

# ICAO EUR/MID Radio Navigation Symposium

Antalya, Turkiye  
(6-8 February 2024)

Use of Simulator in IFP Validation

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## Why IFP Validation Simulator is needed ?

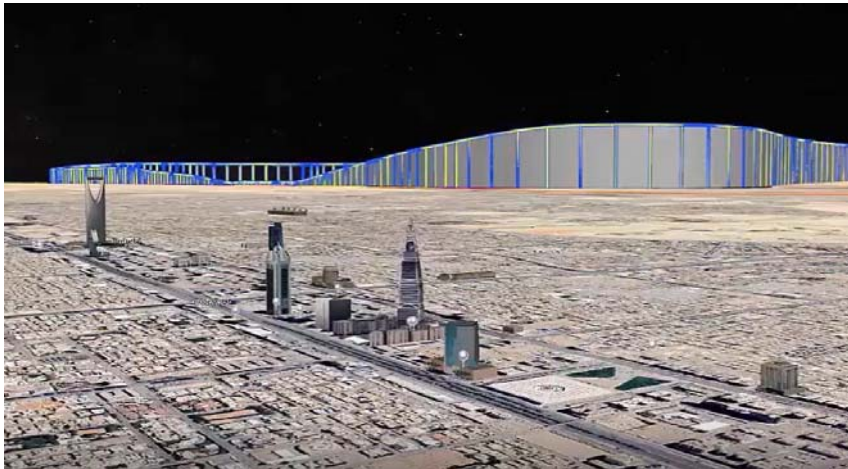
- ❖ For Complex or special procedures where simulator evaluation is desired.
- ❖ For Required navigation performance authorization required (RNP AR) IFP (must always undergo simulator evaluation).



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## Why IFP Validation Simulator is needed ?

- ❖ For Non-Complex or Special Flight Procedures to Reduce the Flight Validation Trails and Number of Flight validation Hours.



## Why IFP Validation Simulator is needed ?

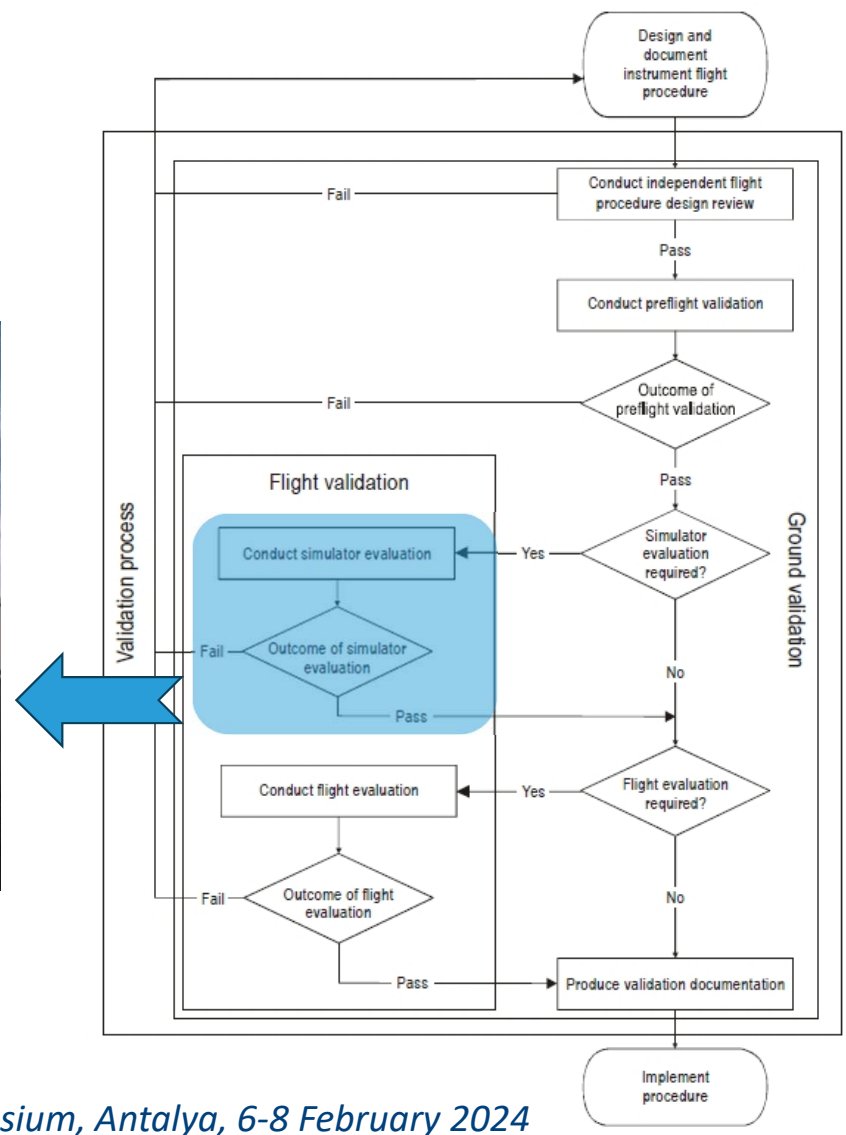
- ❖ For IFP Conceptual Design presentation to involved Stake holders.



