



Federal Aviation Administration

Memorandum

FAA Order 1050.1, Guidance Memo

Date: March 29, 2016

To: FAA Lines of Business and Managers with NEPA Responsibilities

From: Julie Marks, Manager, Environmental Policy and Operations, AEE-400

Subject: **Guidance for Implementation of the Categorical Exclusion in
Section 213(c)(2) of the *FAA Modernization and Reform Act of 2012***

This memorandum provides guidance to implement the legislative categorical exclusion (CATEX) established by Congress in section 213(c)(2) of the FAA Modernization and Reform Act of 2012. Section 213(c)(2) of the Act provides:

(c) COORDINATED AND EXPEDITED REVIEW.

(2) NEXTGEN PROCEDURES. – Any navigation performance or other performance based navigation procedure developed, certified, published, or implemented that, in the determination of the Administrator, would result in measurable reductions in fuel consumption, carbon dioxide emissions, and noise, on a per flight basis, as compared to aircraft operations that follow existing instrument flight rules procedures in the same airspace, shall be presumed to have no significant affect [sic] on the quality of the human environment and the Administrator shall issue and file a categorical exclusion for the new procedure.

Implementing Instructions

Applicability of Section 213(c)(2) CATEX

The Section 213(c)(2) CATEX, commonly referred to as CATEX 2, has been included in FAA Order 1050.1, *Environmental Impacts: Policies and Procedures*, in paragraph 5-6.5r under

Categorical Exclusions for Procedural Actions. The use of CATEX 2 is limited to NextGen performance based navigation (PBN) procedures. This CATEX cannot be used for conventional procedures (flight procedures that rely on ground-based navigational aids), for projects involving a mix of conventional and PBN procedures (i.e., where PBN procedures are part of a larger project including non-PBN actions), or where PBN procedures are connected actions (i.e., (a) where they automatically trigger other actions; (b) cannot or will not proceed unless other actions are taken previously or simultaneously; or (c) are interdependent parts of a larger action and depend on the larger action for their justification). In cases where a larger action that includes PBN procedures is covered by a different CATEX, that CATEX should be used for the entire action, rather than CATEX 2.

In order to use CATEX 2, the PBN procedures must result in measurable reductions in fuel consumption, carbon dioxide emissions, and noise on a per flight basis as compared to aircraft operations that follow existing instrument flight rule procedures in the same airspace. Reductions in noise have been the most challenging to define. As defined in the attachment to this memorandum, the FAA will determine that there is a measurable reduction in noise on a per flight basis if proposed PBN procedures, when compared to existing procedures they replace in the same airspace, would result in a net noise reduction within that area of airspace and would not significantly increase noise.

Reductions in all three of the legislative criteria—fuel consumption, carbon dioxide emissions, and noise—must be achieved for this CATEX to be used. The methodology for determining whether these three legislative criteria would be met is described in the attachment to this memorandum.

Under the terms of the legislation, the potential significance of other categories of impact or the existence of extraordinary circumstances do not preclude the use of CATEX 2.

Airport Operator and Community Involvement

FAA collaboration with airport operators is critical during the planning and design of proposed PBN procedures. In addition, the Council on Environmental Quality (CEQ) encourages agencies to determine circumstances in which the public should be engaged or notified before a CATEX is used. The FAA has determined that this public notification provision applies to the use of this CATEX. Collaboration with airport operators and public notification should include provision for appropriate community outreach that not only informs the affected public of the FAA's proposal, but also allows the public to provide feedback on community concerns.

Documentation

The use of CATEX 2 requires additional documentation in accordance with the instructions in paragraph 5-3.b. of Order 1050.1F. The documentation should describe how the proposed action fits within the CATEX and meets the statutory criteria. Any applicable special purpose laws and

requirements (such as Section 106 of the National Historic Preservation Act) must be complied with in the same manner as with other CATEXs.

