

	airplane	barbara	boats	lena	mandril	peppers	tiffany	zelda		max	min
	510x510	510x510	510x510	510x510	510x510	510x510	510x510	510x510			
	mean1	mean1	mean1	mean1	mean1	mean1	mean1	mean1			
brightness -20%	0	3.5	3.1	3.5	0.3	3.5	0	3.9		3.9	
brightness -15%	0	1.1	1.9	2.3	0	2.7	0	2.7		2.7	
brightness -10%	0	0	0.7	0.7	0.3	0.3	0	0.7		0.7	
brightness -5%	0	0	0.7	0	0.3	0	0	0		0.7	
brightness 5%	0	0	0.7	0	0	0	1.5	0		1.5	
brightness 10%	0	0	0.3	0.7	0.7	0.3	3.5	0		3.5	
brightness 15%	0	0	0.3	0.3	1.5	0	4.6	0		4.6	
brightness 20%	1.9	0	1.1	0.3	1.9	0.7	5.8	0.3		5.8	
contrast -20%	0	0	0.7	0	0	0	0	0		0.7	
contrast -15%	0	0	0.7	0	0	0	0	0		0.7	
contrast -10%	0	0	0.7	0	0	0	0.3	0		0.7	
contrast -5%	0	0	0.3	0	0	0	0	0		0.3	
contrast 5%	0	0	0.3	0	0.3	0	1.1	0		1.1	
contrast 10%	0	0	0.7	0.7	0.3	0.3	2.7	0.7		2.7	
contrast 15%	0	0	1.1	0.7	0.7	0.3	3.9	0.7		3.9	
contrast 20%	0	1.1	1.5	0.7	1.5	1.5	4.2	1.9		4.2	
gamma 0.75	0.7	3.1	1.5	3.1	0.3	2.7	0.3	2.7		3.1	
gamma 0.8	0.3	2.7	1.1	1.5	0.3	0.7	0	2.7		2.7	
gamma 0.85	0	1.9	1.5	1.9	0.3	1.1	0.3	2.3		2.3	
gamma 0.9	0	1.1	0.3	0.7	0	0	0	0.7		1.1	
gamma 1.05	0	1.1	0.7	0.7	0	0	0	0		1.1	
gamma 1.1	0	0	1.1	0	0.3	0.3	0.3	1.1		1.1	
gamma 1.15	0	0	1.1	0.3	0.3	0.7	0	1.5		1.5	
gamma 1.2	0.3	0	1.1	0.3	0.3	1.5	0	1.1		1.5	
gamma 1.25	0.3	0	1.1	0.3	0.3	1.5	0.3	2.7		2.7	
blur 0.5	0	0	0.7	0.3	0	0.3	0.3	0		0.7	
blur 1	0	0	0.3	0.7	0.3	0	0.3	0		0.7	
blur 2	0	0.3	0.7	0.7	0	0	0	0.3		0.7	
blur 3	0	0.7	1.9	0.7	0	0	0	0.3		1.9	
compress 5	1.9	1.5	2.7	1.5	2.3	1.1	1.9	2.7		2.7	
compress 10	0	1.5	0.3	0.3	0.7	0.7	1.1	0.7		1.5	
compress 25	0	0.7	0.3	0.3	0.3	0	0.3	0		0.7	
compress 50	0	0	0.3	0.7	0	0	0	0		0.7	
compress 75	0	0	0	0.7	0.3	0	0.3	0		0.7	
compress 100	0	1.1	0	0	0.3	0	0	0		1.1	
color noise 0.5	0	0	0.3	0	0.3	0	0.3	0.7		0.7	
color noise 1	0	0	0.3	0.7	0	0	0.7	0.7		0.7	
color noise 1.5	0.3	0.3	0.7	0	1.1	0.3	1.1	0.7		1.1	
color noise 2	0.3	0.7	0.7	1.9	0.7	0.3	1.1	0.7		1.9	
color noise 2.5	0.3	1.9	0.7	0.3	1.5	0.3	1.9	0.3		1.9	
color noise 3	0.3	1.1	1.1	0.7	1.1	0.7	1.5	0.7		1.5	
gray noise 0.5	0	0	0.3	0.7	0	0	0	0		0.7	
