AEDT Functionality Comparison

Function Availability	INM	EDMS	AEDT										
			2a	2b	2c	2d	3b	3c	3d	3e	3f	3g	4a
64-bit application				X	X	X	X	X	X	X	X	X	X
ESRI ArcGIS	N/A	N/A	10.0	10.2.5	10.2.5	10.2.5	10.2.5	10.2.5	10.2.5	10.2.5	10.2.5	10.2.5	200.8
Database Platform	DBF	DBF	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	SQL 2012	SQL 2012	SQL 2017	SQL 2017	SQL 2017	SQL 2017	SQL 2022	SQL 2022
Microsoft .NET							4.03	4.03	4.03	4.03	4.03	4.03	8.0
Aircraft Lead (Pb) emissions & dispersion modeling													X
Helicopter fixed-point profiles													X
Expanded helicopter spectral class format													X
Helipad-to-Helipad operations and tracks													X
Non-standard modeling report													X
View coverage area of terrain data and ambient data files													X
BADA Family 3 aircraft performance model			X	X	X	X	X	X	X	X	X	X	X
BADA Family 4 aircraft performance model							X	X	X	X	X	X	X
Procedures with altitude controls			X	X	X	X	X	X	X	X	X	X	X
Procedures with speed controls, for BADA 4 only							X	X	X	X	X	X	X
Reduced thrust profiles and alternative weight profiles[1]							X	X	X	X	X	X	X
User-defined BADA 4 profiles							X	X	X	X	X	X	X
Runway to runway sensor path operations			X	X	X	X	X	X	X	X	X	X	X
Partial sensor path operations (arrivals or departures), for BADA 4 only							X	X	X	X	X	X	X
Support for fixed-point profiles with BADA 4 performance model									X	X	X	X	X
Vertical pressure and temperature profiles that reflect atmospheric characteristics up to an elevation of 11km above sea level											X	X	X
Unified study for global/regional/airport analysis				X	X	X	X	X	X	X	X	X	X
Multi-threaded execution (not supported for AERMOD air quality analysis)	X		X	X	X	X	X	X	X	X	X	X	X
Real-time status and logging	X	X		X	X	X	X	X	X	X	X	X	X

[1] Prior approval by the FAA Office of Environment and Energy (AEE) is required in order to use non-default profiles for review of FAA federal actions or other FAA regulatory purposes. Further information on requesting approval for use of non-default profiles is provided in the AEDT 3f User Manual, Appendix K.

Function Availability	INM	EDMS	AEDT										
			2a	2b	2c	2d	3b	3c	3d	3e	3f	3g	4a
Distributed computing execution (not supported for dispersion modeling)			X	X	X	X	X	X	X	X	X	X	X
System data protected from user changes; user-defined data creation from system data template	X	X		X	X	X	X	X	X	X	X	X	X
Integrated function for updating Study versions	X	X		X	X	X	X	X	X	X	X	X	X
Only a single study database to manage				X	X	X	X	X	X	X	X	X	X
Terrain, ambient, and weather references saved	X			X	X	X	X	X	X	X	X	X	X
Creation and maintenance of studies through the user interface	X	X		X	X	X	X	X	X	X	X	X	X
Checking for study internal consistency	X	X		X	X	X	X	X	X	X	X	X	X
Generation of administrative file, including complete study database, log files, and study input report	X			X	X	X	X	X	X	X	X	X	X
CSV import of tracks and aircraft operations										X	X	X	X
CSV import of runup operations												X	X
CSV import of helipad-to-helipad operations and tracks													X
Conversion of INM and EDMS studies to ASIF format				X	X	X	X	X	X	X	X	X	X
ASIF import	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X
ASIF partial study import	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X
ASIF export of aircraft definitions	N/A	N/A		X	X	X	X	X	X	X	X	X	X
Metric results definitions as a more-flexible replacement for scenarios and cases				X	X	X	X	X	X	X	X	X	X
Workflow (wizard) feature for defining metric results				X	X	X	X	X	X	X	X	X	X
Copy-edit of scenarios/metric results definitions	X	X		X	X	X	X	X	X	X	X	X	X
Workflow (wizard) feature for creating operation				X	X	X	X	X	X	X	X	X	X
Workflow (wizard) feature for editing operations					X	X	X	X	X	X	X	X	X
Workflow (wizard) feature for creating multiple operations (bulk create)						X	X	X	X	X	X	X	X
User-editable annualizations (scaling factors on operation groups/cases)	X		X	X	X	X	X	X	X	X	X	X	X
Display of all aircraft equipment available	X	X	X	X	X	X	X	X	X	X	X	X	X
Make new airplane from existing airplane	X	X		X	X	X	X	X	X	X	X	X	X
Creation and editing of aircraft flight profiles	X	X		X	X	X	X	X	X	X	X	X	X
ASIF import of user-defined spectra									X	X	X	X	X
Editing of non-aircraft parameters		X		X	X	X	X	X	X	X	X	X	X
Creation and editing of equipment groups	X			X	X	X	X	X	X	X	X	X	X
Editing of group percent distributions	X			X	X	X	X	X	X	X	X	X	X

