

Filing for advanced capabilities

using the ICAO flight plan (FPL)

April 6, 2022



**Federal Aviation
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Agenda

1. Relevant flight plan fields

2. Route Assignment

- a) Current AIM instructions
- b) Clarifications

3. Coming Changes

- a) Advanced capabilities
- b) RNP Routes
- c) Filing PBN information in NAV/
- d) Documentation updates

4. Resources



Relevant Flight Plan Fields

Approved OMB No. 2120-0026
Exp. 7/31/2020

International Flight Plan

PRIORITY ADDRESSSEE(S)

FILING TIME ORIGINATOR

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR

3 MESSAGE TYPE 7 AIRCRAFT IDENTIFICATION 8 FLIGHT RULES TYPE OF FLIGHT

9 NUMBER TYPE OF AIRCRAFT WAKE TURBULENCE CAT. 10 EQUIPMENT

13 DEPARTURE AERODROME TIME

15 CRUISING SPEED LEVEL ROUTE

16 DESTINATION AERODROME TOTAL EET ALTN AERODROME 2ND ALTN AERODROME

18 OTHER INFORMATION

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)

19 ENDURANCE PERSONS ON BOARD EMERGENCY RADIO

SURVIVAL EQUIPMENT JACKETS LIGHT FLUORES

DINGHIES NUMBER CAPACITY COVER COLOR

AIRCRAFT COLOR AND MARKINGS

REMARKS

PILOT-IN-COMMAND

FILED BY ACCEPTED BY ADDITIONAL INFORMATION

FAA Form 7233-4 (7/15)

- **Item 10 Equipment and Capability**
 - 10a Navigation, Communications, and Approach Aids
 - 10b Surveillance
- **Item 18 Other Information**
 - PBN/
 - NAV/
 - DAT/
 - SUR/
 - COM/



Route Assignment- Current AIM instructions

TBL 4-13

Filing for Performance Based Navigation (PBN) Routes

Type of Routing	Capability Required	Item 10a	Item 18 PBN/ See NOTE 4	Notes
RNAV SID or STAR (See NOTE 1)	RNAV 1	GR	D2	If GNSS
		DIR	D4	If DME/DME/IRU
Domestic Q-Route (see separate requirements for Gulf of Mexico Q-Routes)	RNAV 2	GR	C2	If GNSS
		DIR	C4	If DME/DME/IRU
T-Route	RNAV 2	GR	C2	GNSS is required for T-Routes
RNAV (GPS) Approach	RNAV Approach, GPS	GR	S1	<i>Domestic arrivals do not need to file PBN approach capabilities to request the approach.</i>
RNAV (GPS) Approach	RNAV Approach, GPS Baro-VNAV	GR	S2	
RNP AR Approach with RF	RNP (Special Authorization Required) RF Leg Capability	GR	T1	
RNP AR Approach without RF	RNP (Special Authorization Required)	GR	T2	



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Route Assignment- Current AIM Instructions

NOTE-

- 1. If the flight is requesting an RNAV SID only (no RNAV STAR) or RNAV STAR only (no RNAV SID) then the flight plan can include the following entries in Item 18 NAV/:*
 - Assign RNAV SID, but no RNAV STAR: NAV/RNVD1E2A0 (optionally, the A0 may be omitted)*
 - Assign RNAV STAR, but no RNAV SID: NAV/RNVD0E2A1 (optionally, the D0 may be omitted)*
- 2. PBN code D1 includes the capabilities of D2, D3, and D4. PBN code B1 includes the capabilities of B2, B3, and B4. PBN code C1 includes the capabilities of C2, C3, and C4.*



Route Assignment- Clarifications

- 1. Due to the limited number of PBN/ entries allowed, be aware that the automation can imply some capabilities**
 - RNAV 2 is assumed if D1, D2, D4, O1, or O2 is filed
 - RNAV 1 is assumed if O1 or O2 is filed
- 2. Reminder- Some PBN/ descriptors do not align with any Op Spec authorizations:**
 - C3, D3, O3 – DME/DME is not adequate for RNAV 2, RNAV 1, RNP 1
 - O4– DME/DME/IRU alone is not adequate for RNP 1



Coming Changes

A. Scheme for filing new advanced capabilities

- Standardization for how to describe capabilities in NAV/, DAT/, SUR/, COM/ that do not have defined descriptors
 - *ICAO has frozen Item 10 and 18 PBN/ for all but critical safety issues, so expect any new items to show up in NAV/, DAT/, SUR/, and COM/*

B. RNP SIDs and STARs

- Including those requiring Radius to Fix (RF) Capability
- e.g. the STAYY SID out of KSNA