gray noise 1	0	0	0.3	0	0	0	0	1.1		1.1	
gray noise 1.5	0	0.3	0.7	0	0	0	0	1.1		1.1	
gray noise 2	0	0.7	1.1	0	0.7	0.3	0.3	1.9		1.9	
gray noise 2.5	0.3	1.1	1.1	0	1.1	0.3	0.7	1.5		1.5	
gray noise 3	0	1.5	1.1	0	0.7	0.3	1.1	1.5		1.5	
resize 25%	0	0	0	0.3	0.3	0	0	0.3		0.3	
resize 50%	0	1.1	0.3	0.3	0.3	0	0.3	0.7		1.1	
resize 75%	0	0	0.3	0	0.3	0	0	0		0.3	
resize 150%	0	0	0.7	0.3	0.3	0.3	0.3	0.3		0.7	
resize 200%	0	0	0.7	0.3	0.3	0.3	0.3	0		0.7	

resize 400%	0	0	0.7	0.3	0.3	0.3	0.3	0.3	0.7
rotation -90	42.9	50	46	51.5	46.8	53.1	42.9	56.2	
rotation -45	64.8	39	54.2	50.3	55.4	53.1	40.2	48.8	
rotation -30	62.8	40.2	51.5	52.3	58.9	51.1	39	48.4	
rotation -15	53.1	40.6	41.4	48.4	55	47.2	37.5	39.8	
rotation -5	32.4	32.4	25.3	27.7	35.9	25.3	29.2	23	
rotation 5	32.4	26.9	26.1	27.7	34.3	27.3	30	26.1	
rotation 15	57.4	37.8	41.7	42.5	52.7	48.8	34.7	35.9	
rotation 30	64.8	39.4	47.6	47.6	57	49.6	38.6	41.4	
rotation 45	67.1	39	49.6	48	56.2	53.9	41	42.5	
rotation 90	42.9	50	46	51.5	46.8	53.1	42.9	56.2	
rotcrop 1	1.9	5	4.2	3.1	4.6	3.9	2.3	3.1	5
rotcrop 2	6.6	10.1	8.2	8.2	7.4	6.2	8.5	6.2	10.1
rotcrop 5	17.1	20.3	13.2	15.2	12.8	19.1	17.1	18.3	20.3
rotcrop 7	20.3	25	15.2	20.7	17.1	23.4	20.3	20.7	
rotcrop 10	23.8	30.8	20.3	25.7	23.8	28.5	24.2	26.9	
rotcrop 15	30.4	38.2	25.7	29.2	32.8	38.6	28.5	30.4	
rotcrop 20	36.7	43.7	28.9	35.5	42.1	46	29.2	32	
rotcrop 30	39.8	45.7	37.5	34.7	49.2	50.3	32.4	33.9	
rotcrop 45	39.4	47.2	42.1	42.5	49.2	51.9	35.9	35.5	
rotcrop 90	42.9	50	46	51.5	46.8	53.1	42.9	56.2	
flop	35.9	52.3	22.6	53.1	24.2	42.1	57.8	32	
flip	40.6	44.5	55.4	35.9	55.4	51.5	25	50.7	
transpose	46.8	39	35.1	46	45.3	36.7	39.8	46	
transverse	32.8	50	48.4	51.5	34.3	37.5	45.3	56.2	
translate north (black)	48.4	37.8	47.2	38.2	51.9	55.4	51.5	57.4	
traslate west (black)	69.5	37.1	58.2	59.3	49.6	51.5	65.6	46.4	
translate northwest (black)	52.3	37.8	45.7	50	55	55.4	61.7	56.6	
translate north vs west (black)	48.4	37.8	47.2	38.2	51.9	55.4	51.5	57.4	
translate north (white)	51.5	62.1	52.7	61.7	48	44.5	48.4	42.5	
