

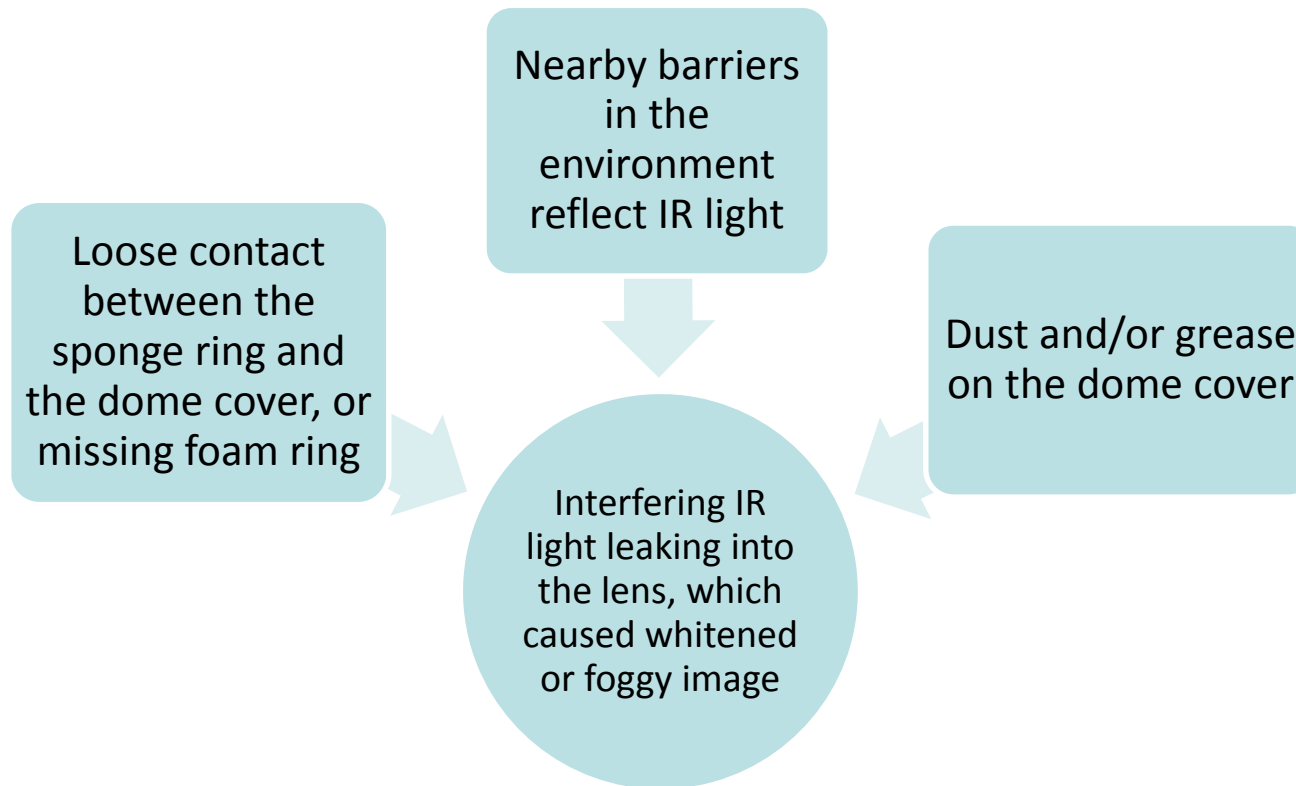


## **ANALYSIS OF IR REFLECTION**

Exemplified with image samples and a  
IR dome cover "How to Clean" guide

# Possible Causes of IR Reflection

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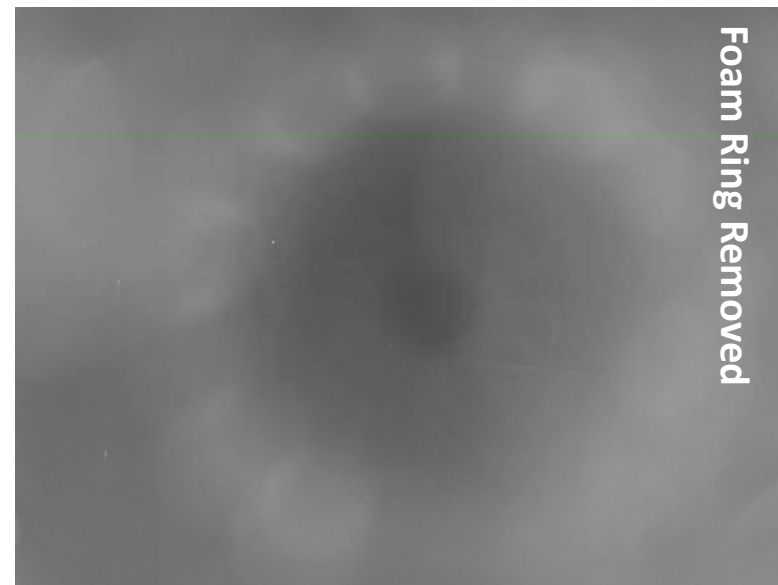
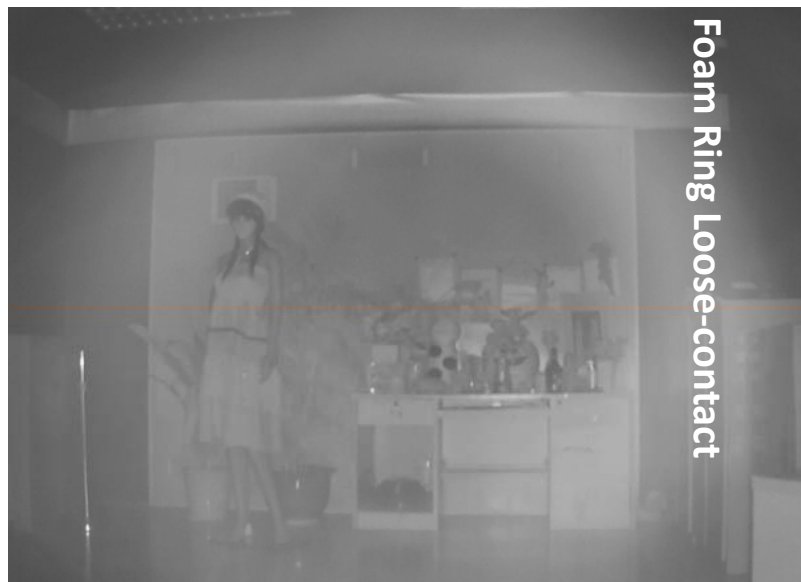


# 1. IR Leakage Caused by the Foam Ring

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- Severe circular reflection occurs if the foam ring and the dome cover is not attached seamlessly.
- Users can not see the image clearly without the Foam ring.



# Solution

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1. Foam ring shall be required for IR dome camera
2. Foam ring and the dome cover shall be attached seamlessly.



## 2. IR Leakage Caused by Nearby Barriers

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The safe reflection distance varies according to the focus, video scene and shape of the barrier.

