This excellent description of how to take clinical and dermatoscopic images with the Canon Powershot A590IS is courtesy of Dr Greg Canning who produced it for the Australian Dermoscopy Diploma and has kindly allowed me to use it in the Dermatology Diploma

Taking Clinical and Dermoscopic Images with the Powershot A590IS

A. Equipment

1. Heine Delta 20 Dermatoscope

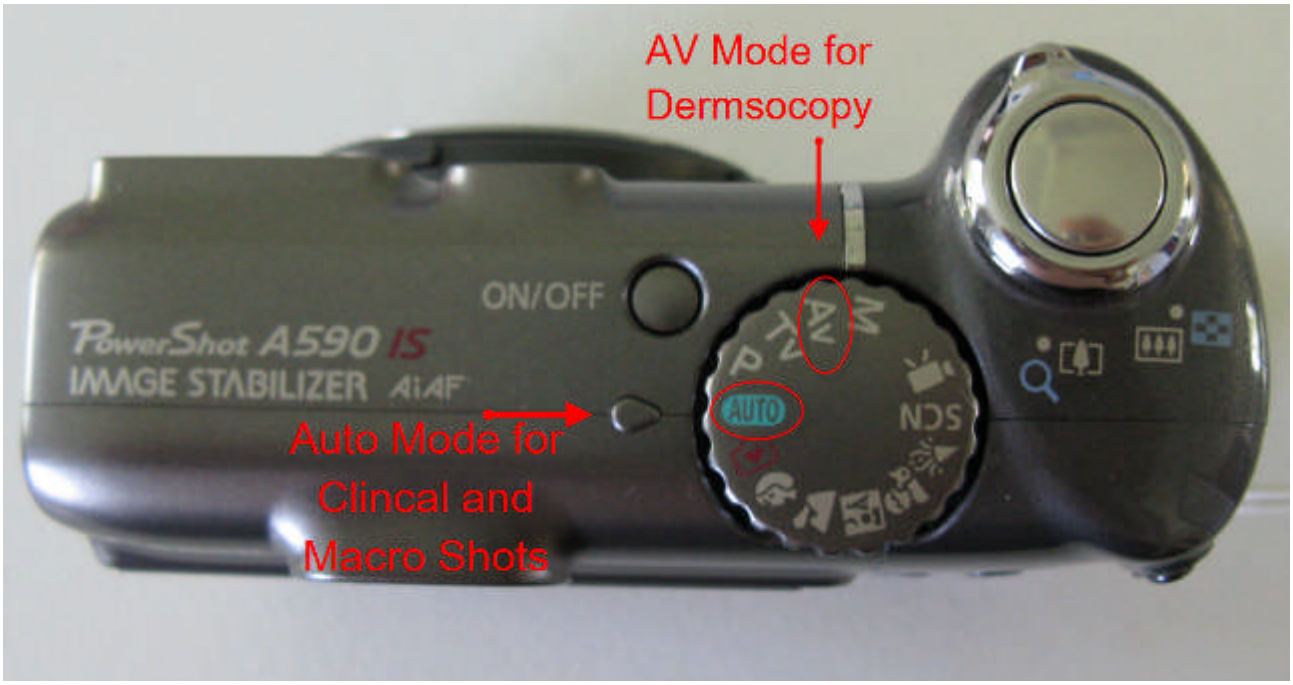
2. Heine photo adaptor 52 mm

3. Canon bayonet fitting lens adaptor LA-DC52G

4. Canon Powershot A590IS compact digital camera.

5. Immersion fluid – Oil tends to be too messy, water alcohol mix in a spray bottle is preferred by some. I use a clear alcohol based hand wash in a pump pack for flat lesions, and ultrasound gel for papules, nodules and irregular surfaces such as nail folds.

B. Camera Settings



Shooting Mode Settings AUTO

With the camera in shooting mode and shooting mode set to **AUTO,** turn the camera on and press the menu button. The displayed menu options can be navigated by using the up, down, left and right buttons.

