

# ANP database version 2.2

## Release notes – 22/02/2018

### 1. Release overview

This new release of the ANP database features new dataset entries for the following aircraft types:

- Airbus A350-941 / RR Trent XWB-84
- Boeing 737-8 Max / CFM Leap1B-27

These new ANP datasets were recently developed by the manufacturers and collaboratively reviewed by the US DOT Volpe Center, EASA and EUROCONTROL.

### 2. Detailed description of the new dataset entries

#### 2.1 - Airbus A350-941 / RR Trent XWB-84

Data for the new Airbus A350-941 with RR Trent XWB-84 engines were added to the ANP database. Both the aircraft identifier and the noise identifier (i.e. NPD\_ID) for this aircraft are **A350-941**.

This aircraft includes two sets of departure procedural step profiles (in the *Default departure procedural steps* table): **ICAO\_A** and **ICAO\_B**, all of which have stage lengths 1 through 8, along with an additional stage length labelled “**M**”<sup>1</sup>, which corresponds to the maximum take-off weight.

The acceleration segments of these procedural step profiles include values for both the *Rate-of-Climb (ft/min)* parameter and the *Accel Percentage (%)* parameter. The second parameter indicates the energy share factor assumption (e.g. the amount of available thrust - in % - dedicated to the acceleration of the aircraft, whereas the rest is used for continuing to climb), which was used to derive the *Rate-of-Climb (ft/min)* values as a function of the stage length-specific take-off weight, the flap setting used over each acceleration step, and for an airport at MSL and ISA conditions. In particular, for airports at higher altitudes and/or for atmospheric conditions which would significantly differ from the ISA conditions, it is recommended to use the *Accel Percentage (%)* value(s) to calculate revised *Rate-of-Climb* values accounting for the actual conditions.

This aircraft includes two sets of approach procedural step profiles (in the *Default approach procedural steps* table), labelled as **DEFAULT1** and **DEFAULT2**. Both procedures include a level-off at an altitude of 3,000 feet Above Field Elevation (AFE), followed with a standard 3-degree descent on the ILS part, with full configuration on the last descent segments before landing. The level-off portion of **DEFAULT1** is entirely flown with Idle thrust rating (“Level-Idle” steps) with the aircraft decelerating, whereas the level-off portion of **DEFAULT 2** is extended with an additional “Level” step type segment flown at constant speed (with adapted thrust to maintain the speed).

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<sup>1</sup> Stage length “M” represents the maximum range which can be achieved by the aircraft with maximum fuel and maximum take-off weight.

Engine coefficients are provided in the *Jet engine coefficients* table for MaxTakeoff, MaxClimb and IdleApproach power ratings. The IdleApproach coefficients are required to calculate the corrected net thrust associated to the approach procedural steps flown with Idle thrust rating (“Descend-Idle” and “Level-Idle” step types) of both **DEFAULT1** and **DEFAULT2** procedures. This aircraft includes also a set of “HiTemp” engine coefficients for modelling aircraft performance above engine break point temperatures.

Aerodynamic performance coefficients are provided in the *Aerodynamic coefficients* table, for both approach and departure flap settings.

The Noise Power Distance (NPD) data of this aircraft is provided for both approach and departure modes, and for four noise metrics (SEL, EPNL, LA<sub>max</sub> and PNLTM). The noise-related power parameter in the NPD data is the Corrected Net Thrust (CNT) per engine. The approach NPD data subset is provided for three tabulated CNT values and the departure subset for four tabulated CNT values.

This aircraft is assigned two new spectral classes labelled **217** (for approach) and **114** (for departure). These new spectral classes were added to the *Spectral classes* table.

## 2.2 - Boeing 737-8 Max / CFM Leap1B-27

Data for the new Boeing 737-8 Max with CFM Leap1B-27 engines were added to the ANP database. Both the aircraft identifier and the noise identifier (i.e. NPD\_ID) for this aircraft are **7378MAX**.

This aircraft includes two sets of departure procedural step profiles (in the *Default departure procedural steps* table): **ICAO\_A** and **ICAO\_B**, all of which have stage lengths 1 through 6, along with an additional stage length labelled “**M**”<sup>2</sup>, which corresponds to the maximum take-off weight.

This aircraft has a single **DEFAULT** approach procedural step profile (in the *Default approach procedural steps* table). It includes a level-off at an altitude of 3,000 feet Above Field Elevation (AFE), followed with a standard 3-degree descent on the ILS part, with full configuration on the last descent segment before landing. The level-off portion is composed of two “Level-Decel” step types, on which the aircraft decelerates using an adapted thrust to achieve this deceleration.

Engine coefficients are provided in the *Jet engine coefficients* table for MaxTakeoff and MaxClimb ratings. This aircraft includes also a set of “HiTemp” engine coefficients for modelling aircraft performance above engine break point temperatures.

Aerodynamic performance coefficients are provided in the *Aerodynamic coefficients* table, for both approach and departure flap settings.

The Noise Power Distance (NPD) data of this aircraft is provided for both approach and departure modes, and for four noise metrics (SEL, EPNL, LA<sub>max</sub> and PNLTM). The noise-related power parameter in the NPD data is the Corrected Net Thrust (CNT) per engine. The approach NPD data subset is provided for five tabulated CNT values and the departure subset for six tabulated CNT values. The existing **216** and **103** spectral classes (in the *Spectral classes* table) are assigned to this aircraft, respectively for the approach and departure modes.

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<sup>2</sup> Stage length “M” represents the maximum range which can be achieved by the aircraft with maximum fuel and maximum take-off weight.