

Supporting Statement, Part A

Service Availability Prediction Tool (SAPT) (Automatic Dependent Surveillance – Broadcast (ADS-B) SAPT, Receiver Autonomous Integrity Monitoring (RAIM) SAPT, and ADS-B Deviation Authorization Pre-Flight Tool (ADAPT))

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection.

The Federal Aviation Administration (FAA) developed the web-based tool, Service Availability Prediction Tool (SAPT), to assist aircraft operators in achieving compliance with the requirements of 14 CFR §§ 91.103, 91.225, and 91.227.

The SAPT has three main components: Receiver Autonomous Integrity Monitoring (RAIM) SAPT, Automatic Dependent Surveillance – Broadcast (ADS-B) SAPT, and ADS-B Deviation Authorization Pre-Flight Tool (ADAPT). The SAPT user may require use of one or more of these components depending upon the nature of their request. The SAPT continually collects Global Positioning System (GPS) constellation status (e.g., GPS almanacs) and FAA surveillance status data (e.g., surveillance radars (SSR) and wide area multilateration (WAM)) to assess the accuracy and integrity of GPS, FAA backup surveillance availability, and other data in real time. This information is used to determine navigation or to support air traffic control services in terminal, en route airspace, and in airport surface operations. SAPT models the GPS system and matches it with certain specified GPS avionics performance characteristics to determine if there is sufficient position information predicted throughout the flight to use for navigation or surveillance.

Under 14 CFR § 91.103, pilots and operators must use all available information in planning their flight to ensure that the performance requirements will be met for the duration of the flight. To that end, certain operators must use the FAA-provided preflight SAPT to determine predicted navigation or surveillance availability before a flight (and its ability to meet the performance requirements of § 91.227).

GPS Receiver Performance Requirements

After January 1, 2020, when operating in the airspace designated in 14 CFR § 91.225, operators must be equipped with ADS-B Out avionics that meet the performance requirements of 14 CFR § 91.227. 75 FR 30193 (May 28, 2010). The FAA adopted a provision in 14 CFR § 91.225(g) that allows operators to request authorization from ATC to operate in ADS-B Out airspace with aircraft that deviate from the ADS-B Out requirements in a limited set of circumstance.¹ These requests will be processed using ADAPT during which SAPT will be used.² The collection of data is required in order for FAA to handle requests

¹ After January 1, 2020, unless otherwise authorized by Air Traffic Control (ATC), all aircraft operating in the airspace identified in 14 CFR § 91.225 must comply with the ADS-B Out equipage and performance requirements specified in 14 CFR §§ 91.225 and 91.227. These requirements apply to all aircraft operating in ADS-B airspace including foreign registered aircraft.

² On April 1, 2019, the FAA published guidelines for how ATC will manage 14 CFR § 91.225 paragraph (g)(2) and issue authorizations to operators of aircraft that have not installed ADS-B Out equipment but wish to fly in ADS-B Out airspace. See 84 FR 12062.

for authorization from operators of aircraft that deviate from the requirements specified in 14 CFR § 91.225.

Section 91.227 specifies ADS-B equipment performance requirements. The ADS-B Out rule does not dictate using a specific type of GPS receiver, but the achieved performance depends on the type of GPS receiver that is used as the ADS-B position source.

Four different variants of GPS receivers currently in use by operators satisfy the ADS-B Out performance requirements, to varying degrees:

- GPS receivers that comply with FAA Technical Standard Order (TSO)-C129 can meet the performance requirements at least 95% of the time but experience brief outages of performance daily. (This is known as SA-On GPS receivers.)
- GPS receivers that comply with the performance requirements of TSO-C196 can meet the ADS-B Out performance requirements with the current constellation of GPS satellites, but will not meet 14 CFR § 91.227 requirements when enough GPS satellites are out of service. (This is known as SA-Aware GPS receivers.)
- Satellite Based Augmentation System (SBAS) receivers, also known as Wide Area Augmentation System (WAAS) receivers, should meet 14 CFR § 91.227 performance requirements under all expected GPS satellite constellation configurations which meet the minimum commitment of the US government.
- Aircraft Based Augmentation Systems (ABAS) sensors which tightly integrate GPS measurements with inertial reference/navigation sensor data will meet 14 CFR § 91.227 performance with 99.9 percent availability under most GPS constellation conditions.