Function Availability	INM	EDMS	AEDT										
			2a	2b	2c	2d	3b	3c	3d	3e	3f	3g	4a
Flights distributed across tracks using group percent[2]	X			X	X	X	X	X	X	X	X	X	X
Aircraft noise-power-distance (NPD) table plotting	X		X										
Creation and editing of custom noise metric	X	X		X	X	X	X	X	X	X	X	X	X
Creation and editing of grid/receptor set	X	X		X	X	X	X	X	X	X	X	X	X
Point/grid receptors	X		X	X	X	X	X	X	X	X	X	X	X
Population receptors for noise modeling	X		X										
Dynamic grid support (recursive grid in INM) for dB-based metrics	X			X	X	X	X	X	X	X	X	X	X
Dynamic grid support for time-based metrics						X	X	X	X	X	X	X	X
Dynamic grid support for user-defined noise metrics							X	X	X	X	X	X	X
Dynamic grid restricted by a boundary							X	X	X	X	X	X	X
Option to visualize the creation of dynamic grids on the map									X	X	X	X	X
Creation and editing of quarter-hourly/daily/monthly operational profiles		X		X	X	X	X	X	X	X	X	X	X
Annual average airport weather specification and editing	X	X	X	X	X	X	X	X	X	X	X	X	X
Usage of National Climatic Data Center (NCDC) ASOS weather sources		X		X	X	X	X	X	X	X	X	X	X
Usage of RUC/RAP, NCAR, and GEOS/MERRA weather			X	X	X	X	X	X	X	X	X	X	X
Application of study boundary to limit the area covered by high fidelity weather (RUC/RAP, NCAR, GEOS)			X	X	X	X	X	X	X	X	X	X	X
Usage of MERRA-2 and WRF weather						X	X	X	X	X	X	X	X
Apply weather at the metric result level						X	X	X	X	X	X	X	X
Direct use of US Census data for population exposure	X			X	X	X	X	X	X	X	X	X	X
Airport and runway locations for tens of thousands of airports globally	X	X	X	X	X	X	X	X	X	X	X	X	X
Creation of user-defined airports and runways	X	X		X	X	X	X	X	X	X	X	X	X
Point and polygon airport gates with adjustable emissions dispersion parameters (release height, initial sigma-Y & sigma-Z)		X		X	X	X	X	X	X	X	X	X	X
Airport layout editor undo and redo	X			X	X	X	X	X	X	X	X	X	X
Airport configuration assignment		X		X	X	X	X	X	X	X	X	X	X
Editing of airport capacity parameters		X		X	X	X	X	X	X	X	X	X	X
Flight track – display all tracks on map	X		X	X	X	X	X	X	X	X	X	X	X
Flight track – display & edit selected tracks on map										X	X	X	X

[2] In AEDT, user's access to Aircraft Equipment Group Percent Distribution processing is through direct SQL injection of AIR_OPERATION table.

