

Handheld Backscatter X-Ray Devices - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Handheld Backscatter X-Ray Devices Market is expected to register a CAGR of 5.60% during the forecast period.

A significant consideration to opt for a handheld version of backscatter X-ray has been observed amid the COVID-19 situations. As the police work can force officers to break that 6-foot social distance guideline, investment toward these devices helps law enforcements keep their distance. As of June 2020, Viken Detection, by building on its VALOR program, led the US-based police departments across Oklahoma, Tennessee, Mississippi, Georgia, and Indiana to training sessions in its Burlington facility on using the HBI-120 to ensure the active protection of the public from the opioid crisis amid coronavirus-led challenges.

Key Highlights

- X-ray backscatter technology (XBT) uses scattered radiation caused by the Compton effect. The backscatter imaging involves illuminating the object with a pencil beam of known direction and collecting all the back-scattered radiation with large area detectors. The advantage of XBT lies in the inspection of an object from one side. Therefore, it is beneficial to deploy where limited access points exist or when the interior of the object is complex in terms of overlaying details.
- The trend of miniaturization of devices and ease to use have led to the development of handheld variants. These variants, though, are required to possess capabilities on-par or sometimes even sophisticated than the fixed ones. The ability to shrink the X-ray tube has been one of the primary drivers to achieve the development of handheld devices in this domain. Such advancements in the miniaturization of X-ray inspection technology have helped the upstream oil and gas sector in recent times.
- The increasing need for highly efficient and easy-to-use scanning systems is driving the market. Vehicles to screen for the detection of drugs, IEDs, to name a few, are being increasingly used across the world to smuggle in a country or region. Therefore, increased need for providing X-ray images from backscatter to detect organic-based threat materials as well, in addition to metal (lead detection), in passenger vehicles, public events, and borders are gaining traction. Also, these handheld devices/equipment

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offer a better return on investment (ROI).

- Countries like Islamic Republic of Iran and Morocco, reported multiple large drug seizures, indicating that large-scale drug trafficking is taking place amid the COVID-19 led restrictions, also reported an increase in interdiction resulting from increased controls. The convenience offered by handheld backscatter X-Ray devices would help reduce trafficking.
- The handheld backscatter X-ray device costs significantly higher due to exceptional and proprietary advantages and the presence of a consolidated market as well. Also, while using the device for scanning more expansive areas, the power input gets easily hampered. This is because of the availability of 5W and 10W power source. The device gets heated up. Therefore, higher energy input in similar or reduced dimensions is needed. Furthermore, the ergonomic design of the product is still not standardized. The current dimensions and weight of the product are still not appropriate for personnel to hold it for a longer duration.

Handheld Backscatter X-Ray Devices Market Trends

Customs and Border Protection is Expected to Grow Significantly

- The customs and border protection (CBP) organizations are prominent end users of handheld backscatter X-ray devices. Given the scale of the illicit occurrences, the North American region exhibits robust backscatter technology deployments specific to the application. According to the United States CBP, total enforcement actions held by the agency in fiscal year 2019 were 1,148,024. In FY 2020, about USD 93.3 million worth of Narcotic drugs seized from the borders, increasing from USD 68.879 million in the previous year.
- The occurrences of illicit trading of currency, drugs, explosives, arms, ammunition, and endangered species specimens, among other materials, are increasing globally. Hence, it is imperative to look out for unreachable areas, for scanning or scrutinizing the vehicles, to stop such trading. Handheld backscatter X-ray devices play a vital role in identifying these vehicles to prevent these trades and improve national security.
- CBP's biggest challenge is the sheer volume of traffic, which made it impossible to inspect every vehicle. This made them rely on technology to scrutinize and inspect the vehicles. San Ysidro, one of the busiest land border crossings in the Western Hemisphere, roughly has 70,000 vehicle passengers travel northbound from Mexico into the United States almost every day. A typical officer at the border has less than 20 seconds to scrutinize a vehicle and determine whether to let it through or subject it to additional secondary screening.
- The CBP agents performed approximately 6 million non-intrusive inspection (NII) scans in FY 2020 that directly led to the seizure of 216,203 pounds of drugs, USD 3 million in undeclared currency, 1,655 guns, and over 4,500 unauthorized migrants being transported illegally in cargo trucks, since October 2020. The robust adoption of NII is leading to the growth of the market.
- Further, according to the Drug Enforcement Administration (DEA), most of fentanyl, heroin, and methamphetamine are trafficked across the Southwest border into the United States. However, about 2% of all the private passenger vehicles and 16% of commercial vehicles are scanned at land borders.?

North America Contributes to Hold a Significant Market Share

- The region holds the highest share of the market, as it houses the majority of the manufacturers, such as Rapiscan and Viken Detection. These companies have developed proprietary methods of their own for developing a handheld backscatter X-ray device.
- Law enforcement and cross-border protection are significant users/adopters of this device. In line with the propensity to adopt, vendors in the region have been increasingly active. For instance, in 2020, Viken introduced its VALOR initiative, which offers free

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or at-cost refurbished HBI-120 handheld X-ray imagers to local, underfunded police departments. The company aims to reduce/combat preliminary issues that local police faces during an opioid response.

- In early 2020, United States Customs and Border Protection Agency (CBPA) announced its plans to install and test several X-ray imaging systems at ports alongside the southern border. The systems are expected to provide officers and agents with a clearer view of what is crossing the border and easy detection of drugs, weapons, and cash to disrupt transnational criminal networks.
- As part of the Passenger Protect Program, Canada aims to allot CAD 13.3 million to work with partnering departments (Public Safety and Transport Canada) to deliver a Centralized Screening solution to support the enhanced program. In 2020, Canada Border Services Agency (CBSA) invested heavily in sniffer dogs and X-ray machines to catch gun smugglers to its borders. Additionally, training based on new equipment is being conducted.
- Recently, Rapiscan Systems Inc. reported that its handheld backscatter X-ray device MINI Z helped the United States law enforcement to detect 409 lbs. of marijuana concealed in a fake mattress. In June 2021, Viken Detection, provider of x-ray imaging and analytical devices, announced that its channel partner, Federal Resources, awarded the company a USD 2.5 million contract from the US Drug Enforcement Administration (DEA) for Viken Detection's NIGHTHAWK-HBI handheld x-ray imager.

Handheld Backscatter X-Ray Devices Industry Overview

The Handheld Backscatter X-Ray Devices Market is majorly consolidated. Many players in the market are dedicating their R&D efforts to capture un-explored domains that are expected to cater to significant rivalry in the coming period. It is the same case with geographical expansion. Many companies are establishing an international presence, especially in countries in the Asia Pacific region, such as China and India, which is likely to provide several opportunities.

- June 2020 - Viken Detection launched a handheld and under-vehicle X-ray system that scans vehicles for hidden cash, drugs, and weapons that may help prevent illegal drug and gun smuggling at the U.S.-Mexico border.
- April 2020 - In order to contain the COVID-19 spread, Nuctech Company Limited launched its non-contact human body security detector approved by China Civil Aviation Administration with an A-Class License.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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