

Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: STAR	Estimated Chart Date: 02/20/2025	APWS Task ID: B89274BC55DF405E9613741AF2F47284	APWS Project ID: 2D35F9D5E48845C3954C5F5E28D4836F
Procedure: MARCS TWO ARRIVAL		Enroute: YES	Specialist: Young, Silvia		Agreement Number:
Airport ID: KSAT			Airport City: SAN ANTONIO		State: TX
Facility ID:	Facility Type:	Flight Inspection Remark Type: New FC Slot			
Procedure Comments: ACTIVE DATA USED FOR KSAT AIRPORT AND RWYS. ESV STONEWALL (STV) VORTAC (2) APPROVAL LETTER (S): 1. DESCENT GRADIENT CONTACT JOSEPH L. ZEDER 405.954.9111 QUALITY 35 CHECKED QUALITY 41 CHECKED					

FIPC BASIC FORM							
PROCEDURE: MARCS TWO ARRIVAL			AIRPORT NAME: SAN ANTONIO INTL		AIRPORT ID: KSAT	SPECIAL CONTROL NO: OP-12-202-24	
FAC ID: MARCS2		CITY: SAN ANTONIO			ST: TX	ORIG CHART DATE: 04/17/2025	
DFL TYPE: PROC/T	THIRD PARTY: ☐ YES	EST. TIME ON SITE: 0.4	REIMB. NUMBER:		PTS TASK ID: B89274BC55DF405E9613741AF2F47284		
PREFLIGHT NOTES							
REVIEWER:					DATE:		
COMMENTS:					CHECK ONE:		
					☐ FLT CK REQ ☐ NFCR ☐ REJECT		
							YES
					CPV COMPLETE?		X
PROCEDURE RESULTS							
INSPECTION DATE: 12/22/2024		CREW #: VN536	N #: N66	INSTRUMENT PROCEDURE STATUS: ☒ SAT ☐ SAT W/CHANGES ☐ UNSAT		ARINC CODING: ☒ SAT ☐ SAT/GOLD ☐ UNSAT	
FLIGHT INSPECTOR SIGNATURE: nicholas a varner @ 01/07/2025 09:50			PRINTED NAME: VARNER, NICHOLAS ALLEN			NOTAM INITIATED? ☐ YES ☒ NO	
FLIGHT INSPECTOR REMARKS:							
IN-FLIGHT OBSTACLE REPORT							
OBSTRUCTION ID #:	COORDINATES OR LOCATION:		GNSS ALTITUDE (MSL):		BAROMETRIC ALTITUDE (MSL):		HEIGHT ABOVE GROUND LEVEL:

FIPC BASIC FORM							
PROCEDURE: MARCS TWO ARRIVAL			AIRPORT NAME: SAN ANTONIO INTL		AIRPORT ID: KSAT	SPECIAL CONTROL NO: OP-12-117-24	
FAC ID: MARCS2		CITY: SAN ANTONIO			ST: TX	ORIG CHART DATE: 02/20/2025	
DFL TYPE: PROC/T	THIRD PARTY: ☐ YES	EST. TIME ON SITE: 0.4	REIMB. NUMBER:		PTS TASK ID: B89274BC55DF405E9613741AF2F47284		
PREFLIGHT NOTES							
REVIEWER:					DATE:		
COMMENTS:					CHECK ONE:		
					☐ FLT CK REQ ☐ NFCR ☐ REJECT		
							YES
					CPV COMPLETE?		X
PROCEDURE RESULTS							
INSPECTION DATE: 12/12/2024	CREW #: VN330	N #: N83	INSTRUMENT PROCEDURE STATUS: ☐ SAT ☐ SAT W/CHANGES ☒ UNSAT			ARINC CODING: ☐ SAT ☐ SAT/GOLD ☐ UNSAT	
FLIGHT INSPECTOR SIGNATURE: brian harrelson @ 12/12/2024 19:32			PRINTED NAME: HARRELSON, BRIAN DAVID				NOTAM INITIATED? ☐ YES ☒ NO
FLIGHT INSPECTOR REMARKS: Inspecting the requested ESV at the CLL 233R/86D at 5000'. Numerous OT conditions (SS, R/S, AM MODS, DME Unlocks) during the radial flight and the orbital flight at all altitudes between 5000-10,000'T.							
IN-FLIGHT OBSTACLE REPORT							
OBSTRUCTION ID #:	COORDINATES OR LOCATION:	GNSS ALTITUDE (MSL):	BAROMETRIC ALTITUDE (MSL):		HEIGHT ABOVE GROUND LEVEL:		



