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# MICRO-X Ltd

ACN 153 273 735

## MX1: The Year in Review

Annual General Meeting:

▶ 24<sup>th</sup> October, 2017

**Peter Rowland** Managing Director, Micro-X Ltd.

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# MX1: This year's Achievements

## Overview:

- Nano
  - Carestream FDA 510(k) approval was achieved in 73 days
  - Some challenges encountered with transitioning x-ray tube manufacturing in USA from development to volume production
  - Mx Manufacturing Team deployed to North Carolina have solved problems
  - Final pre-commercialisation well advanced
  - Market interest very strong
- Rover
  - Successful trial by ADF and now under tender procurement action.
- MBI
  - Proof of concept demonstration very successful

# MX1: This year's Achievements

Tonsley Manufacturing Processes implemented and validated



- Sized for 4 units per day on single shift
- Training & Documentation in place
- Supply chain issues with transition to production solved
- Assembly times on-budget



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# MX1: This year's Achievements

## ISO 13485 Accreditation



- Organisational Quality Management System
- Medical Devices version of ISO9001
- Achieved with only one audit



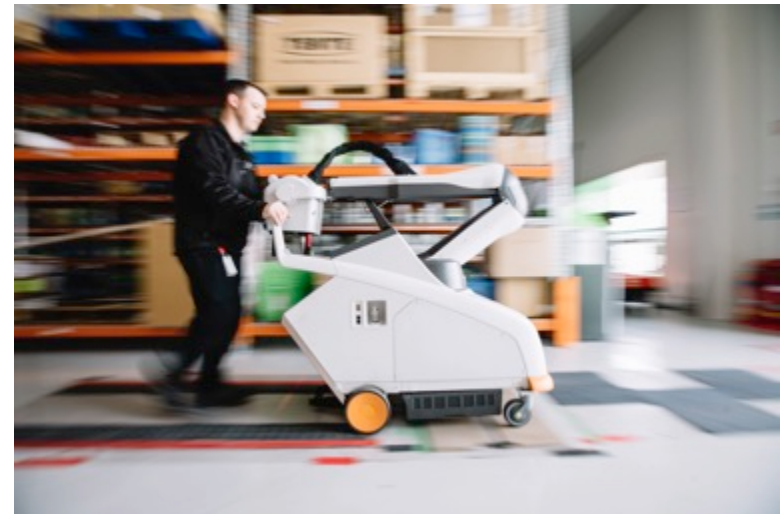
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# MX1: This year's Achievements

## Reliability Growth Testing completed to 10 Years

- 60 Patient Procedures per Day  
= 220,000 cycles over 10 year life
- Reliability issues found and solved



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# MX1: This year's Achievements

X-Ray Tube Life Testing Completed to Five Years....and counting



- Stress Test of typical Nano Exposures
- One Shot every four minutes
- Test will continue until failure

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# MX1: This year's Achievements

Reliability Growth Design Improvements introduced



- 140 Design Improvements implemented for:
  - Reliability
  - Durability
  - Ease of manufacture

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# MX1: This year's Achievements

## 'First from Production' Units Formally Accepted by Carestream Health



- First of anticipated A\$600k pre-launch orders

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# MX1: This year's Achievements

Market Introduction: Carestream generating strong market interest world-wide

Carestream

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Home > Radiography > CARESTREAM DRX-Revolution Nano Mobile X-ray System

- DR Systems
  - DRX-1 System
  - DR Detectors
  - DRX-Mobile Retrofit Kits
  - DRX-Revolution
  - **DRX-Revolution Nano**
  - DRX-Evolution Plus
  - DRX-Ascend System
  - PRO Retrofit System
- Computed Radiography
- Fluoroscopy
- Analog Systems
- Motion Mobile
- Software
- Printing Systems
- Film Systems

