Application Note

IR reflection troubleshooting

Revision History

| Version	Issue date	Author	Comment
1.0	2010/10/28	Hans	First released
2.0	2013/03/01	Hans	Add troubleshooting for IP8332/FD8134

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Introduction

When adjusting the focus and angle of the lens on a camera equipped with IR LED, you may find image quality is poor in night mode. This is almost always due to IR reflection causing a clouded effect. Please refer to the two pictures below if you are having an issue with image quality to check if it is due to IR reflection.

Normal video

Video affected by IR reflection
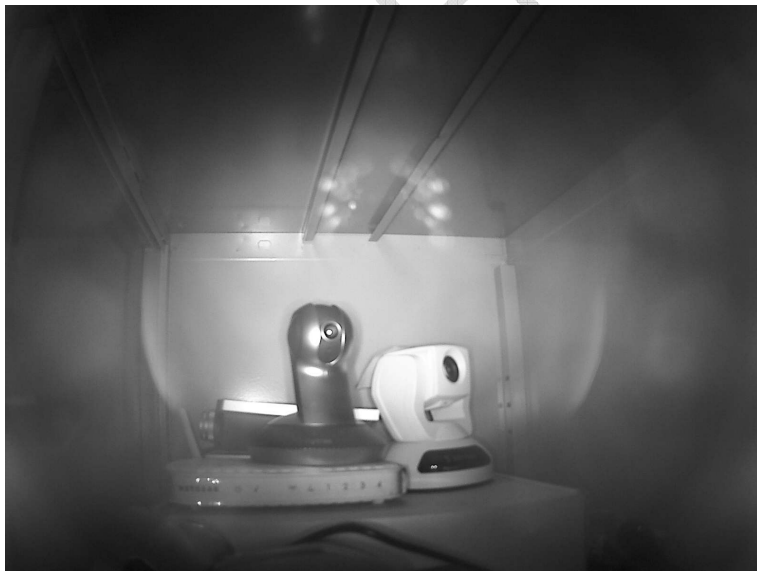
This document describes how to troubleshoot IR reflection issues.

1. Possible causes of IR reflection

Following are some questions to answer as you troubleshoot the cause of any IR reflection you're experiencing

1.1 Is there any dust on the sun shield ring? (IP8332)

Accumulated dust will reflect infrared, causing a blur ring in the image. Refer to the photo below, and see section 2.3 for instructions on how to fix the problem.


1.2 Is the black mask in the right position, or is it blocking the IR LED? (FD8134/FD8161/FD8162F/D8135H/FD8335H)

If the black mask is positioned incorrectly, it will reflect infrared, causing image blurring. See section 2.8 for instructions on how to fix the problem.

1.3 Is the lens tilted at an angle between 0° and 70°? (FD8134V)

Tilt Adjustment Screw

Pan 350°

Rotate 350°

Tilt:
FD8133V: 85°
FD8134V: 70°
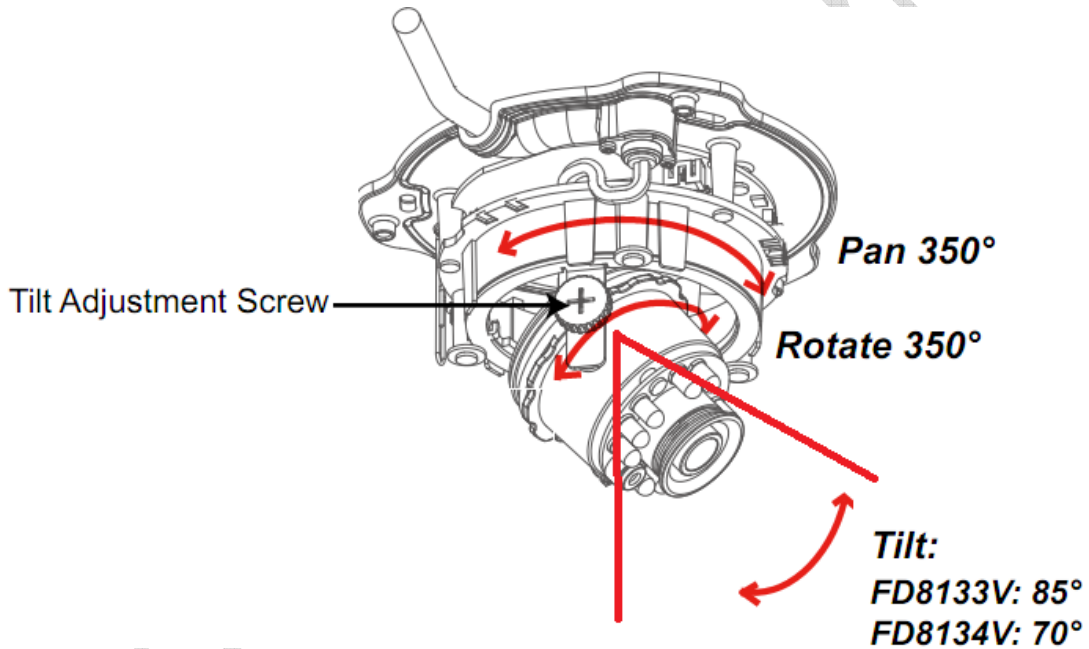
If the tilt is outside this range, the rubber ring cannot create a seal with the cover. See section 2.9 for instructions on how to fix the problem.

