



IR PBN Knowledge Verification Guidance Material

This documents contain a list of possible subjects that may be used by the examiner for the conduct of the IR PBN knowledge verification. The evaluated subjects and results shall be recorded on form 69.800.

Basic PBN knowledge	
1	RNAV purpose
2	Traditional IFR compared to RNAV
3	Differences between RNAV, RNP, PBN
4	RNAV limitations
5	P-RNAV versus RNP1
6	R/T phraseology for RNAV operations
7	Equipment capability according to airspace requirements
8	Finding aircraft certified equipment capability
9	Problems posed by high accuracy navigation
GNSS	
10	Position determination concepts
11	Minimum number of satellite required
12	Different GNSS constellations in operation
13	Almanac download required time
14	Satellite acquisition required time
15	Influence of the satellite constellation geometry
16	Accuracy, integrity, availability, continuity, vulnerability
17	GNSS limitation
18	GNSS system errors
19	Interferences
20	Factors influencing GNSS performance
21	Multipath, masking
22	RAIM function, aim of a RAIM prediction
23	FD versus FDE
24	AUGUR prediction tool
25	Mask angle
26	NANUs, GPS Notams
27	Augmentation systems concept
28	ABAS, SBAS, GBAS
29	GALILEO, WAAS, etc
30	Need of RAIM in SBAS coverage
31	Position verification
32	Total system error (TSE)
33	Alarm limits
Database	
34	AIRAC cycle
35	Navigation data alerts (eg Jeppesen production notices & alerts)
36	Coding concept, reading basic ARINC 429 codes
37	Approach waypoints coding
38	Path terminators
39	Database errors

40	Fly-by/fly-over waypoints purpose and depiction
41	Importance of WGS84 reference
42	Database integrity
43	LOA
44	Verifying database validity
45	Issues with user defined waypoints
Enroute/Arrival	
46	Re-joining a route segment versus proceeding direct to a waypoint
47	Retrieving STAR waypoints from database (eg GG508)
48	SLP
49	Altitude and speed constrains
50	Waypoints below MSA
51	Determining lateral and vertical errors or deviations
52	TRK, DTK, XTK, etc
53	Use of other aircraft equipment to support track monitoring
54	Verifying that a loaded procedure is correct
Approach	
55	Linear versus angular deviation guidance
56	Verifying LOS available
57	Flying to or intercepting the initial or intermediate approach segment
58	Modifying a loaded approach
59	Purpose and limitation of altitude compensation for Baro-VNAV approaches
60	Intercepting the extended final approach path while under radar vectors
61	Intercepting the final past the FAF
62	Guidance geometry of the installed flight guidance system, show were to find the information
63	SBAS LNAV/VNAV versus LNAV/Baro VNAV
64	Purpose of the vertical limits shown during a LNAV/VNAV approach
65	LNAV+V versus LNAV/VNAV
66	Critical checks before starting a RNP approach
67	Change of LOS during approach, consequences and actions
68	Which approaches require SBAS coverage
69	Approaches requiring autopilot usage
70	Verifying that a loaded procedure is correct
71	Activation of the missed approach procedure before the MAPt
72	RNP approach versus GNSS overlay approaches
73	DA versus MDA for a CDFA approach
74	Difference between a APV to LPV minimum and an ILS
75	HSI scaling during approach, scaling monitoring
76	Approach with a glide path versus one with an advisory glide path
Abnormals	
77	System malfunctions, consequences and required actions
78	GNSS signal jamming or spoofing
79	GNSS outage
80	LOI, RAIM not available
81	Navigation precision degradation
82	Loss of navigation information
83	Procedure and RTF phraseology

84	MEL and PBN capabilities
85	Loss of LOS during approach
86	Contingency procedures in case of lateral or vertical mode failure