## CARESTREAM DRX-Revolution Nano Mobile X-ray System

Revolutionary Performance On A Smaller Scale

The DRX-Revolution Nano system is a lighter weight, non-motorized system that is easier to move and position even in cramped critical care areas. The new system includes:

- Fully integrated digital workflow
- Carbon nanotube technology and an advanced lithium iron phosphate battery that contribute to longer life with a total weight of approximately 200 pounds;
- A sleek design with enhanced visibility both over and around the system;
- A compact footprint that makes it easy to maneuver and position in tight spaces; and
- Available to use with all Carestream DRX Detectors

*This Product is currently not available for sale.*



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# MX1: This year's Achievements

Market Introduction: Carestream generating strong market interest world-wide

• Nano's Trade Show Itinerary last 12 months:

- RSNA, Chicago, 1<sup>st</sup> Dec
- Arab Health, Dubai, 30<sup>th</sup> Jan
- ECR Vienna, 2<sup>nd</sup> March
- Genoa, Italy, 6<sup>th</sup> April
- Sao Paulo, Brazil, 4<sup>th</sup> May
- Leipzig, Germany, 24<sup>th</sup> May
- Manchester, UK, 12<sup>th</sup> June
- Anaheim, USA, 9<sup>th</sup> July



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# MX1: This year's Achievements

## Rover: Contracted Ph 1 Demonstration of Rover Environmental Suitability



- 2<sup>nd</sup> General Health Battalion, ADF Deployment Exercise 'Giant Viper' – Nov 2106 in Qld
- Fully Deployed Medical Facility
- Rover use trials in
  - Operating Theatre
  - Resuscitation Unit
  - Intensive Care Unit
  - Radiology Unit
- Ph 2 higher x-ray power demonstration in preparation

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# MX1: This year's Achievements

## Rover: Tendering to Australian Defence Force: Joint Project 2060



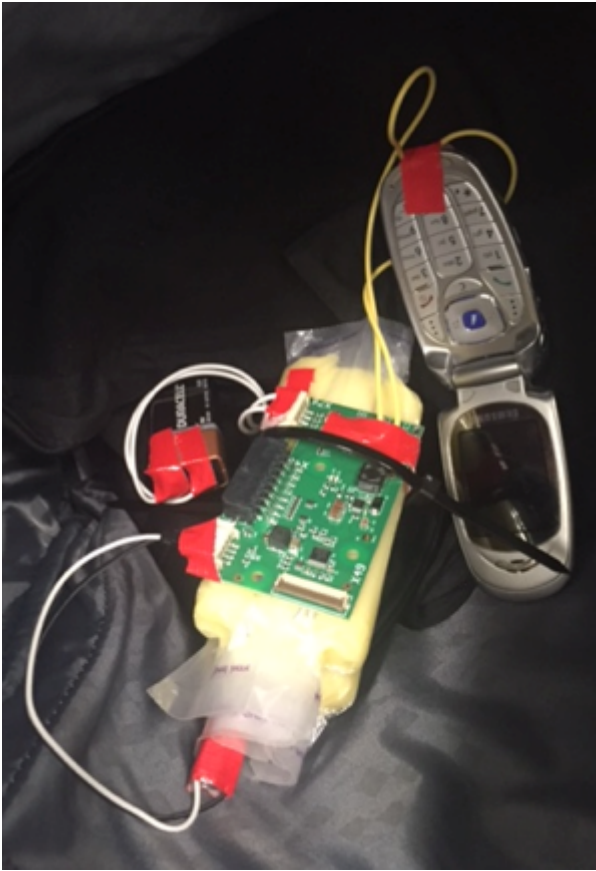
- \$400M 'Turnkey' Defence Acquisition Project to supply fully-equipped new Deployable Health Facilities
- Five prime contractors bidding in competition
- All five have requested bids from Micro-X for Radiology Imaging Suites
- Tenders close Nov 2017
- Contract award in 2018/9



