

C-3 Report on Intensity Values

The USGS Lidar Base Specification Version 2.1 states: "Intensity values are required for each multiple discrete return. The intensity values recorded in the LAS files shall be normalized to 16 bit, as required by the LAS Specification version 1.4-R13 (ASPRS, 2011). Intensity normalization should be strictly linear. Common image stretches (minimum-maximum, standard deviations, percent clip, histogram, and so forth) are expressly forbidden."

The purpose of this section is to report on the presence and quantities of lidar intensity in the LAS data.

[Data Source - Y:\Mapping\Projects\65220595_CO_SanLuisJuanMiguel\Production\Final_Client_Deliverables\Block5\point_cloud\Swaths_New](#)

| File | Minimum | Maximum | Mean | Median | Mode |
|-----------|---------|---------|--------|--------|--------|
| 00010.las | 656 | 65,520 | 14,159 | 14,864 | 15,216 |
| 00011.las | 624 | 65,520 | 13,814 | 13,008 | 12,576 |
| 00012.las | 272 | 65,520 | 12,443 | 13,440 | 13,984 |
| 00014.las | 112 | 65,520 | 10,892 | 11,728 | 14,944 |
| 00015.las | 1,024 | 65,520 | 9,001 | 7,440 | 3,344 |
| 00016.las | 1,040 | 28,256 | 7,283 | 6,672 | 3,424 |
| 00017.las | 112 | 65,520 | 7,929 | 7,136 | 1,984 |
| 00018.las | 128 | 65,520 | 10,501 | 11,424 | 2,048 |
| 00020.las | 96 | 65,520 | 17,063 | 17,216 | 17,232 |
| 00021.las | 304 | 65,520 | 17,050 | 16,832 | 16,496 |
| 00022.las | 1,520 | 65,520 | 17,249 | 16,864 | 16,496 |
| 00024.las | 96 | 65,520 | 15,909 | 15,744 | 15,520 |
| 00025.las | 96 | 65,520 | 18,215 | 18,080 | 17,648 |
| 00028.las | 640 | 65,520 | 7,620 | 6,448 | 2,672 |
| 00029.las | 64 | 65,520 | 11,850 | 13,520 | 15,280 |
| 00030.las | 112 | 65,520 | 8,986 | 7,728 | 2,624 |
| 00031.las | 464 | 65,520 | 12,511 | 12,912 | 13,680 |
| 00032.las | 208 | 65,520 | 18,523 | 18,368 | 17,712 |
| 00033.las | 48 | 48,912 | 10,035 | 11,264 | 12,480 |
| 00034.las | 64 | 65,520 | 12,513 | 13,760 | 14,752 |
| 00035.las | 144 | 65,520 | 16,873 | 17,040 | 17,232 |
| 00036.las | 144 | 65,520 | 16,648 | 16,368 | 15,680 |
| 00037.las | 704 | 55,216 | 9,761 | 10,016 | 10,368 |
| 00038.las | 544 | 65,520 | 8,554 | 7,728 | 3,376 |
| 00041.las | 208 | 65,520 | 16,914 | 16,736 | 16,368 |