Some of these position sources are capable of meeting the ADS-B performance requirements 99.9% of the time but may not meet the ADS-B rule performance all the time. Therefore, the FAA has agreed to allow certain aircraft operators to fly in ADS-B Out airspace when they do not meet ADS-B rule performance requirements and the FAA determines that there is acceptable back-up surveillance for the specific operation using the SAPT tool.

Operators needing to perform preflight availability prediction, needing to assess the availability of backup surveillance along their planned route of flight, or without functioning ADS-B equipment seeking an ATC authorization under 14 CFR § 91.225(g), can access a FAA-developed Internet-accessible application, SAPT, which consists of three main components.

- **RAIM SAPT:** The Receiver Autonomous Integrity Monitoring (RAIM) SAPT is intended mainly for pilots, dispatchers, and commercial operators using TSO-C129 equipment to check their predicted navigation performance (i.e. horizontal protection level (HPL)) for a given flight;
- **ADS-B SAPT:** The ADS-B SAPT computes Navigation Integrity Category (NIC) and Navigation Accuracy Category for Position (NACp) and compares the results to the required values for each point within the indicated flight plan. ADS-B SAPT predicts the ability of an aircraft's GPS receiver to meet 14 CFR § 91.227 performance requirements along a given route of flight and time based on the predicted status of the GPS constellation and a standard model of the aircraft's GPS receiver; and,

- **ADAPT:** The ADS-B Deviation Authorization Preflight Tool (ADAPT) allows operators to file a request for an ATC authorization to operate on the proposed route of flight at the specified time without ADS-B surveillance, when either (1) the aircraft is without ADS-B equipment; (2) that equipment is inoperative; or (3) their avionics are not expected to meet the performance required by 14 CFR § 91.227.

These pre-flight tools (RAIM SAPT, ADS-B SAPT, and ADAPT), although accessible to others, are primarily intended for pilots, dispatchers and commercial operators to use to verify their predicted position quality for navigation (RAIM SAPT) and surveillance (ADS-B SAPT), or to submit an ADAPT authorization request.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.

The prediction tools, RAIM SAPT and ADS-B SAPT, collect information on a website with two interfaces: (1) graphical/text entry; and (2) extensible markup language (XML), which permits an automated connection. ADAPT requests must be entered manually. All services are free and available on the Internet at all time³.

These pre-flight tools, RAIM SAPT, ADS-B SAPT, and ADAPT, are primarily intended for pilots, dispatchers and commercial operators to verify aircraft GPS predicted position quality for navigation (RAIM SAPT) and surveillance (ADS-B SAPT), or to submit an ATC authorization request (ADAPT).

It is anticipated that pilots, dispatchers, commercial operators, members of the general aviation (GA) community will routinely use SAPT's main tools; i.e. RAIM SAPT, ADS-B SAPT, and ADAPT. RAIM SAPT is used by operators planning a flight which uses an FAA Area Navigation/Required Navigation Performance (RNAV/RNP) procedure. ADS-B SAPT and ADAPT are used by any operator planning to fly within the U.S. domestic airspace and where ADS-B Out is required. Any operator with aircraft that is not equipped with functional and rule-compliant ADS-B Out equipment, per 14 CFR § 91.225(g), must use ADS-B SAPT and ADAPT.

RAIM SAPT is voluntary as a means for operators to check their predicted Horizontal Protection Limit (HPL) using an interactive map representation of proposed route. RAIM SAPT users do not need to enter any operator information. The RAIM SAPT constructs the GPS constellation from a given almanac; it provides users with GPS availability predictions along the desired route of flight and compares the results to the user-supplied Horizontal Alert Limit (HAL). This situational awareness allows users to plan flights with a TSO-C129 GPS receiver as the primary navigational aid supporting Area Navigation (RNAV) operations. The intent is for operators to assess the ability of their operator's GPS receiver to meet the FAA's Required Navigation Performance (RNP)/RNAV requirements in the en route and terminal environments. If the predicted navigation integrity does not meet the requested integrity for a five-minute period anywhere along the requested route, a "No Go" indication is returned. Conversely, if predicted navigation integrity levels meet or exceed these operational limits, a "Go" indication is returned.

³ Except in the rare case of SAPT and ADAPT outages.

