

# IPACO expert report

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<i>Type</i> <b>IFO</b>	<i>Class</i> <b>A</b>	<i>Explanation</i> Helicopter	<i>Complement</i> Long exposure
<i>Document</i> Photo	<i>Imaging location</i> Palm Beach, Florida, USA	<i>Imaging date</i> July 11, 2005, 02h19'12" Local time	



## I. Shoot circumstances

The shoot circumstances are unknown.

## II. Camera settings

The camera model that was used is a Nikon D50 whose settings are exposed un details [here](#) :



## III. Examination of datasets

### Authenticity check

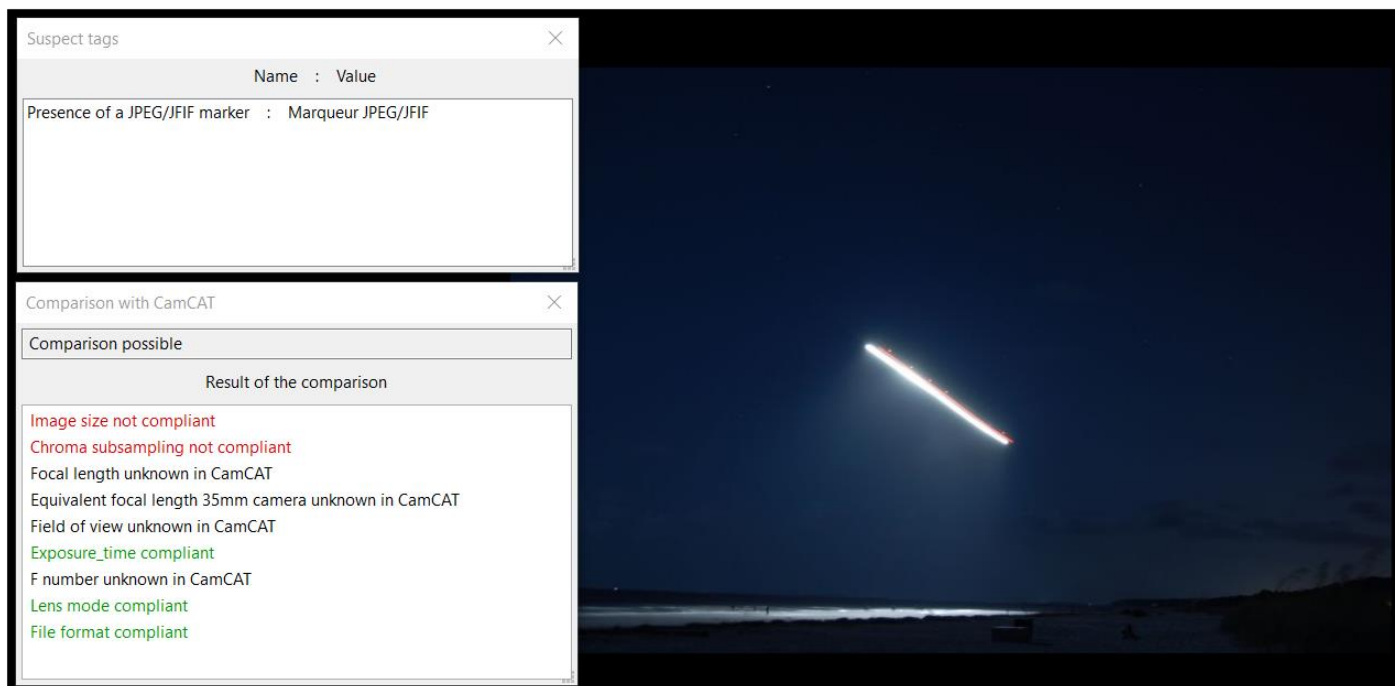
The photograph in .jpeg format has a 800 x 532 pixels size.

A document is deemed authentic original, within the meaning of the "[IPACO Analysis Methodology](#)", if it results from a direct copy of the original file created in the camera.

Any modification, made either to the file whilst still in the memory of the camera, or later, can be detected by IPACO with the "*Authentication*" module, in two different possible ways, the results can be displayed together in the IPACO window.

The "*Suspect tags*" tool, in particular, can be used to determine, for example, the possible use of third-party software, or a modification of the dimensions of the file (cropped image).

The « *Comparison with CamCAT* » tool allows the analyst to compare the technical data of the studied file with an internal database, in order to check if they comply with what the used camera can produce.



