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AIRAC AIP SUP 013/2025

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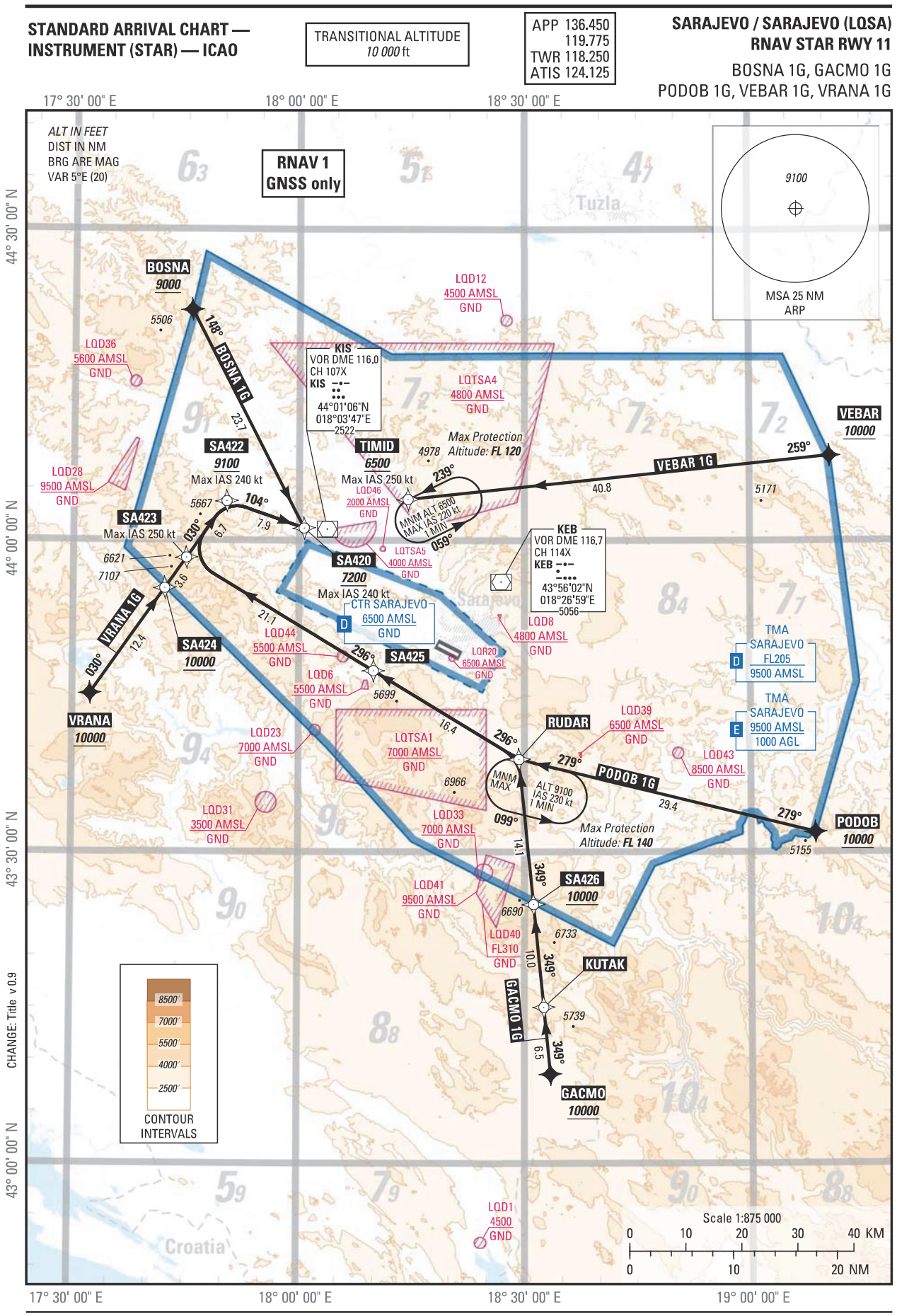
End Date: UFN

LQSA – Sarajevo International Airport
Trial PBN instrument flight procedures

With this AIRAC AIP SUP a trial PBN satellite based RNAV STARs and RNP APCH RWY 11 are available for testing purpose only at Sarajevo Airport. The satellite instrument flight procedure is GNSS based and contain STARs and APCH flight procedures for RWY 11.