Federal Aviation Administration

Memorandum

Date: October 16, 2024

To: Charles R Erickson, (A) Fight Procedures Team Manager

From: Morgan S. Lee, Support Manager (A), Airspace & Procedures,
Houston District, TCHU1-ZHU

Prepared by: Jason Frisch, FPT Specialist, ZHU District

Subject: Approval Request MARCS TWO ARRIVAL, KSAT

KSAT MARCS TWO Standard Terminal Arrival Route (STAR): MARCS TO BRAUN Descent Gradient.

Currently, FAAO 8260.3F, PARA 2-2-8a (3), The STAR's maximum permissible descent gradient is between 318ft/nm and 330 ft/nm. MARCS has a restriction of 13000 MSL, and BRAUN has a restriction of at or above 6000 MSL. The descent gradient (598.10 ft/nm) from MARCS and BRAUN is greater than the maximum permissible gradient allowed. Flight Standards approval is required.

The MARCS TWO STAR serves SAN ANTONIO INT Airport. The 13000 MSL restriction is designed to separate aircraft from either adjacent airspace or other traffic. The "at or above 6000" restriction is designed so that the BRAUN can be used as a termination fix to RADAR Vectors at an altitude above the San Antonio TRACON MVA for landing at KSAT RWY 4 and RWY 22. If any aircraft cannot make that descent, crossing at a higher altitude will be acceptable. The deviation from Descent Gradient criteria does not introduce any new risk into the system.

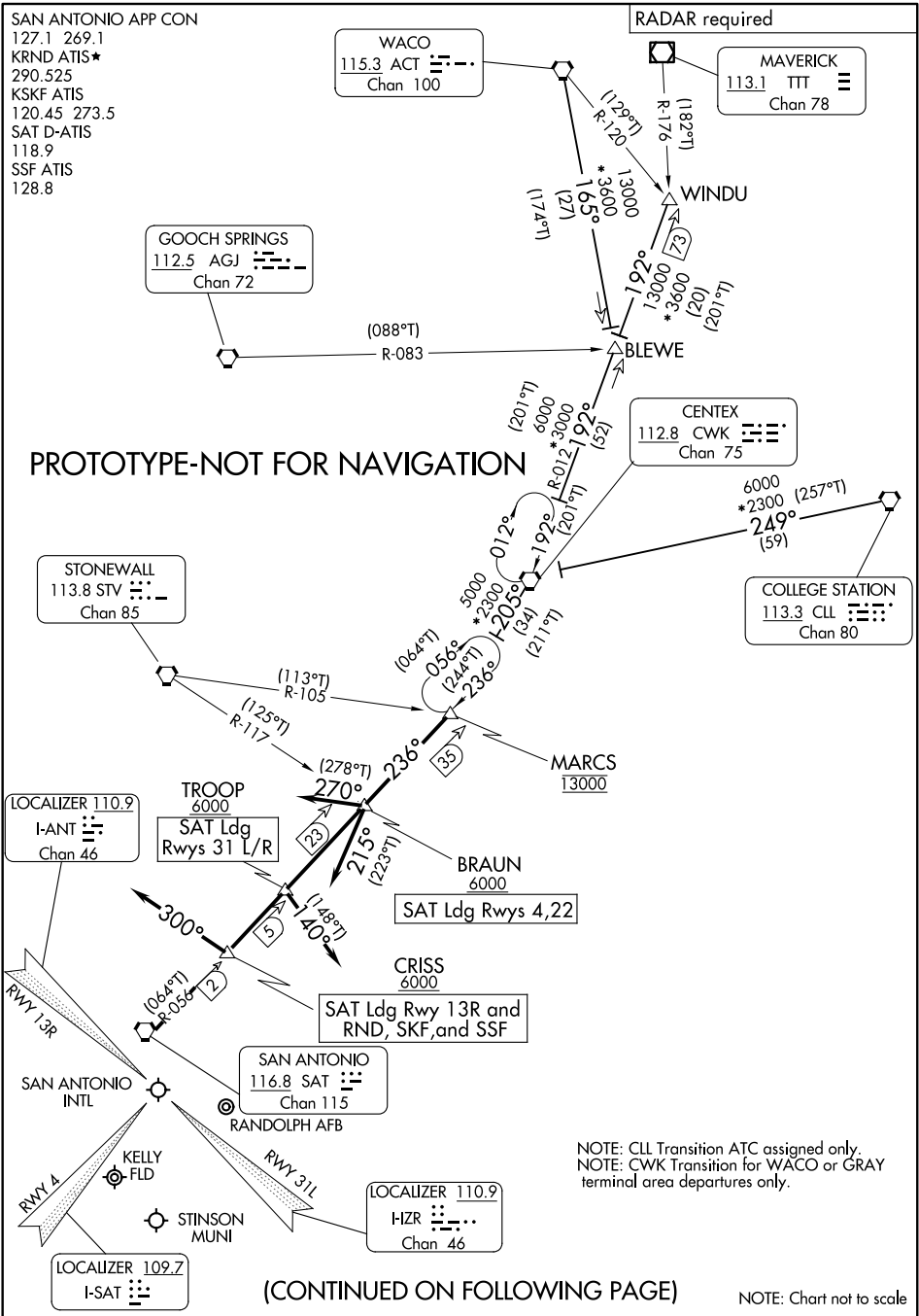
Therefore, ZHU is requesting a Letter of Approval to utilize the altitude restrictions at MARCS (13000 MSL) to BRAUN (at or above 6000 MSL) resulting in a descent gradient of 598.10 ft/nm as developed for the MARCS TWO STAR for landing on Runway 4 and Runway 22 at KSAT.

