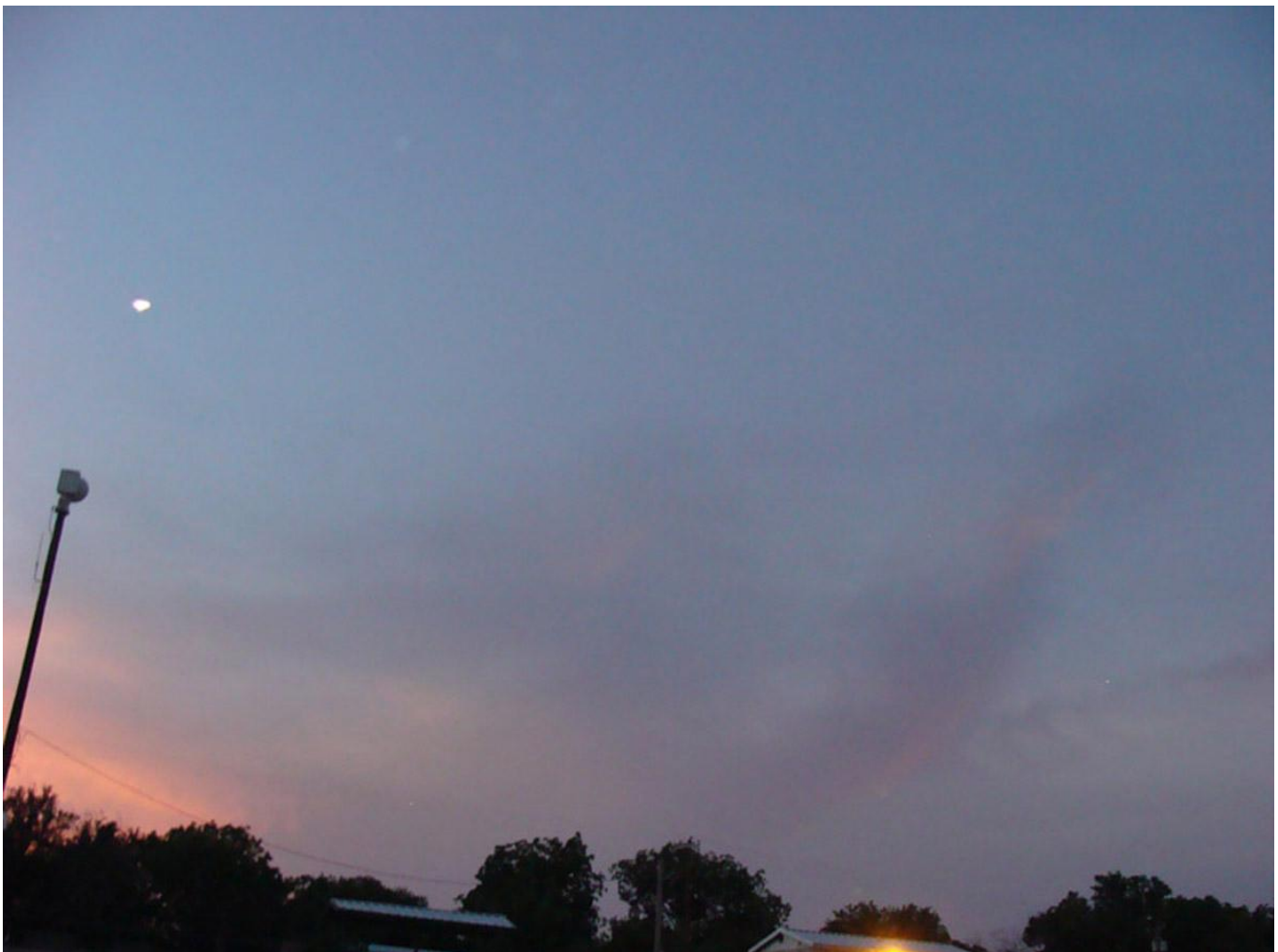


IPACO expert report

<i>Expert name</i> Antoine COUSYN	<i>Report date</i> June 14, 2012	<i>Last update</i> February 07, 2015	
<i>Type</i> IFO	<i>Class</i> A	<i>Explanation</i> Insect	<i>Complement</i> Flash fired
<i>Document</i> Photo	<i>Imaging location</i> Big Rock Park, Glen Rose, Tx USA.	<i>Imaging date</i> May 20, 2012, 20h20'15'' Local time	



I. Imaging circumstances

The witness made a few photographs in "tourist" in the area around Big Rock and do not saw anything at the time of the shoot.