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# IFP Validation Process



## General Concept of Simulator Evaluation

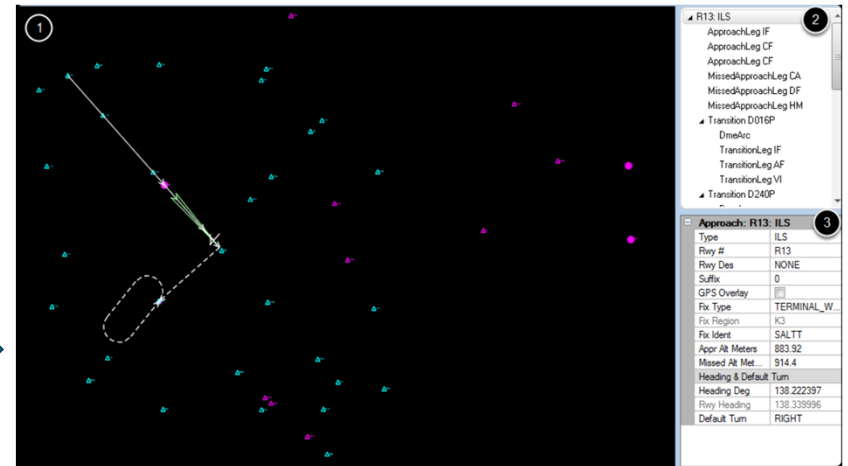
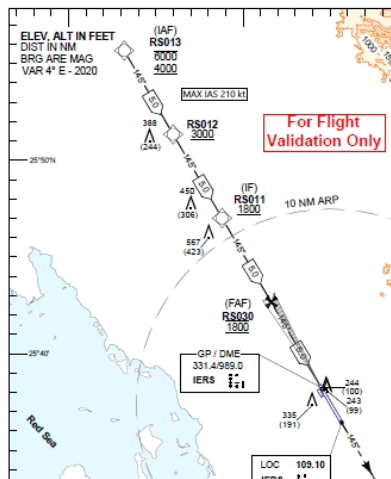
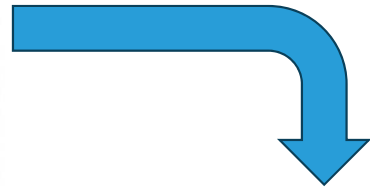