C. Change to guidance on using NAV/ to indicate PBN

D. Corresponding documentation changes in AIM, AIP, and JO 7110.10 (Flight Service)



A. New capability descriptors

- **A scheme has been developed to describe capabilities that do not have Item 10 or PBN/ descriptors**
 - Each capability will be represented by a 2-character letter-digit code
 - Codes can be filed as a single string or space separated
- **ANSPs will publish descriptors as needed, trying to avoid:**
 - ANSPs using different descriptors for the same capabilities
 - ANSPs using different syntax rules
 - Length of fields exceeding limits on some service providers automation
- **Work is ongoing in the ICAO ATMRPP to publish the scheme and agreed codes**
 - Work is coordinated between ICAO panels and in working papers



Filing new descriptors in Item 18

- **New advanced capability descriptors, each of the form letter-digit (e.g. Z1) have been defined**
 - These will be introduced as appropriate in NAV/, DAT/, SUR/, and COM/
- **These descriptors should be filed:**
 - Separated from any other required text by a space;
 - Preferably without intervening spaces (but not required);
 - In any order, with respect to the descriptors and other text.
- **Examples:**
 - NAV/GBAS Z1A1M1 or NAV/A1M1Z1 GBAS or NAV/A1 M1 GBAS Z1
 - *Z1, A1, and M1 are advanced capability codes*
 - *Prefer descriptors filed sequentially and without intervening spaces*

**Not
preferred**



New Navigation Capabilities
(to be published in AIM and AIP in 2022)

Capability	Des.	Description
Radius to Fix (RF) capability	Z1	Flight is capable for RNP SIDs, STARs, and Approaches that require RF.
Advanced RNP (A-RNP)	P1	Flight is capable of flying routes that require A-RNP.
Helicopter RNP 0.3	R1	Flight is capable of flying routes requiring RNP 0.3 for helicopters.
RNP 2 Continental	M1	Flight is capable of RNP 2 but lacks high continuity and/or oceanic remote operational authorization.
RNP 2 Oceanic/Remote	M2	Flight is capable of RNP 2 globally, in oceanic and remote continental areas.

Note: We are aware of Australia instruction to file RNP2 in NAV/ for Continental RNP 2 and of similar NATS UK instruction. We are engaged with both to resolve this issue. Note that “RNP2” is ambiguous as an indication, since there are two RNP 2 standards.