1.4 Is the cover improperly fitted to the body of the camera?

The cover of the camera may not be properly secured to the body. Refer to the photos below, and see section 2.1 for instructions on how to fix the problem.
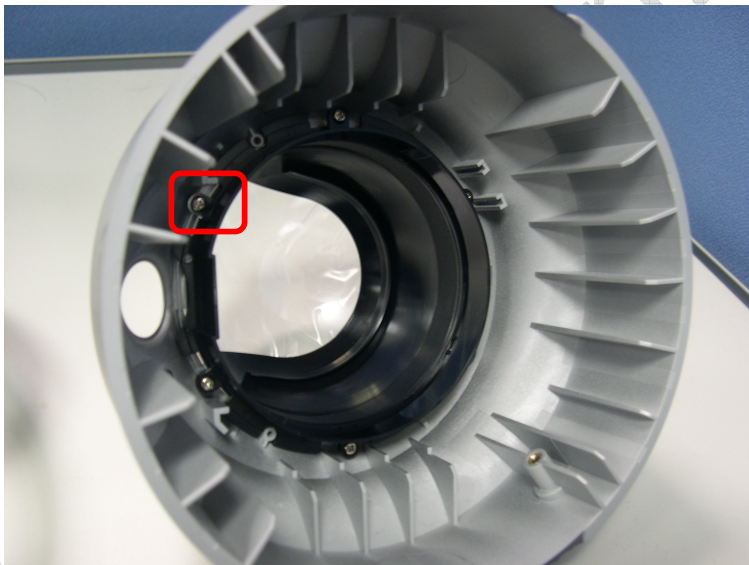
## 1.5 Are the screws securing the cover to the body of the camera loose?

The screws used to attach the cover of the camera to the body may have loosened. Refer to the photos below, and see section 2.2 for instructions on how to fix the problem.
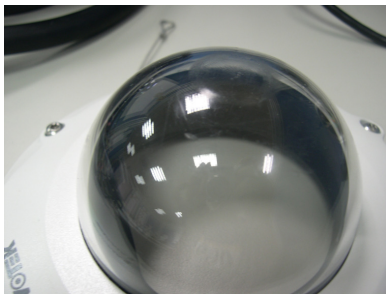
1.6 Is the cover dirty or scratched?

A dirty or scratched cover may adversely affect image quality. Refer to the photos below, and see section 2.3 for instructions on how to fix the problem.

A dirty cover
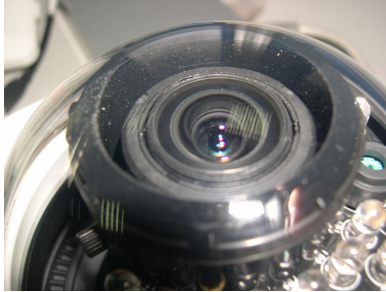
A scratched cover

Reflection

1.7 Is the camera behind a glass window?

Glass may reflect IR light and adversely affect image quality. Refer to the photos below, and see section 2.4 for instructions on how to fix the problem.

