

Test Scenario 7 - Parking Lot Search

This scenario was designed to test the equipment in a common patrol application, searching a parking lot for a hiding subject. Environmental lighting was minimal, as would be the case in an industrial parking area during non business hours.

Gen3 PINNACLE Auto-Gated



The Gen3 PINNACLE Auto-Gated tube clearly acquires the subject behind the vehicle. The environment details are shown clearly. The subject is partially obscured and in shadow behind the vehicle. A weapon is partially visible in his hand.

Gen3 Auto-Gated



As with the PINNACLE unit, the Litton Gen3 Auto-Gated tube clearly shows the scene with the subject behind the vehicle, holding a weapon.



The built-in IR illuminator did not add any value to the image. It is negligibly lighter.



The built-in IR illuminator did not add any value to the image. It is negligibly lighter, with some IR reflection on the tail light.



The additional higher-power illuminator heavily brightens the image. The IR light reflects off the subject so much that he appears to glow. However, shadows are completely illuminated. The weapon clearly contrasts against the lighter shirt.



The additional higher-power illuminator heavily brightens the image. The IR light reflects off the subject so much that he appears to glow. However, shadows are completely illuminated. The weapon clearly contrasts against the lighter shirt.



The Gen2 SHP tube does a good job of displaying the image. There is less resolution than with the Gen3 units, but the image is still useable, clearly showing the subject behind the vehicle with a weapon.



The built-in IR illuminator did not add any value to the image. It is negligibly lighter.



The additional higher-power illuminator brightens the shadows, revealing the subject more. The weapon is clearly seen against the subject's shirt.



The Gen2+ unit displays a very dark image. Details of the dark vehicle are indistinguishable. The light rims are easily seen. The subject is almost completely obscured behind the vehicle, making it almost impossible to acquire him.



The unit detects a reflection of IR light from the tail light when using the built-in illuminator. This inadvertently draws the user's eye to that location where the subject is partially visible. The weapon is undetected.



The additional higher-power illuminator is required to observe the subject and see the presence of a weapon. Other details are still much obscured because of the relatively poor light-gathering abilities of the Gen2+ tube.

Gen1+



The Gen1+ unit produces no image without the addition of an IR light source. It is too weak to use the loading warehouse lights in the distance.

Thoughts

Again, the Gen3 PINNACLE, Gen3 Auto-Gated, and Gen2 SHP performed well with the Gen2 SHP providing a darker, but still useable image. Searching a parking lot is a common scenario for law enforcement. The low-performing Gen2+ and Gen1+ units proved incapable of properly acquiring the subject and identifying the threat.



The built-in IR illuminator did not add any value to the image. All that can be seen is the reflection of IR light from the tail light, but it still does not produce enough light to see the subject.



The additional higher-power illuminator cannot help the Gen1+ tube much. It still does not have enough light to resolve an image. The subject is barely visible behind the vehicle, but there is not enough of an image to properly acquire him or identify a threat.

Test Scenario 8 – Loading Dock Search

This scenario was designed to simulate the search of a loading dock or truck yard for hidden subjects of devices. The environment was well-lit, which as you can see in the photos, actually works against all but the highest quality image intensifiers due to the high level of contrast created by the dark shadows under the vehicle. A quick search of the area might not detect the subject under the truck cab.

Gen3 PINNACLE Auto-Gated



ITT PVS-14 Gen3 PINNACLE Auto-Gated Night Enforcer
Loading Dock Search
Subject Laying under Truck 50 yards
Loading Dock Lights, 1/4 Moon
No IR Illumination
COPYRIGHT 2010 TRACO. ALL RIGHTS RESERVED

The scene is brightly lit from the loading dock lights. The truck is well-illuminated, but the light source creates heavy shadow under the cab. Even so, the Gen3 PINNACLE Auto-Gated tube detects something under the cab, just before the wheel. While the subject is not completely acquired, the mere detection offers more information and will alert the officer to a possible danger. The rest of the scene is well-lit with crisp detail, giving the officer good situational awareness.

