

Trimble Floodlight Technology



SATELLITE SHADOW IS THE NUMBER ONE PROBLEM FOR DATA COLLECTION TEAMS NEEDING HIGH ACCURACY IN DIFFICULT GNSS CONDITIONS. TRIMBLE® FLOODLIGHT™ SATELLITE SHADOW REDUCTION TECHNOLOGY IS THE SOLUTION—DELIVERING DRAMATIC IMPROVEMENTS TO ACCURACY AND POSITION AVAILABILITY WHEN WORKING IN URBAN CANYONS AND UNDER TREE CANOPY.

What is satellite shadow?

Satellite shadow occurs when an obstacle between a GNSS satellite and a receiver stops the receiver from tracking the satellite effectively.

As more satellites are blocked from view, it becomes progressively more difficult for the receiver to compute accurate positions. In extreme cases there are simply too few satellites in view to compute positions at all.

How does floodlight technology mitigate satellite shadow?

Trimble Floodlight technology reduces the effects of satellite shadow in three ways:

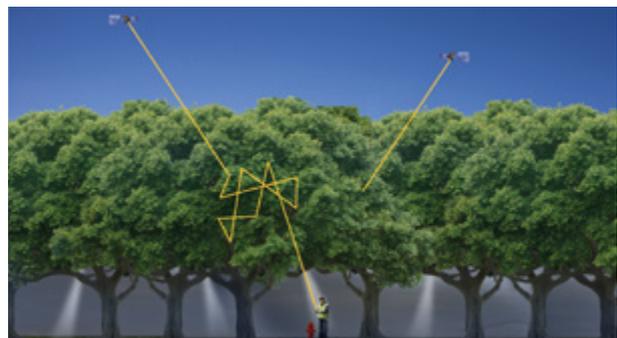
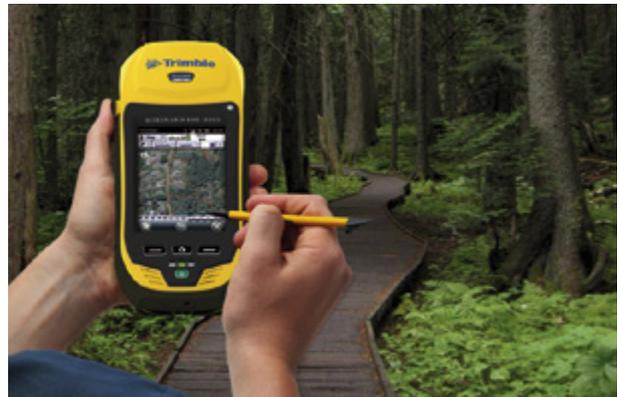
1. By using multi-constellation GNSS tracking, satellite availability is increased by up to 60% over GPS-only positioning.
2. Advanced tracking algorithms speed up signal acquisition and ensure more stable tracking of satellites with weakened signals. With steadier tracking comes smoother positioning that is less prone to drop-outs and spikes caused by erratic satellite tracking.
3. Floodlight technology uses altitude-constrained positioning to reduce the impact of weakened or blocked satellite signals. This technique allows 3D positioning with only 3 satellites for short periods, and can improve horizontal and vertical accuracy.

Floodlight technology is compatible with real time and postprocessed workflows. There is no extra configuration, back-office processing, or quality control required—it just works.

Why is floodlight technology better than other techniques to improve position availability?

Receivers that address satellite shadow by offering multi-constellation positioning are only solving part of the problem.

Other solutions that use lower cost high-sensitivity receivers may increase position yield in obstructed conditions, but do so at the expense of accuracy. Floodlight technology tackles satellite shadow by improving satellite visibility and tracking while safeguarding against the effects of weak satellite signals on position quality—achieving the best possible position.



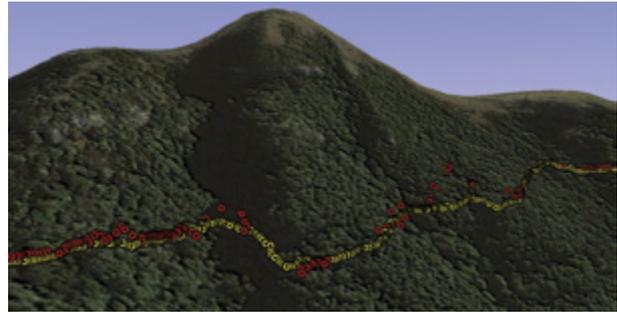
Satellite shadow prevents position acquisition in difficult GNSS environments

What levels of performance can be achieved?

The results speak for themselves. The images below show performance before and after the introduction of Trimble Floodlight Technology in a high-rise urban canyon and dense canopy environment. In both cases the red shows the results of positioning with a Trimble GeoExplorer® series handheld that does not include Floodlight technology. The yellow shows the same routes measured with a Trimble GeoExplorer series handheld with Floodlight technology enabled.



Results 1: Real-time data collection in a high-rise urban canyon environment.¹



Results 2: Postprocessed data collection in a dense canopy environment.²

How can I take advantage of Floodlight technology?

Trimble Floodlight satellite shadow reduction technology is available exclusively on Trimble Geo 7X handhelds and the Trimble Pro series receivers.

Choose a handheld or receiver that delivers submeter to decimeter position accuracy as suits your needs.

When equipped with Floodlight technology, the GNSS receiver can track satellites and compute positions under the most demanding conditions.

The result is more productive data collection without compromising precision.

1 Typical results for real-time data collection in a high-rise urban canyon environment. Shows the performance comparison of a GeoExplorer series handheld without Floodlight compared to a Floodlight-enabled handheld. This data was collected with real-time Trimble VRS™ network corrections broadcasting GPS and GLONASS corrections. Results will vary with environment and method of data collection.
 2 Typical results for postprocessed data collection in a dense canopy environment. Shows the performance comparison of a GeoExplorer series handheld without Floodlight compared to a Floodlight-enabled handheld. This data was collected with Trimble TerraSync™ version 5.10 and postprocessed in Trimble GPS Pathfinder® Office software version 5.10. Results will vary with environment and method of data collection.

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