1) **Auto Focus Frame** – set to **center**

2) **AF Point Zoom** – this can be set on or off, if set on it replaces the focus rectangle that appears at the first pressure of the shutter button and turns green if the focus is correct with a zoomed in square showing the point of focus.

3) **Digital Zoom** – select **off** (it is better to take images at high resolution and enlarge them on screen and crop the area you wish rather than to use this feature)

4) **Flash Settings** – leave these at the default values, but I recommend flash off for Clinical and Macro photos.

5) **AF Assist Beam** – set this to **on** in Auto mode

6) **All remaining settings** can be left at their default values.

Once the settings have been adjusted, press the menu button to return to the viewfinder screen.
In the view finder screen the **FUNC. SET** Button

Set the **ISO** to **HI**
Set the compression to **Superfine**
Set the image size to **L**
These will now be the default settings when shooting in AUTO mode**.**

Shooting Mode Settings AV (Aperture Priority Mode)

Next select **AV** Shooting mode, and again select menu

1) **Auto Focus Frame** – set to **center**

2) **AF Point Zoom** – this can be set on or off, if set on it replaces the focus rectangle that appears at the first pressure of the shutter button and turns green if the focus is correct with a zoomed in square showing the point of focus.

3) **Digital Zoom** – select **off** (it is better to take images at high resolution and enlarge them on screen and crop the area you wish rather than to use this feature)

4) **Flash Settings** – leave these at the default values, but I recommend flash off for Clinical and Macro photos.

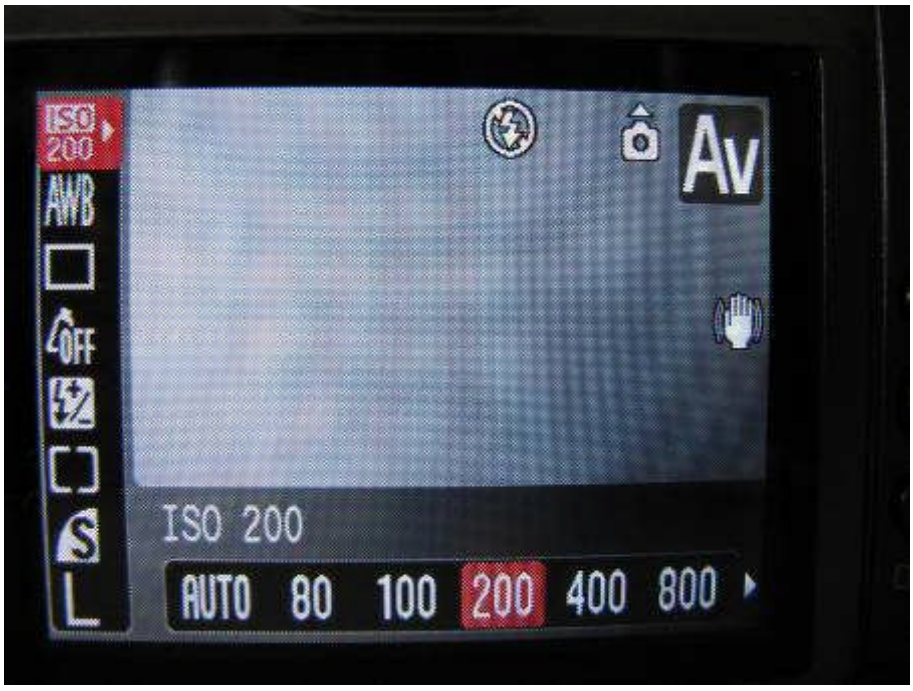
5) **MF Point Zoom – off**

6) **Safety MF – off**

7) **AF Assist Beam** – set this to **off** for AV mode as it is external to the dermatoscope and will not assist the focusing.

8) **All remaining settings** can be left at their default values.