Function Availability	INM	EDMS	AEDT										
			2a	2b	2c	2d	3b	3c	3d	3e	3f	3g	4a
Flight track – disperse point tracks	X			X	X	X	X	X	X	X	X	X	X
Flight track – edit dispersed tracks on the map and in dialog						X	X	X	X	X	X	X	X
Flight track – point track creation by point-and-click	X			X	X	X	X	X	X	X	X	X	X
Flight track – vector track creation and editing	X					X	X	X	X	X	X	X	X
Taxi network graphical design		X		X	X	X	X	X	X	X	X	X	X
Taxiway, taxipath, and airport configuration editing		X		X	X	X	X	X	X	X	X	X	X
Taxipath connectivity verification		X		X	X	X	X	X	X	X	X	X	X
Taxi time-in-mode emissions modeling		X		X	X	X	X	X	X	X	X	X	X
Taxi delay and sequencing of operations		X		X	X	X	X	X	X	X	X	X	X
Modeling of emissions sources other than aircraft main engines, including ground support equipment (GSE) and auxiliary power units (APU)[3]		X		X	X	X	X	X	X	X	X	X	X
Non-aircraft emission factor deterioration based on equipment age		X		X	X	X	X	X	X	X	X	X	X
Modeling of scheduled aircraft operations	X	X	X	X	X	X	X	X	X	X	X	X	X
Modeling of operational profile operations for aircraft and non-aircraft emissions sources		X		X	X	X	X	X	X	X	X	X	X
Modeling of operational profile operations for runup sources												X	X
Modeling of touch-and-go operations	X	X		X	X	X	X	X	X	X	X	X	X
Modeling of circuit operations	X			X	X	X	X	X	X	X	X	X	X
Modeling of helicopter taxi operations				X	X	X	X	X	X	X	X	X	X
Noise modeling of runup operations	X			X	X	X	X	X	X	X	X	X	X
Revised emissions modeling for Boiler/Heater, Fuel Tank, Sand Salt Pile, and Solvent Degreaser based on the latest EPA approved methodologies										X	X	X	X
Map navigation tools (zoom, pan, rotate)	X	X	X	X	X	X	X	X	X	X	X	X	X
Conversion calculator from X/Y coordinates (relative to the study center at 0/0) to latitude/longitude	X												
Comprehensive geographic feature attribute viewing	X	X		X	X	X	X	X	X	X	X	X	X
Graphical rendering of ESRI Shapefile layers	X			X	X	X	X	X	X	X	X	X	X
Import of satellite imagery and other GIS map services				X	X	X	X	X	X	X	X	X	X
Export GIS layers to shapefiles	X			X	X	X	X	X	X	X	X	X	X
Color and symbol legends for flight operations and airport designs	X		X	X	X	X	X	X	X	X	X	X	X

[3] See the "AEDT Supplemental Manual: Using MOVES with AEDT" for roadways, parking facilities, and construction operations. Users must use EPA MOVES to generate these sources.

Function Availability	INM	EDMS	AEDT										
			2a	2b	2c	2d	3b	3c	3d	3e	3f	3g	4a
User-adjustable transparency on map layers				X	X	X	X	X	X	X	X	X	X
Last map location saved	X			X	X	X	X	X	X	X	X	X	X
Screenshot function for map view image capture				X	X	X	X	X	X	X	X	X	X
Option to compute flight performance only			X	X	X	X	X	X	X	X	X	X	X
Track angle checking	X		X	X	X	X	X	X	X	X	X	X	X
Bank angle modeling	X		X	X	X	X	X	X	X	X	X	X	X
Application of study boundary to truncate/extend tracks (legacy NIRS functionality)			X										
Adjustable fuel sulfur content for aircraft and stationary sources emissions modeling purposes		X		X	X	X	X	X	X	X	X	X	X
Adjustable sulfur-to-sulfate conversion rate for aircraft and stationary sources emissions modeling at non-US airports		X	X	X	X	X	X	X	X	X	X	X	X
Smoke number-to-particulate matter model		FOA 3	FOA 3	FOA 3	FOA 3	FOA 3	FOA 3	FOA 4	FOA 4	FOA 4	FOA 4	FOA 4	FOA 4
Non-volatile particulate matter (nvPM) particle mass and number calculated								X	X	X	X	X	X
Use of the Mission Emissions Estimation Methodology (MEEM) 5-point interpolation methodology for nvPM calculation											X	X	X
Usage of 3CD terrain models for noise calculations	X		X	X	X	X	X	X	X	X	X	X	X
Usage of USGS DEM terrain models for noise calculations	X		X	X	X	X	X	X	X	X	X	X	X
Usage of GridFloat terrain models for noise calculations	X		X	X	X	X	X	X	X	X	X	X	X
Usage of GeoTIFF terrain data for noise calculations									X	X	X	X	X
Viewing of terrain model on map display	X												
Default terrain values for missing terrain data	X			X	X	X	X	X	X	X	X	X	X
Visualization of missing terrain data	X												
Line-of-sight blockage modeling for noise metrics	X			X	X	X	X	X	X	X	X	X	X
Noise modeling lateral attenuation adjustment	X		X	X	X	X	X	X	X	X	X	X	X
Noise spectral cutoff calculation[4]	X			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SAE ARP 866A atmospheric absorption algorithm	X			X	X	X	X	X	X	X	X	X	X
SAE ARP 5534 atmospheric absorption algorithm				X	X	X	X	X	X	X	X	X	X
A-weighted noise metrics	X		X	X	X	X	X	X	X	X	X	X	X
Tone-corrected noise metrics	X		X	X	X	X	X	X	X	X	X	X	X
C-weighted noise metrics	X		X	X	X	X	X	X	X	X	X	X	X

[4] In AEDT, this is addressed by the dynamic grid algorithm rather than pre-processing of aircraft source data as in INM.