The results for our image are the following:

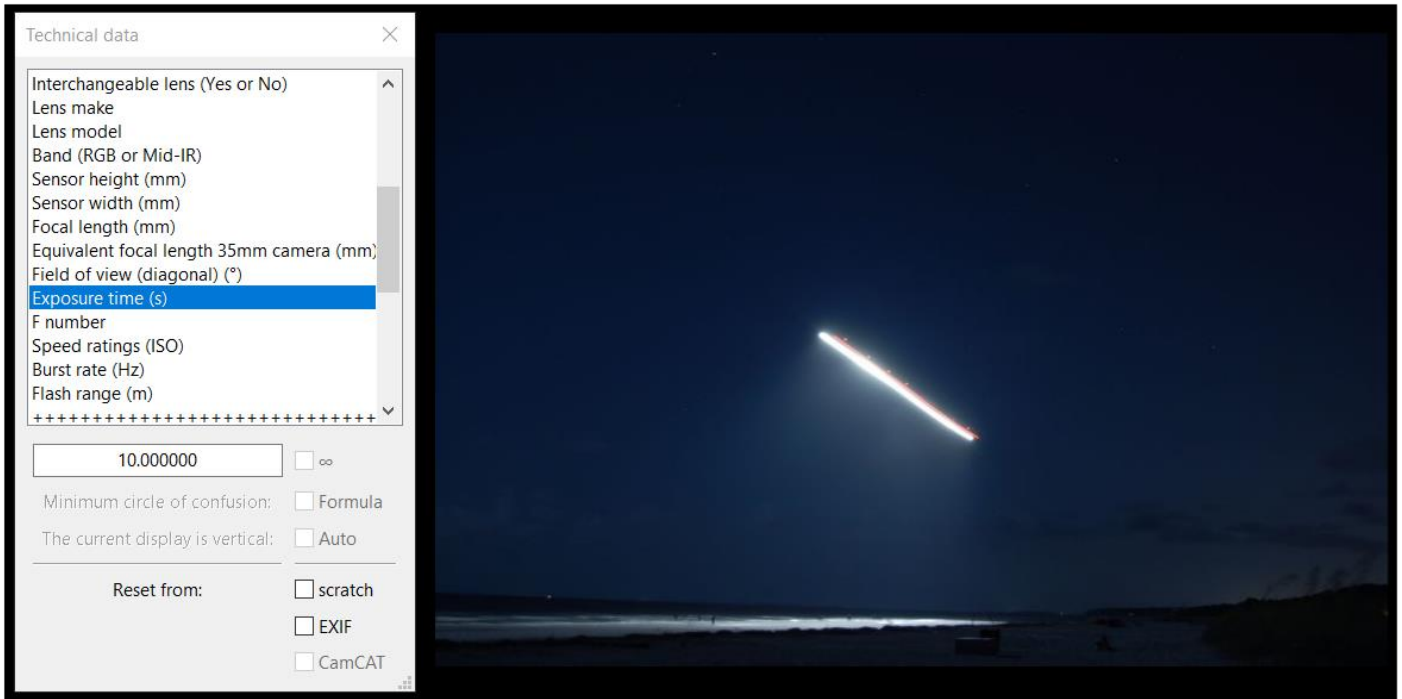
- The « *Suspect tags* » tool shows the presence of a JPEG/JFIF marker
- The « *Comparison with CamCAT* » tool shows that image size and Chroma subsampling are not compliant.

These results can be interpreted as a whole. Indeed, they traduce at the same time:

- A resizing of the original image (as the 800 x 532 pixels image size is not natively created by the Nikon 50D)
- A new resaving of the image, which has the effect of changing the JPEG compression and generates in the associated metadata this JPEG/JFIF tag and change to chrominance subsampling

Most of the time, the presence of these tags does not indicate a deliberate and malicious will of the photographer, but rather a simple wish to (locally or on the Internet) store less « *heavy* » images.

We note as a side note that in the « *Technical Data* » the exposure time is around 10 s, this data can eventually be useful for future measurements and computations:



#### IV. Conclusion

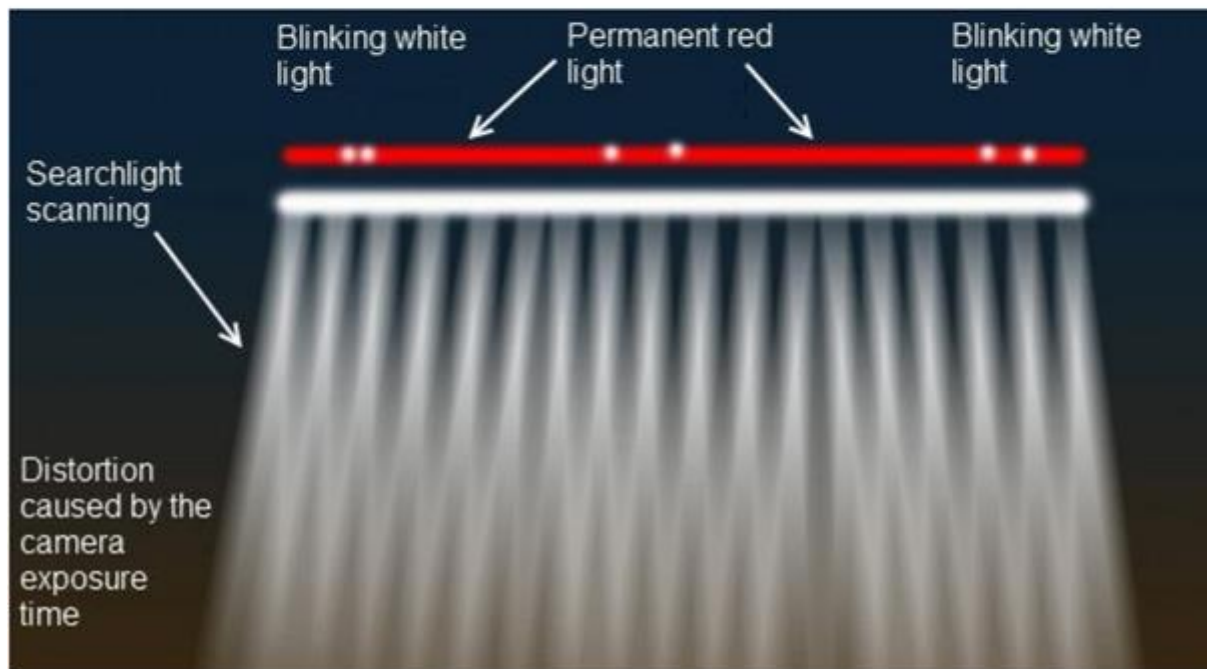
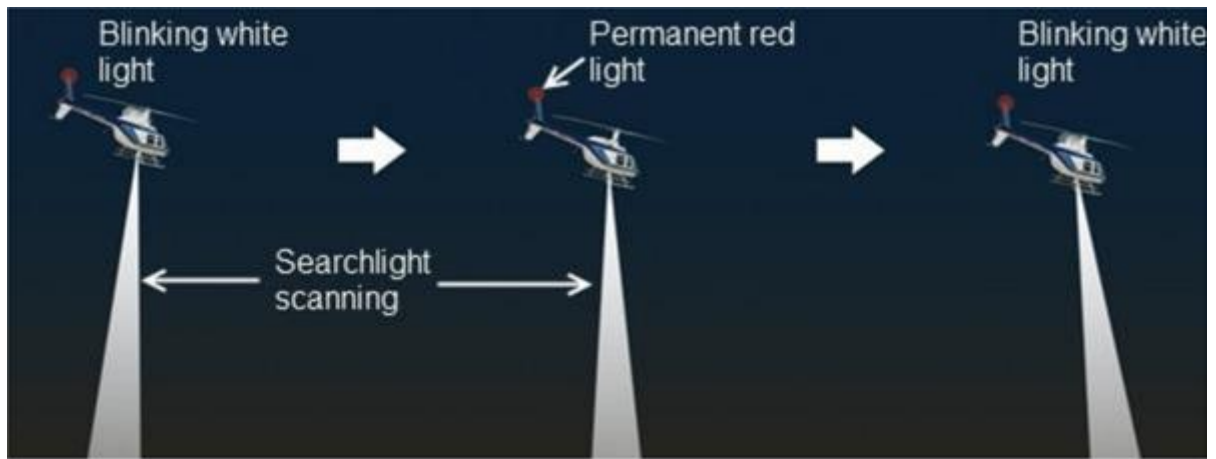
Based on the objective data obtained from the examination of the photographic document, we conclude that the object in this photographic document is a low-flying helicopter with a searchlight scanning the area.

The displacement of this helicopter, equipped with a searchlight, during the 10 s exposure time produces this visual effect.

#### V. Technical explanation

When traveling, the helicopter, with its fixed navigation lights (red, green and white, the red light located to the left of the aircraft is particularly visible probably because of its movement from the right to the left), its flashing anti-collision lights and its white searchlight will respectively produce a long red light trail, a succession of white dots and a brighter white trail.

The use of a searchlight sweeping the area underneath the helicopter will produce this "*massive solid light*" effect.



## VI. Sources – Photos credits

This photo comes from Flickr's user [GTMeyers](#) gallery.