**Simulator evaluation must be accomplished by a qualified and experienced FVP, certified or approved by the State.**

**Provide an initial evaluation of database coding, flyability and Provide feedback to the procedure designers,**

# IFP Navigation Data base Coding

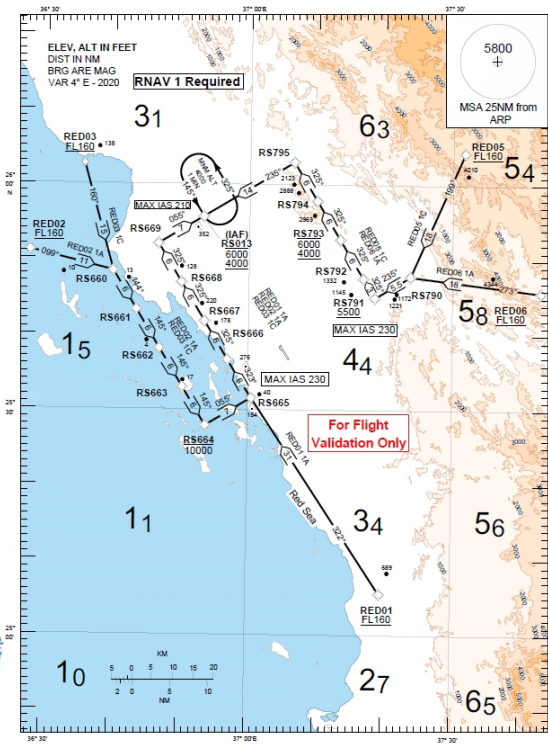
Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course M* (T°)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/TCH	Navigation Specification
010	IF	RS102	-	-	-	-	-	+4000	-210	-	RNP APCH
020	TF	RS101	-	325 (328.9)	-4.2	4.0	-	+2000	-	-	RNP APCH
010	IF	RS101	-	-	-	-	-	+2000	-	-	RNP APCH
020	TF	RS100	-	325 (328.9)	-4.2	5.0	-	@2000	-	-	RNP APCH
030	TF	RW33R	Y	325 (328.9)	-4.2	5.6	-	@214	-	3.0/50	RNP APCH
040	VA	-	-	325 (328.9)	-4.2	-	-	+900	-210	-	RNP APCH
050	DF	RS200	-	-	-4.2	-	R	-	-210	-	RNP APCH
060	TF	RS700	-	088 (092.5)	-4.2	9.4	-	-	-210	-	RNP APCH
070	TF	RS409	-	134 (138.6)	-4.2	9.8	-	@4000	-210	-	RNP APCH
080	TF	RS316	-	188(192.5)	-4.2	14.0	-	@4000	-210	-	RNP APCH
RS409 Holding											
010	HM	RS409	-	134 (138.2)	-4.2	1 min	L	@4000	-210	-	RNP APCH
RS102 Holding											
010	HM	RS102	-	325 (328.9)	-4.2	1 min	L	+4000	-210	-	RNP APCH