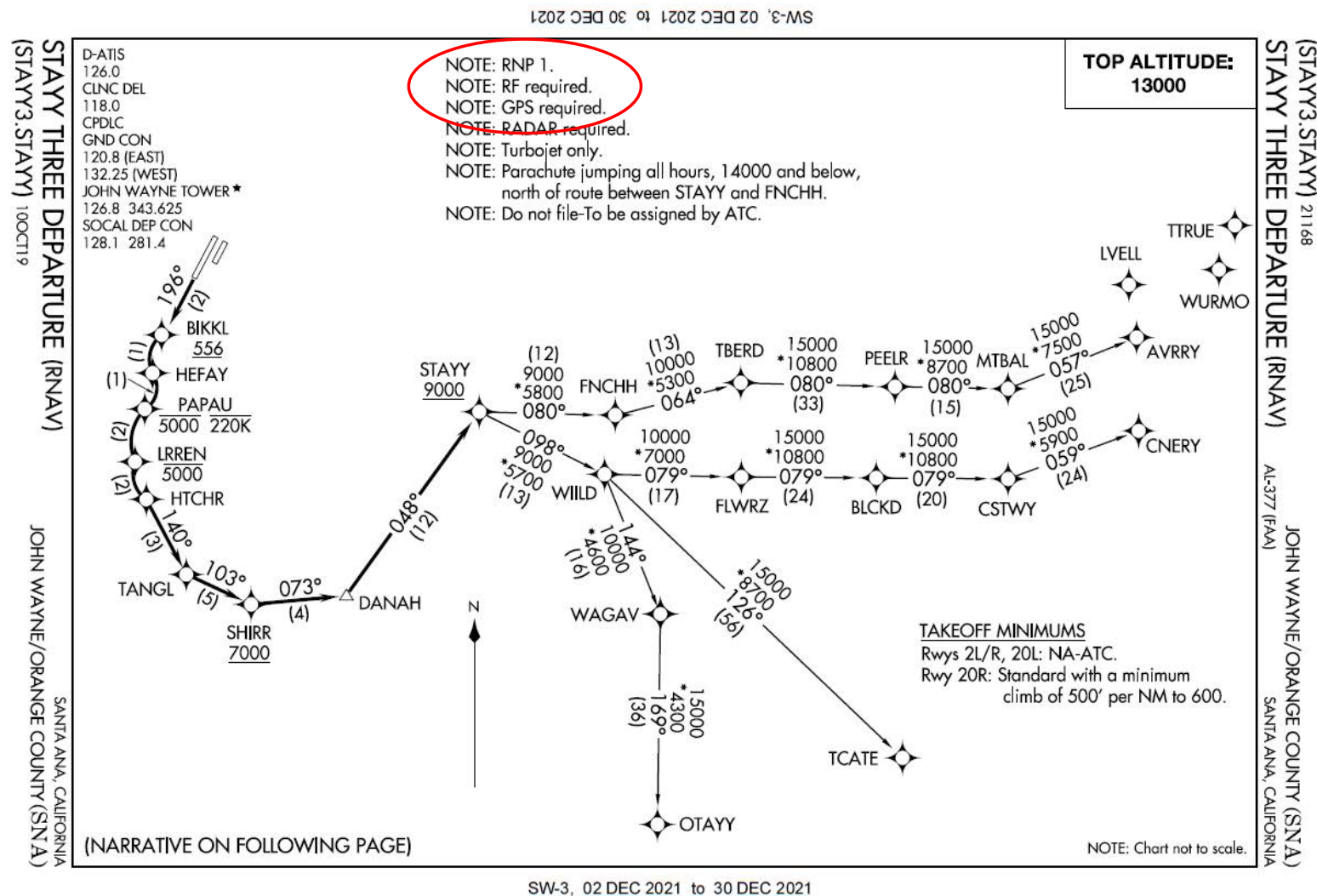
B. RNP SIDs and STARs

- The FAA is implementing RNP 1 SIDs and STARs
- Many will require RF capability. To file properly:
 - R and G must be filed in Item 10a
 - O1 or O2 must be filed in Item 18 PBN/
 - Remember, O3 or O4 alone is not adequate for RNP 1
 - When “RF required” is indicated,
 - Must include Z in item 10a
 - Must include Z1 in NAV/
- Filing Z1 in NAV/ will be necessary for the STAYY SID in 2022- currently expect no earlier than November 2022
 - date will depend on testing, deployment, and key site activities



STAYY SID

Flight plan coding
and EARAM
automation for the
STAYY SID expected
to be available
sometime in
September-
November 2022



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Other capabilities being published

- **RNP 0.3 and A-RNP routes exist. Expect that as routes of these type are made publicly available, filing of these capabilities will be necessary**
- **RNP 2 plans are less clear, and probably a bit farther out**
- **In any case, these codes can be included in a flight plan in advance of any FAA use of them (i.e. will not affect flight plan processing)**



C. Use of NAV/ to convey PBN capability

- **Before the ICAO 2012 flight plan, PBN information could be communicated by phase of flight in Item 18 NAV/**
 - E.g. NAV/RNVD1E2A1
- **After ICAO 2012 flight plan implementation, operators requested to continue using NAV/ to address cases where they could only fly the RNAV departure or the RNAV arrival**
 - FAA automation continues to support this method



Impact of RNP on use of NAV/

- The automation bases route eligibility on PBN/ information, but overrides that with the NAV/ information when provided
- In the existing instructions, “RNV” means RNAV
- Therefore, anyone filing NAV/RNV information will not be seen by the automation as eligible for RNP routing
- **Currently half of all flight plans that include RNP 1 capability are seen by ERAM as only RNAV 1 eligible**
 - Many operators are including NAV/ information when not needed, i.e. filing PBN/ would have been adequate



Impact of RNP on use of NAV/

- For the majority of operators, the solution is to stop including the RNV string in NAV/
 - If the result is that there is no NAV/, DAT/, or COM/ information then also remove the Z from Item 10a

```
(FPL-AHL1120-IS  
-E190/M-SDE3GHIRWZ/LB1  
-KBOS0135  
-N0427F280 SSOXS5 SSOXS DCT BRIGS JIIMS3  
-KPHL0102  
-PBN/A1B1C1D1O1S2T1 NAV/RNVD1E2A1-SUR/260B  
DOF/210908 REG/N1RBA EET/KZDC0036 KZNY0056  
SEL/AHLB CODE/A1111A)
```



For those who still need to suppress PBN routes on one segment

- **The characters “RNV” must be replaced with “RNP”, e.g.**
 - NAV/RNPD1D2A0
- **Contact us for any assistance required**
- **Note that including “A0” or “D0” will suppress all PBN routing (RNP or RNAV) on that segment**
 - There is no way to indicate RNP capability on one segment and RNAV capability on another
- **If you do not need to suppress PBN routes on one segment, please remove the NAV/ information and use only PBN/**