## 1.8 Is the camera directly underneath a surface such as a ceiling?

The surface may be reflecting IR light and thus adversely affecting image quality. Refer to the photo below, and see section 2.5 for instructions on how to fix the problem.
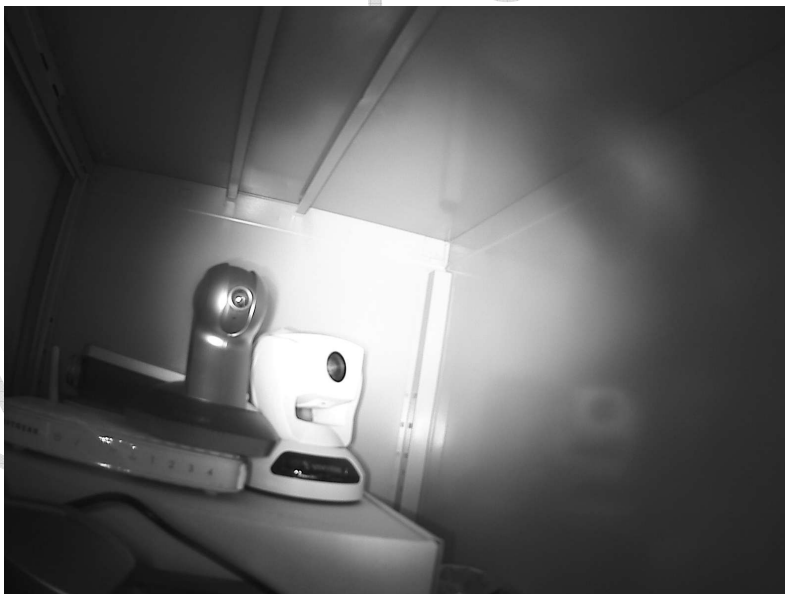
1.9 Is there any condensation on the inside or outside surface of the camera cover?

Any fogging or water droplets may adversely affect image quality. Refer to the photos below, and see section 2.6 for instructions on how to fix the problem. Condensation on the cover.
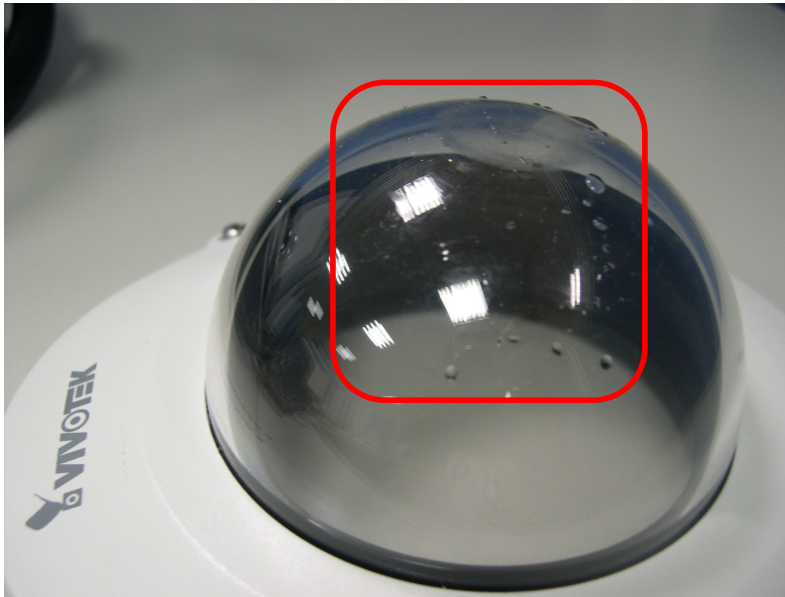

IR reflection caused by fogging of the cover

1.10 Is the rubber ring around the lens flush against the inside surface of the cover?

A rubber ring is used to seal the area of the cover directly in front of the lens from light emanating from the LEDs surrounding the lens. The seal may be lost after a user adjusts a variable-focus lens

