```
function [N_0, s_0, avg_ent] = mw_sq_std_dev(input_im)

im_size = size(input_im);

num_rows = im_size(1);

num_cols = im_size(2);

alpha = .5;

N_max = min([num_cols/2 num_rows/2]);

N_0 = ceil(log2((num_rows + num_cols)/2));

N_1 = ceil((1 - alpha)*N_0);

[X Y] = test_measures(input_im,N_0);

avg_ent = X;

s_0 = Y;

[X Y] = test_measures(input_im,N_1);

s_1 = Y;

if((-1/N_1^2)*log2(1/N_1^2)*s_1  > (-1/N_0^2)*log2(1/N_0^2)*s_0)

  while(((-1/N_0^2)*log2(1/N_0^2)*s_1 > (-1/N_0^2)*log2(1/N_0^2)*s_0) && (ceil((1 -
alpha)*N_0) > 1))

    N_0 = N_1;

    N_1 = ceil((1 - alpha)*N_0);

    [X Y] = test_measures(input_im,N_0);

    avg_ent = X;

    s_0 = Y;

    [X Y] = test_measures(input_im,N_1);

    s_1 = Y;

  endwhile

else
```

```
  N_1 = ceil((1 + alpha)*N_0);

  [X Y] = test_measures(input_im,N_0);

  s_0 = Y;

  [X Y] = test_measures(input_im,N_1);

  s_1 = Y;

  while((-1/N_1^2)*log2(1/N_1^2)*s_1 >= (-1/N_0^2)*log2(1/N_0^2)*s_0 && (ceil((1 +
alpha)*N_0) < N_max))

    N_0 = N_1;

    N_1 = ceil((1 + alpha)*N_0);

    [X Y] = test_measures(input_im,N_0);

    avg_ent = X;

    s_0 = Y;

    [X Y] = test_measures(input_im,N_1);

    s_1 = Y;

  endwhile

endif

endfunction
```