MINI Z Handheld
Z Backscatter Screening
System Overview

December 2017
MINI Z® System
Handheld Z Backscatter® Screening System

The world’s most powerful handheld Z Backscatter screening system delivers real-time images to detect threats and contraband in hard-to-reach locations.
MINI Z System for On-the-Go Detection

Z Backscatter technology in the palm of your hands
• Uses the same technology that made the ZBV® system the top-selling cargo and vehicle inspection system in the world, but in a portable form factor
• Provides effective detection of organic threats, contraband, and explosives for customs and border enforcement and security officials

Goes where other systems can’t
• Compact, single-sided imager that can be used to scan objects in hard-to-reach areas, such as interiors of cars, aircraft and boats
MINI Z System Features Z Backscatter Technology

Unsurpassed detection of organic threats

Using AS&E’s signature Z Backscatter technology, the MINI Z produces a real-time image of the scan target, highlighting organic materials that transmission X-ray systems can miss, such as explosives, currency, and drugs.

• Z Backscatter X-ray images highlight low Z effective materials, which are primarily composed low atomic number elements (Hydrogen, Nitrogen, and Oxygen).
Transmission X-rays & Z Backscatter X-rays

Technology Overview

**TRANSMISSION**

Systems detects by passing a fan beam of X-rays through an object to a detector on the far side.

**Z BACKSCATTER**

System detects by passing a series of pencil beam X-rays over an object to collect reflected X-rays on a detector on the near side, creating an image that is easier to interpret and understand.
MINI Z System: Easy-to-Use

Tablet-based GUI provides simple operation

- Windows 10 tablet with ASEInspection™ Software-Tablet Edition for dedicated image viewing and analysis
  - Provides simple operation and management of the scan data.
  - Contains suite of tools for enhancing and analyzing images
  - Tablet Edition supports touch-screen interaction
- Training materials available on tablet
  - Accessed through the home screen help icon

Completely self-contained

- Does not require physical set-up, enabling immediate operation
- Battery operated, wireless communications (Wi-Fi)
- Intuitive operation: as an operator scans a target, an image appears in real-time on the system’s dedicated tablet.

© 2017 Rapiscan Systems | American Science and Engineering, Inc.
Multiple Security Applications

- **Passenger Vehicles**
  Screening vehicle bumpers, tires, and interiors for contraband

- **Drug Enforcement**
  Searching suspected drug labs/houses for hidden drugs and currency

- **VIP Security**
  Screening rooms, walls, and furniture for threats

- **Maritime**
  Screening boat walls/hulls/bulkheads for drugs or currency

- **General Aviation**
  Screening small planes for contraband

- **Commercial Airliners**
  Screening the interior of commercial aircraft for drugs

- **Prisons**
  Screening walls and furniture for voids and threats
Fast, Portable Detection of Organic Threats

Narcotic simulant in a car seat

Currency in a car door
MINI Z Drug Busts and Seizures

$150K in marijuana
At a customer demo, the first MINI Z system drug bust helped find marijuana worth over US$150,000 street value.

Drugs in baggage
In July 2015, the Yunnan MOPS Drug Enforcement Agency in China used the MINI Z system to scan baggage at checkpoints along bus routes and successfully seized drugs hidden in the luggage of a passenger bus.

$275K in currency
Using the MINI Z, U.S. Public Safety officials discovered US$275,000 concealed in the liner of a cooler in the cab of a truck.
MINI Z System Specs

Scanner Dimensions
- Length: 11.5 in (29.2 cm)
- Width: 9.8 in (24.9 cm)
- Height: 7.6 in (19.3 cm)
- Weight: 11 lbs (5 kg)

X-ray Source
- 120 keV

Operating Time
- 4 hrs per battery charge (typical, based on 25% duty cycle)

Scan Speed
- 6 in (15 cm) per second (typical)

Operating Environment
- IP 54 Rated

Operating Temperature
- 0° C to 45° C (32° F to 113° F)
System Components

Scanner Module

Communication Link
Wireless (Wi-Fi) & Wired

Tablet PC with
ASEInspection Software
for Scan Image Viewing

Two scanner batteries
(one in use, one spare)

Battery Charger

Not shown:
• Quick Start Guide
• Ethernet Cable
• Power Cords
• Calibration Dock

Rugged Case
Operators have the ability to create a composite image that consists of up to 4 separate scans

- Operator configures a scan image group for multiple images before the scans are taken
- Operator can manually adjust magnification and aspect ratios to correct for alignment, different scanning speeds, etc.
- An individual scan can be replaced with a new scan if needed
- Composite image can be saved, recalled and exported
System Option: Tactical Backpack

For easy carrying of the MINI Z and essential components

Intended for ease-of-transport while on site to perform scans

Off-the-shelf backpack outfitted with protective storage compartments
Safety Design Elements

To prevent inadvertent X-ray emission:

MINI Z is equipped with a series of interlocks that must be activated to enable X-ray generation in five easy steps.