The availability of Wide Area Augmentation System (WAAS) under TSO-C145c/C146c is not provided by the SAPT; however, predictions for TSO-C145c/C146c will be available both within WAAS and outside WAAS coverage. The ADS-B SAPT provides users with information on the availability of backup surveillance sources (Wide Area Multilateration (WAM) and/or Secondary Surveillance Radar (SSR)) when ADS-B performance is predicted to be below 14 CFR § 91.227 requirements along a specified route of flight

ADS-B SAPT is required for operators with aircraft that do not meet the ADS-B Out requirements in order to assist them when operating in ADS-B Out airspace. User-entered information, via ADS-B SAPT, is comparable to that provided in flight plans, with the addition of some information about the TSO and related capabilities of the position source. Operators using ADS-B SAPT flight plan form must enter aircraft callsigns. No other personal identification information details about the operator are collected.

The ADS-B SAPT predicts an aircraft's ability to meet 14 CFR § 91.227 performance requirements along a given route of flight. A prediction is based on the aircraft GPS receiver's ability to meet performance requirements specified in TSOs-C129, C145c/C146c, and C196, as well as the predicted status of the GPS constellation.

ADAPT is mandatory for operators desiring to fly in ADS-B Out rule airspace that do not meet the ADS-B equipage requirements necessary for an ATC authorization per 14 CFR § 91.225(g). Operators must enter their personal contact information so FAA ATC can reply with either an approval, rejection, or pending decision.

Per 14 CFR § 91.225(g), an aircraft operator that does not meet the ADS-B equipage or performance requirements must obtain a preflight authorization from ATC at least one hour before the proposed flight in ADS-B Out airspace. ADAPT allows an operator to create a request to operate in ADS-B Out airspace with aircraft that will not meet the ADS-B Out requirements. An operator may submit an ADAPT authorization request after an ADS-B SAPT prediction has been done along a given route of flight and time. After receiving an operator request, ADAPT will issue an automated approval, denial, or pending response to the operator consistent with FAA policies and the aircraft's level of ADS-B equipage or performance.

An operator will interact with ADS-B SAPT and ADAPT through a web-based application and enter aircraft information, flight data (including route), and personal data. Authorized FAA personnel will access RAIM SAPT, ADS-B SAPT, and ADAPT through a web-based application to support the management of the services and adjudicate pending ATC authorization requests. Authorized FAA personnel will be able to ascertain whether an ADS-B SAPT prediction was run or whether an ADAPT request was approved for a given operation.

Pilots, dispatchers, commercial operators, members of the general aviation (GA) community will interact with the SAPT website on an as-needed basis. Based on operational requirements, each will use various components of the SAPT website in conjunction with flight planning for aircraft with older avionics that require a GPS performance prediction, or access to ADS-B rule airspace and does not meet ADS-B performance requirements. Collections are not periodic; rather, aircraft owners or operators will interact with ADS-B SAPT and ADAPT through a web-based application on an as-needed basis.

RAIM SAPT website offers a Grid Display Tool and Summary Displays which can be used to graphically view RAIM outage predictions for specific equipment configurations. It also supports an XML-based web service for automated checking of RAIM compliance (relative to the AC 90-100A rule) by flight planning software. The following information is required:

- 1) Aircraft Identification (as filed on the Flight Plan; optional)
- 2) Route of Flight, including:
 - a) Waypoint Name (optional)
 - b) Lat/Long
 - c) Estimated time over (ETO)
 - d) Requested Horizontal Alert Limit (HAL) (optional; default=555.6(NPA))
- 3) Request Identifier (user-defined ID string; optional)
- 4) Mask Angle (optional; default 5.0)
- 5) Baro Aiding (true/false; optional; default=false)

ADS-B SAPT predictions may be made using XML or using the SAPT "Flight Information Entry" form, which has been modeled after a standard FAA Flight Plan form for ease of use. All the active fields of the "Flight Information Entry" form require an operator to enter relevant data. Operators may save and load active field information as well as cut and paste from an International Civil Aviation Organization (ICAO) Flight Plan. The following information is required:

- 1) Aircraft Identification (or "Call Sign")
- 2) Aircraft Type
- 3) ADS-B Position Source TSO (or unequipped)
- 4) ADS-B link TSO (or unequipped)
- 5) Proposed Departure Time (UTC)
- 6) Planned Altitude
- 7) Departure Airport
- 8) Destination Airport
- 9) Route of Flight

If the operator desires to fly an aircraft that is not equipped with functional ADS-B avionics or that is predicted to not meet the required position performance, the operator may request an authorization from ATC to deviate from the equipage or performance requirements of 14 CFR §§ 91.225 or 91.227, under certain circumstances. To relieve the potential burden on ATC facilities, the FAA developed the ADAPT to manage aircraft operator requests for an ATC authorization. In addition to the information required for ADS-B SAPT, the following information is required for ADAPT:

- 1) Pilot in Command (PIC)

- 2) PIC Telephone Number
- 3) PIC Email Address
- 4) U.S. Civil Aircraft Registry Number or ICAO Address (hex, octal or decimal)
- 5) ADS-B Equipment Status (unequipped, inoperative, insufficient)
- 6) Working Transponder with Altitude Reporting? Yes/No
- 7) Affected en route ATC facilities
- 8) Flight Classification: Part 91, 121, 129, or 135
- 9) Reason for Request
- 10) Certification of Truthfulness

The SAPT or ADAPT “Flight Information Entry” form (the form is the same and either can be selected) is used by the aircraft operator to enter the specific flight details. SAPT will analyze the flight, and if the aircraft is not predicted to the position accuracy requirements of 14 CFR § 91.227, the operator may submit a request to the FAA for an ATC authorization using ADAPT. An aircraft operator that does not meet the ADS-B equipage requirements will automatically fail the ADS-B performance requirements, but the operator is still required to first use ADS-B SAPT, because the SAPT analysis provides alternate surveillance information that is necessary for evaluating an ATC authorization request.

No questions about race or ethnicity are asked within these applications. There is no intention to disseminate the information from these applications publicly, though there may be reports of aggregated data and maintained within the FAA. The collection has both disclosure and recordkeeping applications.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

The prediction tools (RAIM SAPT and ADS-B SAPT) and authorization tool ADAPT all reside on an Internet-accessible FAA managed website. ADS-B SAPT has two interfaces (a webpage form and an automated interface accepting XML). RAIM SAPT uses an XML interface and ADAPT uses a web form. All services are free and available over the Internet. All submissions must be electronic.

Although accessible to others, the prediction tools are primarily intended for pilots, dispatchers and commercial operators to verify their predicted position quality for navigation and surveillance availability before flight. ADAPT is intended for pilots or dispatchers to create an ATC authorization request to operate in ADS-B Out airspace, per 14 CFR § 91.225(g).

Automated users, i.e., individuals who subscribe to the Web Service Description Language (WSDL) and use XML to interface with the ADS-B prediction tools, are responsible for developing and implementing their own automated internet based interface into the ADS-B prediction tool. .

The ADS-B SAPT will not be integrated with FAA Flight Service Stations but is available via the Internet. The use of ADS-B SAPT may constitute an additional step in the pre-flight routine. The blank flight plan

forms cannot be printed to be filled in with a pen and submitted via mail. However, the completed forms with the results can be printed to be kept with flight planning documents. In addition, ADAPT users will receive an email response which they can print.

In recognition of the fact that users may wish to submit many similar ADS-B predictions, either for scheduled flights from one day to the next, or to make changes to the route, altitude and departure time while optimizing the route for a flight, the ADS-B SAPT flight plan form allows resubmission and supports multiple save/load options. The form contents can be saved to the browser, as a text file or as a shareable link/Uniform Resource Locator (URL). It would be possible for an operator to set up their entire weekly scheduled operation as a set of daily browser windows with a tab for each flight/route.

An ADAPT request can be initiated after an operator has run a flight prediction utilizing the ADS-B SAPT for the intended route of flight and time. Only one ADAPT request can be created and submitted per ADS-B SAPT flight plan form. ADAPT requests can be made without using ADS-B SAPT.