ESV Details

Originating Office :NFPO		Airspace Docket Number :		Request Type :Establish		
Facility Data						
Chart Name:marcs star		City:STONEWALL		Ident:STV		State:TX
Type/Class: H-VOR		Frequency: M113.8		Reference Number: 24127563		
Extended Service Volume Data: (Requesting Officer)						
ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	
FAA 970145 - 011	105		48	50	161	
Requirement: ksat marcs star intersection						
Signature:ZEDER JOSEPH		Routing Symbol:ajv-a432				Date:12/19/2024
Extended Service Volume Data: (FIFO)						
ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 970145 - 011	105					
Requirement/Remarks:						
Signature:		Routing Symbol:			Date:	

ESV Details

Originating Office :NFPO		Airspace Docket Number :		Request Type :Establish		
Facility Data						
Chart Name:marcs		City:STONEWALL		Ident:STV		State:TX
Type/Class: TACAN		Frequency: M1172		Reference Number: 24127564		
Extended Service Volume Data: (Requesting Officer)						
ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	
FAA 970146 - 031	105		48	50	161	
Requirement: marcs star marcs fix						
Signature:ZEDER JOSEPH		Routing Symbol:ajv-a432				Date:12/19/2024
Extended Service Volume Data: (FIFO)						
ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 970146 - 031	105					
Requirement/Remarks:						
Signature:		Routing Symbol:			Date:	



ARRIVAL ROUTE DESCRIPTION

BLEWE TRANSITION (BLEWE.MARCS2): From over BLEWE INT via CWK R-012 to CWK VORTAC, then via CWK R-205 to MARCS INT. Thence. . .

CENTEX TRANSITION (CWK.MARCS2): From over CWK VORTAC via CWK R-205 to MARCS INT. Thence. . . .

COLLEGE STATION TRANSITION (CLL.MARCS2): From over CLL VORTAC via CLL R-249 and CWK R-070 to CWK VORTAC, then via CWK R-205 to MARCS INT. Thence. . . .

WACO TRANSITION (ACT.MARCS2): From over ACT VORTAC via ACT R-165 to BLEWE INT, then via CWK R-012 to CWK VORTAC, then via CWK R-205 to MARCS INT. Thence. . . .

WINDU TRANSITION (WINDU.MARCS2): From over WINDU INT via CWK R-012 to CWK VORTAC, then via CWK R-205 to MARCS INT. Thence. . . .

. . . .LANDING SAT RWY 4: From MARCS on SAT R-056 to cross BRAUN at or above 6000, then on heading 215° or as assigned by ATC. Expect RADAR vectors to final approach course.