Required AEE and AGC Concurrence

Due to its unique nature, written concurrence from AEE-400 and AGC-600 is required prior to applying this CATEX to a proposed action until further notice. The Air Traffic Organization's request for concurrence should be submitted to AEE and AGC by the Director of Airspace Services (AJV-1) along with the following information:

- The initial environmental review.
- Noise screening data showing projected noise changes, including but not limited to the identification of reportable noise increases.
- Information on residential communities and other noise sensitive areas (e.g., schools, hospitals, historical or cultural sites) affected by proposed PBN flight tracks and the altitudes of new or increased concentration of aircraft overflights of these areas compared to the existing situation.
- Feedback from collaboration with airport operators, public notification and outreach sessions, and other information on potential community concerns and controversy.

Additional information may be requested in some cases to assist in this concurrence review.

Background

Categorical Exclusions under NEPA

Regulations issued by the Council on Environmental Quality (CEQ) at 40 CFR parts 1500-1508 for implementing the National Environmental Policy Act (NEPA) establish three levels of environmental review for federal actions: environmental impact statements (EIS), environmental assessments (EA) and categorical exclusions (CATEX). A CATEX is not an exemption or waiver of NEPA review; it is a level of NEPA review. CATEXs are categories of actions which do not individually or cumulatively have a significant effect on the environment. FAA Order 1050.1, *Environmental Impacts: Policies and Procedures*, establishes agency-wide policies and procedures for compliance with NEPA and the implementing regulations.

Ordinarily, an agency's procedures must also provide for extraordinary circumstances in which a normally excluded action may have a significant environmental effect which would preclude the use of a CATEX. 40 CFR §1508.4. However, under the terms of the legislation the CATEX created by Section 213(c)(2) does not consider whether extraordinary circumstances apply.

Use of a CATEX does not relieve the FAA from the obligation to comply with other applicable environmental laws, such as the Endangered Species Act, the National Historic Preservation Act, or the Clean Air Act. Information on other environmental requirements that may apply to proposed actions is provided in the 1050.1F Desk Reference.

Section 213(c) of the FAA Modernization and Reform Act of 2012

Congress created two legislative CATEXs to expedite environmental review of certain air traffic procedures being implemented as part of NextGen. The CATEX in Section 213(c)(2) presumes no significant effect on the quality of the human environment based on reductions of three factors—fuel consumption, carbon dioxide emissions, and noise—as described in this memorandum.

Section 213(c)(1) created another legislative CATEX, which is covered by Guidance Memo 5, issued on December 6, 2012 and subsequently supplemented. These two CATEXs have been included in the FAA’s Order 1050.1.

Effective Date

The use of the legislative CATEX in Section 213(c)(2) of the FAA Modernization and Reform Act of 2012 was dependent on FAA guidance on implementing this CATEX. Since AEE has now issued this guidance, CATEX 2 can now be used and is effective immediately.

For further information, contact:

Office of Environment and Energy, Manager, Environmental Policy and Operations (AEE-400), Federal Aviation Administration, 800 Independence Avenue, SW, Washington DC 20591

Or

Air Traffic Organization, Mission Support Services, Manager, Environmental Policy Team (AJV-11), Federal Aviation Administration, 800 Independence Avenue, SW, Washington DC 20591.

ATTACHMENT

Methodology for Calculating Reductions in Noise, Fuel Consumption, and Carbon Dioxide Emissions for Purposes of Using Sec. 213(c)(2) CATEX

In order to use the Sec. 213(c)(2) CATEX, reductions in all three of the legislative criteria—noise, fuel consumption, carbon dioxide emissions—need to be achieved, as calculated below.

The Aviation Environmental Screening Tool (AEST) has been updated to compute the noise, fuel consumption, and carbon dioxide calculations described below. Once the required information has been entered into AEST, the tool has a CATEX 2 report which can be generated. This report will indicate if the changes between a no action scenario (i.e., aircraft operations that follow existing instrument flight rules procedures in the same airspace) and the proposed PBN procedure meet the CATEX 2 statutory requirements. The report will also provide aggregate data to support the assessment results.