After an operator receives a satisfactory preflight availability prediction for an intended operation, there may be certain conditions that warrant a subsequent prediction. There is no requirement to continuously monitor Notices to Airmen (NOTAMs); rather, the requirement to execute an updated SAPT is triggered only if the operator becomes aware of the condition. A change in the GPS satellite constellation, as indicated by a NOTAM, may have an effect on the predicted GPS performance for the intended operation. If an operator becomes aware of a change that could result in degraded GPS performance for the intended route prior to receiving an initial ATC clearance, the operator should conduct a subsequent preflight availability prediction consistent with 14 CFR § 91.103. The duty to conduct a subsequent preflight availability prediction for an intended route of flight ceases once an operator receives an ATC route clearance for the intended operation..

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.

There is no similar FAA application/program.

5. If the collection of information involves small businesses or other small entities, describe the methods used to minimize burden.

Most smaller operators will use the RAIM SAPT-provided map of predicted outages in lieu of a specific transaction, checking that the map is green at the time and location of their flight and printing it. No information is collected in that case.

A small business or individual general aviation operator that does not go through a flight service provider with an automated interface may need to submit individual ADS-B prediction requests. Every effort has been made to make those requests easily repeatable. The completed ADS-B SAPT flight plan form can be saved to the browser as a file or as a link/URL. The ADS-B SAPT flight plan form does not accept a date input and assumes the flight will take place within the next 24 hours. This means that a small business operator could put its daily routine flights in one time and click "Check availability" every day, and the departure date would be updated automatically.

Knowing small business and individual general aviation operators were familiar with an online resource, the SAPT, the FAA developed an automation capability to manage ATC authorization requests to deviate from the ADS-B Out rule. This resulted in the internet based ADAPT, which works through most popular mobile browsers, to automatically approve deviation requests within authorized parameters. ADAPT flight plan form, also looks like the SAPT flight plan form and old-style FAA flight plan form, is used to enter information about an operator's planned flight and some additional aircraft details and aircraft operator information. The ADAPT webpage will tell the operator whether the ATC authorization has been approved, pending – meaning, held for further review – or denied. Email information provided by the operator will be used to confirm approval.

6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

The FAA has a responsibility for the safe and efficient movement of air traffic, including the routing of traffic to meet those objectives.

Without the information collection, certain operators would be unable to use the FAA-provided preflight SAPT to determine predicted navigation or surveillance availability before a flight (and its ability to meet the performance requirements of § 91.227). The consequence would be to affect the efficiency of the National Airspace System (NAS).

Consistent with the FAA responsibilities within the NAS, the collection of data is required for the FAA to handle authorization requests from aircraft operators that deviate from the requirements specified in 14 CFR § 91.225.

ADAPT provides operators/owners relief from this requirement and ensures safe and efficient operations within the national airspace.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner that; require respondents to report information quarterly; require respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it; require respondents to submit more than an original and two copies of any document; require respondents to retain records; require a physical document; be connected with a statistical survey, that is not designed to produce valid and reliable results that can be generalized to the universe of study; require the use of a statistical data classification that has not been reviewed and approved by OMB; that includes a pledge of confidentiality that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or requiring respondents to submit proprietary trade secrets, or other confidential information unless the agency can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.

FAA's-provided preflight Service Availability Prediction Tool (SAPT) collect or use information under any of the eight aforementioned special circumstances

The user runs a prediction or makes a request for each flight, depending on an operator's avionics equipage, either via a web page or through an XML interface.

Predictions should be conducted within 24 hours of departure and as close to departure time as feasible, but with sufficient time to re-plan the flight in the event a segment along the planned route is predicted to have insufficient GPS performance availability. For ADS-B prediction, the time-window at each waypoint is only 10 minutes, so the user may resubmit the transaction with different departure times to expand the window.

Operators conducting operations under FAA Exemption 12555 and equipped with TSO-C129 Selective Availability (SA)-On receivers may operate where ADS-B Out is required with performance less than that specified in 14 CFR § 91.227 when the FAA determines that back-up surveillance is available. In these instances, operators must use the ADS-B SAPT. The applicable ADS-B SAPT run should be completed no more than three (3) hours before the planned departure time. If ATC in the departure jurisdiction requires flight plan submission earlier than three (3) hours prior to flight, the ADS-B SAPT for back-up surveillance should be run just prior to flight plan submission. Under Exemption 12555, operators may use their own tool for pre-flight prediction and use ADS-B SAPT only to determine the availability of back-up surveillance when needed.

ATC authorizations per 14 CFR § 91.225(g) must be requested and obtained prior to flight. The request must be made at least one hour prior to the flight.