. . . .LANDING SAT RWY 13R: From MARCS on SAT R-056 to cross CRISS at or above 6000, then on heading 300° or as assigned by ATC. Expect RADAR vectors to final approach course.

. . . .LANDING SAT RWY 22: From MARCS on SAT R-056 to cross BRAUN at or above 6000, then on heading 270° or as assigned by ATC. Expect RADAR vectors to final approach course.

. . . .LANDING RWY 31L/R: From MARCS on SAT R-056 to cross TROOP at or above 6000, then on heading 140° or as assigned by ATC. Expect RADAR vectors to final approach course.

. . . .LANDING RND/SKF/SSF: From MARCS on SAT R-056 to cross CRISS at or above 6000. Expect RADAR vectors to final approach course.

PROTOTYPE-NOT FOR NAVIGATION

OLD

(MARCS.MARCS1) 24137
MARCS ONE ARRIVAL

AL-369 (FAA)

SAN ANTONIO, TEXAS

SAN ANTONIO APP CON

127.1 269.1
KRND ATIS★
290.525
KSKF ATIS
120.45 273.5
SAT D-ATIS
118.9
SSF ATIS
128.8

WACO
115.3 ACT
Chan 100

MAVERICK
113.1 TTT
Chan 78

GOOCH SPRINGS
112.5 AGJ
Chan 72

STONEWALL
113.8 STV
Chan 85

MARCS
TURBOJET VERTICAL
NAVIGATION PLANNING
INFORMATION
Expect 13000

CENTEX
112.8 CWK
Chan 75

LUFKIN
112.1 LFK
Chan 58

LOCALIZER 110.9
I-ANT
Chan 46

INDUSTRY
110.2 IDU
Chan 39

TROOP
236°
118°
140°

SAN ANTONIO
116.8 SAT
Chan 115

NOTE: RADAR required.

SAN ANTONIO INTL

RANDOLPH AFB

KELLY FLD

STINSON MUNI

LOCALIZER 110.9
I-HZ
Chan 46

LOCALIZER 109.7
I-SAT

(CONTINUED ON FOLLOWING PAGE)

NOTE: Chart not to scale

MARCS ONE ARRIVAL
(MARCS.MARCS1) 02MAR17

SAN ANTONIO, TEXAS

SC-3, 08 AUG 2024 to 05 SEP 2024

SC-3, 08 AUG 2024 to 05 SEP 2024

ARRIVAL ROUTE DESCRIPTION

CENTEX TRANSITION (CWK.MARCS1): From over CWK VORTAC
via CWK R-205 to MARCS INT. Thence. . . .

INDUSTRY TRANSITION (IDU.MARCS1): From over IDU VORTAC
via IDU R-259 to MARCS INT. Thence. . . .

LUFKIN TRANSITION (LFK.MARCS1): From over LFK VORTAC
via LFK R-228 and IDU R-044 to IDU VORTAC, then via IDU R-259
to MARCS INT. Thence. . . .

WACO TRANSITION (ACT.MARCS1): From over ACT VORTAC
via ACT R-165 to BLEWE INT, then via CWK R-012 to CWK VORTAC,
then via CWK R-205 to MARCS INT. Thence. . . .

WINDU TRANSITION (WINDU.MARCS1): From over WINDU INT
via CWK R-012 to CWK VORTAC, then via CWK R-205 to MARCS INT.
Thence. . . .

. . . . From over MARCS on SAT R-056 to BRAUN, then on SAT R-056 to TROOP.
Thence....

SAN ANTONIO INTL (SAT):

LANDING RWY 13R: On SAT R-056 to CRISS. Depart CRISS heading 300°
for vectors to final approach course.