C-3 Report on Intensity Values - continued

| File | Minimum | Maximum | Mean | Median | Mode |
|-----------|---------|---------|--------|--------|--------|
| 00043.las | 576 | 65,520 | 10,779 | 11,696 | 14,400 |
| 00044.las | 112 | 65,520 | 14,306 | 15,040 | 15,952 |
| 00045.las | 208 | 65,520 | 18,061 | 17,872 | 17,776 |
| 00046.las | 160 | 65,520 | 8,475 | 7,760 | 2,608 |
| 00049.las | 304 | 65,520 | 17,319 | 17,056 | 16,768 |
| 00050.las | 496 | 65,520 | 9,396 | 8,976 | 2,704 |
| 00052.las | 112 | 65,520 | 8,034 | 6,064 | 2,592 |
| 00053.las | 400 | 65,520 | 13,826 | 14,480 | 14,688 |
| 00054.las | 48 | 65,520 | 12,222 | 13,840 | 15,968 |
| 00056.las | 592 | 49,936 | 7,941 | 6,272 | 3,136 |
| 00057.las | 480 | 65,520 | 8,457 | 7,936 | 2,640 |
| 00058.las | 496 | 65,520 | 8,124 | 6,784 | 2,688 |
| 00059.las | 160 | 65,520 | 10,657 | 11,712 | 12,496 |
| 00060.las | 208 | 65,520 | 13,294 | 14,112 | 14,560 |
| 00061.las | 64 | 65,520 | 10,410 | 11,504 | 1,968 |
| 00063.las | 512 | 46,592 | 7,910 | 6,592 | 2,672 |
| 00064.las | 208 | 65,520 | 16,252 | 17,072 | 17,248 |
| 00065.las | 384 | 65,520 | 13,418 | 14,384 | 15,872 |
| 00066.las | 800 | 65,520 | 17,257 | 17,024 | 16,240 |
| 00067.las | 400 | 65,520 | 12,745 | 13,952 | 15,392 |
| 00068.las | 64 | 65,520 | 11,457 | 13,040 | 15,344 |
| 00069.las | 512 | 65,520 | 13,684 | 13,104 | 12,704 |
| 00071.las | 144 | 65,520 | 10,756 | 11,776 | 13,008 |
| 00072.las | 416 | 65,520 | 9,529 | 9,840 | 3,376 |
| 00073.las | 112 | 65,520 | 18,560 | 18,320 | 17,728 |
| 00074.las | 80 | 65,520 | 14,236 | 15,152 | 16,208 |
| 00075.las | 112 | 65,520 | 11,860 | 11,744 | 11,904 |
| 00076.las | 176 | 65,520 | 18,290 | 18,208 | 18,128 |
| 00077.las | 144 | 65,520 | 16,179 | 16,496 | 16,800 |
| 00078.las | 592 | 65,520 | 17,604 | 17,344 | 16,720 |
| 00079.las | 560 | 65,520 | 8,125 | 6,944 | 2,688 |
| 00080.las | 336 | 65,520 | 10,350 | 10,448 | 10,512 |
| 00081.las | 288 | 65,520 | 15,951 | 16,384 | 16,976 |

C-3 Report on Intensity Values - continued

| File | Minimum | Maximum | Mean | Median | Mode |
|-----------|---------|---------|--------|--------|--------|
| 00082.las | 352 | 65,520 | 9,761 | 10,096 | 3,376 |
| 00094.las | 384 | 65,520 | 15,447 | 16,224 | 16,832 |
| 00096.las | 80 | 65,520 | 12,606 | 13,760 | 1,936 |
| 00097.las | 1,152 | 65,520 | 15,048 | 14,432 | 14,000 |
| 00099.las | 112 | 65,520 | 16,783 | 16,416 | 16,080 |
| 00100.las | 736 | 65,520 | 15,838 | 16,000 | 15,728 |
| 00101.las | 624 | 65,520 | 13,016 | 14,016 | 15,408 |
| 00102.las | 144 | 65,520 | 16,347 | 16,976 | 17,088 |
| 00103.las | 672 | 43,072 | 7,712 | 6,192 | 2,656 |
| 00104.las | 176 | 65,520 | 17,316 | 17,216 | 16,704 |
| 00105.las | 112 | 65,520 | 17,014 | 17,008 | 16,864 |
| 00106.las | 96 | 65,520 | 8,193 | 7,280 | 2,688 |
| 00107.las | 240 | 65,520 | 11,926 | 11,984 | 12,208 |
| 00108.las | 112 | 65,520 | 14,335 | 15,536 | 16,592 |
| 00109.las | 928 | 65,520 | 17,968 | 17,264 | 13,856 |
| 00110.las | 480 | 65,520 | 13,809 | 15,952 | 17,232 |
| 00112.las | 624 | 42,928 | 7,870 | 6,784 | 3,392 |
| 00113.las | 464 | 65,520 | 10,112 | 10,720 | 3,264 |
| 00114.las | 688 | 65,520 | 17,553 | 17,120 | 14,848 |
| 00115.las | 752 | 65,520 | 8,646 | 7,200 | 3,344 |
| 00117.las | 112 | 65,520 | 16,601 | 16,048 | 14,272 |
| 00119.las | 192 | 65,520 | 11,377 | 13,296 | 14,720 |
| 00120.las | 48 | 65,520 | 10,643 | 10,928 | 2,048 |
| 00124.las | 112 | 65,520 | 16,572 | 16,272 | 16,160 |
| 00125.las | 800 | 65,520 | 11,143 | 11,472 | 3,344 |
| 00126.las | 64 | 65,520 | 11,193 | 12,800 | 15,488 |
| 00129.las | 80 | 65,520 | 9,050 | 8,336 | 2,576 |
| 00130.las | 144 | 65,520 | 13,906 | 14,960 | 15,744 |
| 00141.las | 800 | 32,336 | 7,524 | 6,624 | 2,736 |
| 00144.las | 112 | 65,520 | 17,380 | 17,056 | 16,144 |
| 00146.las | 384 | 65,520 | 12,092 | 12,864 | 14,016 |
| 00150.las | 80 | 65,520 | 12,961 | 14,080 | 15,184 |
| 00151.las | 96 | 65,520 | 16,710 | 16,640 | 16,896 |