I. Calculating Measurable Reduction in Noise on a Per Flight Basis

Reductions in noise are the most challenging to determine and involve a two-step calculation.

a. Noise screening to identify increases that would preclude use of the CATEX

FAA interprets “measurable reductions in ...noise” to preclude situations where there would be significant increases in noise under FAA’s long-standing NEPA criterion. This CATEX may not be used if a proposed PBN procedure would result in a noise increase of Day-Night Average Sound Level (DNL) 1.5 dB or more for a noise sensitive area (e.g. homes, schools) that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above this level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.

A noise grid analysis is performed by identifying population centroids within the noise study area from U.S. Census blocks. Discrete receptor grid points can also be included to represent select noise sensitive areas. The DNL must be calculated at each grid point for both the PBN scenario and the no action scenario. The change in DNL between the two scenarios is computed for each grid point in the study area. An increase of DNL 1.5 dB or more for the PBN scenario for a grid point at a noise sensitive area that is at or above

DNL 65 dB or will be at or above DNL 65 dB due to a 1.5 dB increase will indicate a significant noise increase and preclude the use of the CATEX.

b. Net noise reduction calculation

If noise screening does not preclude use of the CATEX, a net noise reduction calculation is performed. Under the net noise reduction method, proposed PBN procedures would result in a measurable reduction in noise on a per flight basis if, in areas exposed to noise levels of DNL 45 decibels (dB) and higher, the total average change in noise is a decrease when compared to existing procedures they replace in the same airspace. The FAA uses the DNL to calculate average changes in noise.

The Net Noise Reduction Method requires the noise study area to include noise levels of DNL 45 dB and above. Using the input and grid created for the analysis performed in (a) above, the DNL level at each population centroid is calculated for both the PBN scenario and no action scenario.

The population centroids are then grouped by noise exposure level into three noise level bands: DNL 45 to 60 dB, DNL 60 to 65 dB, and DNL >65 dB. For each noise band the change in DNL (Δ DNL) between the PBN and no action scenario is computed at each population centroid. The Δ DNLs in each band are then summed and divided by the number of centroids in the band to obtain an average Δ DNL for the noise band. An average Δ DNL less than zero (PBN minus no action) for a noise band would indicate a net noise reduction in that band. The average Δ DNL for the three noise bands are then summed to obtain the total noise change. The results would be tabulated as shown in Table 1.

Table 1. Tabulation of Average Changes in DNL Level

DNL Noise Exposure Band (dB)	Average Change in DNL
45-60	$\Delta\text{DNL}_{(45-60)}$
60-65	$\Delta\text{DNL}_{(60-65)}$
Above 65	$\Delta\text{DNL}_{(\text{above } 65)}$
Total Change	$\Delta\text{DNL}_{(45-60)} + \Delta\text{DNL}_{(60-65)}$ $+ \Delta\text{DNL}_{(\text{above } 65)}$

If the total average DNL change in noise is a decrease, as shown in the example in Table 2 below and screening did not identify any significant noise increases, the measurable noise reduction determination can be made.

**Table 2. Example of Average Changes in DNL Level
PBN Procedures vs Existing Procedures**

DNL Noise Exposure Band	Average Change in DNL
45-60	-0.3 DNL
60-65	0
Above 65	0
Total Change	-0.3 DNL

II. Calculating Measurable Reduction in Fuel Consumption and Carbon Dioxide Emissions on a Per Flight Basis

Using the same tracks, operations, and fleet data used in the noise screening for the proposed PBN procedure and no action alternative), calculate the total fuel burn and carbon dioxide emissions for all flights. To calculate the fuel burn and carbon dioxide emissions on a per flight basis, divide the fuel burn and carbon dioxide number for all flights by the number of flights. Complete this calculation for both the no action scenario and the proposed PBN procedure and compare the results. The PBN procedure will result in measurable reductions in fuel burn and carbon dioxide emissions if the per flight averages are lower with the PBN procedure than under the no action alternative.