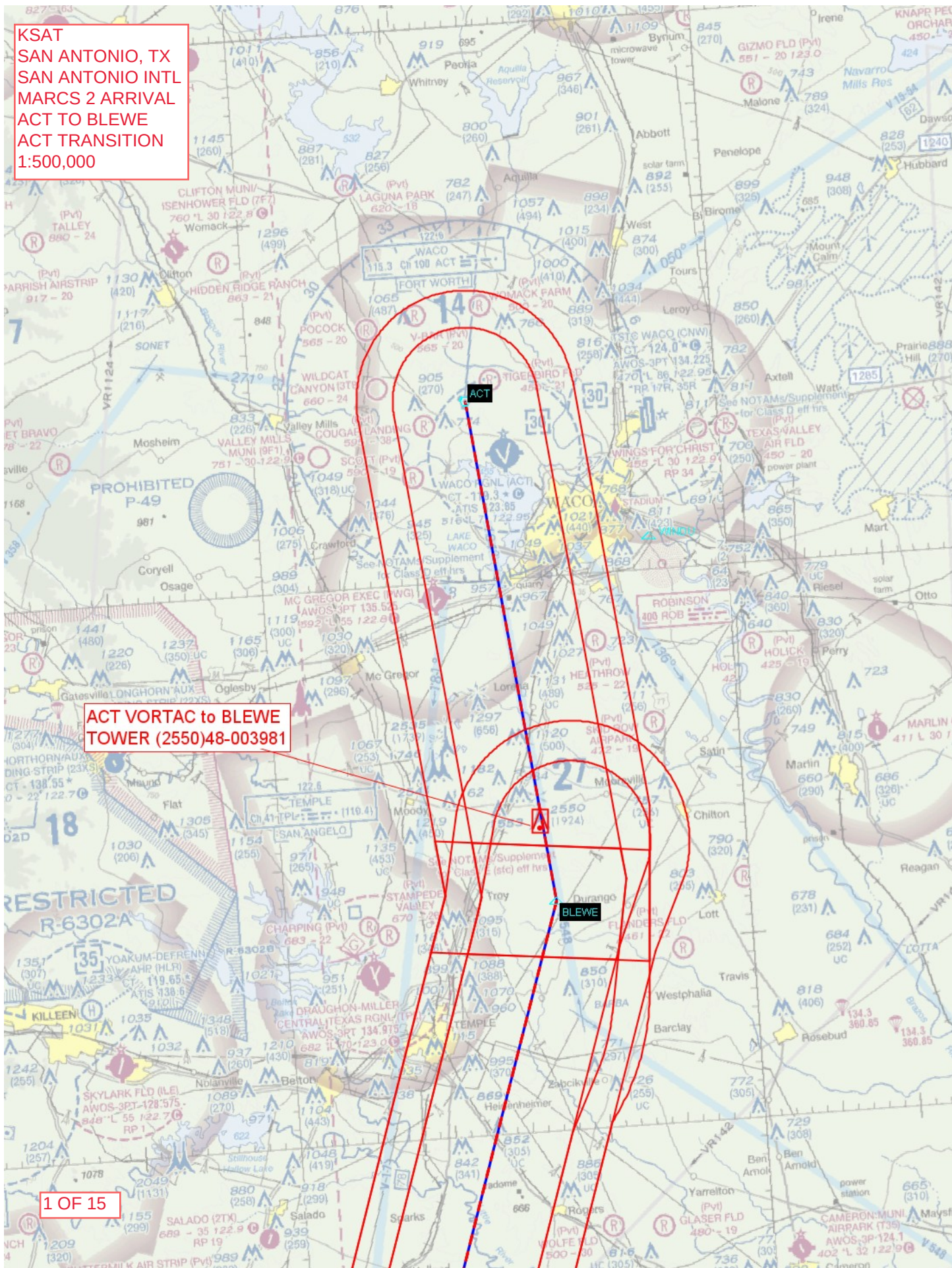
LANDING RWY 31L: Depart TROOP heading 140° for vectors to
final approach course.

LANDING ALL OTHER RUNWAYS: On SAT R-056 to CRISS. Expect vectors
to final approach course.

ALL OTHER AIRPORTS: On SAT R-056 to CRISS. Expect vectors to final
approach course.