An ATC authorization per 14 CFR 91.225(g) must be requested and obtained prior to flight. The request for an ATC authorization, using ADAPT, must be made at least one hour prior to the flight.

No physical documents are required. An operator may submit multiple routes of flight or departure times per planned flight.

8. Provide information on the PRA Federal Register Notice that solicited public comments on the information collection prior to this submission. Summarize the public comments received in response to that notice and describe the actions taken by the agency in response to those comments. Describe the efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

The FAA published a Federal Register Notice on SAPT on August 22, 2019. 84 FR 43861. The FAA received one response within the comment period. The commenter expressed concern regarding the requirement to conduct subsequent predictions using SAPT when there are changes in satellite constellation. The commenter is concerned that an ongoing duty to execute an updated SAPT would be economically burdensome and disruptive to operations. The commenter recommended that a change to the satellite constellation not trigger an updated SAPT prediction after a flight plan has been filed with ATC.

After an operator receives a satisfactory preflight availability prediction for an intended operation, there may be certain conditions that warrant a subsequent prediction. There is no requirement to continuously monitor Notices to Airmen (NOTAMS); rather, the requirement to execute an updated

SAPT is triggered only if the operator becomes aware of the condition. A change in the GPS satellite constellation, as indicated by a NOTAM, may affect the predicted GPS performance for the intended operation. If an operator becomes aware of a change that could result in degraded GPS performance for the intended route prior to receiving an initial ATC clearance, the operator should conduct a subsequent preflight availability prediction consistent with 14 CFR § 91.103. The duty to conduct a subsequent preflight availability prediction for an intended route of flight ceases once an operator receives an ATC route clearance for the intended operation.

9. Explain any decisions to provide payments or gifts to respondents, other than remuneration of contractors or grantees.

None.

10. Describe any assurance of confidentiality provided to respondents and the basis for assurance in statute, regulation, or agency policy.

The SAPT (RAIM SAPT, ADS-B SAPT and ADAPT) offer no assurance of confidentiality.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.

No such questions are asked.

12. Provide estimates of the hour burden of the collection of information.

Pilots, dispatchers, commercial operators, members of the general aviation (GA) community will interact with the SAPT website and based on operational requirements, use various components of the SAPT website in conjunction with flight planning, for each planned flight in an aircraft with older avionics that requires a GPS performance prediction or access to ADS-B rule airspace and does not meet ADS-B performance requirements.

Aircraft owners or operators will interact with ADS-B SAPT and ADAPT through a web-based application on an as-needed basis.

- RAIM SAPT focuses on TSO C-129 operators. It is estimated that there will be approximately 6144 Selective Availability - ON (SA-On) or unknown equipped aircraft on January 1, 2020. Of which, approximately 90% are associated with the Regularly Scheduled Air Carriers (Part 121) and Foreign Air Carriers (Part 129) operators who would have their own internal system to check GPS coverage; leaving 10% of the Part 121/129 operators using RAIM SAPT for approximately 615 aircraft.

$$0 \quad 615 \text{ users} * 0.05 \text{ hours} * 365 \text{ days} = 11,224 \text{ hours}$$

RAIM SAPT Summary (Annual numbers)	Reporting	Recordkeeping	Disclosure
# of Respondents	615	0	0

RAIM SAPT Summary (Annual numbers)	Reporting	Recordkeeping	Disclosure
# of Responses per respondent	365	0	0
Time per Response	3 minutes	0	0
Total # of responses	224,475	0	0
Total burden (hours)	11,224	0	0

- ADS-B SAPT focuses on TSO C-129, Selective Availability - ON (SA-On) or unknown for Regularly Scheduled Air Carriers (Part 121) and Foreign Air Carriers (Part 129) operators, and General Aviation (GA) non-equipped operators. It is estimated that there will be approximately 6144 SA-On or unknown equipped aircraft on January 1, 2020. (Note: Historically the GPS system probability of not providing GPS coverage for a given flight path is less than 3%.) Based on current equipage reports, the FAA estimates that there will be 81,529 General Aviation operators non-equipped on January 1, 2020. It is estimated that most Part 121/129 operators operate daily; leaving 365 days as the frequency. It is estimated that General Aviation operators may seek ADS-B accommodation up to 5 times a year.
 - o Estimate of up to 3 minutes per manual ADS-B SAPT interface review;
 - o For Part 121/129 operators, 6144 aircraft X 10.95 days X 0.05 hours = 3,364 hours;
 - o For General Aviation operators, 81,529 aircraft X 2.5 times a year (assuming not General Aviation operators will be flying within ADS-B Out Rule Airspace and each General Aviation operator will have different operational requirements X 0.05 hours = 10,191hours; and
 - o Total ADS-B SAPT burden for Part 121/129 operator = 3,364 hours
 - o Total ADS-B SAPT burden for General Aviation Operators = 10,191 hours

