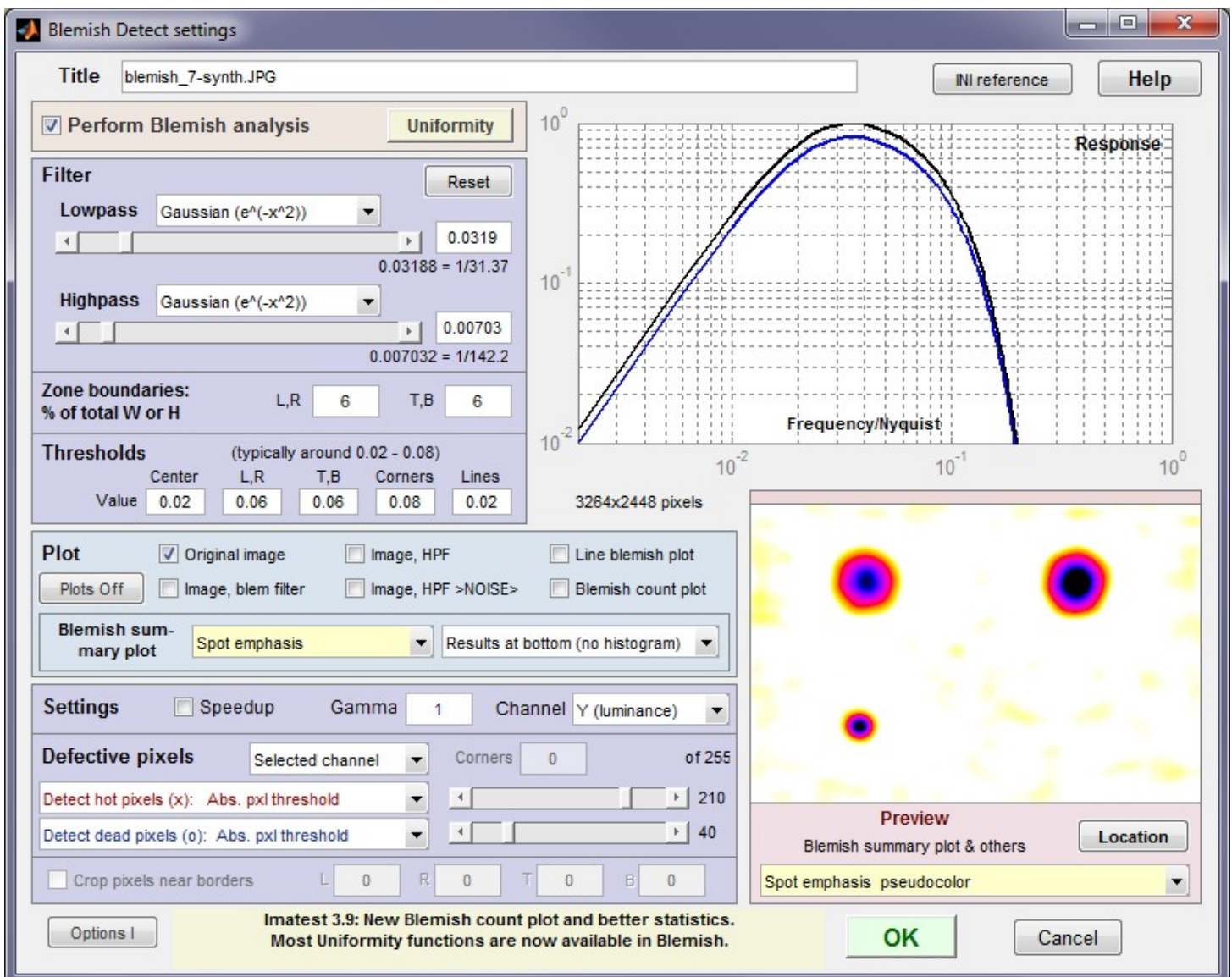


# Blemish INI Reference

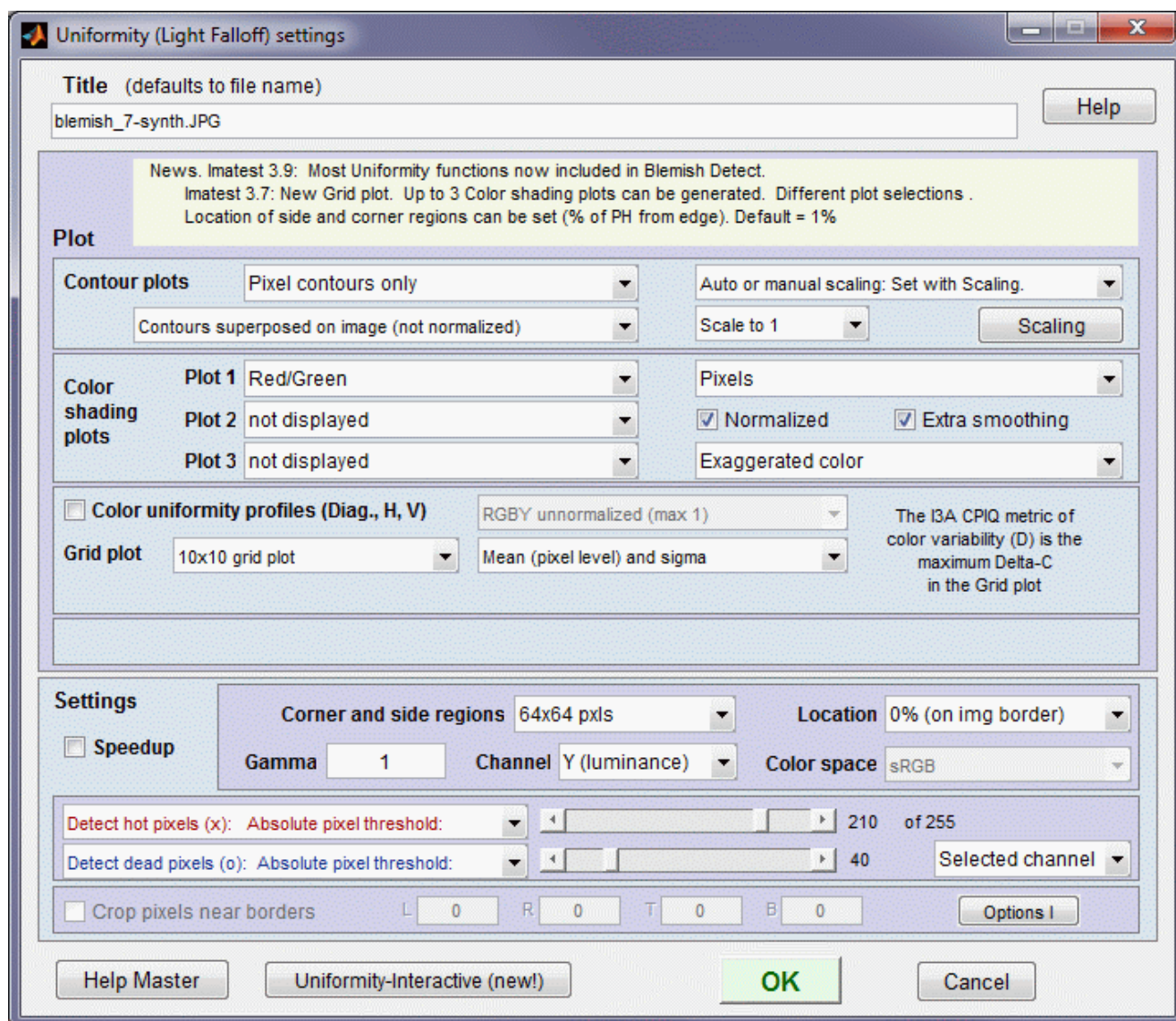
## Blemish Detect INI file reference

**Blemish Detect** detects visible sensor defects (typically blurred spots caused by dust in front of the image sensor) using a tunable filter based on the human visual system. Because it is included in Imatest IT/EXE and DLL, users may need to examine or edit the INI file used to control IT versions of Blemish Detect.