Trial PBN procedures are not intended for planning of operations. They are primarily published for flight validation and flyability check purpose with the aim of collecting and developing safety argumentation for PBN implementation in Bosnia and Herzegovina.


STANDARD ARRIVAL CHART — INSTRUMENT (STAR) — ICAO
TRANSITIONAL ALTITUDE 10 000 ft
APP 136.450
119.775
TWR 118.250
ATIS 124.125
SARAJEVO / SARAJEVO (LQSA)
RNAV STAR RWY 11
BOSNA 1G, GACMO 1G
PODOB 1G, VEBAR 1G, VRANA 1G
17° 30' 00" E
18° 00' 00" E
18° 30' 00" E
19° 00' 00" E
44° 30' 00" N
44° 00' 00" N
43° 30' 00" N
43° 00' 00" N
ALT IN FEET
DIST IN NM
BRG ARE MAG
VAR 5°E (20)
RNAV 1
GNSS only
9100
MSA 25 NM
ARP
BOSNA
9000
148°
BOSNA 1G
23.7
5506
LQD36
5600 AMSL
GND
LQD12
4500 AMSL
GND
KIS
VOR DME 116.0
CH 107X
KIS
44°01'06"N
018°03'47"E
2522
LQTSA4
4800 AMSL
GND
Max Protection
Altitude: FL 120
4978
TIMID
6500
Max IAS 250 kt
239°
VEBAR 1G
259°
VEBAR
10000
40.8
5171
SA422
9100
Max IAS 240 kt
104°
5667
LQD28
9500 AMSL
GND
LQD46
2000 AMSL
GND
MNM ALT 6500
MAX IAS 220 kt
1 MIN
059°
SA423
Max IAS 250 kt
030°
6.7
7.9
6621
7107
3.6
KEB
VOR DME 116.7
CH 114X
KEB
43°56'02"N
018°26'59"E
5056
SA420
7200
Max IAS 240 kt
LQTSA5
4000 AMSL
GND
CTR SARAJEVO
D
6500 AMSL
GND
LQD8
4800 AMSL
GND
TMA
SARAJEVO
D
FL205
9500 AMSL
VRANA 1G
12.4
030°
VRANA
10000
SA424
10000
21.1
LQD44
5500 AMSL
GND
296°
SA425
LQR20
6500 AMSL
GND
LQD6
5500 AMSL
GND
5699
TMA
SARAJEVO
E
9500 AMSL
1000 AGL
16.4
296°
RUDAR
LQD39
6500 AMSL
GND
LQD23
7000 AMSL
GND
LQTSA1
7000 AMSL
GND
6966
MNM
MAX
ALT 9100
IAS 230 kt
1 MIN
279°
PODOB 1G
29.4
LQD43
8500 AMSL
GND
279°
PODOB
10000
5155
099°
LQD31
3500 AMSL
GND
LQD33
7000 AMSL
GND
Max Protection
Altitude: FL 140
14.1
349°
SA426
10000
LQD41
9500 AMSL
GND
6690
6733
LQD40
FL310
GND
10.0
349°
KUTAK
GACMO 1G
5739
6.5
349°
GACMO
10000
8500'
7000'
5500'
4000'
2500'
CONTOUR INTERVALS
CHANGE: Title v 0.9
LQD1
4500
GND
Croatia
Tuzla
Sarajevo
Scale 1:875 000
0 10 20 30 40 KM
0 10 20 NM