C-3 Report on Intensity Values - continued

| File | Minimum | Maximum | Mean | Median | Mode |
|-----------|---------|---------|--------|--------|--------|
| 00154.las | 816 | 39,200 | 9,847 | 9,648 | 3,392 |
| 00155.las | 64 | 65,520 | 11,716 | 12,656 | 13,120 |
| 00156.las | 80 | 65,520 | 10,186 | 10,560 | 2,592 |
| 00158.las | 128 | 65,520 | 12,052 | 12,560 | 14,016 |
| 00161.las | 192 | 65,520 | 10,513 | 11,376 | 14,336 |
| 00164.las | 576 | 65,520 | 12,099 | 12,432 | 14,048 |
| 00166.las | 208 | 65,520 | 16,838 | 16,496 | 16,464 |
| 00169.las | 208 | 65,520 | 17,964 | 17,776 | 17,488 |
| 00170.las | 64 | 65,520 | 12,283 | 13,536 | 14,896 |
| 00171.las | 992 | 65,520 | 17,365 | 16,880 | 16,496 |
| 00172.las | 1,296 | 65,520 | 17,867 | 17,584 | 17,296 |
| 00173.las | 496 | 65,520 | 17,720 | 17,232 | 17,184 |
| 00174.las | 96 | 65,520 | 12,852 | 14,848 | 17,584 |
| 00175.las | 112 | 65,520 | 13,221 | 14,864 | 16,624 |
| 00177.las | 96 | 65,520 | 16,695 | 16,512 | 16,272 |
| 00178.las | 336 | 65,520 | 9,996 | 10,320 | 10,768 |
| 00179.las | 112 | 65,520 | 18,431 | 17,648 | 16,016 |
| 00181.las | 112 | 65,520 | 17,037 | 17,104 | 16,832 |
| 00182.las | 176 | 65,520 | 10,217 | 11,344 | 14,848 |
| 00183.las | 448 | 65,520 | 12,670 | 14,208 | 16,400 |
| 00184.las | 64 | 65,520 | 12,017 | 13,568 | 15,856 |
| 00185.las | 1,184 | 65,520 | 18,128 | 17,552 | 17,264 |
| 00186.las | 64 | 65,520 | 10,645 | 11,808 | 15,840 |
| 00187.las | 48 | 65,520 | 9,780 | 8,768 | 2,032 |
| 00188.las | 1,552 | 65,520 | 17,364 | 17,072 | 16,528 |
| 00189.las | 304 | 65,520 | 12,454 | 12,208 | 12,368 |
| 00190.las | 64 | 65,520 | 8,437 | 6,528 | 1,888 |
| 00191.las | 240 | 65,520 | 15,889 | 16,656 | 17,136 |
| 00192.las | 256 | 65,520 | 10,369 | 10,448 | 2,784 |
| 00193.las | 96 | 65,520 | 9,529 | 8,880 | 3,344 |
| 00194.las | 192 | 65,520 | 10,501 | 11,056 | 13,264 |
| 00195.las | 48 | 65,520 | 9,181 | 8,720 | 14,752 |
| 00196.las | 1,344 | 65,520 | 17,928 | 17,536 | 17,280 |