If this rubber ring is not flush against the inside cover surface, light may leak in and cause IR reflection. If it is flush against the cover, the ring will be slightly compressed due to pressure. Refer to the following figures, and see section 2.7 for instructions on how to fix the problem
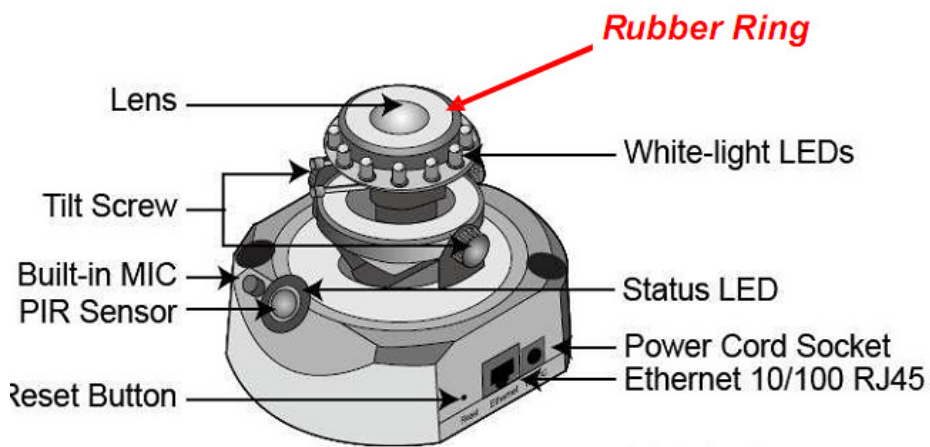
2. *Solving the problem*

This section describes fixes for the problems described in section 1

2.1 Tighten the screws securing the cover to the body of the camera .
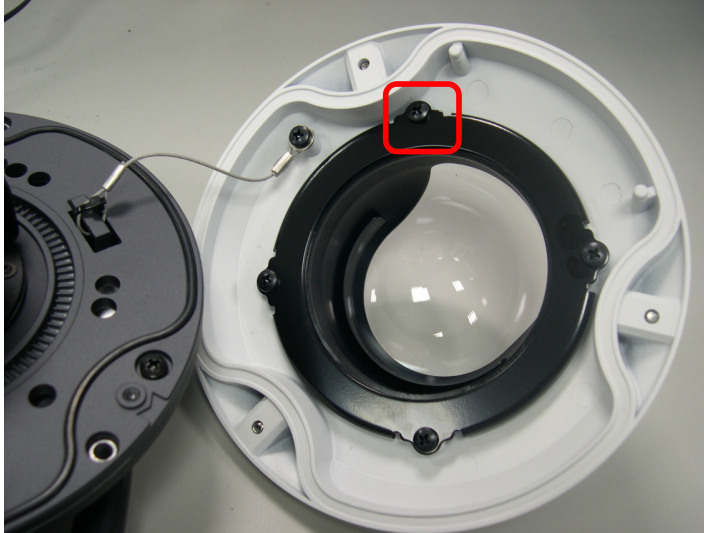
2.2 Tighten the screws on the camera body

2.3 Clean the cover

    a. Use compressed air to remove dust or other debris

   b. Use an air gun with air compressor to remove dust or other debris

NOTE: Do not use clothing to clean the dome cover, as scratching may result. If the cover is scratched, please contact your vendor for a replacement.

2.4 Adjusting the position of the camera may alleviate IR reflection. Otherwise, it may need to be moved away from the glass surface.

2.5 Covering the overhanging surface with a non-reflective material may help. Otherwise, the camera may need to be moved to another location.