traslate west (white)	30.4	62.8	41.7	40.6	50.3	48.4	34.3	53.5	
translate northwest (white)	47.6	62.1	54.2	50	44.9	44.5	38.2	43.3	
translate north vs west (white)	51.5	62.1	52.7	61.7	48	44.5	48.4	42.5	
watermark 20%	1.9	2.3	2.3	3.1	2.3	2.7	3.5	1.9	3.5
watermark 40%	4.2	5	3.5	4.2	3.9	4.2	7.8	4.6	7.8
watermark 60%	5	6.6	4.2	5.8	4.2	4.6	13.2	5	13.2
watermark 80%	7.4	9.7	4.6	6.2	5.8	4.6	17.1	5.8	17.1
watermark 100%	8.5	9.7	4.6	6.6	6.6	4.6	18.3	5.8	18.3
shear 1	7.4	5	3.5	3.1	6.2	3.9	10.1	5.4	10.1
shear 2	9.7	8.2	8.2	7.8	7	6.2	14	9.3	14
shear 3	14	14.8	9.3	13.6	12.5	12.1	17.9	12.1	17.9
shear 4	16.4	17.1	10.5	18.3	17.1	14.4	19.9	16.7	19.9
shear 5	18.7	22.6	10.9	23	21	16.4	25.3	17.5	
shear 10	32	31.6	15.6	31.6	33.5	24.6	32.8	26.5	
arc 1	4.6	1.9	4.6	3.5	4.6	1.9	7.4	3.9	7.4
arc 2	8.9	5	5.8	3.9	7.4	4.2	10.5	4.2	10.5
arc 3	11.7	8.2	7.4	4.6	12.1	5.8	14.4	7.4	14.4
arc 4	15.6	11.3	11.7	7	15.2	7.4	15.6	8.2	15.6
arc 5	16.4	13.2	12.5	8.5	18.3	8.2	17.1	10.5	18.3
arc 10	24.6	20.7	18.3	23	29.2	15.2	23.4	18.7	
barrel 0.1	5.4	7	8.2	3.5	10.5	6.2	9.7	6.2	10.5
barrel 0.2	11.3	10.5	12.8	9.3	14	10.9	13.2	12.1	14
barrel 0.3	15.2	13.2	16	11.7	20.3	15.2	19.5	18.7	20.3

barrel 0.4	19.1	16.4	19.5	14.4	24.6	19.9	22.6	22.6			
pincushion -0.1	37.5	32	28.5	29.6	35.1	29.6	31.6	27.7			
pincusion -0.2	36.3	32.4	30	31.2	37.1	30.4	29.6	28.1			
pincusion -0.3	33.9	33.5	27.3	31.6	35.1	28.9	28.1	28.5			
pincusion -0.4	32.8	34.7	26.9	32.8	34.7	30	29.6	29.6			
airplane	0	51.1	37.1	43.7	47.2	57	44.5	49.6			37.1
barbara	51.1	0	47.6	47.2	55.4	56.6	53.5	57			
boats	37.1	47.6	0	47.2	46.8	46.4	50.3	52.3			
lena	43.7	47.2	47.2	0	54.2	55.4	48.4	51.9			
mandril	47.2	55.4	46.8	54.2	0	45.7	55.8	56.2			
peppers	57	56.6	46.4	55.4	45.7	0	48.4	45.7			
tiffany2	44.5	53.5	50.3	48.4	55.8	48.4	0	48			
zelda	49.6	57	52.3	51.9	56.2	45.7	48	0			
Threshold Range										20.3	37.1
Separability (max-min)											16.8
Insensitive: rotation-crop up to 5, all watermark, shear up to 4, arc up to 5, barrel up to 0.3											
Sensitive: flip-flop-trans, pincushion											