LQSA RNAV STAR RWY 11

Proposed tabular description for navigation database coding

Seq N°	PT	W/P ID	OverFly	CRS Val (°)	CRS Type	DIST val NM	ALT DESC	ALT ONE FT	ALT TWO FT	SPD LMT KT	NAV PERF NM	Phase	Transition identifier	Runway Direction	Magnetic CRS val (°)
BOSNA 1G															
10	IF	BOSNA					+	9000			1.000 NM	5	RW11	11	
20	TF	SA420	N	152.606	TT	23.675	+	7200		240	1.000 NM	5	RW11	11	147.606
GACMO 1G															
10	IF	GACMO					+	10000			1.000 NM	5	RW11	11	
20	TF	KUTAK	N	354.391	TT	6.480					1.000 NM	5	RW11	11	349.391
30	TF	SA426	N	354.332	TT	9.956	+	10000			1.000 NM	5	RW11	11	349.332
40	TF	RUDAR	N	354.316	TT	14.058					1.000 NM	5	RW11	11	349.316
50	TF	SA425	N	301.397	TT	16.448					1.000 NM	5	RW11	11	296.397
60	TF	SA423	N	301.174	TT	21.079				250	1.000 NM	5	RW11	11	296.174
70	TF	SA422	N	035.153	TT	6.691	+	9100		240	1.000 NM	5	RW11	11	030.153
80	TF	SA420	N	109.144	TT	7.901	+	7200			1.000 NM	5	RW11	11	104.144
PODOB 1G															
10	IF	PODOB					+	10000			1.000 NM	5	RW11	11	
20	TF	RUDAR	N	284.021	TT	29.422					1.000 NM	5	RW11	11	279.021
30	TF	SA425	N	301.397	TT	16.448					1.000 NM	5	RW11	11	296.397
40	TF	SA423	N	301.174	TT	21.079				250	1.000 NM	5	RW11	11	296.174
50	TF	SA422	N	035.153	TT	6.691	+	9100		240	1.000 NM	5	RW11	11	030.153
60	TF	SA420	N	109.144	TT	7.901	+	7200			1.000 NM	5	RW11	11	104.144
VEBAR 1G															
10	IF	VEBAR					+	10000			1.000 NM	5	RW11	11	
20	TF	TIMID	N	264.390	TT	40.773	+	6500		250	1.000 NM	5	RW11	11	259.390
VRANA 1G															
10	IF	VRANA					+	10000			1.000 NM	5	RW11	11	
20	TF	SA424	N	035.009	TT	12.418	+	10000			1.000 NM	5	RW11	11	030.009
30	TF	SA423	N	035.120	TT	3.600				250	1.000 NM	5	RW11	11	030.120
40	TF	SA422	N	035.153	TT	6.691	+	9100		240	1.000 NM	5	RW11	11	030.153
50	TF	SA420	N	109.144	TT	7.901	+	7200			1.000 NM	5	RW11	11	104.144

LQSA RNAV STAR RWY 11 HOLDINGS

Proposed tabular description for navigation database coding

Region Code	ICAO Code	Duplicate Identifier	Type	WP ID	Name	Inbound CRS Val (°)	Inbound CRS Type	TD	Inbound length val	Inbound length uom	Inbound time val	Inbound time uom	ALT MIN FT	ALT MAX	SPD LMT KT	NAV PERF	ARC RADIUS val	ARC RADIUS uom	Magnetic CRS val(°)
LQSA	LQ		TER	RUDAR		284.000	TBRG	L			60.000	S	9100	FL140 [STD]	230 KT				279.000
LQSA	LQ		TER	TIMID		244.000	TBRG	L			60.000	S	6500.00 FT [ALT]	FL120 [STD]	220 KT				239.000