Once the settings have been adjusted, press the menu button to return to the viewfinder screen.
In the view finder screen press the **FUNC. SET** Button



Set the **ISO** to **200** (you can experiment with Auto or higher ISO settings)
Set the **WB** (White balance) to **auto** (a manual white balance can be done if needed)

Set the **auto focus** to **centre weighted average**
Set the **compression** to **Superfine**
Set the **image size** to **L**

These will now be the default settings when shooting in AUTO mode**.**

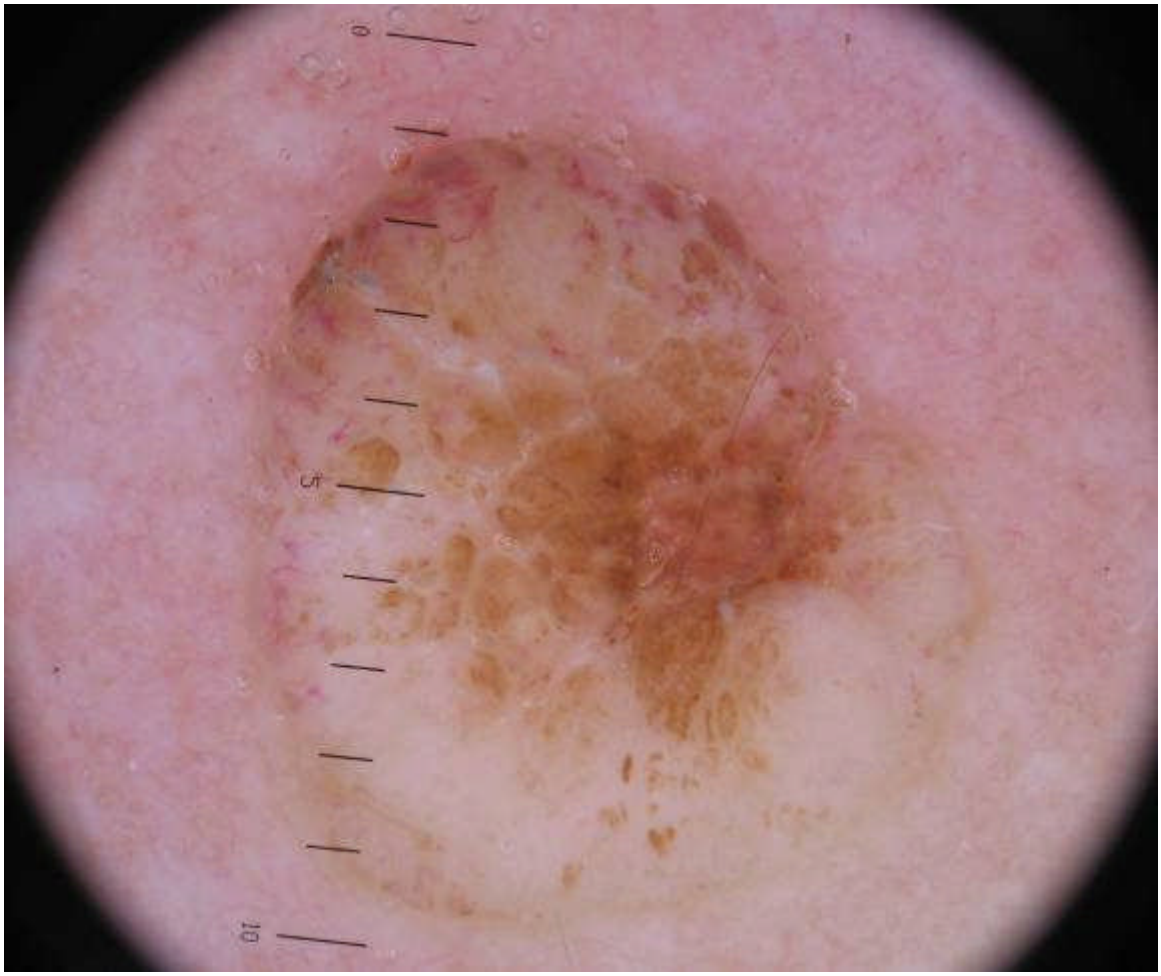
C. Assembly

The spring in the Heine photo adaptor is very stiff and fitting it to the dermatoscope can be a bit tricky. Screw the Canon bayonet adaptor LA-DC52G onto the Heine adaptor first using the standard 52 mm thread; this enables you to cradle the cannon adapter in the palm of your hand and assists in compressing the Heine adaptor spring fully, and allowing easier placement of the Heine adaptor over the dermoscope. Then simply twist the cannon lens adaptor to the camera using the bayonet fitting. (The Canon A540 is illustrated below but the process is the same for the A590)