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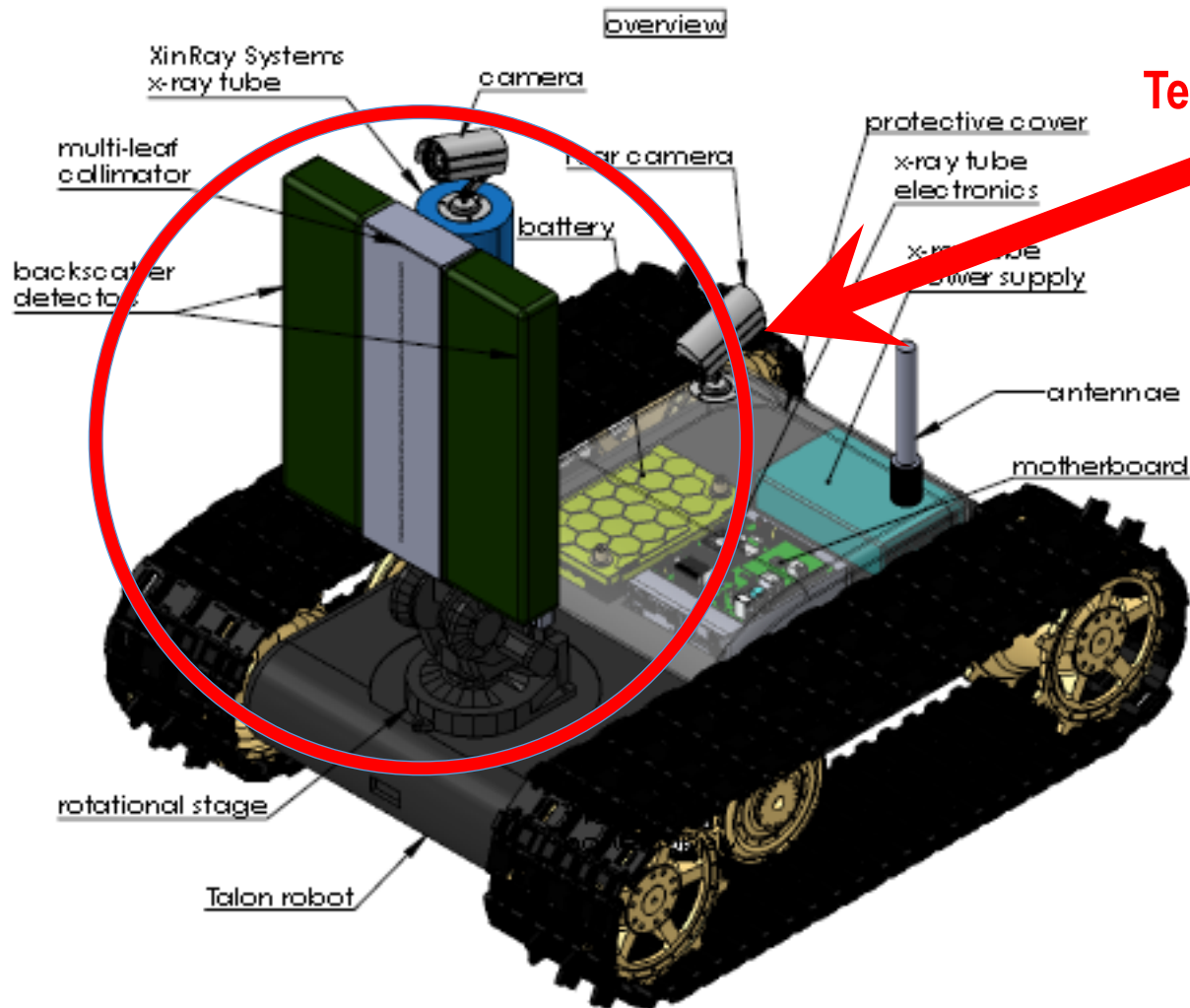
# MX1: This year's Achievements