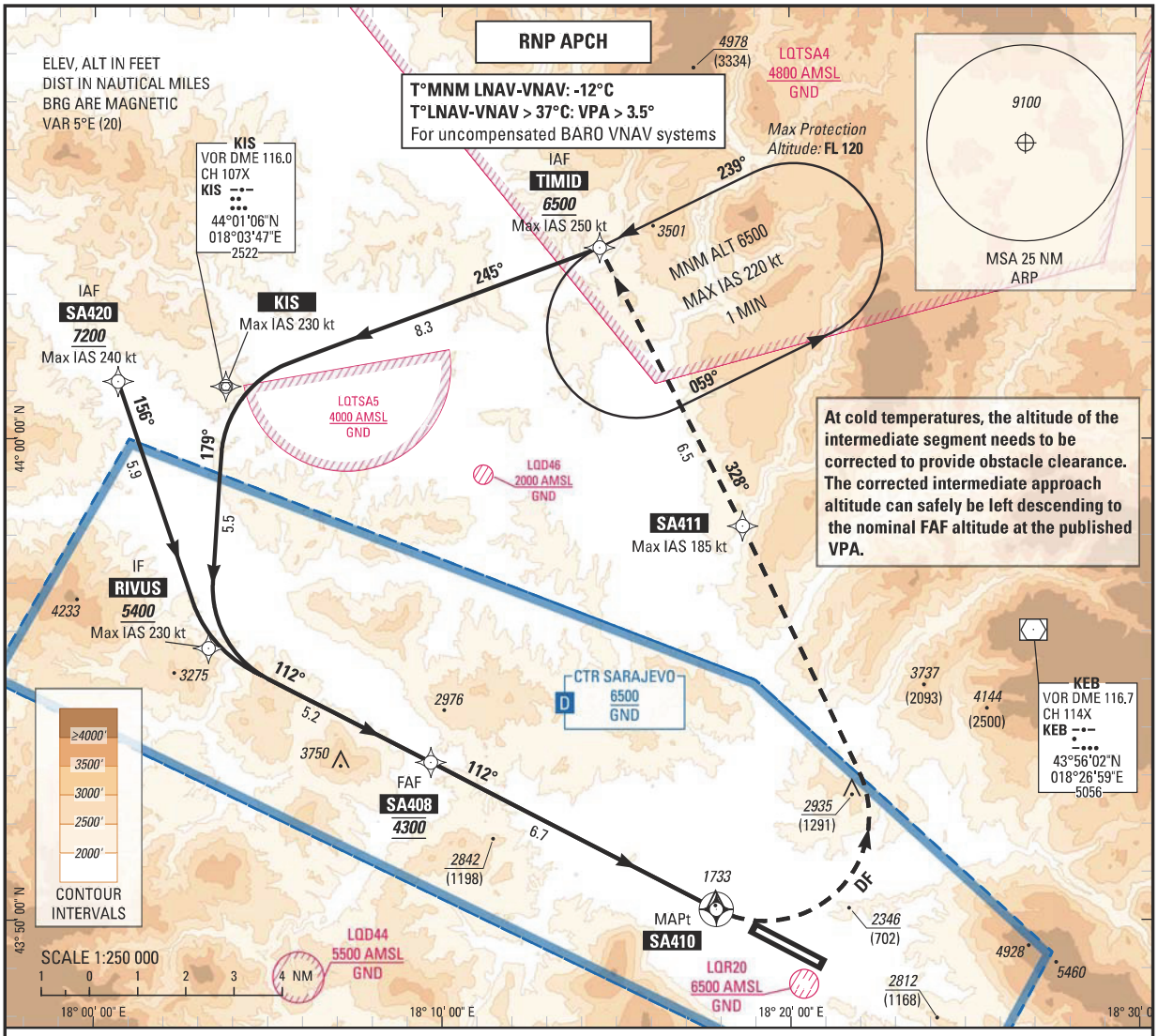
INSTRUMENT APPROACH CHART — ICAO

AERODROME ELEV 1705 ft
HEIGHTS RELATED TO
DTHR RWY 11 — ELEV 1644 ft

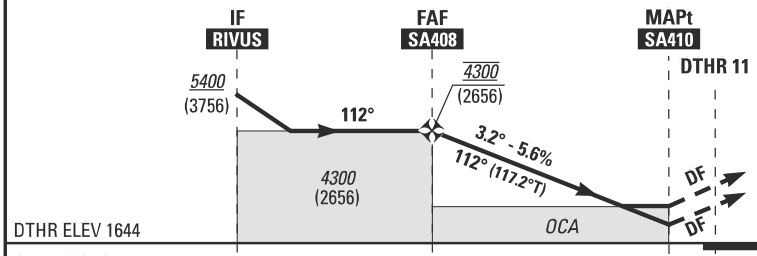
APP 136.450
119.775
TWR 118.250
ATIS 124.125

SARAJEVO / SARAJEVO (LQSA)

RNP Y RWY 11



TRANSITION ALTITUDE 10000



MISSED APPROACH:

At **SA410** turn **left** direct to **SA411** (Max IAS **185 kt**), then to **TIMID** (Max IAS **250kt**) climbing to ***6500*** (4856).
At **TIMID**, hold or follow ATC instructions.
If unable to reach ***6500*** over **TIMID**, continue to climb in the holding.

