Horizontal and Vertical Accuracy Classes Computed for Popular Drone GSDs

New Standard Highlights

- It is All Metric!
- Unlimited Horizontal Accuracy Classes:

Horizontal Accuracy Standards for Geospatial Data

Approximate GSD of Source Imagery	$RMSE_x$ and $RMSE_y$ (cm)	RMSEr (cm)	Horizontal Accuracy at 95% Confidence Level (cm)	Accuracy Class
	≤X	≤1.41*X	≤2.45*X	X
0.25-0.5	0.5	0.7	1.2	0.5
0.5-1.0	1.0	1.4	2.5	1
1.0-1.5	1.5	2.1	3.7	1.5
1.5-2.0	2.0	2.8	4.9	2
2.0-3.0	3.0	4.2	7.4	3

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New Standard Highlights

- Unlimited Vertical Accuracy Classes:

Vertical Accuracy Standards for Digital Elevation Data

Approximate GSD of Source Imagery	$RMSE_z$ Non-Vegetated (cm)	NVA at 95% Confidence Level (cm)	VVA at 95th Percentile (cm)	Accuracy Class
	≤X	≤1.96*X	≤3.00*X	X
0.25-0.5	0.5	1	1.5	.5
0.5-1.0	1.0	1.96	3	1
1.0-1.5	1.5	2.94	4.5	1.5
1.5-2.0	2.0	3.92	6.0	2
2.0-3.0	3.0	5.88	9.0	3

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Ground Control Accuracy Requirements

Accuracy requirements for ground control used for aerial triangulation

Accuracy of ground controls designed for planimetric data (orthoimagery and/or digital planimetric map)production only:

$RMSE_x$ or $RMSE_y$ = ¼ * $RMSE_{x(Map)}$ or $RMSE_{y(Map)}$,
$RMSE_z$ = ½ * $RMSE_{x(Map)}$ or $RMSE_{y(Map)}$

Accuracy of ground controls designed for elevation data, or planimetric data and elevation data production:

$RMSE_x$, $RMSE_y$ or $RMSE_z$= ¼ * $RMSE_{x(Map)}$, $RMSE_{y(Map)}$ or $RMSE_{z(DEM)}$

Examples on Aerial Triangulation and Ground Control Accuracy

Aerial Triangulation and Ground Control Accuracy Requirements, Orthoimagery and/or Planimetric Data Only

Product Accuracy ($RMSE_x$, $RMSE_y$) (cm)	A/T Accuracy		Ground Control Accuracy	
	$RMSE_x$ and $RMSE_y$ (cm)	$RMSE_z$ (cm)	$RMSE_x$ and $RMSE_y$ (cm)	$RMSE_z$ (cm)
4	2	4	1	2

Aerial Triangulation and Ground Control Accuracy Requirements, Orthoimagery and/or Planimetric Data and Elevation Data

Product Accuracy ($RMSE_x$, $RMSE_y$, or $RMSE_z$) (cm)	A/T Accuracy		Ground Control Accuracy	
	$RMSE_x$ and $RMSE_y$ (cm)	$RMSE_z$ (cm)	$RMSE_x$ and $RMSE_y$ (cm)	$RMSE_z$ (cm)
4	2	2	1	1

Reporting Requirements

Reporting Horizontal Accuracy

"This data set was tested to meet ASPRS Positional Accuracy Standards for Digital Geospatial Data (2014) for a ___ (cm) $RMSE_x$ / $RMSE_y$ Horizontal Accuracy Class. Actual positional accuracy was found to be $RMSE_x$ = ___ (cm) and $RMSE_y$ = ___ cm which equates to +/- ___ at 95% confidence level."

"This data set was produced to meet ASPRS Positional Accuracy Standards for Digital Geospatial Data (2014) for a ___ (cm) $RMSE_x$ / $RMSE_y$ Horizontal Accuracy Class which equates to +/- ___ cm at a 95% confidence level."

Reporting Vertical Accuracy

"This data set was tested to meet ASPRS Positional Accuracy Standards for Digital Geospatial Data (2014) for a___ (cm) $RMSE_z$ Vertical Accuracy Class. Actual NVA accuracy was found to be $RMSE_z$ = ___ cm, equating to +/- ___ at 95% confidence level. Actual VVA accuracy was found to be +/- ___ cm at the 95% percentile."

"This data set was produced to meet ASPRS Positional Accuracy Standards for Digital Geospatial Data (2014) for a ___ cm $RMSE_z$ Vertical Accuracy Class equating to NVA =+/- ___cm at 95% confidence level and VVA =+/-___cm at the 95% percentile