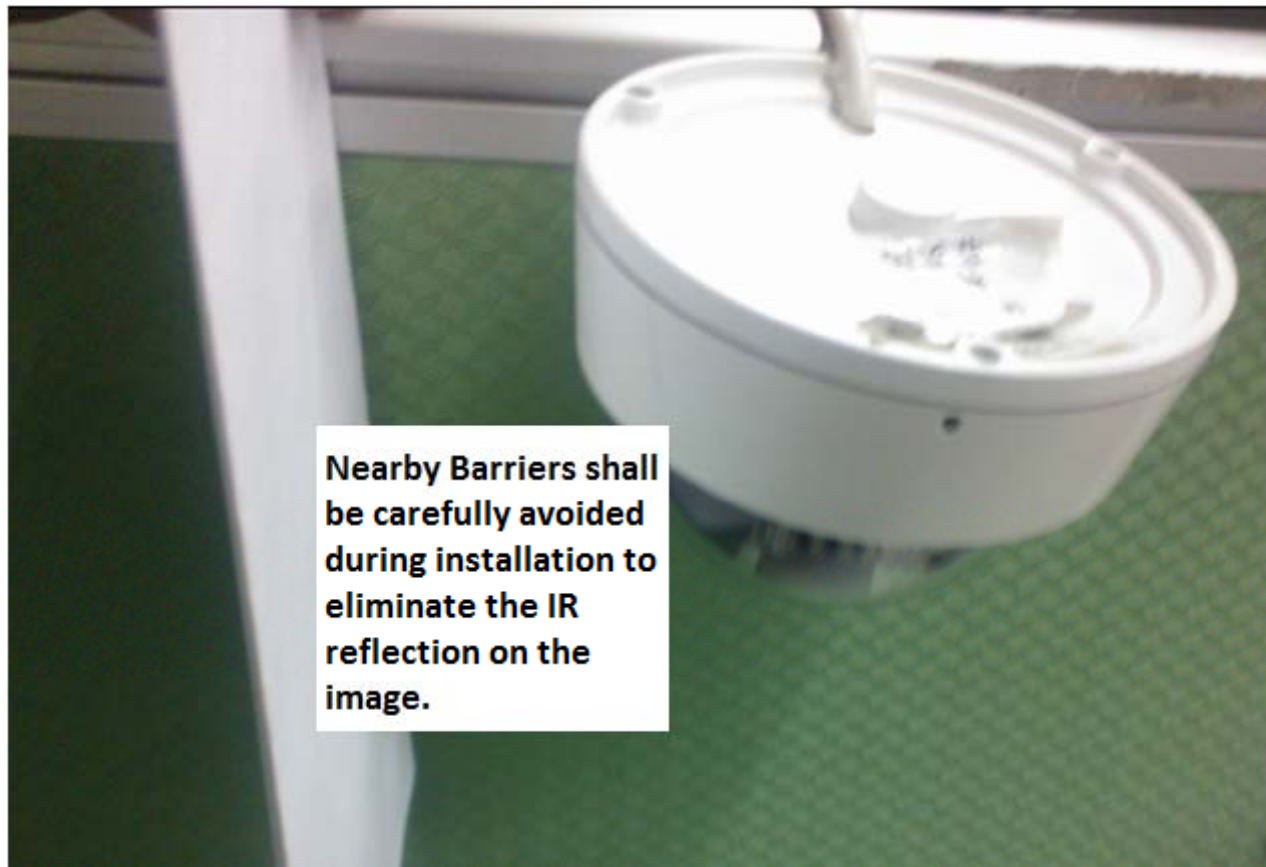
Place a reflection surface (e.g. paper board) at approx. 10cm next to the camera. Although the board is not displayed in the image scene, the reflection still interferes the image.



# Solution

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Pay attention during installation and avoid reflection surface(s) near the IR LED panel of the camera.



# 3. IR Leakage Caused by Dirty Dome Cover



- 1.** Old dome cover with dust and grease, which caused IR reflection at night – the IR light reflects from the dome cover surface to the lens surface and causes whitened image.
- 2.** After switching to a clean and new dome cover, the clearness of the image recovers and reflection is eliminated.
- 3.** If you touch the new dome cover with hands to create a greased surface, whitened images can be observed after this operation. Do not do that...
- 4.** Scatter dust on the new dome cover to simulate a camera working under dusty environment. Regional whitened image can be observed on the dusted area.

**Conclusion:** Grease is the main cause of dome cover reflection and whitened image, while dust enhances reflection effect regionally.



# Improving Plan 1

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**Precaution:** the clean dome cover shall be protected by films during manufacturing, storage, transmission and installation processes, and the film shall only be removed after installation. Currently the protection film is 1cm smaller than the dome cover brim range and shall be enlarged to protect the entire dome bubble.



# Improving Plan 2 – How to Clean

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## How to Clean:

Clean the dome cover with spraying glass cleaner and after ½ min. spray with clean water and then gently dry with clean microfiber cloth.



# Improving Plan 3

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Improving by design:

Separate IR light and Dome cover, similar to the below IR Speed Dome design



## 4. Summary- General Improving Plans

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- Use larger protection film to prevent the dome cover from exposure of dirty environment, and with printed hinting message 'Remove after installation'.
- Training for installers and engineers to avoid environmental reflection caused by nearby barriers.
- Beware of How to Clean the IR dome cover.
- Further researches for other improving designs.