It's only after getting home and having emptied the card of his camera on his computer that the witness noticed the presence of this bright object on one of his photographs.

II. Camera settings

The camera model that was used is a Sony DSC-H3 whose settings can be seen in details [here](#).



III. Data examination

1- Upon inspection with [EXIFTool](#), EXIF data learn us that:

- Exposure time was of 1/40s [1]
- The flash was fired [2]

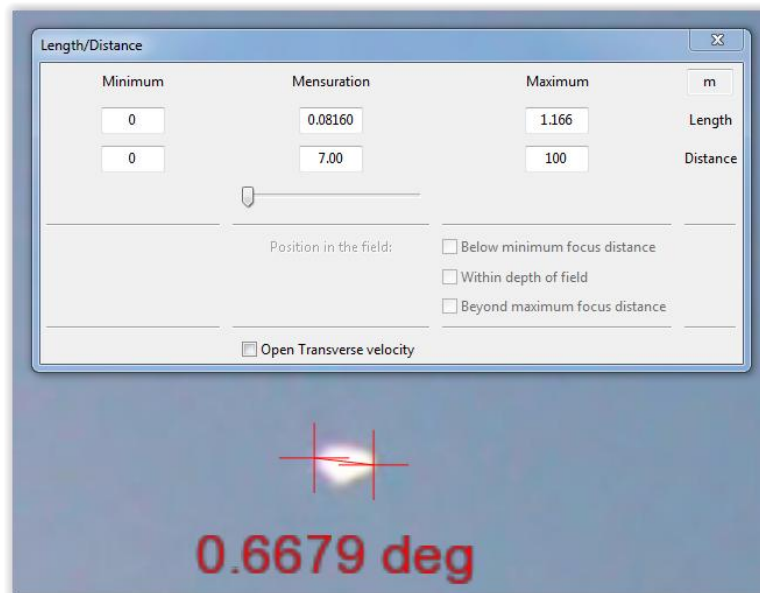
```
V Ch Cr Positioning : Co-sited
Exposure Time      : 1/40 1
F Number          : 3.5
Exposure Program   : Program AE
ISO               : 800
Exif Version       : 0221
Date/Time Original : 2012:05:20 20:20:15
Create Date        : 2012:05:20 20:20:15
Components Configuration : Y, Cb, Cr, -
Compressed Bits Per Pixel : 3
Exposure Compensation : 0
Max Aperture Value : 3.5
Metering Mode      : Multi-segment
Light Source       : Unknown
Flash              : On, Return not detected
Focal Length       : 6.3 mm
Color Reproduction : Standard
Macro              : Off
Focus Mode         : AF-C
AF Mode            : Default
```

This flash, used on the “Auto-ISO” mode, have a [range](#) comprised between 0.2 and 7m.

- 2- EXIF data allows IPACO to do some angle measurements and calculations, and thus an estimated range of the value of both the size and the distance of the targeted object.

This estimation is done using data that are both the “Focal Length”, whose value appears in the EXIF data, and the physical size of the light sensor of the camera used.

This camera, a Sony DSC-H3, has a [CCD sensor](#) with a 1/2.5” size (5.744x4.308mm) and the focal length is 6.3mm.



Length object in its larger dimension is 0.6679°. The calculations that were made by IPACO give us therefore a maximal possible size of 8.1cm for the object if located 7 meters away, which is the maximal flash range.

This maximal size is consistent with that of a moth, for example.

- 3- The examination of the photograph shows a bright light spot, uniformly white, in the upper left quadrant, and with neither any motion nor focus blur.
- 4- A review of [meteorological data](#) on the nearest location from the place of the observation (Wyatt 3-Rivers Municipal Airport, located about 1 mile east of Glen Rose, Texas - FAA Code: 8TS7) and at the date of the observation tells us that the surface wind was at 08:15pm, 5 minutes before the capture, of 4.6mph or 7.4km/h, therefore very low.