Gen3 Auto-Gated



Litton PVS-14 Gen3 Auto-Gated
Loading Dock Search
Subject Laying under Truck 50 yards
Loading Dock Lights, 1/4 Moon
No IR Illumination
COPYRIGHT 2010 TRACO. ALL RIGHTS RESERVED

This scenario highlights the difference between the Standard Litton Gen3 Auto-Gated tube and the ITT Gen3 PINNACLE Auto-Gated tube. The Gen3 Litton Auto-Gated unit is not as capable of providing as bright an image as the PINNACLE unit. The image appears to have more contrast because the shadow areas are darker. This can lessen situational awareness, but overall, the image is good and a clear view of the area is achieved. However, the main detriment in this scene is the heavy shadowing under the truck. The prone subject is completely in shadow. Unlike the PINNACLE unit where something could at least be identified under the cab, the Litton Gen3 Auto-Gated unit produces no warning of a possible danger due to its inability to gather as much light as the PINNACLE unit.



ITT PVS-14 Gen3 PINNACLE Auto-Gated Night Enforcer
Loading Dock Search
Subject Laying under Truck 50 yards
Loading Dock Lights, 1/4 Moon
Internal IR Illuminator
COPYRIGHT 2010 TRACO. ALL RIGHTS RESERVED

The built-in IR illuminator does not add much to the scene, though it does slightly illuminate the area under the cab.



Litton PVS-14 Gen3 Auto-Gated
Loading Dock Search
Subject Laying under Truck 50 yards
Loading Dock Lights, 1/4 Moon
Internal IR Illuminator
COPYRIGHT 2010 TRACO. ALL RIGHTS RESERVED

The built-in IR illuminator did not add any value to the image. It is negligibly lighter. The subject beneath the cab is still invisible.



ITT PVS-14 Gen3 PINNACLE Auto-Gated Night Enforcer
Loading Dock Search
Subject Laying under Truck 50 yards
Loading Dock Lights, 1/4 Moon
Surefire M1 IR Illuminator
COPYRIGHT 2010 TRACO. ALL RIGHTS RESERVED

Using the additional IR illuminator, the subject is clearly seen lying under the cab. This is a tough scenario to acquire a threat, making it all the more dangerous. While a weapon cannot be identified, the officer will at least know someone is hiding under the vehicle. The highly sensitive Gen3 PINNACLE Auto-Gated tube has enough information to acquire the subject and identify his head and clothing.



Litton PVS-14 Gen3 Auto-Gated
Loading Dock Search
Subject Laying under Truck 50 yards
Loading Dock Lights, 1/4 Moon
Surefire M1 IR Illuminator
COPYRIGHT 2010 TRACO. ALL RIGHTS RESERVED

The additional higher-power illuminator begins to make the subject visible beneath the cab. However, the level of brightness seen here, with the Surefire M1 is almost the same as the naked image through the PINNACLE unit. But, at least the subject is visible to the officer and appropriate action can be taken.



With the amount of available ambient light, the Gen2 SHP tube performs very similar to the Gen3 Auto-Gated unit. It produces an arguably lighter image. The main difference is the resolution and edge-to-edge clarity. While the image is bright, providing good situational awareness, the edges and definition of objects are noticeably fuzzier than the Gen3 units. The subject under the cab is barely visible, but the image is bright enough that something can be detected.



The Gen2+ tube produces an image that can identify the truck, dumpsters, and rear loading dock. Details are dark and resolution is relatively poor. The bright lights of the loading dock greatly help the image. The subject under the cab cannot be seen.



The built-in IR illuminator did not add any value to the image. It is negligibly lighter.



The built-in IR illuminator did not add any value to the image.