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
ACT TO BLEWE
ACT TRANSITION
1:500,000

ACT VORTAC to BLEWE
TOWER (2550)48-003981



KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
BLEWE TO CWK
ACT TRANSITION
1:500,000

BLEWE to CWK VORTAC
TOWER (2550)48-003981

CWK Holding
TOWER (1137) 48-008572

2 OF 15

CTC AUSTIN APP WITHIN
20 NM ON 119.0 370.85

CTC AUSTIN APP WITHIN
20 NM ON 127.225 317.65

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
CWK VORTAC TO MARCS
ACT TRANSITION
1:500,000

CWK Holding
TOWER (1137) 48-008572

CTC AUSTIN APP WITHIN
20 NM ON 119.0-370.85
CWK:VORTAC to MARCS
TOWER (1278) 48-002036

MARCS Holding
AAO (1096)

CTC AUSTIN APP WITHIN
20 NM ON 127.225-317.65

CTC AUSTIN APP WITHIN
20 NM ON 120.875-270.25

CTC SAN ANTONIO APP WITHIN
20 NM ON 124.45-335.625

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
MARCS TO BRAUN TO TROOP TO CRISS
ACT TRANSITION
1:500,000

MARCS Holding
AAO (1096)

BRAUN to TROOP
MARCS to BRAUN
TOWER (1728) 48-001049

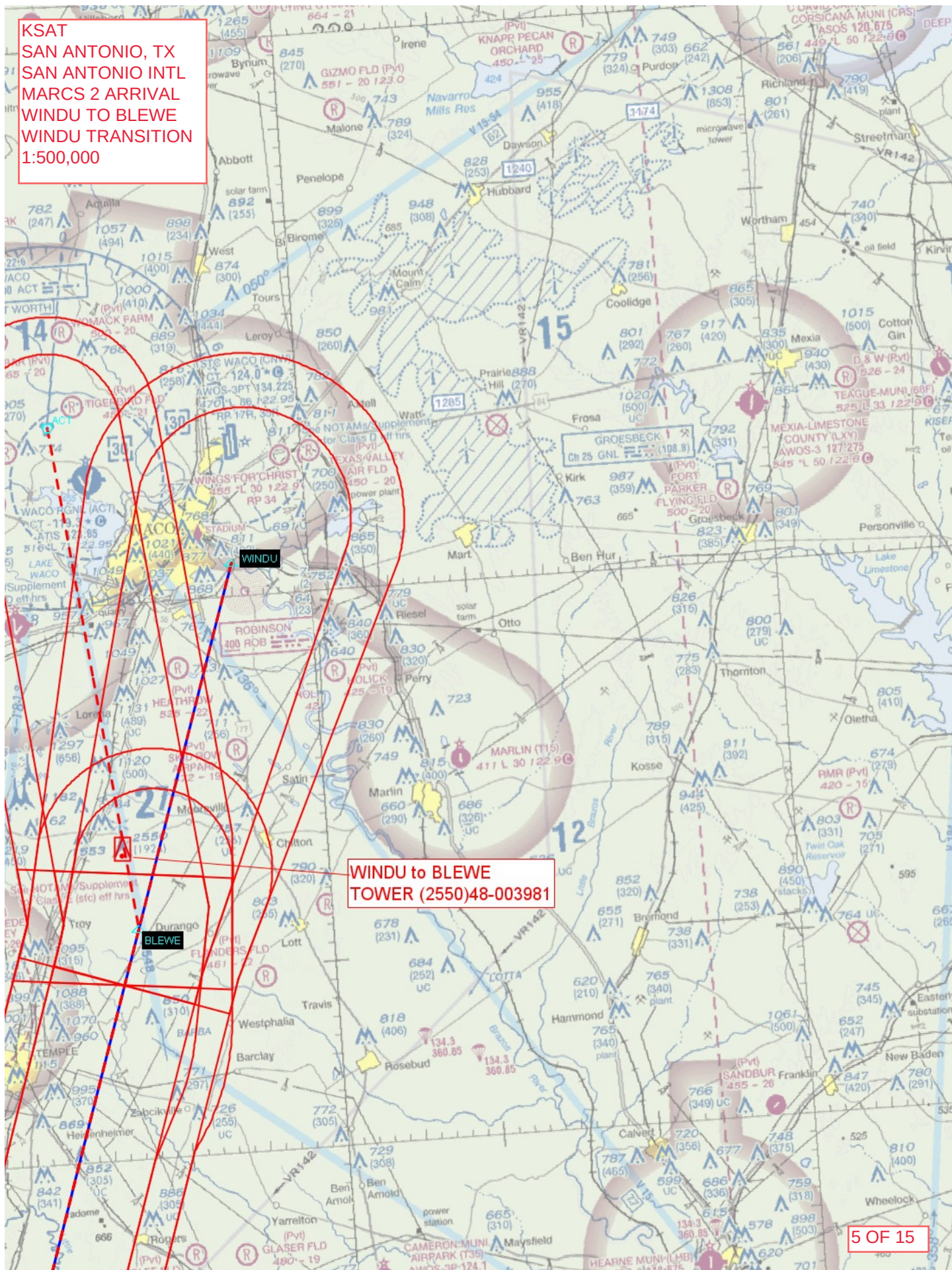
TROOP to CRISS
TOWER (1648) 48-008082

SAN ANTONIO APP WITHIN
20 NM ON 125.1 307.0

CTC SAN ANTONIO APP WITHIN
20 NM ON 124.45 335.625

CTC AUSTIN APP WITHIN
20 NM ON 120.875-270.2

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
WINDU TO BLEWE
WINDU TRANSITION
1:500,000



KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
BLEWE TO CWK VORTAC TO MARCS
WINDU TRANSITION
1:500,000

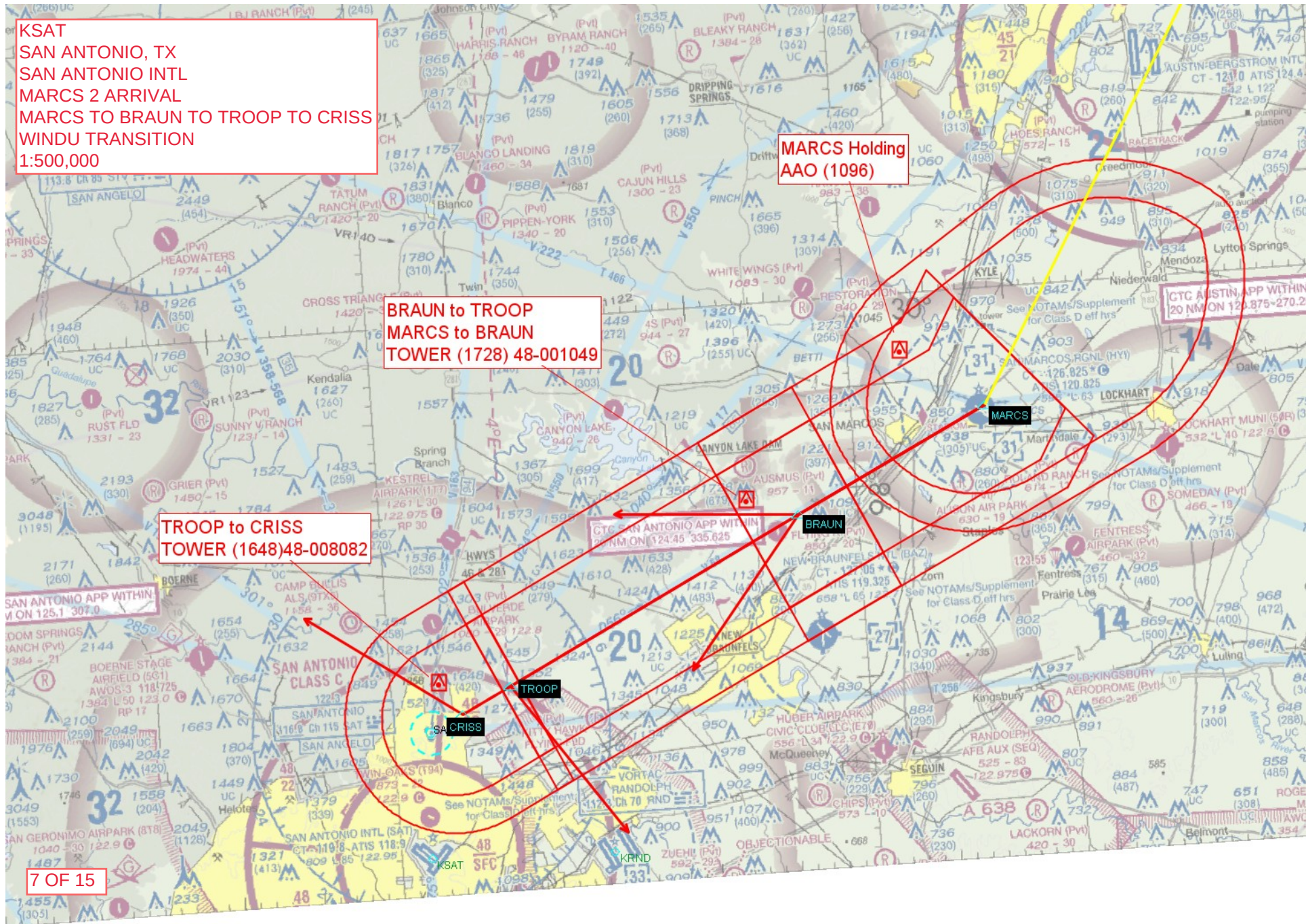
CWK Holding
TOWER (1137) 48-008572

CTC AUSTIN APP WITHIN
20 NM ON 119.0-370.85
CWK:VORTAC to MARCS
TOWER (1278) 48-002036

MARCS Holding
AAO (1096)

CTC AUSTIN APP WITHIN
20 NM ON 127.225-317.65

CTC AUSTIN APP WITHIN
20 NM ON 120.875-270.25



KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
BLEWE TO CWK VORTAC
BLEWE TRANSITION
1:500,000

BLEWE to CWK VORTAC
TOWER (2550) 48-003981

CWK Holding
TOWER (1137) 48-008572

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
CWK VORTAC TO MARCS
BLEWE TRANSITION
1:500,000

CWK Holding
TOWER (1137) 48-008572

CTC AUSTIN APP WITHIN
20 NM ON 119.0-370.85
CWK:VORTAC to MARCS
TOWER (1278) 48-002036

MARCS Holding
AAO (1096)

CTC AUSTIN APP WITHIN
20 NM ON 127.225-317.65

CTC AUSTIN APP WITHIN
20 NM ON 120.875-270.25

CTC SAN ANTONIO APP WITHIN
20 NM ON 124.45-335.625

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
MARCS TO BRAUN TO TROOP TO CRISS
BLEWE TRANSITION
1:500,000

MARCS Holding
AAO (1096)

BRAUN to TROOP
MARCS to BRAUN
TOWER (1728) 48-001049

TROOP to CRISS
TOWER (1648) 48-008082

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
CWK VORTAC TO MARCS
CENTEX TRANSITION
1:500,000

CWK Holding
TOWER (1137) 48-008572

