

The purpose of this supplemental Summary Table is to report the results of alternative density testing techniques that are sometimes used in the lidar community (see the Detailed Report PDF for more details). Focus should be made on comparing the results of these testing methodologies versus the current USGS LBS v 1.3 testing method (C-4.1). Note the similar results using the Nyquist sampling criteria and often dissimilar results of using the straight grid method. An emphasis is strongly recommended to examine the difference of how varying grid cell sizes affect the results when using the grid method.

C-4.2 Summary Table of Supplemental, Non-USGS LiDAR Base Specification version 1.3, Density Testing Methodology Results

Test Name	Use Overlap Bit Flag Points	Raster Cell Size (in meters)	Minimum Point Count Requirement for Pass (green cells)	Percent of Passing Cells	Percent of Failing Cells
Grid Cell Size Based on Nyquist Sampling Criteria (2 x Required NPS) Including Overlap Bit Flagged Points	Yes	2 x 0.71 = 1.42	1	99.94	0.06
Grid Cell Size Based on Nyquist Sampling Criteria (2 x Required NPS) Excluding Overlap Bit Flagged Points	No	2 x 0.71 = 1.42	1	99.91	0.09
Grid Based Test: Grid Cell = 1m x 1m, Required PPSM Tested Including Overlap Bit Flagged Points	Yes	1	1 x 2 = 2	87.62	12.38
Grid Based Test: Grid Cell = 10m x 10m, Required PPSM Tested on Scaled Up Point Count Including Overlap Bit Flagged Points	Yes	10	100 x 2 = 200	98.23	1.77
Grid Based Test: Grid Cell = 100m x 100m, Required PPSM Tested on Scaled Up Point Count Including Overlap Bit Flagged Points	Yes	100	10,000 x 2 = 20,000	99.02	0.98
Grid Based Test: Grid Cell = 1,000m x 1,000m, Required PPSM Tested on Scaled Up Point Count Including Overlap Bit Flagged Points	Yes	1000	1,000,000 x 2 = 2,000,000	99.97	0.03
Grid Based Test: Grid Cell = 1m x 1m, Required PPSM Tested Excluding Overlap Bit Flagged Points	No	1	1 x 2 = 2	82.34	17.66
Grid Based Test: Grid Cell = 10m x 10m, Required PPSM Tested on Scaled Up Point Count Excluding Overlap Bit Flagged Points	No	10	100 x 2 = 200	97.25	2.75
Grid Based Test: Grid Cell = 100m x 100m, Required PPSM Tested on Scaled Up Point Count Excluding Overlap Bit Flagged Points	No	100	10,000 x 2 = 20,000	98.36	1.64
Grid Based Test: Grid Cell = 1,000m x 1,000m, Required PPSM Tested on Scaled Up Point Count Excluding Overlap Bit Flagged Points	No	1000	1,000,000 x 2 = 2,000,000	99.96	0.04