1. Key in the scanner
   Key must be inserted and turned to ‘unlock’ the scanner.

2. Connect
   Connection to Tablet must be established.
Safety Design Elements (cont.)

3 Enabling scanner via tablet
These icons appear only on the scan screen, the shaded icon identifies the scanner as being disabled.

4 Handle mounted trigger switches
The scanner will only emit X-rays when one, or both, of the trigger switches are pressed.

5 Timer
Emits X-rays for a maximum of 30 seconds and automatically stops, regardless of if the triggers are still activated. If the scanner remains idle for 30 seconds, the system will disable.
MINI Z: Scan More Threats in More Places

MINI Z leverages our technology leadership in Z Backscatter imaging

- Superior detection of explosives, currency, drugs and other organic threats and contraband
- Easy-to-use interface with flexibility and maneuverability for scanning objects that couldn’t be scanned before
MINI Z
HANDHELD Z BACKSCATTER SCREENING SYSTEM

KEY FEATURES AND BENEFITS

• Portable Z Backscatter imaging system
• Easy to use
• Safe for operators, bystanders and the environment

The MINI Z® system is the world’s most powerful Z Backscatter® imaging system, highlighting organic threats and contraband and providing unsurpassed operational flexibility.

With its small form factor and single-sided imaging, the MINI Z system can scan a wide variety of targets, such as car doors and fenders; tires; furniture; packages; and the interiors of boats, vehicles and aircraft. The MINI Z system is completely self-contained, with no required set-up and no consumables to replenish. Simply power on the device and you’re ready to scan. The MINI Z system is inherently low dose and features reliable and redundant safety subsystems.
**SPECIFICATIONS**

**MINI Z**

**SYSTEM SPECIFICATIONS**
- **X-ray Source:** 10-watt 120 kV X-ray tube
- **Interconnection Options:** Wireless connection through built-in Wi-Fi; optional hard-wire via Ethernet cable

**Scanner Dimensions**
- **Length:** 29.2 cm (11.5 in)
- **Width:** 24.9 cm (9.8 in)
- **Height:** 19.3 cm (7.6 in)
- **Weight:** 5 kg (11 lbs)

**Operating Time**
- **Scanner Battery:** Four hours (typical) per battery; two batteries provided
- **Scan Speed:** Nominal 15 cm (6 in) per second
- **Tablet Battery:** Six hours, typical
- **System Software:** Microsoft® Windows® 10 IoT with ASEInspection™ software

**Transport Case Dimensions**
- **Length:** 63.5 cm (25 in)
- **Width:** 49.5 cm (19.5 in)
- **Height:** 38.1 cm (15.0 in)
- **Full System Weight:** 22.6 kg (49.8 lbs)

**ENVIRONMENT**
- **Operating Temperature:** 0° C to 45° C (32° F to 113° F)
- **Storage Temperature:** -40° C to 60° C (-40°F to 140° F)
- **Operable in:** Rain, snow, high winds, and altitudes up to 3,000 m (9,845 ft) nominally
- **In Compliance With:** CE directive 2004/108/EC

**HEALTH AND SAFETY**
- Complies fully with all applicable U.S. federal health and safety regulations:
  - ANSI/HPS N43.3–2008 Open System Classification
  - Conforms to applicable ANSI, ICRP, NCRP, and Euratom radiation safety standards for annual allowable dose for the general public
  - To help prevent inadvertent X-ray emission, the system is equipped with a series of interlocks and audiovisual indicators
  - Contains no live radiation source

The performance characteristics and photos in this document are indicative and for information only; the specific characteristics of individual systems may differ based upon customer requirements, operation, and supplied options. In addition, due to continual development of Rapiscan and AS&E products, we reserve the right to amend specifications without notice. Please note that due to U.S. laws and regulations, not all products are available for sale in all countries without restriction. Please contact your Rapiscan | AS&E Cargo Scanning & Solutions sales representative for more information or to discuss additional requirements.

© 2017 Rapiscan Systems | American Science and Engineering, Inc.

www.integritysurveillancegroup.com | (888) 866-2492 Office