMUMS, INCREASE MORE THAN STANDARD.
15. ADDITIONAL FLIGHT DATA: REMOVED FAS OBST: 1366 AAO 293641N/0983249W AND ADDED FAS OBST: 1220 AAO 293525N/0983149W - NEW EVAL AND REDESIGN, NEW CONTROLLING OBSTACLE.
16. ADDITIONAL FLIGHT DATA: LTP HAE CHANGED FROM 221.4 M TO 221.3 M - FAS DATA UPDATED.
17. ADDITIONAL FLIGHT DATA: CHART VDP AT CHANGED FROM *2.30 NM TO RW13R TO 1.86 NM TO RW13R, ASTERISK REMOVED FROM VDP AND REMOVED *LNAV ONLY - NEW EVAL, LNAV MDA LOWERED, ASTERISKS AND ASSOCIATION NO LONGER REQUIRED - 8260.19I 8-6-10M.
18. NOTES: ADDED CHART SPEED ICON IN PLANVIEW AT NCLDA: MAX 210 KIAS, CHART SPEED ICON IN PLANVIEW AT QUESO: MAX 210 KIAS, CHART SPEED ICON IN PLANVIEW AT RBNSN: MAX 210 KIAS, CHART SPEED ICON IN PLANVIEW AT SARAI: MAX 210 KIAS - PER ATC/FPT AND REDESIGN.
19. UPDATED LPV ALL CATS DAVIS/HAT FROM 1107/2400/298 TO 1009/1800/200 - REDESIGN, UPDATED OBSTACLE EVALUATION, 8260.3E TABLE 3-3-1.
20. UPDATED LNAV/VNAV DA/VIS/HAT ALL CATS FROM 1340/1 3/8/531 TO 1221/4000/412 - REDESIGN, UPDATED OBSTACLE EVALUATION, 8260.3E TABLE 3-3-1.
21. UPDATED LNAV CATS A MDA/VIS/HAT FROM 1620/2400/811 TO 1480/2400/671, CAT B FROM 1620/2400/811 TO 1480/2400/671, CATS C AND D FROM 1620/1 7/8/811 TO 1480/1 1/2/671 - REDESIGN, NEW OBSTACLE EVALUATION.
22. UPDATED CIRCLING CATS A AND B MDA/VIS/HAA FROM 1620/1 1/4/811 TO 1480/1/671, CAT C FROM 1620/2 1/2 /811 TO 1480/2 /671 AND CAT D FROM 1620/2 3/4/811 TO 1520/2 1/4/711 - NEW OBSTACLE EVALUATION.
23. CRC REMAINDER CHANGED FROM C18A6548 TO 4E168608- LTP/FTP LONGITUDE CHANGED FROM 0982907.9475W TO 0982751.5775WN, LTP/FTP ELLIPSOIDAL HEIGHT CHANGED FROM +02214 TO +02213, FPAP LATITUDE/LONGITUDE CHANGED FROM 293134.5750N/0982751.5750W TO 293134.5735N/0982751.5775W.
24. CHANGED VERTICAL ALERT LIMIT FROM 50.0 TO 35.0 - ADJUSTED FOR LPV 200 FT HAT, 8260.19I APPENDIX K.4.X.

COORDINATED WITH:

A4A ☒ ALPA ☒ AOPA ☒ APA ☒ HAI ☐ NBAA ☒ OTHER: AMGR, ZHU ARTCC, SAT APP CON

FLIGHT CHECKED BY

TERRY HESTER

Digitally signed by
MICHAEL GARRITY

Nov 13, 2023

Digitally signed by
RAYMOND R JOHNSON
Aug 09, 2023

OFFICE

FPO

DATE

11/06/2023

DEVELOPED BY

RAYMOND JOHNSON

OFFICE

AJV-A423

DATE

04/10/2023

APPROVED BY

ALLAN WILL

Digitally signed by
MICHAEL GARRITY

Aug 29, 2023

OFFICE

AJV-A423

DATE

TITLE
MANAGER

FAS DATA BLOCK INFORMATION

<u>DATA FIELD</u>	<u>DATA</u>
OPERATION TYPE	0
SBAS SERVICE PROVIDER IDENTIFIER	0
AIRPORT IDENTIFIER	KSAT
RUNWAY	RW13R
APPROACH PERFORMANCE DESIGNATOR	0
ROUTE INDICATOR	Y
REFERENCE PATH DATA SELECTOR	0
REFERENCE PATH IDENTIFIER (APPROACH ID)	W13A
LTP/FTP LATITUDE	293233.8850N
LTP/FTP LONGITUDE	0982907.9480W
LTP/FTP ELLIPSOIDAL HEIGHT	+02213
FPAP LATITUDE	293134.5735N
FPAP LONGITUDE	0982751.5775W
THRESHOLD CROSSING HEIGHT (TCH)	00057.7
TCH UNITS SELECTOR (METERS OR FEET USED)	F
GLIDEPATH ANGLE (GPA)	03.00
COURSE WIDTH AT THRESHOLD	106.75
LENGTH OFFSET	0160
HORIZONTAL ALERT LIMIT (HAL)	40.0
VERTICAL ALERT LIMIT (VAL)	35.0
CRC REMAINDER	4E168608