Most of the settings in the [blemish] section are set by the Blemish Settings window or Uniformity settings window (which can be opened by pressing the button near the top of the Blemish settings window.) A few are set by responses to other windows or user actions.



## Blemish settings window



Uniformity Settings for Blemish Detect. Histograms and Noise detail are omitted

INI file settings that affect several modules are described in [Imatest INI Reference](#).

### Notes

<b>(-IT)</b>	Not used in Imatest IT
<b>(gr)</b>	Affects graphics (figures). May not be of interest for Imatest IT, where graphics is often suppressed.
<b>(index)</b>	Setting is equal to the index of the popup menu. You'll need to open the Settings window to see these: Never used for important IT settings.
<b>(index-</b>	Setting is equal to the index of the popup menu – 1 (0 – (index-1)). Keeps backwards

1)	compatibility for some settings that were originally 0 (off) or 1 (on), but had options added.
♠	Set in Blemish detect settings window
ρ	Set during image read or region selection
σ	Set in Save results window
◇	Set in other window

## Two methods of selecting the Region of Interest (ROI; region to be analyzed)

The region to be analyzed is normally selected by **roi**, which is set in the coarse and fine region adjust windows. **roi** contains several groups of four values, each corresponding to the  $n$ th value of image width **nwid\_save** and height **nht\_save**. Each group of four **roi** values consists of [x1 y1 x2 y2]: the Left, Top, Right, and Bottom pixels that define the Region of Interest, defined relative to the upper-left corner, *not* to each of the edges. So if you want a constant margin for several images (for example, you want the ROI boundaries to be 4 pixels from the borders), **roi** must be set individually for each image size.

Blemish Detect offers an alternative method of specifying the ROI relative to the image boundaries: **crop\_borders**, which is set near the bottom of the Blemish (or Uniformity) window. **crop\_borders** contains five values: 1-4 are the margins (in pixels) relative to the L R T and B boundaries. The fifth value turns **crop\_borders** on (1) or off (0). **crop\_borders** is enabled when **blemcrop**==1 and **crop\_borders**(5)==1. If **blemcrop**>1 or **crop\_borders**(5)==0, **crop\_borders** is ignored and **roi** is used for the ROI.

## Table of [blemish] settings

Parameter	Settings window ♠ Blemish settings; ◇ Other; ρ Read; σ Save	Typical values [default]	Description	Notes
addconts	♠ Summary plot (Blemish plot (spot emphasis))	1-4 [4] (index)	Main Blemish results plot	(gr)

	shown above			
addhist	♠ Summary plot options (Add results at bottom...) shown above	1-3 [1] (index-1)	Include results and/or histogram at bottom of summary plot (slows computations!)	(gr)
bayeraw	◇ (Set by several buttons in the Monochrome image settings window)	0-5 [0]	If > 0, monochrome files contains Bayer RAW data. 1-4, indicates primary color to analyze (R, Gr, B, Gb). 5 indicates Demosaic.	
blemc_maxn	(unused)	1 1 1		
blemc_minsz	(unused)	10		
blemc_run	♠ Blemish count plot (checkbox)	0 or 1 [0]	Plot Blemish count if 1	(gr)
blemc_thresh	(unused)	0.2		
blemc_units	(unused)	2		
blemc_zbounds	(unused)	30 75		
blemcrop	◇ (Set in Options I window)	1-3 [2] (index)	Cropping options: 1 disables normal region selection (roi) and enables crop_borders (if crop_borders(5)==1). 2 is recommended for normal region selection.	
blemish_analysis	♠ Blemish analysis checkbox	0 or 1 [1]	Normally 1 for blemish analysis. 0 turns off blemish analysis (Uniformity and	