ADS-B SAPT Summary (Annual numbers)	Reporting	Recordkeeping	Disclosure
# of Part 121/129 Respondents	6,144	0	0
# of Part 121/129 Responses per Respondent	10.95	0	0
# of General Aviation Respondents	81,529	0	0
# of General Aviation Responses per respondent	2.5	0	0
Time per Response	3 min	0	0
Total # of responses by Part 121/129 Respondents	67,277	0	0
Total # of responses by General Aviation Respondents	203,823	0	0

ADS-B SAPT Summary (Annual numbers)	Reporting	Recordkeeping	Disclosure
Total burden (hours) by Part 121/129 Respondents	3,364	0	0
Total burden (hours) by General Aviation Respondents	10,191		

- ADAPT focuses on aircraft owners/operators with inoperative ADS-B transponders and aircraft owners/operators not equipped with ADS-B transponders. FAA expects ADAPT will be used primarily by General Aviation and some limited international operators. It is estimated that there will be approximately non-equipped 81,529 General Aviation operators on January 1, 2020.
 - o 7 minutes per ADAPT deviation authorization request; and
 - o For General Aviation operators, 81,529 aircraft * 2.5 times a year * 0.117 hours = 23,847 hours

The FAA has identified five categories of users of the system and apply for a deviation authorization; only fly once; fly twice; fly three times; fly four times and those that fly 5 times a year. The FAA anticipates that a portion of the unequipped population will never request a deviation. Additionally, the FAA has established an even distribution of the user population across all six categories – $81,529 / 6 = 13,588$

Category	Respondents	Frequency	Total
Never Fly	13,588	0	13,588
Fly Once	13,588	1	13,588
Fly Twice	13,588	2	27,176
Fly Three Times	13,588	3	40,764
Fly Four Times	13,588	4	54,352
Fly Five Times	13,588	5	67,940
Total	81,529	15	203,822

Average number of responses per respondent = Total Frequency / Category ($15 \div 6 = 2.5$)

Total burden = Responses * Time Per Response ($203,822 * 0.12 = 23,799$)

Summary (Annual numbers)	Reporting	Recordkeeping	Disclosure
# of Respondents	81,529	0	0
# of Responses per respondent	2.5	0	0

Summary (Annual numbers)	Reporting	Recordkeeping	Disclosure
Time per Response	7 min (0.1166/hr)	0	0
Total # of responses	203,822	0	0
Total burden (hours)	23,799	0	0

RAIM SAPT

Assuming the labor category for airline dispatchers for Part 121 and Part 129 operators utilizing RAIM SAPT with a total compensation (100%) labor hour cost, i.e. fully burdened of \$39.66 per hour⁴ the burden for SAPT users is:

- $.05/\text{hour} \times \$39.66/\text{hr.} = \1.98

The annual cost burden of approximately 615 SAPT Users at an average of 365 responses per respondent is:

- $\$1.98/\text{respondent} \times 615 \text{ SAPT Users} \times 365 \text{ responses per respondent} = \$444,460 \text{ per annum.}$

ADS-B SAPT

Assuming the labor category for airline dispatchers for Part 121 and Part 129 operators utilizing ADS-B SAPT with a total compensation (100%) labor hour cost, i.e. fully burdened of \$39.66 per hour (Table 4. Employer Costs for Employee Compensation for private industry workers by occupational and industry group, News Release, Bureau of Labor Statistics, U.S. Department of Labor, USDL-19-1649 (<https://www.bls.gov/news.release/pdf/ecec.pdf>) the burden for ADS-B SAPT users is:

- $.05/\text{hour} \times \$39.66/\text{hr.} = \1.98

The annual cost burden of approximately 6144 aircraft (linked to each airline dispatchers/respondents) at an average of 10.95 responses per respondent is:

- $\$1.98/\text{respondent} \times 6144 \text{ ADS-B Users} \times 10.95 \text{ responses per respondent} = \$133,208.06 \text{ per annum.}$

Assuming the labor category for General and Business Aviation pilots to be Management, Professional, and Related with a total compensation (100%) labor hour cost, i.e., fully burdened of \$60.48 per hour (Table 2. Employer Costs for Employee Compensation for civilian workers by occupational and industry group, News Release, Bureau of Labor Statistics, U.S. Department of Labor, USDL-19-1649 (<https://www.bls.gov/news.release/pdf/ecec.pdf>) the burden for each aircraft owner to apply for a Privacy ICAO Address is:

- $0.05/\text{hr.} \times \$60.48/\text{hr.} = \3.02

The annual cost burden of 81,529 aircraft owners at an average of 2.5 responses per respondent and utilizing ADS-B SAPT is:

⁴ Table 4. Employer Costs for Employee Compensation for private industry workers by occupational and industry group, News Release, Bureau of Labor Statistics, U.S. Department of Labor, USDL-19-1649 (<https://www.bls.gov/news.release/pdf/ecec.pdf>).

- \$3.02/respondent X 81,529 respondents X 2.5 responses per respondent = \$615,544 per annum.

ADAPT

Assuming the labor category for General and Business Aviation pilots to be Management, Professional, and Related with a total compensation (100%) labor hour cost, i.e., fully burdened of \$60.48 per hour (Table 2. Employer Costs for Employee Compensation for civilian workers by occupational and industry group, News Release, Bureau of Labor Statistics, U.S. Department of Labor, USDL-19-1649 (<https://www.bls.gov/news.release/pdf/ecec.pdf>), the burden for each aircraft owner to use ADAPT:

- 0.117/hr. X \$60.48/hr. = \$7.08

The annual cost burden of 81,529 aircraft owners at an average of 2.5 responses per respondent and utilizing ADAPT is:

- \$7.08/respondent X 81,529 respondents X 2.5 responses per respondent = \$1,443,063 per annum.

13. Provide an estimate for the total annual cost burden to respondents or record keepers resulting from the collection of information.

There are no additional material costs to respondents other than those described in paragraph 12 above.

14. Provide estimates of annualized costs to the Federal government.

The method used to estimate annualized cost is the quantification of hours for the professional staff. For SAPT (RAIM SAPT, ADS-B SAPT, and ADAPT) there are operational expenses, i.e. labor resources for manual adjudication, website development, additional labor costs associated with website maintenance, and other related expenses. The total cost to the Federal government is based on annualized hours of effort for the labor category of; Management, Professional, and Related for FAA government employees based on the information provided is \$60.48 per hour; total compensation and fringe.⁵ To account for overhead costs such as rent, utilities and office equipment, 17 percent was added to the total compensation and fringes calculations

Labor Category: Management, Professional and Related Cost	Calculations	Cost
Implementation (Program Management and Setup, Website Development, Maintenance) Labor Hours (\$60.48/hr.)	\$60.48/hr. x 900 (approx.) hrs.	\$54,432
	Adjustment of 17% to account for overhead costs.	\$9,253
Operations Labor Hours (\$60.48/hr.)	\$60.48/hr. x 3,744 hrs.	\$226,437
	Adjustment of 17% to account for	\$38,494

⁵ Table 2. Employer Costs for Employee Compensation for civilian workers by occupational and industry group, News Release, Bureau of Labor Statistics, U.S. Department of Labor, USDL-19-1649 (<https://www.bls.gov/news.release/pdf/ecec.pdf>).

Labor Category: Management, Professional and Related Cost	Calculations	Cost
	overhead costs.	
Maintenance		
Labor Hours (\$60.48/hr.)	\$60.48/hr. x 3,744 hrs.	\$121,927
Total		\$450,543

15. Explain the reasons for any program changes or adjustments.

New collection

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

This is a continuing program.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons why display would be inappropriate.

Not applicable

18. Explain each exception to the topics of the certification statement identified in "Certification for Paperwork Reduction Act Submissions."

Not applicable