|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | schematic of the method | name of the method | calculation of scanning speed | | *Tmeasurement* (*vmeasurement* ) | *Vmeasurement* compared to chessboard scanning | ratio of collected photons compared to chessboard scanning (*SNR2 )* | *SNR2 × vgain* compared to chessboard scanning |
| AO SCANNING TECHNIQUES | N:\Presentacio\!MS 39 VIP neurons Kepecs Adammal\FIGURES\chessboardnew.png | 3D AO chessboard scanning | ***Ncell*** *×* ***Nline****×* ***Tpixel*** | | 0.036 s (27.7 Hz) | 1 | 1 | 1 |
| N:\Presentacio\!MS 39 VIP neurons Kepecs Adammal\FIGURES\4.png | AO point by point scanning of the entire volume | ***x*** *×* ***y*** *×* ***z*** *×* ***Tpixel*** | | 1611.5 s (0.0006 Hz) | 1/44762 | 1 | 1/44762 |
| N:\Presentacio\!MS 39 VIP neurons Kepecs Adammal\FIGURES\3.png | AO point by point scanning in layers containing cell somatas (19 layers) | ***x*** *×* ***y*** *×* ***Nz****×* ***Tpixel*** | | 158.4 s (0.00631 Hz) | 1/4399 | 1 | 1/4399 |
| RESONANT SCANNING TECHNIQUES | N:\Presentacio\!MS 39 VIP neurons Kepecs Adammal\FIGURES\1.png | Volume  scanning  with resonant mirror | ***x*** *×* ***y*** *×* ***z*** *×* ***T'pixel*** | | 6.1 s (0.16 Hz) | 1/170 | 1/244 | 1/41506 |
| N:\Presentacio\!MS 39 VIP neurons Kepecs Adammal\FIGURES\2.png | Multiple-layer scanning with resonant mirror and piezo  (19 layers) | ***x*** *×* ***y*** *×* ***Nz*** *×* ***T'pixel*** | | 0.98 s (1.04 Hz | 1/27 | 1/244 | 1/6654 |
|  | ***\*Used parameters:******Ncell*** *= 120 (120 cells)* ***x*** *= 548 pixel,* ***y*** *= 507 pixel,* ***z*** *= 193 pixel (total scanning volume was: x = 689 µm, y = 639 µm, z = 580 µm)*  ***Nz****=19 (19 z layers were used in volume scanning)* | | | ***T’pixel*** *= 0.11 µs, (pixel dwell time of resonant scanning, according to a f=16 kHz frequency and the x=548 pixel line resolution of the resonant scanner)* ***Tpixel*** *= 30 µs, (AO pixel dwell time)* ***Nline=***10 (number of lines used to form a frame in chessboard scanning) | | | | |