# IFP Navigation Data base Coding

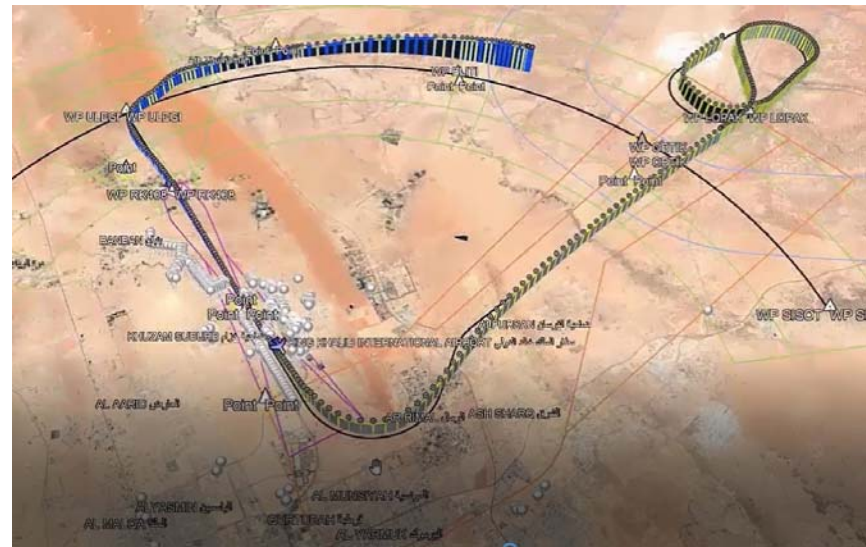
STAR RNAV RWY 11L

Serial number	Path descriptor	Waypoint identifier	Flyover	Course/Track M°(T°)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude	Speed limit	Navigation performance
<b>RED01 1A ARRIVAL</b>										
010	IF	RED01	-	-	-4.2	-	-	+FL150	-	RNAV 1
020	TF	RS665	-	325 (328.7)	-4.2	91.3	-	-	-	RNAV 1
030	TF	RS666	-	325 (327.6)	-4.2	8.0	-	-	-250	RNAV 1
040	TF	RS667	-	325 (328.8)	-4.2	8.0	-	-	-	RNAV 1
050	TF	RS668	-	325 (328.7)	-4.2	8.0	-	-	-	RNAV 1
060	TF	RS669	-	325 (328.7)	-4.2	8.0	-	-	-	RNAV 1
070	TF	RS013	-	056 (058.8)	-4.2	7.0	-	-	+2000 +3000	RNAV 1
<b>RED02 1A ARRIVAL</b>										
010	IF	RED02	-	-	-4.2	-	-	+FL150	-	RNAV 1
020	TF	RS690	-	096 (103.6)	-4.2	11.4	-	-	-	RNAV 1
030	TF	RS691	-	146 (148.7)	-4.2	8.0	-	-	-	RNAV 1
040	TF	RS692	-	146 (148.7)	-4.2	8.0	-	-	-	RNAV 1
050	TF	RS693	-	146 (148.7)	-4.2	8.0	-	-	-	RNAV 1
060	TF	RS694	-	146 (148.8)	-4.2	8.0	-	-	-10000	RNAV 1
070	TF	RS695	-	096 (098.8)	-4.2	7.1	-	-	-	RNAV 1
080	TF	RS696	-	325 (327.6)	-4.2	8.0	-	-	-250	RNAV 1
090	TF	RS697	-	325 (328.8)	-4.2	8.0	-	-	-	RNAV 1
100	TF	RS698	-	325 (328.7)	-4.2	8.0	-	-	-	RNAV 1
110	TF	RS699	-	325 (328.7)	-4.2	8.0	-	-	-	RNAV 1
120	TF	RS013	-	056 (058.8)	-4.2	7.0	-	-	+2000 +3000	RNAV 1
<b>RED03 1C ARRIVAL</b>										
010	IF	RED03	-	-	-	-	-	+FL150	-	RNAV 1
020	TF	RS680	-	180 (184.3)	-4.2	16.8	-	-	-	RNAV 1
030	TF	RS681	-	146 (148.7)	-4.2	8.0	-	-	-	RNAV 1
040	TF	RS682	-	146 (148.7)	-4.2	8.0	-	-	-	RNAV 1
050	TF	RS683	-	146 (148.7)	-4.2	8.0	-	-	-	RNAV 1
060	TF	RS684	-	146 (148.8)	-4.2	8.0	-	-	-10000	RNAV 1
070	TF	RS685	-	056 (058.8)	-4.2	7.1	-	-	-	RNAV 1
080	TF	RS686	-	325 (327.6)	-4.2	8.0	-	-	-	RNAV 1
090	TF	RS687	-	325 (328.8)	-4.2	8.0	-	-	-	RNAV 1
100	TF	RS688	-	325 (328.7)	-4.2	8.0	-	-	-	RNAV 1
110	TF	RS689	-	325 (328.7)	-4.2	8.0	-	-	-	RNAV 1
120	TF	RS013	-	056 (058.8)	-4.2	7.0	-	-	+2000 +3000	RNAV 1
<b>RED05 1C ARRIVAL</b>										
010	IF	RED05	-	-	-4.2	-	-	+FL150	-	RNAV 1
020	TF	RS790	-	199 (202.6)	-4.2	17.9	-	-	-	RNAV 1
030	TF	RS791	-	236 (238.9)	-4.2	5.5	-	-	+5500	RNAV 1
040	TF	RS792	-	325 (328.9)	-4.2	8.0	-	-	-250	RNAV 1
050	TF	RS793	-	325 (328.9)	-4.2	8.0	-	-	-	RNAV 1
060	TF	RS794	-	325 (328.9)	-4.2	8.0	-	-	-	RNAV 1
070	TF	RS795	-	325 (328.9)	-4.2	8.0	-	-	-	RNAV 1
080	TF	RS013	-	236 (238.8)	-4.2	14.0	-	-	+2000 +3000	RNAV 1