## DoD Contract: Backscatter Proof-of-Concept Demonstration



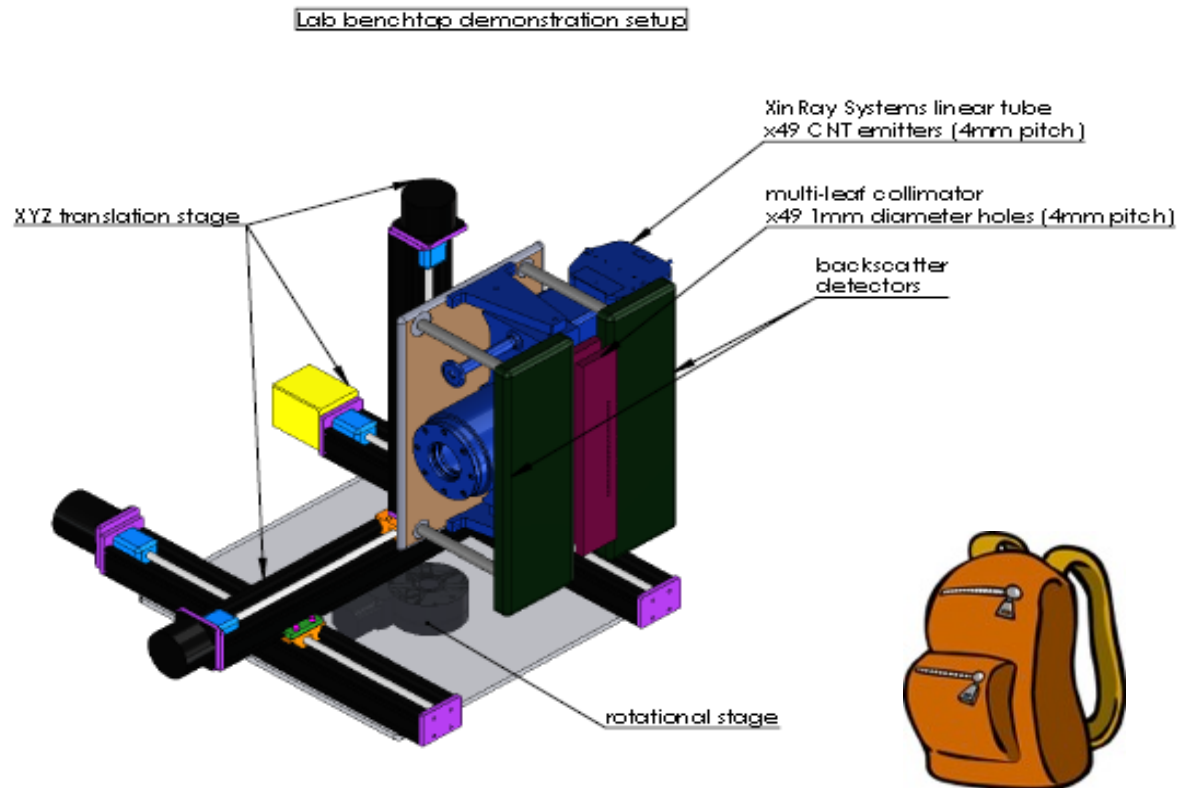
- Assisted and/or attended by:
  - ADF Counter-IED Task Force
  - Australian Federal Police
  - US Office of the Secretary of Defense
  - ADF Explosives Ordnance Disposal
  - SA Police Bomb Squad
  - Defence Science & Innovation
- Completes DoD contract
- Voice-of-Customer started yesterday
- Higher capability product now envisioned
- Further DoD funding in prospect
- First working prototype in 12 months