2.6 Clear off any condensation on the inside or outside surface of the cover, and place a packet of silica gel desiccant inside the camera to absorb humidity
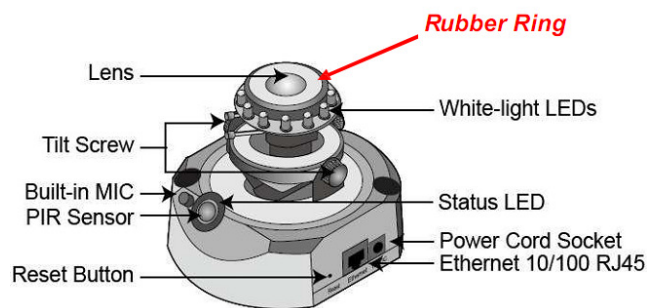
Silica gel desiccant packet
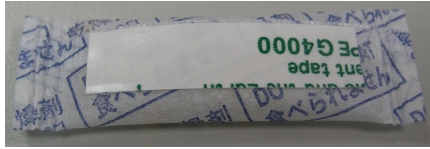
Use double-sided adhesive tape to attach the desiccant packet to the inside of the camera
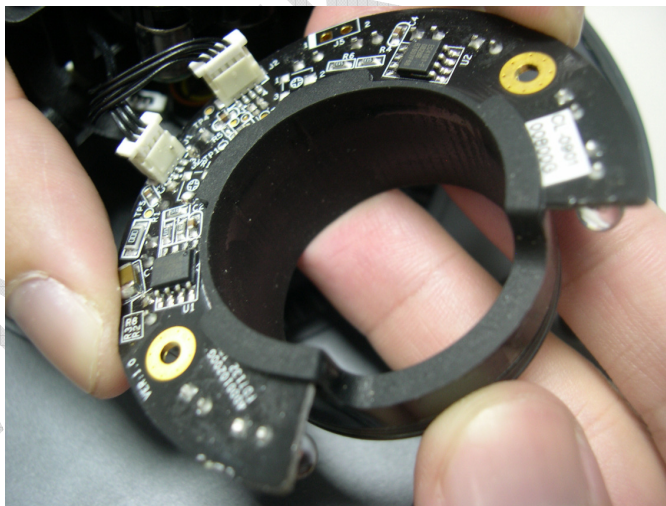
2.7 Re-fit the rubber ring

Use the following steps to re-fit the rubber ring.

a. Loosen the screws on the circular base on which the IR LEDs are mounted

b. Carefully remove the rubber ring

c. Fit the rubber ring to the circular base again

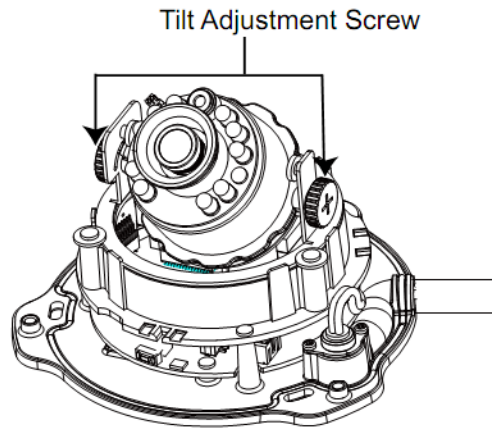

d. Attach the base again with the screws

If the problem persists, use a new rubber ring. If you do not have a new one available, contact your vendor for a replacement rubber ring.

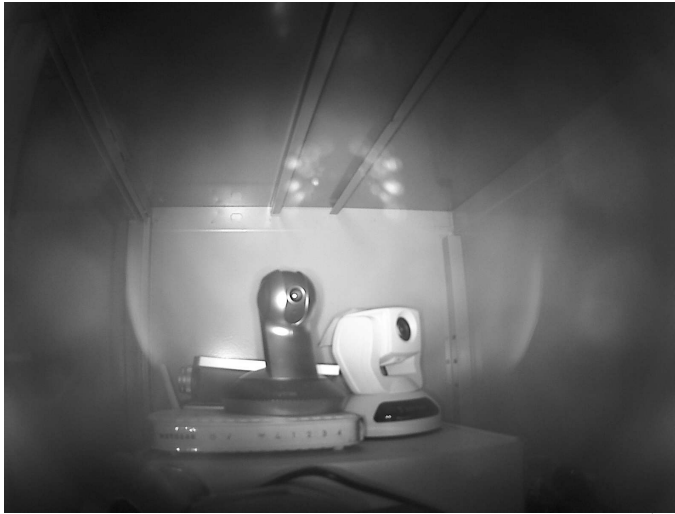## 2.8 Adjust the black masks to the correct position

2.9 Use the tilt adjustment screw to adjust the tilt angle so that it is between 0° and 70°.

Tilt Adjustment Screw

3. What to do if none of the fixes worked

3.1 Take a snapshot of the video feed with the IR reflection visible

3.2 Take a photo of the camera itself as it is installed on site.

3.3 Contact your vendor or our distributor for direct support