ADDITIONAL PATH POINT RECORD INFORMATION

ICAO CODE	K4
LTP ORTHOMETRIC HEIGHT	+02466
FPAP ORTHOMETRIC HEIGHT	+02466



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

AIRPORT ID	PROCEDURE NAME	AMDT NO.	CITY	STATE	AIRPORT ELEVATION	FACILITY
KSAT	RNAV (GPS) Y RWY 13R	2	SAN ANTONIO	TX	809	RNAV

PART A: OBSTRUCTION DATA SEGMENTS

FEEDER

FROM SWUPZ TO RBNSN

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>					
	5.00											
<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	294415.00N/0984557.00W		2048	164	98	4E	1000				AT2952	6000
TERRAIN	294415.00N/0984557.00W		1847 (1800)								AS1500	3300

COMPUTATIONS

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

SEGMENT REMARKS:

FEEDER

FROM LDRON TO RBNSN

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>					
	5.00											
<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 (48-023876)	294737.74N/0984836.67W		2171	500	125	5E	1000				AT2829	6000
TERRAIN	294436.00N/0984824.00W		1938 (1900)								AS1500	3400

COMPUTATIONS

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

SEGMENT REMARKS:



INITIAL

FROM

RBNSN

TO

WORMM

RNP	DISTANCE	PAT	MAP	HAT			HMAS					
	3.49											
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	294406.00N/0984551.00W		2044	164	98	4E	1000				AT1956	5000
TERRAIN	294251.00N/0984539.00W		1827 (1800)								AS1500	3300

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

INITIAL

FROM

SARAI

TO

NCLDA

RNP	DISTANCE	PAT	MAP	HAT			HMAS					
	4.75											
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TOWER (48-003129)	293801.86N/0983754.66W		1804	100	20	3C	1000				AT1196	4000
TERRAIN	293912.00N/0983951.00W		1502 (1500)								AS1500	3000

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



INITIAL

FROM
QUESO

TO
NCLDA

RNP	DISTANCE	PAT	MAP	HAT			HMAS					
	4.69											
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	293957.00N/0983342.00W		1720	164	98	4E	1000				AT1280	4000
TERRAIN	293957.00N/0983342.00W		1519 (1500)								AS1500	3000

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INITIAL: STEPDOWN

FROM
WORMM

TO
NCLDA

RNP	DISTANCE 3.49	PAT	MAP	HAT			HMAS					
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TOWER (48-003129)	293801.86N/0983754.66W		1804	100	20	3C	1000				AT1196	4000
TERRAIN	293912.00N/0983951.00W		1502 (1500)								AS1500	3000

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



INTERMEDIATE

FROM

NCLDA

TO

NUGIT

RNP	DISTANCE	PAT	MAP	HAT			HMAS					
	2.53											
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TOWER (48-003129)	293801.86N/0983754.66W		1804	100	20	3C	500				AT896	3200
TERRAIN	293909.00N/0983951.00W		1499 (1500)								AS1500	3000

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INTERMEDIATE: STEPDOWN

FROM

NUGIT

TO

ALAMO

RNP	DISTANCE	PAT	MAP	HAT			HMAS					
	3.40											
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	293847.11N/0983551.07W		1649	50	20	2C	500					2200
TERRAIN	293730.00N/0983457.00W		1332 (1300)								AS700	2000

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

AS700 = INTERMEDIATE STEPDOWN SEGMENT LIES WITHIN THE CLASS C AIRSPACE.



FINAL: LPV

FROM
ALAMO

TO
RW13R

RNP	DISTANCE 4.19	PAT	MAP DA	HAT 200	HMAS							
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
								ASC				1009

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

FINAL: LNAV/VNAV

FROM
ALAMO

TO
RW13R

RNP	DISTANCE 4.19	PAT	MAP DA	HAT 412	HMAS							
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TREE (48-094878)	293247.66N/0983022.23W		948	20	3	1A		22.24:1				1221

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



FINAL: LNAV

FROM

ALAMO

TO

RW13R

RNP	DISTANCE	PAT	MAP	HAT			HMAS					
	4.19		RW13R	671								
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	293525.37N/0983148.77W		1220	50	20	2C	250					1480

COMPUTATIONS

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

MISSED APPROACH : LPV

FROM

DA

TO

EMBOW

RNP	DISTANCE	PAT	MAP	HAT			HMAS					
							840					
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
								ASC				3100
TOWER (48-004668)	291938.75N/0982117.63W		1546	500	50	5D	1000					2600
TERRAIN	293218.00N/0983000.00W		941 (900)								AS1500	2400

COMPUTATIONS

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



MISSED APPROACH : LNAV/VNAV

FROM
DA

TO
EMBOW

RNP	DISTANCE	PAT	MAP	HAT			HMAS 1060					
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
								ASC				3100
TOWER (48-004668)	291938.75N/0982117.63W		1546	500	50	5D	1000					2600
TERRAIN	293218.00N/0983000.00W		941 (900)								AS1500	2400