			hot/dead pixel analysis is still available). Turning off blemish analysis speeds up runs tremendously.	
blemlim1	(unused)	3 4 4 4 4 4 4		
blemlim2	(unused)	3 4 4 10 20 25		
brawShift	◇ (Set by the Bit shift popup menu in the Monochrome image settings window)	1-6 [1] (index)	ba	
closefigs	☐ Set by the Close figures after save checkbox in the Save window.	0 or 1 [0]	1 recommended for IT (closes figures after save).	
crop_borders	♠ Alternative way of specifying Regions of Interest, relative to the image boundaries. Set in the <b>Crop pixels near borders</b> section (lower-left).	0 0 0 0 0	Values 1-4 are the margins relative to the L R T and B boundaries that define the Region of Interest. The fifth value turns crop_borders on (1) or off (0). blemcrop must be set to 1 to enable crop_borders.	
deadp	♠ Dead pixels popup menu (lower-left)	1-3 [1] (formerly Min, Max) If 2 or 3, same as hotpx.	1 = No dead or dark pixels 2 = Display dead pixels (o): Abs. pxl threshold 3 = Display dark pixels (o): Rel. % threshold	
deadthr	♠ Dead pixels slider	[4 8]	Thresholds for detecting dead pixels:	

			absolute value in pixels and relative % below neighbors for deadp = 2, 3.	
figsave	☞ Set in Save figures as PNG or FIG dropdown menu in Save window	1 or 2 [1 recommended]	Type of figure to save (PNG or FIG). FIG files not recommended because they require <i>much</i> more storage.	(gr)
filecomb	Ⓟ Set when multiple files are selected for analysis	0 or 1 [0]	0: Read and analyze files as a batch, 1: Combine files (signal-average)	(-IT)
filtype	♠ Popup menus to the right of Lowpass & Highpass	[2 1]	Highpass and lowpass filter rolloffs: 1: Exponential ( $e^{-x}$ ), 2: Gaussian ( $e^{-x^2}$ ), 3: Exponential-3 ( $e^{-x^3}$ )	
folder	Set during image file read	(Path name)	Folder for last input image	(-IT)
gamma	♠ (Settings area)	[0.5]	Used to linearize image prior to filtering.	
hdchan	♠ Channel popup menu below Hot/Dead pixels menus	1-3 [1]	Channel(s) for detecting Hot/Dead pixels: 1 = any; 2 = selected; 3 = all.	
hotpx	♠ Hot pixels popup menu (lower-left)	1-3 [1] (formerly Min, Max) If 2 or 3, same as deadp.	1 = No hot or light pixels 2 = Display hot pixels (o): Abs. pxl threshold 3 = Display light pixels (o): Rel. % threshold	
hotthr	♠ Hot pixels slider	[251 8]	Thresholds for detecting hot pixels: absolute value in pixels	

			and relative % above neighbors for hotpx = 2, 3.	
hpf_set	♠ Highpass slider or text box	[0.02]	Highpass cutoff in normalized units.	
lineplot	♠ Line blemish plot checkbox	0 or 1 [0]	Line blemish plot	(-gr)
lpf_set	♠ Lowpass slider or text box	[0.005]	Lowpass cutoff in normalized units.	
nchan	♠ Channel popup menu	1-4	Channel to analyze: 1-4: R, G, B, Y (Luminance)	
nht_save	Ⓟ Set during image read	2448 ...	Height in pixels of recent image(s). There may be several for several image sizes. the <i>n</i> th value corresponds to the <i>n</i> th value of nwid_save and the <i>n</i> th group of four values of roi.	
nwid_save	Ⓟ Set during image read	3264 ...	Width in pixels of most recent image(s). There may be several for several image sizes. the <i>n</i> th value corresponds to the <i>n</i> th value of nht_save and the <i>n</i> th group of four values of roi.	
plot_image	Ⓟ Plot checkboxes in Settings window	1 0 0 0 0 0		
prevdisp	Preview display popup menu,	[1] (index)	Display type for the Preview in the Blemish	(-IT)