C-3 Report on Intensity Values - continued

| File | Minimum | Maximum | Mean | Median | Mode |
|-----------|---------|---------|--------|--------|--------|
| 00197.las | 112 | 65,520 | 7,968 | 7,072 | 2,752 |
| 00198.las | 768 | 65,520 | 9,558 | 8,816 | 3,360 |
| 00199.las | 272 | 65,520 | 16,942 | 16,864 | 16,448 |
| 00200.las | 384 | 65,520 | 15,791 | 16,304 | 16,944 |
| 00201.las | 144 | 65,520 | 16,924 | 16,896 | 16,736 |
| 00202.las | 80 | 65,520 | 12,613 | 13,552 | 1,952 |
| 00203.las | 624 | 65,520 | 10,664 | 10,848 | 3,312 |
| 00204.las | 112 | 65,520 | 8,496 | 7,008 | 2,672 |
| 00205.las | 272 | 65,520 | 17,053 | 16,400 | 15,504 |
| 00206.las | 128 | 65,520 | 13,912 | 14,848 | 15,376 |
| 00208.las | 96 | 65,520 | 15,418 | 15,808 | 15,136 |
| 00209.las | 128 | 65,520 | 10,769 | 11,792 | 12,336 |
| 00210.las | 112 | 65,520 | 17,117 | 16,864 | 15,552 |
| 00211.las | 192 | 65,520 | 16,913 | 17,072 | 17,136 |
| 00212.las | 112 | 65,520 | 18,780 | 18,496 | 18,112 |
| 00213.las | 144 | 65,520 | 15,999 | 16,816 | 17,120 |
| 00214.las | 128 | 65,520 | 14,199 | 15,168 | 15,728 |
| 00215.las | 208 | 65,520 | 8,566 | 7,168 | 2,656 |
| 00216.las | 208 | 65,520 | 18,038 | 17,248 | 15,984 |
| 00217.las | 608 | 65,520 | 12,208 | 13,872 | 16,656 |
| 00218.las | 304 | 65,520 | 16,349 | 16,928 | 17,088 |
| 00219.las | 624 | 65,520 | 10,389 | 11,120 | 2,704 |
| 00220.las | 96 | 65,520 | 8,451 | 7,456 | 2,624 |
| 00221.las | 496 | 65,520 | 17,579 | 17,536 | 17,008 |
| 00222.las | 112 | 65,520 | 15,524 | 16,160 | 16,368 |
| 00223.las | 400 | 65,520 | 9,287 | 9,424 | 10,672 |
| 00224.las | 688 | 43,712 | 8,912 | 8,256 | 4,208 |
| 00225.las | 112 | 65,520 | 16,029 | 15,760 | 15,584 |
| 00226.las | 512 | 36,304 | 8,598 | 7,616 | 3,360 |
| 00227.las | 1,200 | 65,520 | 16,960 | 16,624 | 15,616 |
| 00228.las | 80 | 65,520 | 9,862 | 11,088 | 12,240 |
| 00229.las | 576 | 65,520 | 12,927 | 13,888 | 14,832 |
| 00231.las | 176 | 65,520 | 17,574 | 17,344 | 16,736 |

C-3 Report on Intensity Values - continued

| File | Minimum | Maximum | Mean | Median | Mode |
|--------------------|---------|---------|--------|--------|--------|
| 00232.las | 544 | 65,520 | 7,625 | 6,064 | 3,360 |
| 00233.las | 576 | 65,520 | 13,527 | 14,656 | 15,856 |
| 00234.las | 64 | 65,520 | 12,539 | 13,376 | 13,936 |
| 00235.las | 112 | 65,520 | 17,396 | 16,560 | 15,344 |
| 00236.las | 688 | 37,104 | 7,916 | 6,736 | 3,440 |
| 00237.las | 112 | 65,520 | 17,191 | 17,264 | 17,248 |
| 00238.las | 400 | 65,520 | 17,394 | 17,184 | 16,160 |
| 00240.las | 1,120 | 65,520 | 14,955 | 14,320 | 13,856 |
| 00373.las | 64 | 65,520 | 7,441 | 5,120 | 1,968 |
| 00379.las | 64 | 65,520 | 7,174 | 5,056 | 1,920 |
| 00384.las | 64 | 65,520 | 7,372 | 5,440 | 1,936 |
| 00389.las | 192 | 65,520 | 11,920 | 13,616 | 15,280 |
| 00399.las | 272 | 65,520 | 15,569 | 16,816 | 17,120 |
| 00410.las | 96 | 65,520 | 11,048 | 12,784 | 15,424 |
| 00416.las | 224 | 25,904 | 7,328 | 5,056 | 1,456 |
| 00423.las | 112 | 65,520 | 10,487 | 12,096 | 13,568 |
| 00424.las | 128 | 65,520 | 9,377 | 10,592 | 13,232 |
| 00439.las | 336 | 31,408 | 9,390 | 9,344 | 2,048 |
| Overall Statistics | 48 | 65,520 | 13,931 | 14,896 | 16,096 |

C-3 Report on Intensity Values - continued

The purpose of this section is to show a frequency distribution chart of intensities throughout all of the lidar files.

[Data Source - Y:\Mapping\Projects\65220595_CO_SanLuisJuanMiguel\Production\Final_Client_Deliverables\Block5\point_cloud\Swaths_New](Y:\Mapping\Projects\65220595_CO_SanLuisJuanMiguel\Production\Final_Client_Deliverables\Block5\point_cloud\Swaths_New)