FOR **additional minima**, refer to LQSA AD 2.24.xx

	LNAV/VNAV MA slope 2.5%	LNAV MA slope 2.5%	Circling (1)
CAT	***OCA*** (H)	***OCA*** (H)	***OCA*** (H)
A	***2730*** (1090)	***2920*** (1270)	***2920*** (1270)
B	***2740*** (1100)		***3110*** (1470)
C	***2890*** (1250)	***3340*** (1700)	-
D	***2920*** (1270)	***3360*** (1710)	-

(1) Day time only and not authorized South of the runway 11/29
Not allowed for CAT C/D aircraft

DIST SA410

NM	6	5	4	3
ALT (HGT)	***4070*** (2426)	***3730*** (2086)	***3390*** (1746)	***3050*** (1406)

FAF - SA410 (NM)	6.7	Speed Time	70 Kt 5 min 43	85 Kt 4 min 42	100 Kt 4 min 00	115 Kt 3 min 29	130 Kt 3 min 05	145 Kt 2 min 46	160 Kt 2 min 30	185 Kt 2 min 10
Slope (%)	5.6	VSP (ft/min)	400	480	570	650	740	820	910	1050

CHANGE: Creation V0.8

Minima LNAV / VNAV

The standard LNAV / VNAV Minima below are determined for ACFT performing an RNP APCH procedure which are able to maintain a climbing slope greater than 2.5% during a missed APCH.

Slope in missed approach	***OCA*** (H) LNAV/VNAV		
	MA slope 3.0%	MA slope 4.0%	MA slope 4.5%
A	***2570*** (930)	***2440*** (800)	***2380*** (740)
B	***2580*** (940)	***2450*** (810)	***2400*** (750)
C	***2750*** (1110)	***2520*** (880)	***2420*** (780)
D	***2780*** (1140)	***2560*** (910)	***2490*** (840)

Minima LNAV

The standard LNAV Minima below are determined for ACFT performing an RNP APCH procedure which are able to maintain a climbing slope greater than 2.5% during a missed APCH.

Slope in missed approach	***OCA*** (H) LNAV		
	MA slope 3.0%	MA slope 3.5%	MA slope 4.0%
A	***2920*** (1270)	***2920*** (1270)	***2920*** (1270)
B			
C	***3180*** (1540)	***3020*** (1380)	
D	***3200*** (1550)	***3040*** (1390)	

LQSA RNP RWY11 Y

Proposed tabular description for navigation database coding - RNP APPROACH

Seq N°	PT	W/P ID	Over Fly	Fix role	TD	CRS Val (°)	CRS Type	TIME val	TIME uom	DIST val NM	ALT DESC	ALT ONE FT	ALT TWO FT	SPD LMT KT	VRT ANG (°)	NAV PERF	Phase	Transition Identifier	Runway Direction	Magnetic CRS val(°)
10	IF	TIMID		IAF							+	6500		250		1.000 NM	A	TIMID		
20	TF	KIS	N			249.655	TT			8.278				230		1.000 NM	A	TIMID		244.655
30	TF	RIVUS	N			183.710	TT			5.452	+	5400				1.000 NM	A	TIMID		178.710
10	IF	SA420		IAF							+	7200		240		1.000 NM	A	SA420		
20	TF	RIVUS	N			161.186	TT			5.853	+	5400		230		1.000 NM	A	SA420		156.186
10	IF	RIVUS		IF							+	5400		230		1.000 NM	R		11	
20	TF	SA408	N	FAF		117.091	TT			5.187	@	4300				1.000 NM	R		11	112.091
30	TF	SA410	Y	MAPT		117.247	TT			6.667	@	2036			-3.200	1.000 NM	R		11	112.247
10	DF	SA411	N											185		1.000 NM	Z	TIMID		
20	TF	TIMID	N			332.934	TT			6.500	+	6500		250		1.000 NM	Z	TIMID		327.934