	under the Preview image		settings window	
roi	<b>p</b> Set during region selection (primarily in the fine adjust window)	1 1 3264 2448 (typical)	Region of interest (crop) in pixels. [x1 y1 x2 y2] There may be several groups of four for several image sizes. the <i>n</i> th group of 4 corresponds to the <i>n</i> th value of nht_save and nwid_save. See crop_borders for alternative Region selection method.	
save_answer	<b>σ</b> Save window — main answer (unused)	Yes, No	Saved setting not used.	(-IT)
save_dir	<b>σ</b> Set in Save window	(Folder name)	Last folder used to save results	(-IT)
saveCSV	<b>σ</b> Save window	0 or 1 [-99 = ignore]	Save CSV results. Overrides save_file_list.	
saveJSON	<b>σ</b> Save window	0 or 1 [-99 = ignore]	Save JSON results. Overrides save_file_list.	
saveXML	<b>σ</b> Save window	0 or 1 [-99 = ignore]	Save XML results. Overrides save_file_list.	
save_file_list	Save window	[1 1 1 0 0 0 0 0 0 0]	List of results to save if element is set to 1: 1: Orig. image, 2: Image LPF, HPF, 3: Image HPF, 4: Image HPF, exag. noise, 5: Blemish summary, 6: Blemish line image, 7: CSV, 8: XML, 9: Blemish count image, 10: JSON	



sideloc	♠ Location popup window	1-7 [1]	Distance from outer ROI boundary to image border (% of image height) 1-7: 0% (border), 1%, 2%, 5%, 10%, 15%, 20%	
sidereg	♠ Corners & sides popup menu	1-7 [2] (index) (Same as uniformity)	Size of corner and side regions for Relative Illumination analysis. 1: 10×10 pixels, 2: 32×32 pixels, 3: 1% (min. 10), 4: 2% (min. 10), 5: 5%, 6: 10%, 7: 64×64 pxls.	
speedup	♠ Speedup (checkbox in Settings area)	0	if set to 1, skip several calculations related to relative illumination to speed up operation.	
thresh	♠ Threshold values for blemish detection (5 text boxes)	[.02 .03 .03 .04 .01]	Threshold values for blemishes in Center, (L,R), (T,B), Corner regions, and Lines.	
thumbcrop	♠ Set when Location button in Blemish settings has been pressed	[1 1 300 200]	Crop locations for the Preview in the Blemish settings window [x1 y1 x2 y2]	(-IT)
zone_bord	♠ Zone boundaries: (text boxes)	[10 10]	Zone boundaries (L,R) and (T,B) in % of total Width or Height	

## Sample data

[blemish]

addconts = 3

addhist = 1

bayeraw = 0

blemc\_run = 0

blemcrop = 2

```

browShift = 1
closefigs = 0
colorspace = 1
deadp = 2
deadthr = 24      18
figsave = 1
filecomb = 0
filttype = 2      2
folder = C:\matest\Data\Uniformity\Blemish\
gamma = 1
hdchan = 2
hotpx = 2
hotthr = 231      18
hpf_set = 0.007032
lastfiles = "blemish_7-synth.JPG"
lineplot = 0
lpf_set = 0.03188
nchan = 4
nht_save = 2448    808    800    2336    750    400    480    3448
1280    484    485    450
nwid_save = 3264    1296    1280    3504    1000    400    640
4592    800    644    644    600
plot_image = 1    0    0    0    0    0
prevdisp = 4
rmcn = 4
roi = 1    1    3264    2448    1    1    1296    808    1
1    1280    800    1    1    3504    2336    1    1
1000    750    1    1    400    400    1    1    640
480    1    1    4592    3448    1    1    800    1280
1    1    644    484    5    6    639    480    1    1
600    450
saveCSV = 1
saveJSON = 1
saveXML = 1
save_answer = Yes
save_dir = C:\matest\Data\Uniformity\Blemish\Results\
save_file_list = 1 1 1 1 1 1 1 1 1 1 0 0
sideloc = 1
sidereg = 7
speedup = 0

```

thresh = 0.02	0.06	0.06	0.08	0.02
thumbcrop = 1285	1103	1584	1302	
zone_bord = 6	6			

**Related pages**

[Imatest INI file reference](#) | [SFRplus INI file reference](#)

[Blemish Detect](#)