

Table 1: Statistical results of pixel brightness values of FITS files images from CASA 3.3 VLA observation and imaging simulations (with same parameters and settings as in previous simulations) for different implementations of A-Projection to correct for visibilities corrupted by the VLA PB. The different implementations of A-Projection were set by modifying lines of code in nPBWProjectFT.cc related to gridding correction steps involving the prolate spheroidal (PS) function and PS function gridding correction steps in anticipation of convolution by the GCF (and where each polarization plane is corrected by the appropriate PB). The key for the left-most column of the table is as follows: 1. Essentially no modifications made to nPBWProjectFT.cc for PS function gridding correction steps (i.e., gridded visibilities divided by PB correction factor to the power of 1.0). 2. Modifications to PS function gridding correction steps including gridded visibilities divided by PB correction factor to the power of 1.5. 3. Same as 2 except gridded visibilities divided by PB correction factor to power of 1/1.75. 4. Same as 3 except gridded visibilities divided by PB correction factor to power of 1/2.0. 5. Same as 4 except gridded visibilities divided by PB correction factor to power of 1/2.05. 6. Same as 5 except gridded visibilities divided by PB correction factor to power of 1/2.1. 7. Same as 6 except gridded visibilities divided by PB correction factor to power of 1/2.2. 8. Same as 7 except gridded visibilities divided by PB correction factor to power of 1/3.0.

A-proj PS grid correction implementation	mean(btwn,src1,src2)	r.m.s.(btwn)	D.R.	major cycles	wall-clock time(min.)	CPU time(min.)
1(1.0)	9.0405-05, 0.0023	0.0234, 0.0047	209.6	2	12.59	11.35
2(1.5)	8.9777e-07, 0.0198	0.0229, 2.2744-05	44841.28	44	161.63	149.64
3(1.75)	7.9244e-07, 0.0229	0.0229, 2.229e-05	52882.64	58	243.81	197.22
4(2.0)	5.9449e-07, 0.0255	0.0229, 2.2402e-05	58644.49	70	231.04	226.62
5(2.05)	5.2214e-07, 0.0260	0.0229, 2.2558e-05	59313.97	72	249.03	235.81
6(2.1)	3.1414e-07, 0.0264	0.0229, 2.3034e-05	59109.54	74	305.76	247.30
7(2.2)	1.6754e-07, 0.0273	0.0229, 2.3877e-05	58880.06	77	257.13	249.92
8(3.0)	-4.9993-06, 0.0320	0.0229, 6.3800e-05	25811.98	80	298.15	264.76