INSTRUMENT APPROACH CHART — ICAO

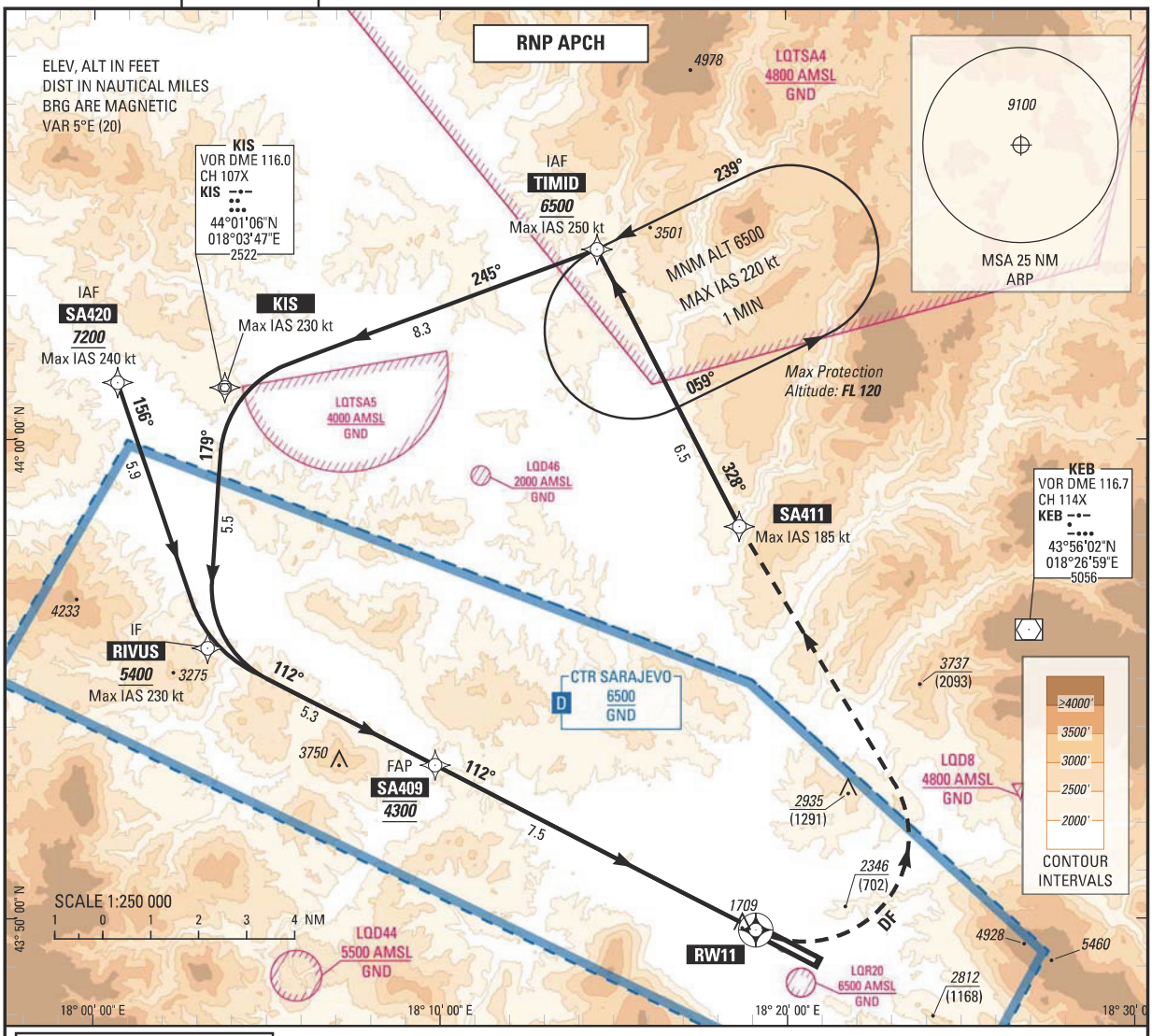
SBAS CH 83280 E11A

AERODROME ELEV 1705 ft
HEIGHTS RELATED TO
DTHR RWY 11 — ELEV 1644 ft

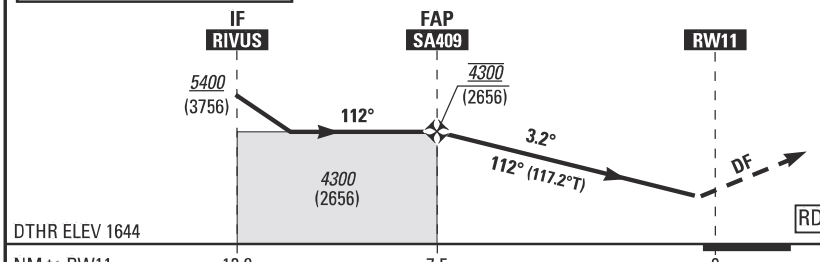
APP 136.450
119.775
TWR 118.250
ATIS 124.125

SARAJEVO / SARAJEVO (LQSA)

RNP Z RWY 11 (LPV only)



TRANSITION ALTITUDE 10000



MISSED APPROACH:
At **RW11** turn **left** direct to **SA411** (Max IAS **185 kt**), then to **TIMID** (Max IAS **250kt**) climbing to ***6500*** (4856).
At **TIMID**, hold or follow ATC instructions.
If unable to reach ***6500*** over **TIMID**, continue to climb in the holding.

	LPV				
	MA 2.5%	MA 3.0%	MA 4.0%	MA 5.0%	Circling (1)
CAT	***OCA*** (H)	***OCA*** (H)	***OCA*** (H)	***OCA*** (H)	***OCA*** (H)
A	***2580*** (940)	***2500*** (850)	***2350*** (710)	***2240*** (590)	***2920*** (1270)
B	***2590*** (950)	***2510*** (860)	***2360*** (720)	***2250*** (610)	***3110*** (1470)
C	***2880*** (1240)	***2730*** (1090)	***2470*** (830)	***2260*** (620)	-
D	***2890*** (1250)	***2740*** (1100)	***2480*** (840)	***2270*** (630)	-

(1) Day time only and not authorized South of the runway 11/29