D. Documentation updates

- **Documentation changes to reflect the new capability descriptors and RNP route requirements are underway. This will affect:**
 - AIM
 - AIP
 - Order JO 7110.10
 - Op Spec Guidance Table (informal document)
- **The document changes are drafted and are currently in the normal review process**
 - Depending on the publication cycle, the instructions for the STAYY SID may first appear as a Notice (7110.10) and/or NOTAM (AIM and AIP)



Documentation Updates

- **Add how to file new descriptors in NAV/**
- **Document the descriptors identified in this briefing**
- **Add instruction on filing for RNP routes, including instructions for RF capability when the route calls for it**
- **Removal of instructions to use NAV/RNV to exclude PBN routes on a single segment**
 - Replaced with an instruction to consult the web page and consult with the FAA if this needs to be done
 - The vast majority of users should be using PBN/ only



Resources-



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Mission Support

FAA Flight Planning Information

The purpose of this site is to provide FAA flight plan guidance for both domestic and international filers. Information and documentation contained within this site support existing FAA, ICAO, and Flight Services agreements and procedures.

Should you have filing questions, you can email us at 9-aje-flightplanquestions@faa.gov.

Topics on this page

- [Flight Plan Filing Updates](#)
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- [Domestic Flight Plan Filing](#)
- [How to File Your Flight Plan](#)
- [ICAO Guidance for Service Providers](#)
- [Flight Plan Filing Service Telecons](#)

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- [Contact Information](#)

The shortcut link <https://www.faa.gov/ato?k=fpl> is currently broken, we are working to get it restored. Use the link below.

[https://www.faa.gov/about/office org/headquarters offices/ato/service units/air traffic services/flight plan filing](https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/air_traffic_services/flight_plan_filing)



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Resources

- **Flight Plan Filers Web Site**

- Contains a number of informal guidance documents

https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/air_traffic_services/flight_plan_filing

- **Op Spec Guidance Table**

- This document maps Op Spec authorizations to capabilities and to the correct items to file in Items 10 and 18 (see Flight Plan Filers web site)

- **AIM (recently updated)**

- Contains the basic instructions for each field, and now enhanced guidance regarding CPDLC, PBN routing, and ADS-B

https://www.faa.gov/air_traffic/publications/



Resources

- **Op Spec Guidance Table**

- This document maps Op Spec authorizations to capabilities and to the correct items to file in Items 10 and 18
- It can be found on the flight planning information web site referenced on the previous slide
- Look for this:

8643 with some minor differences — defer to FAA Order 7360 in such a case.

- **Performance Based Navigation, CPDLC, and Other Advanced Capabilities** — Operational approvals (Op Specs\\MSpec\\Part 91 LOA) are required for many advanced capabilities. You can find guidance on required approvals and which codes to file for various capabilities in this [Operational Approval Guidance Table](#) (PDF, 547 KB). If you have any trouble with filing for a capability, consult this file for useful tips.



Op Spec Guidance Table (sample)

Operation, Aircraft Equipage, or Navigation Specification	Parts 121/125/135 (OpSpec)	Part 91 (LOA)	Part 91K (MSPEC)	FPL Item 10a	FPL Item 10b	FPL Item 18	Comments/Related Authorizations	Operational Guidance
<i>R/VSM</i>	B046 & D092	B046	MB046 & D092	W	-	-	Operators of aircraft equipped with ADS-B Out need B046 <u>only</u> for operations outside U.S. controlled airspace.	AC 91-85 and 14 CFR part 91 Appendix G
<i>Surveillance & Required Surveillance Performance (RSP) Capabilities</i>								
<i>ADS-B Out 1090 ES</i>	-	-	-	-	B1 or B2	SUR/260B Include aircraft's six-digit hexadecimal code in CODE/	Compliant with 14 CFR §91.225, §91.227 and AC 120-165	AC 90-114
<i>ADS-B Out UAT</i>	-	-	-	-	U1 or U2	SUR/282B Include aircraft's six-digit hexadecimal code in CODE/	Compliant with 14 CFR §91.227 and AC 20-165	AC 90-114
<i>ADS-B In-Trail Procedure (ITP)</i>	A354	A354	MA354	-	B2			AC 90-114, Appendix A
<i>ADS-C</i>	A056	A056	MA056	-	D1 Note 7	SUR/RSP180 or 400 <i>Note 1</i> Include aircraft's registration in REG/	Note: G1 code is not active. Reserved for future use with ATN/B2.	AC 90-117



Resources

- **Aeronautical Information Manual (AIM)**
 - December 2021 version moves flight plan instructions to Appendix 4
 - In addition to full instructions for each field, additional guidance is provided for CPDLC, PBN routes, ADS-B and reduced oceanic separation.
 - An upcoming change will incorporate the new codes and filing instructions