8:15 PM	82.4 ° F	81.7 ° F	55.4 ° F	39%	30.08 pouce	10.0 mi	SSE	4.6 mph
8:35 PM	80.6 ° F	80.8 ° F	57.2 ° F	45%	30.08 pouce	10.0 mi	SE	4.6 mph

This low wind speed is quite consistent with the presence of small insects, especially moths.

IV. Conclusion

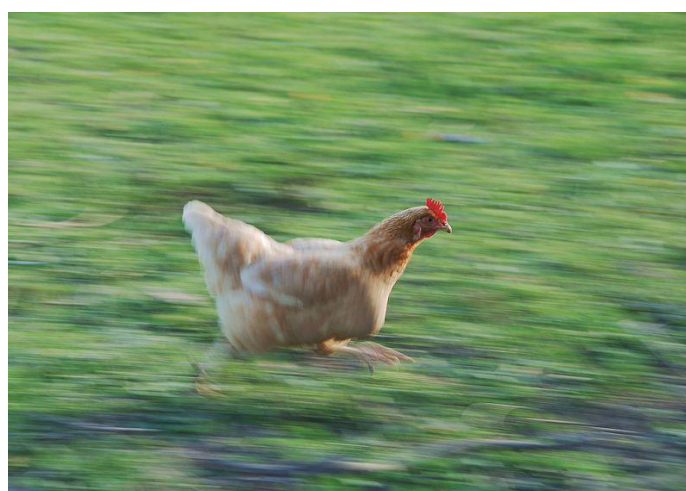
Given both the objective data provided by the examination of the photographic document and the testimony of the observer, we can conclude that the object contained in this document is an insect passing in front of the camera at the exact time of the shot, illuminated by the flash, and being at a distance of less than 7 meters (23 feet away).

V. Technical explanation

Using the flash sometimes produces unwanted effects in photography, particularly when objects are relatively close to the camera, and at least at the flash range, and returning their light back to the lens.

The flash model used here is a "*long range*" one with a maximum effective range of 7m (23 feet), and is able to illuminate a small object at a distance less than or equal to that scope.

With an exposure time of 1/40s, the object could be either stationary or moving at a relatively fast speed and thus appear "frozen" in the photograph, while being close as well.

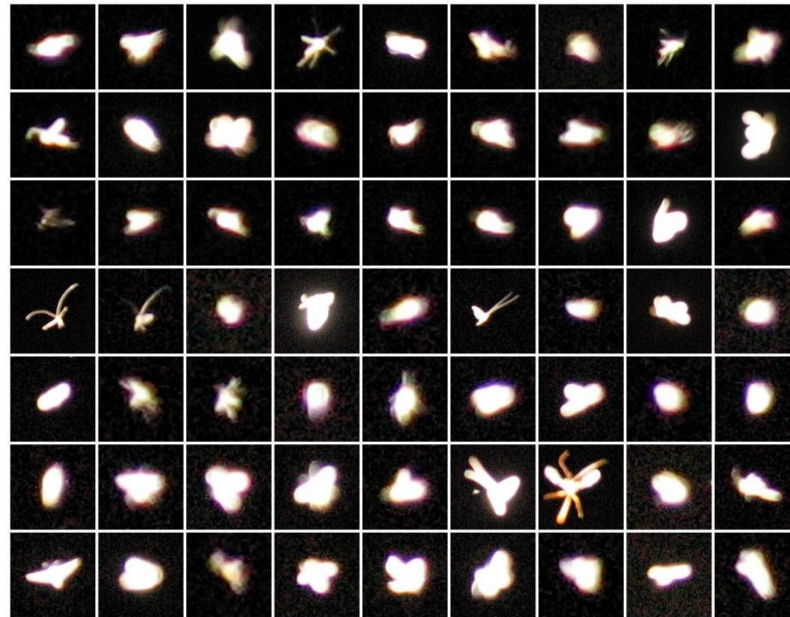


(1)

The testimony of the photographer and shooting conditions support the hypothesis of a small, near and on the move object, most likely a bug.

Indeed, busy taking photographs, the witness could not observe the very short time during which the tiny moving insect was lit by the flash.

There are many examples of such insects caught by the flash of a camera:



Apart this brief moment, the insect was probably almost or no visible, particularly at this time of the day, where remains only a small residual daylight.

VI. Sources – Photo credits

The original document was provided to the expert by the witness itself.

(1) Photography from [wikipedia](https://www.wikipedia.org/).