Not allowed for CAT C/D aircraft

FAP - RW11 (NM)	7.5	Speed	70 Kt	85 Kt	100 Kt	115 Kt	130 Kt	145 Kt	160 Kt	185 Kt
		Time	6 min 27	5 min 18	4 min 31	3 min 55	3 min 28	3 min 07	2 min 49	2 min 26

LQSA RNP RWY11 Z

Proposed tabular description for navigation database coding - RNP APPROACH

Seq N°	PT	WP ID	OverFly	Fix role	TD	CRS Val (°)	CRS Type	TIME val	TIME uom	DIST val NM	ALT DESC	ALT ONE FT	ALT TWO FT	SPD LMT KT	VRT ANG (°)	NAV PERF	Phase	Transition Identifier	Runway Direction	Magnetic CRS val(°)
10	IF	TIMID		IAF							+	6500		250		1.000 NM	A	TIMID		
20	TF	KIS	N			249.655	TT			8.278				230		1.000 NM	A	TIMID		244.655
30	TF	RIVUS	N			183.710	TT			5.452	+	5400				1.000 NM	A	TIMID		178.710
10	IF	SA420		IAF							+	7200		240		1.000 NM	A	SA420		
20	TF	RIVUS	N			161.186	TT			5.853	+	5400		230		1.000 NM	A	SA420		156.186
10	IF	RIVUS		IF							+	5400		230		1.000 NM	R		11	
20	TF	SA409	N	FAF		117.12	TT			5.335	@	4300				1.000 NM	R		11	112.123
30	TF	RW11	Y	MAPT		117.23	TT			7.518	@	1696			-3.200	0.300 NM	R		11	112.229
10	DF	SA411	N											185		1.000 NM	Z	TIMID		
20	TF	TIMID	N			332.934	TT			6.500	+	6500		250		1.000 NM	Z	TIMID		327.934