CWK:VORTAC to MARCS
TOWER (1278)48-002036

MARCS Holding
AAO (1096)

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
MARCS TO BRAUN TO TROOP TO CRISS
CENTEX TRANSITION
1:500,000

MARCS Holding
AAO (1096)

BRAUN to TROOP
MARCS to BRAUN
TOWER (1728) 48-001049

TROOP to CRISS
TOWER (1648) 48-008082

SAN ANTONIO APP WITHIN
20 NM ON 125.1 307.0

CTC SAN ANTONIO APP WITHIN
20 NM ON 124.45 335.625

CTC AUSTIN APP WITHIN
20 NM ON 120.875-270.2

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
CLL VORTAC TO CWK VORTAC
COLLEGE STATION TRANSITION
1:500,000

CWK Holding
TOWER (1137) 48-008572

CLL:VORTAC to CWK:VORTAC
TOWER (908)48-004926

13 OF 15
APP WITHIN
20 NM ON 120.875-270.25

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
CWK VORTAC TO MARCS
COLLEGE STATION TRANSITION
1:500,000

CWK Holding
TOWER (1137) 48-008572

CTC AUSTIN APP WITHIN
20 NM ON 119.0-370.85

CWK:VORTAC to MARCS
TOWER (1278) 48-002036

MARCS Holding
AAO (1096)

CTC AUSTIN APP WITHIN
20 NM ON 127.225-317.65

CTC AUSTIN APP WITHIN
20 NM ON 120.875-270.25

CTC SAN ANTONIO APP WITHIN
20 NM ON 124.45-335.625

KSAT
SAN ANTONIO, TX
SAN ANTONIO INTL
MARCS 2 ARRIVAL
MARCS TO BRAUN TO TROOP TO CRISS
COLLEGE STATION TRANSITION
1:500,000

MARCS Holding
AAO (1096)

BRAUN to TROOP
MARCS to BRAUN
TOWER (1728) 48-001049

TROOP to CRISS
TOWER (1648) 48-008082