

# AEDT Functionality Comparison

Function Availability	INM	EDMS	AEDT 2a	AEDT 2b
64-bit application				X
ESRI ArcGIS	N/A	N/A	10.0	10.2.5
Database Platform	DBF	DBF	SQL 2008 R2	SQL 2008 R2
Unified study for global/regional/airport analysis				X
Multithreaded execution	X		X	X
Real-time status and logging	X	X		X
Distributed computing execution			X	X
System data protected from user changes; user-defined data creation from system data template	X	X		X
Integrated function for updating Study versions	X	X		X
Only a single study database to manage				X
Creation and maintenance of studies through the user interface	X	X		X
Checking for study internal consistency	X	X		X
Terrain, ambient, and weather references saved	X			X
Generation of administrative file, including complete study database, log files, and study input report	X			X
Conversion of INM and EDMS studies to ASIF format				X
ASIF import	N/A	N/A	X	X
ASIF partial study import	N/A	N/A	X	X
ASIF export of aircraft definitions	N/A	N/A		X
Flight track display	X		X	X
Flight track dispersion	X			X
Emissions inventory reporting (segment to modal)		X	X	X
NIRS-format noise impact chart and table reports			X	X
Noise ranking and flight track reassignment of aircraft operations for change analysis			X	X
Noise contour generation and display	X		X	X
Calculate & presentation of emission concentrations (based on AERMOD)		X		X
Workflow (wizard) features for creating operations and defining desired metric results				X
Metric results definitions as a more-flexible replacement for scenarios and cases				X
Copy-edit of scenarios/metric results definitions	X	X		X
User-editable annualizations (scaling factors on operation groups/cases)	X		X	X
Grid/Receptor set construction in the user interface	X	X		X

Function Availability	INM	EDMS	AEDT 2a	AEDT 2b
Point/grid/population receptors	X		X	X
Dynamic grid support (Recursive grid in INM)	X			X
Aircraft noise-power-distance table plotting	X		X	
Display of all aircraft equipment available	X	X	X	X
Make new airplane from existing airplane	X	X		X
Editing of aircraft parameters and flight profiles	X	X		X <sup>i</sup>
Editing of non-aircraft parameters		X		X
Flights distributed across tracks using group percent	X			X <sup>ii</sup>
Interactive editing of group percent distributions	X			X
Airport layout editor undo and redo	X			X
Airport configuration assignment		X		X
Editing of airport capacity parameters		X		X
Flight track point-and-click creation	X			X
Taxi network graphical design with adjustable emissions dispersion parameters		X		X
Taxiway, taxipath, and airport configuration editing		X		X
Taxipath connectivity verification		X		X
Taxi delay and sequencing of operations		X		X
Taxi time-in-mode emissions modeling		X		X
Modeling of emissions sources other than aircraft main engines, including ground support equipment and auxiliary power units		X		X <sup>iii</sup>
Non-aircraft emission factor deterioration based on equipment age		X		X
Modeling of scheduled aircraft operations	X	X	X	X
Modeling of operational profile operations for aircraft and non-aircraft emissions sources		X		X
Application of study area boundaries	X		X	X
Usage of 3CD terrain models	X		X	X
Usage of USGS DEM terrain models	X	X	X	X
Usage of Gridfloat terrain models	X		X	X
Editing of metric types and definitions	X	X		X
Creation and editing of equipment groups	X			X
Direct use of US Census data for population exposure	X			X
Comprehensive geographic feature attribute viewing	X	X		X
Graphical rendering of ESRI Shapefile layers	X			X
Import of satellite imagery and other GIS map services				X
Export GIS layers to shapefiles	X			X
Map navigation tools (zoom, pan, rotate)	X	X	X	X
Conversion calculator from X/Y to latitude/longitude	X			

Function Availability	INM	EDMS	AEDT 2a	AEDT 2b
Color and symbol legends for flight operations and airport designs	X		X	X
User-adjustable transparency on map layers				X
Last map location saved	X			X
Screenshot function for map view image capture				X
Annual average airport weather specification and editing	X	X	X	X
Usage of NCDC ASOS weather sources		X		X
Usage of RUC, NCAR, and GEOS/MERRA weather			X	X
Airport and runway locations for tens of thousands of airports globally	X	X	X	X
Creation of user-defined airports and runways	X	X		X
Adjustable fuel sulfur content for emissions modeling purposes		X		X
Adjustable sulfur-to-sulfate conversion rate for emissions modeling at non-US airports		X	X	X
Track angle checking	X		X	X
Bank angle modeling	X		X	X
Option to compute flight performance only			X	X
Viewing of terrain model on map display	X			X
Default terrain values for missing terrain data	X			X
Visualization of missing terrain data	X			
Modeling of Touch-and-go operations	X	X		X
Modeling of Circuit operations	X			X
Noise modeling of Runup operations	X			X
Modeling of helicopter taxi operations				X
Line-of-sight blockage modeling for noise metrics	X			X
Noise modeling lateral attenuation adjustment	X		X	X
Noise spectral cutoff calculation	X			N/A <sup>iv</sup>
SAE ARP 866A atmospheric absorption algorithm	X			X
SAE ARP 5534 atmospheric absorption algorithm				X
A-weighted noise metrics	X		X	X
Tone-corrected noise metrics	X		X	X
C-weighted noise metrics	X		X	X
Modeling of time based noise metrics	X			X
Noise ambient data screening	X			X <sup>v</sup>
Detailed noise grid computation with attribution to contributing flight operations	X			X
Comprehensive input parameter report	X	X	X	X
Aircraft flight profile and performance graphs	X		X	X
X-Y plotting of flown aircraft trajectory	X		X	X
Noise table reports	X		X	X

Function Availability	INM	EDMS	AEDT 2a	AEDT 2b
Emissions and fuel consumption table reports by source type, with adjustable units		X	X	X
Emissions dispersion table reports		X		X
Expansion of speciated organic gas emissions		X	X	X
Carbon dioxide, water, and particulate matter speciation for aircraft engines <sup>vi</sup>		X		X
VALE emissions reporting		X		X
Emissions dispersion of aircraft operations on curved flight tracks				X
Emissions dispersion of aircraft engine startup emissions		X		X
Emissions dispersion of emissions sources other than aircraft main engines, including APUs, GSE, and other airport sources		X		X
Creation and editing of buildings for emissions dispersion modeling purposes		X		X <sup>vii</sup>
Point and polygon airport gates with adjustable emissions dispersion parameters		X		X
Import and export of NMGF formatted noise results	X			X

<sup>i</sup> Edits to aircraft flight profiles must be made through import of ASIF aircraft/equipment.

<sup>ii</sup> User's access to Aircraft Equipment Group Percent Distribution processing is through direct SQL injection of AIR\_OPERATION table.

<sup>iii</sup> See the supporting MOVES documentation ("Using MOVES with AEDT 2b") for roadways, or parking facilities, and construction operations. Users must use EPA MOVES to generate these sources

<sup>iv</sup> Addressed by the dynamic gridding algorithm rather than pre-processing of aircraft source data as in INM.

<sup>v</sup> Requires review and authorization by the FAA Office of Energy and Environment (AEE).

<sup>vi</sup> Aircraft particulate matter estimated only for engines in the ICAO Engine Emissions Databank.

<sup>vii</sup> Airport layouts support import, creation, and editing of building definitions. The building downwash effects are not modeled.