Input data

Operation Type	0
SBAS Provider	1 (EGNOS)
Airport Identifier	LQSA
Runway	11
Runway Letter	0 (None)
Approach Performance Designator	0
Route Indicator	
Reference Path Data Selector	0
Reference Path Identifier	E11A
LTP/FTP Latitude	434946.3700N
LTP/FTP Longitude	0181905.6000E
LTP/FTP Ellipsoidal Height (metres)	546.7
FPAP Latitude	434909.1400N
Delta FPAP Latitude (seconds)	-37.2300
FPAP Longitude	0182044.9500E
Delta FPAP Longitude (seconds)	99.3500
Threshold Crossing Height	52.0
TCH Units Selector	0 (feet)
Glidepath Angle (degrees)	3.20
Course Width (metres)	105.00
Length Offset (metres)	0
HAL (metres)	40.0
VAL (metres)	35.0

Output data

Data Block	10 01 13 11 0C 0B 00 00 01 31 31 05 04 42 CF 12 00 80 DC 07 5B 29 24 DD FE 2C 08 03 08 02 40 01 64 00 C8 AF 4D 7F 87 7C
Calculated CRC Value	4D7F877C

Required Additional Data

ICAO Code	LQ
LTP/FTP Orthometric Height (metres)	500.9

EUROCONTROL FAS DB tool Version 3.2.1

ADHP ICAO Identifier	W/P ID	W/P ICAO Code	W/P Type	Latitude	Longitude
LQ	BOSNA		ICAO	44°22'14.0000"N	017°45'35.0000"E
LQ	GACMO		ICAO	43°08'34.0000"N	018°33'29.0000"E
LQ	KIS		ICAO	44°01'05.7900"N	018°03'46.7900"E
LQ	KUTAK		ICAO	43°15'01.0000"N	018°32'37.0000"E
LQ	MITNO		ICAO	43°46'24.0000"N	019°14'30.0000"E
LQ	OSLUD		ICAO	43°28'38.0000"N	018°47'14.0000"E
LQ	PODOB		ICAO	43°31'54.0000"N	019°08'40.0000"E
LQ	RIVUS		ICAO	43°55'39.3000"N	018°03'17.5000"E
LQ	RUDAR		ICAO	43°38'55.0000"N	018°29'21.0000"E
LQ	RW11		ADHP	43°49'46.3700"N	018°19'05.6000"E
LQ	SA408		ADHP	43°53'17.3900"N	018°09'40.6110"E
LQ	SA409		ADHP	43°53'13.1650"N	018°09'51.4640"E
LQ	SA410		ADHP	43°50'13.9370"N	018°17'51.9710"E
LQ	SA411		ADHP	43°58'11.7410"N	018°18'38.2660"E
LQ	SA420		ADHP	44°01'11.7490"N	018°00'40.7960"E
LQ	SA422		ADHP	44°03'47.7010"N	017°50'20.1060"E
LQ	SA423		ADHP	43°58'19.5610"N	017°44'59.5300"E
LQ	SA424		ADHP	43°55'22.9050"N	017°42'07.4550"E
LQ	SA425		COORD	43°47'27.5590"N	018°09'58.0010"E
LQ	SA426		ADHP	43°24'55.5340"N	018°31'16.0540"E
LQ	SA610		ADHP	43°46'09.5530"N	018°28'42.9390"E
LQ	SA612		ADHP	43°53'47.1390"N	018°35'19.1760"E
LQ	SA614		ADHP	43°59'43.4500"N	018°25'03.2690"E
LQ	SA616		ADHP	43°50'03.2680"N	017°49'39.5310"E
LQ	SA617		ADHP	43°46'13.5250"N	018°36'59.7470"E
LQ	SA618		ADHP	43°46'18.3570"N	018°49'24.9900"E
LQ	SA619		ADHP	43°41'48.0260"N	018°33'20.5760"E
LQ	SA620		COORD	43°37'11.7960"N	018°29'51.7030"E
LQ	SA621		COORD	43°24'51.3180"N	018°31'25.8290"E
LQ	TIMID		ICAO	44°03'58.9800"N	018°14'32.1400"E
LQ	VEBAR		ICAO	44°08'12.0000"N	019°10'49.0000"E
LQ	VRANA		ICAO	43°45'13.0000"N	017°32'16.0000"E

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