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Market Survey (Version 1.1)**

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## **1.0 INTRODUCTION**

Body scanners are used to screen for contraband in a variety of places. Airports, schools, government buildings, and corrections facilities are examples of the types of places that have employed body scanners. Different types of body scanners have different capabilities based on the imaging technologies used and the sophistication of the internal system analysis. Metal detection was one of the first technologies developed to identify metallic objects on a person, but contraband can take many other forms, such as powders (e.g., drugs), paper (e.g., money), and even ceramic or plastic weapons. Correctional facilities in particular are faced with various forms of contraband, and with elaborate methods of evading detection employed by the local population.<sup>[1]</sup> Manufacturers have responded by producing scanners that are able to detect non-metallic contraband, as well as systems that can detect contraband inside body cavities. This report identifies commercially available body scanners and discusses the technologies used by these products. Technological limitations pertaining to the type of materials detected and/or the ability to detect contraband inside body cavities are discussed.

### **1.1 About the SSBT CoE**

The NIJ SSBT CoE is a center within the National Law Enforcement and Corrections Technology Center (NLECTC) System.<sup>[2]</sup> The Center provides scientific and technical support to NIJ's research and development (R&D) efforts. The Center also provides technology assistance, information, and support to criminal justice agencies. The Center supports the sensor and surveillance portfolio and biometrics portfolio. The CoEs are the authoritative resource within the NLECTC System for both practitioners and developers in their technology area(s) of focus. The primary role of the CoEs is to assist in the transition of law enforcement technology from the laboratory into practice by first adopters.

### **1.2 Need for Contraband Scanners**

Body scanners have been in use for the detection of contraband in many different scenarios where there is a heightened risk of individuals attempting to pass contraband materials into a controlled environment. Environments such as airports, corrections facilities, government buildings, and schools are some examples where contraband screening has been incorporated.

A large number of weapons are constructed (at least in part) out of metal. Metal detectors have been used for this purpose for many years, but they do not detect non-metallic objects, such as drugs, explosives, or plastic weapons. Pat-downs are effective at finding items concealed on a person, but these are time consuming, and have heightened scrutiny with respect to privacy and appropriate officer conduct. Body scanners may help reduce the burden of manually searching for contraband, however there are technological limitations.

Ideally, a body scanner would be able to detect metallic as well as non-metallic contraband that is hidden underneath clothing as well as detect contraband hidden inside body cavities. The ideal scanner would also perform these tasks without the possibility of harmful effects (short or long term) to the subject or the operator(s) of the scanner, and maintain the privacy of individuals to the fullest extent possible.

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