# Mobile Backscatter Imager - Product Concept



# MX1: This year's Achievements:

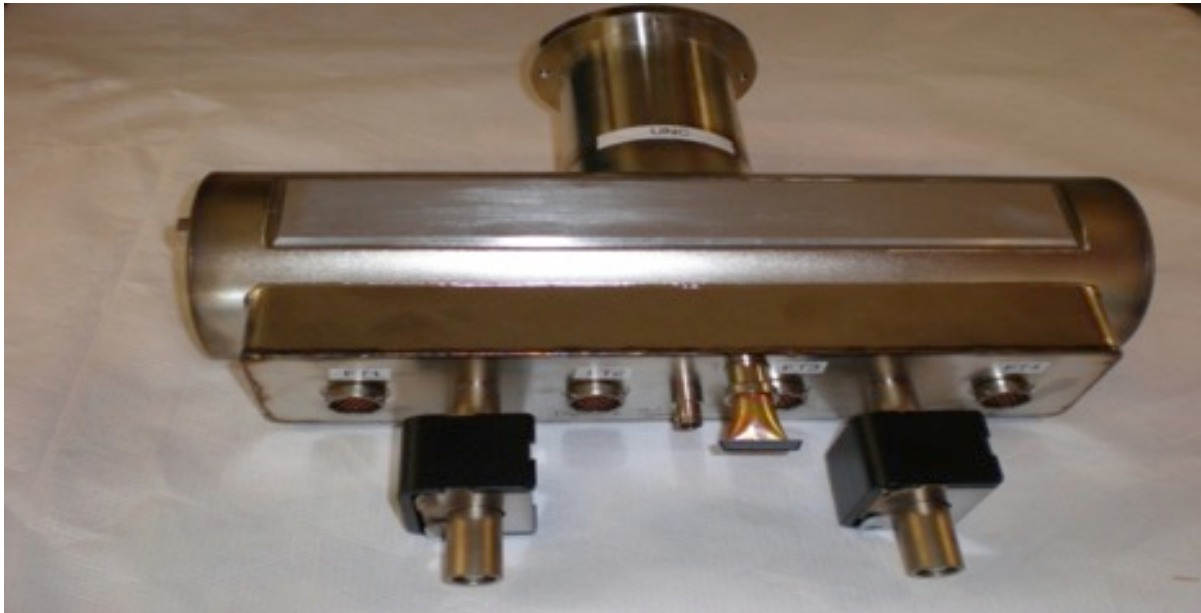
## MBI: Contracted Imaging Demonstration of MBI Proof-of-Concept



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## MX1: This year's Achievements:

MBI: Contracted Imaging Demonstration of MBI Proof-of-Concept



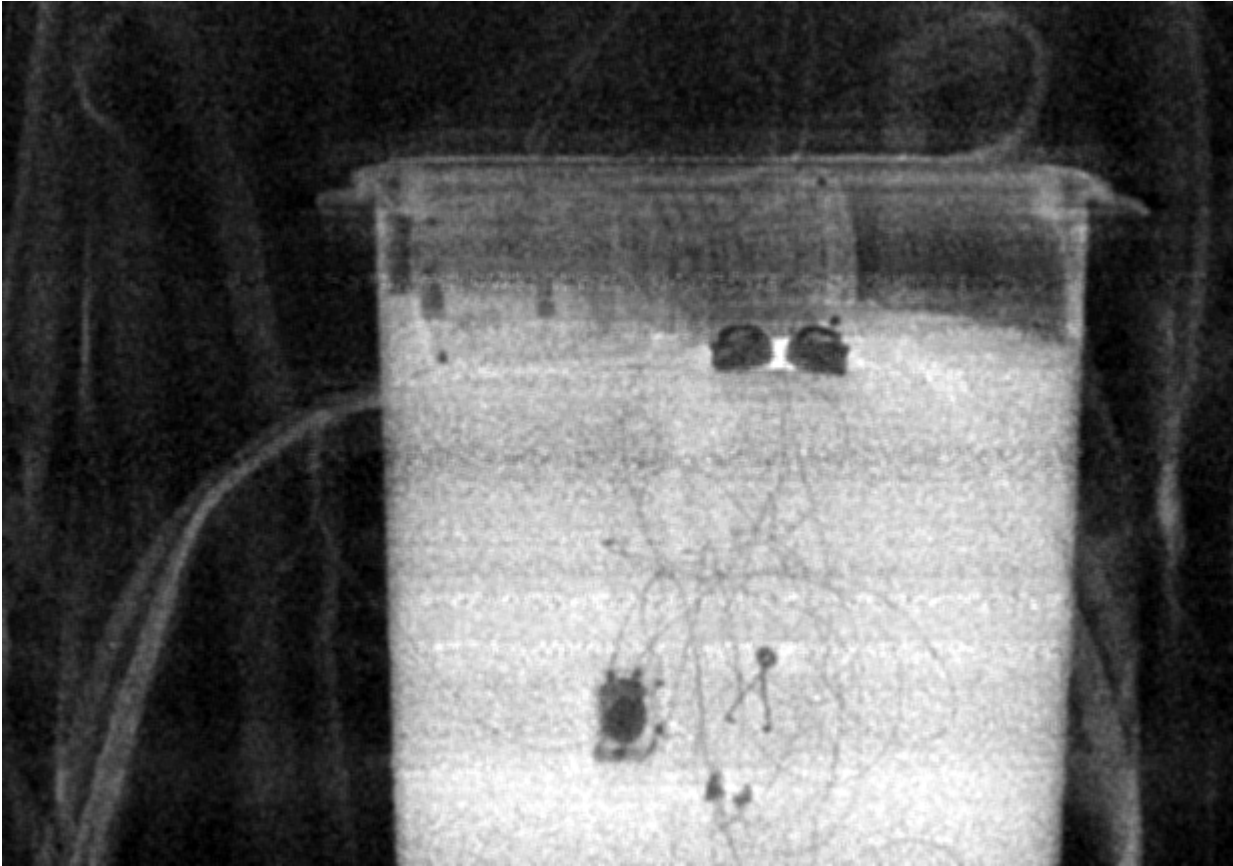
- X-Ray tube with 75 emitters used in the demonstration



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## MX1: This year's Achievements