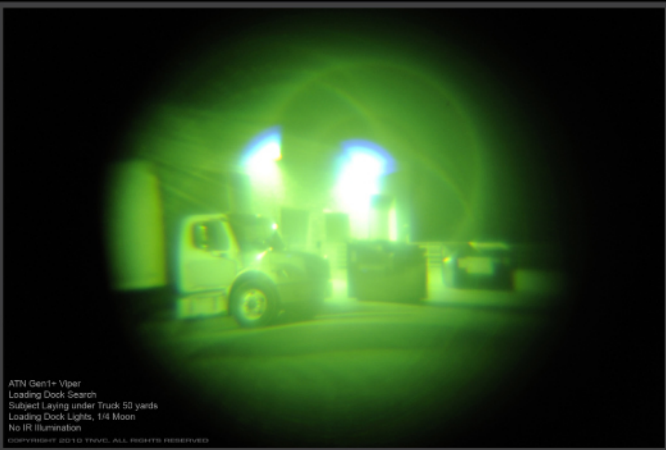


The additional higher-power illuminator makes the subject more visible under the cab. In this case, it is safe to say the separate IR illuminator is required for acquiring the subject.

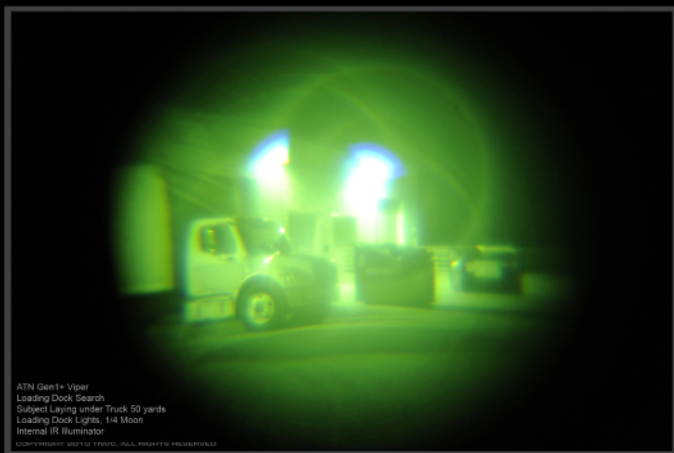


Even with the separate IR illuminator, the subject under the truck is not visible. The area is brightened slightly, but the Gen2+ tube cannot process enough light to acquire the subject in the heavy shadows.

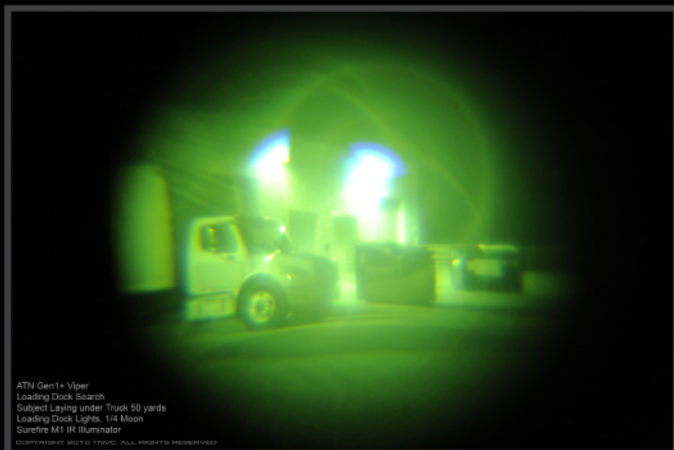
Gen1+



The Gen1 tube produces an overly-bright image due to the heavy blooming from loading dock lights. The Gen1+ tube cannot deal with these lights and creates an awkward, fish-eye image at this distance. Situational awareness is severely hampered by the blooming, causing the extreme halos and distortion. The shadow under the truck is still concealing the subject.



The built-in IR illuminator did not add any value to the image.



The additional higher-power illuminator does not add any useable information to the image due to the heavy halo blooming created by the loading dock lights. The subject is still hidden from view.

Thoughts

This evolution brings to light the advantage of the Gen3 PINNACLE Auto-Gated tube. Its ability to gather and process more light is exemplified by its detection of the subject under the truck cab, even without the aid of an IR illuminator. This is a key factor because bad guys like to hide in shadows. An officer's night vision device needs to be able to detect the subject in these extreme dark conditions. Also of note is the ability of the Gen3 and Gen2 SHP units to deal with halo and bloom. This scenario has the viewer looking directly into light sources. As illustrated with the Gen2+ and Gen1+, the light sources create a blooming effect. This is especially noticed in the Gen1 unit which has no provision for dealing with this condition and creates a heavily distorted (almost dangerous) image.