D. Taking the dermoscopic photograph

- Set the photo shooting mode to Av.
- Switch on the camera and dermoscope
- Place immersion fluid on lesion, or on the contact plate of the dermoscope
- Place dermoscope gently on the lesion and centre the area of interest in the LCD display.
- The optical zoom can be used until the lesion fills the display.
- Press down the shutter button to the **first pressure** until you hear a beep and see the green focus square appear on the LCD screen, then **press the shutter fully** till the photo is taken, *hold the shutter button fully down and the camera still for a second or two after taking the photo* as this helps to reduce camera shake.
- If you see a yellow square rather then a green one the image will be out of focus so some adjustment will be needed, sometimes zooming out a little will correct this.
- Keep a gentle pressure on the contact plate, lifting the plate and repositioning will introduce air bubbles that will detract from the image quality. If necessary to reposition do so by sliding the contact plate gently.

It is suggested you take several photos of each lesion, and for larger lesions take several photos focussing on different areas. Unsatisfactory images can be deleted.



This is a papillomatous intradermal nevus (Unna Nevus) photo taking using the above settings and gel.

E. Tips for taking clinical and macro photos.

These tips are for busy clinicians with little or no photographic experience. Amateur photographers will most likely be using a digital SLR camera and will have through experience their own set of tips.

- Ideally dermoscopic images should be accompanied by a clinical and/or macro photo.
- The clinical photo should show enough anatomical landmarks to easily identify the body region from which it comes whilst the macro photo just shows the lesion details.
- Remember patients must give informed consent to be photographed and must know what their images will be used for. (See example informed consent form).
- A scale is useful to highlight the size of the lesion. An ID tag and scale can be printed onto sticky labels for single use avoiding risk of cross infection. (See attached template which suits Avery L7651 white laser labels 65 per sheet).

Clinical Photo

- Use the auto shooting mode, and if possible avoid using the flash
- Good lighting: natural day light form a window or overhead fluorescent lighting can work well. Avoid direct sunlight or harsh light sources which will create shadow and glare. Professionals use 2 “soft box” light sources positioned at 45 degrees to the subject.
- Use a neutral non reflective background, “mid grey” is said to be ideal
- Position the patient about 1M in front of the background, remove distractions such as jewellery which will attract the cameras auto focus and cause reflection
- Keep a correct anatomical perspective with the axis of the camera lens perpendicular to the subject (on occasions shooting at a slight angle may reduce shadow)
- Steady the camera if possible against a solid object (a tripod or monopod can help but requires extra time and effort).
- Press the shutter button to the first pressure, allow the camera to auto focus and take the picture

Macro Photo

- Still in auto shooting mode select macro on the function selector, and the macro icon will display on the LCD display.
- Get as close as possible without casting a shadow on the lesion (good lighting helps here, and a macro ring light although not necessary is specifically designed for the purpose.)
- You can extend the ring and little finger of your L hand and use these to steady the camera against the patient.
- Press the shutter button to the first pressure, allow the camera to auto focus and take the picture

Medical Photography Consent Form	affix label here

Patient Consent

I, _____

consent to medical images being made of me or my child/ dependant.

I agree that the images may be :
(Please circle below to show consent)

Placed in my medical record for future reference.	Yes	No
That de-identified images may be used by health professionals for education and training.	Yes	No
That de-identified images may be used in paper or electronic health publications.	Yes	No

By signing below I confirm that I understand this consent form and that any questions regarding it have been answered by my Doctor.

Signature of Patient / Parent or Guardian

_____ Date _____

Signature of Doctor/ Health Professional

_____ Date _____

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