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

MISSED APPROACH : LNAV

FROM
RW13R

TO
EMBOW

RNP	DISTANCE	PAT	MAP	HAT			HMAS 1380					
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
								ASC				3100
TOWER (48-004668)	291938.75N/0982117.63W		1546	500	50	5D	1000					2600
TERRAIN	293218.00N/0983000.00W		941 (900)								AS1500	2400

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

OBSTRUCTION	COORDINATES	RADIUS	HAA	ELEV MSL	HORZ	VERT	AC	ROC	OCS	ADJUSTMENTS	MIN ALT
CATEGORY A											
TREE	293340.70N/0982518.10W	1.30	671	964	50	20	2C	300		SI	1480
CATEGORY B											
BUILDING (48-004065)	293247.00N/0982513.00W	1.83	671	1028	50	3	2A	300		SI	1480
CATEGORY C											
TANK (48-005036)	293512.15N/0982917.97W	2.88	671	1101	20	3	1A	300		SI	1480
CATEGORY D											
AAO	293525.37N/0983148.77W	3.77	711	1220	50	20	2C	300			1520

CIRCLING REMARKS:

MSA

CENTER
RW13R

RADIUS
25

SECTOR	OBSTRUCTION	COORDINATES	BEARING	DISTANCE	ELEV MSL	HORZ	VERT	AC	ROC	OCS	ADJUSTMENTS	MIN ALT
360-360	TOWER (48-005142)	293639.00N/0985334.00W	277	21.7	3049	500	125	5E	1000			4100

MSA REMARKS:

NOTES/EXPLANATIONS FROM PROCEDURE SEGMENTS:

LPV SLOPE: 34:1

VEGETATION 75 FT.



PART B: SUPPLEMENTAL DATA

COMMUNICATIONS WITH

ZHU ARTCC, SAT TOWER, SAT APP CON

<u>WX SERVICE</u> ASOS	<u>LOCATION</u> KSAT	<u>HRS OPERATION</u> 24	<u>ALTIMETER SOURCE</u> KSAT	<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:

REDUNDANT WEATHER SOURCES, BACKUP ALTIMETER NOT REQUIRED.

<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>
RW31R - MIRL, REIL, PAPI-4L	BSC-G	
RW13L - MIRL, REIL, PAPI-4L	NPI-G	
RW04 - MALS, HIRL, C/LINE, PAPI-4R	PIR-G	APPROACH
RW13R - TDZ, ALSF-2, HIRL, C/LINE, PAPI-4L	PIR-G	APPROACH, MIDPOINT, ROLL OUT
RW22 - HIRL, REIL, C/LINE, PAPI-4L	PIR-G	ROLL OUT
RW31L - MALSR, HIRL, C/LINE, PAPI-4L	PIR-G	APPROACH, MIDPOINT, ROLL OUT

<u>GLIDESLOPE ANGLE</u> 3.00	<u>ELEV RWY THRESHOLD</u> 809.1	<u>TCH</u> 57.7	<u>ELEV GS ANTENNA</u>	<u>DISTANCE FROM RWY</u>	<u>VGSI ANGLE</u> 3.00	<u>TCH</u> 75.0
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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> -5C	<u>CRITICAL HIGH</u> +54C	<u>ACT</u> -5C	<u>APT ISA</u> +13.4C
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CRITICAL TEMPERATURE REMARKS:

AVERAGE COLD TEMPERATURE DERIVED FROM 5-YEAR HISTORY (2018-2022).
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

<u>PENETRATIONS REMARKS:</u>

PART C: GENERAL REMARKS:
PRECIPITOUS TERRAIN EVALUATION COMPLETED.
ORDER 8260.3, CHAPTER 2, NEW CIRCLING CRITERIA APPLIED.



AIRPORT ID KSAT	PROCEDURE NAME RNAV (GPS) Y RWY 13R	AMDT NO. 2	CITY SAN ANTONIO	STATE TX	AIRPORT ELEVATION 809	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	3.56
WIDTH OF	FINAL	SEGMENT AT 1000FT POINT	1.54
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1000FT POINT	131.57
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1000FT POINT	1000
DISTANCE FROM	THLD	TO 1500FT POINT	8.12
WIDTH OF	INTERMEDIATE	SEGMENT AT 1500FT POINT	4.00
TRUE COURSE OF	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	131.53
HIGH TERRAIN IN	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	1500

THRESHOLD
COORDINATES
(IF STR-IN)

293233.89N/0982907.95W

ARP COORDINATES

293202.25N/0982808.61W

RUNWAY APCH END
AND DIST FURTHEST
FROM ARP

RUNWAY 13R DISTANCE 1.01 NM

FAF
COORDINATES

293521.03N/0983243.38W

FIX NAME
COORDINATES

REMARKS

QUALITY
26
CHECKED

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Electronic Version

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PART E: PREPARED BY

<u>NAME</u> RAYMOND JOHNSON	<u>OFFICE</u> AJV-A423	<u>DATE</u> 04/10/2023	<u>TITLE</u> AERONAUTICAL INFORMATION SPECIALIST
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