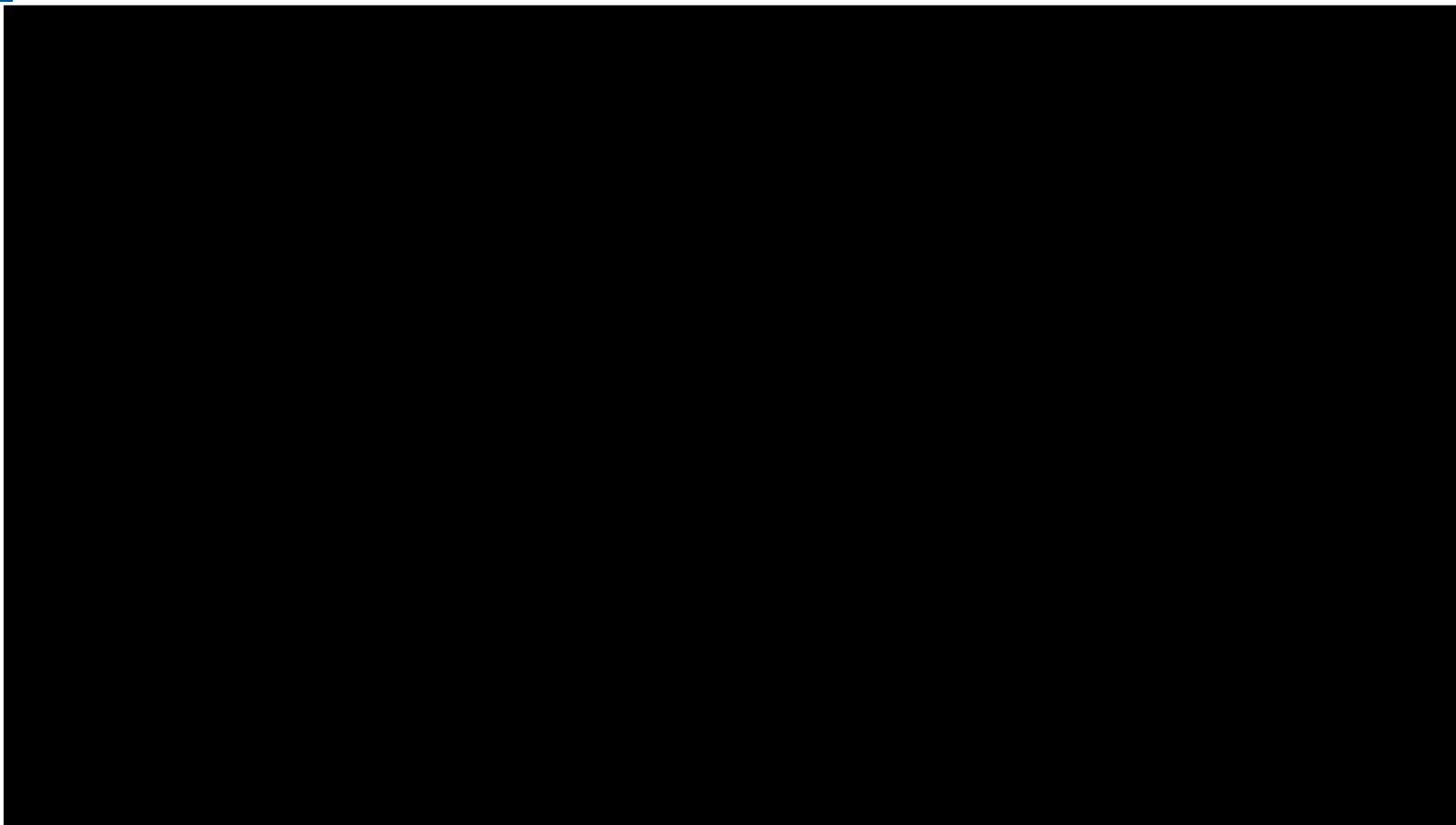
# Simulate, Record, and Report



Item	Satisfactory		Comments
	Yes	No	
e. Evaluate the ability to execute a landing with normal maneuvering	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
f. Evaluate the proposed charting for correctness, clarity and ease of interpretation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
g. Evaluate TAWS warnings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
h. Speed Restrictions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
i. Note the maximum bank angle achieved during any RF segments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>8. Human Factors assessment</b>			
a. Cockpit Workload	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Evaluate the IFP complexity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c. Evaluate the ability to execute a landing with normal maneuvering.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
d. Any unique requirements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Remarks:	<i>No Remarks</i>		

Procedure:  Pass  Fail Evaluator's Signature: *Ziyad Mousafa*







Thank You!