Function Availability	INM	EDMS	AEDT										
			2a	2b	2c	2d	3b	3c	3d	3e	3f	3g	4a
Modeling of time-based noise metrics	X			X	X	X	X	X	X	X	X	X	X
Noise ambient data screening[5]	X			X	X	X	X	X	X	X	X	X	X
Restrict by boundary when running ambient screening	X				X	X	X	X	X	X	X	X	X
Restrict receptor grid by boundary					X	X	X	X	X	X	X	X	X
Application of study boundary to limit the area covered by contour grid calculations	X						X	X	X	X	X	X	X
Detailed noise grid computation with attribution to contributing flight operations	X			X	X	X	X	X	X	X	X	X	X
Number above noise level for LAMAX, LCMAX, SEL, and CEXP					X	X	X	X	X	X	X	X	X
Import and export of NMGF formatted noise results	X			X	X	X	X	X	X	X	X	X	X
Combine noise results from different receptor sets						X	X	X	X	X	X	X	X
Noise table reports	X		X	X	X	X	X	X	X	X	X	X	X
Noise contour generation and display	X		X	X	X	X	X	X	X	X	X	X	X
Non-closing noise contours	X						X	X	X	X	X	X	X
NIRS-format noise impact chart and table reports			X	X	X	X	X	X	X	X	X	X	X
Noise ranking and flight track reassignment of aircraft operations for change analysis			X										
Comprehensive input parameter report	X	X	X	X	X	X	X	X	X	X	X	X	X
Flight.txt report that contains NPD and flight segment data	X								X	X	X	X	X
Aircraft flight profile and performance graphs	X		X	X	X	X	X	X	X	X	X	X	X
X-Y plotting of flown aircraft trajectory	X		X	X	X	X	X	X	X	X	X	X	X
Emissions inventory reporting (segment to modal)		X	X	X	X	X	X	X	X	X	X	X	X
Emissions and fuel consumption table reports by source type, with adjustable units		X	X	X	X	X	X	X	X	X	X	X	X
VALE emissions reporting		X		X	X	X	X	X	X	X	X	X	X
AERMOD & AERMET version	N/A	12345	N/A	14134	16216	16216	18081	19191	19191	21112	23132	23132	24142
Emissions dispersion table reports		X		X	X	X	X	X	X	X	X	X	X
Expansion of speciated organic gas emissions		X	X	X	X	X	X	X	X	X	X	X	X
Particulate matter speciation for aircraft engines[6]		X		X	X	X	X	X	X	X	X	X	X
Calculate & presentation of pollutant concentrations (based on AERMOD)		X		X	X	X	X	X	X	X	X	X	X
Pollutant concentration contours					X	X	X	X	X	X	X	X	X
Specify averaging period, source groups, and rankings before AERMOD run		X			X	X	X	X	X	X	X	X	X

[5] Requires review and authorization by the FAA Office of Energy and Environment (AEE).
[6] Requires review and authorization by the FAA Office of Energy and Environment (AEE).

Function Availability	INM	EDMS	AEDT										
			2a	2b	2c	2d	3b	3c	3d	3e	3f	3g	4a
Emissions dispersion of aircraft operations on curved flight tracks				X	X	X	X	X	X	X	X	X	X
Emissions dispersion of aircraft engine startup emissions		X		X	X	X	X	X	X	X	X	X	X
Emissions dispersion of emissions sources other than aircraft main engines, including APUs, GSE, and other airport sources		X		X	X	X	X	X	X	X	X	X	X
Emissions dispersion of runup operations											X	X	X
Running multiple pollutants at once in dispersion modeling									X	X	X	X	X
Background emissions concentrations					X	X	X	X	X	X	X	X	X
PM2.5 dispersion modeling without NAAQS restriction											X	X	X
SO_2 dispersion modeling using Tier 1 method							X	X	X	X	X	X	X
NO_2 dispersion modeling using Tier 1, Tier 2 and Tier 3 methods							X	X	X	X	X	X	X
NO_2 dispersion modeling using AERMOD Aircraft Thrust Specific In-Stack NO_2/NOx Ratios										X	X	X	X
AERMOD, Urban Population option										X	X	X	X
AERMOD, ALPHA and BETA options for conversion of NO_X to NO_2										X	X	X	X
AERMOD, ALPHA option for Low Wind Parameters										X	X	X	X
AERMOD, ALPHA option for Plume Rise											X	X	X
AERMOD, ALPHA option for Area Plume Meander											X	X	X
Aircraft source characterization as volume sources for dispersion modeling											X	X	X
Support for 1-minute and 5-minute ASOS wind data for dispersion modeling							X	X	X	X	X	X	X
Low wind speed support (ADJ_U* option in AERMET)							X	X	X	X	X	X	X
Interface to EPA's AERSURFACE utility									X	X	X	X	X