DoD Contract: Backscatter Proof-of-Concept Demonstration



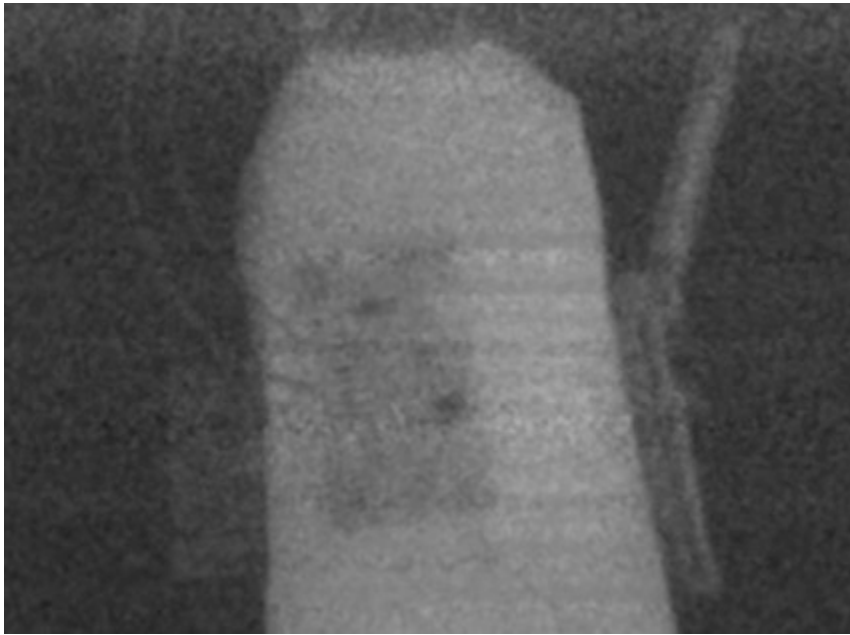
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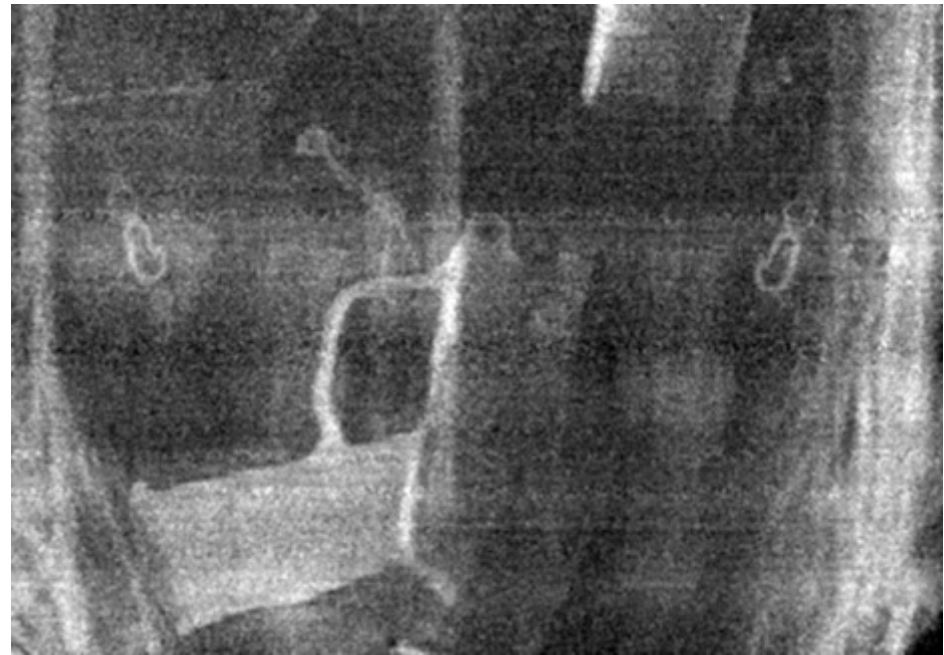
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## MX1: This year's Achievements

DoD Contract: Backscatter Proof-of-Concept Demonstration



Imaged through metal



Imaged inside backpack

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## MX1: This year's Achievements

Foundations laid for Future Security Business in USA:

Micro-X Inc. established in USA

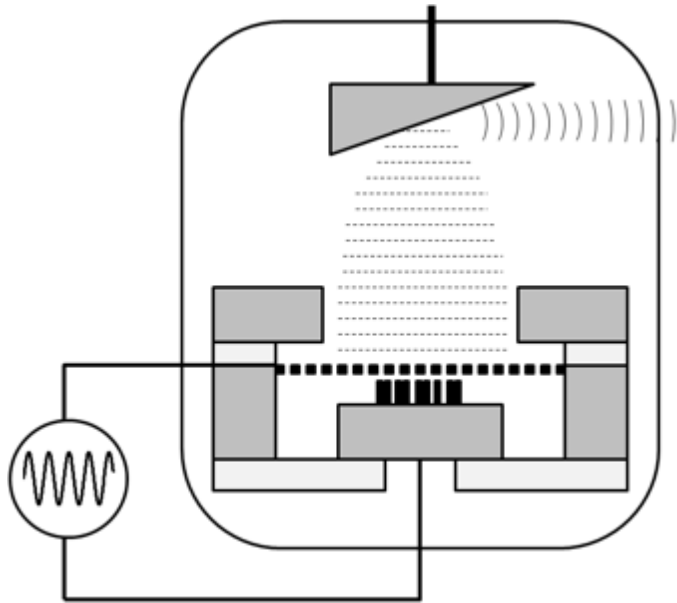
Agreement signed with Lawrence Livermore National Laboratory



- Collaboration follows visits by Home Made Explosives experts from US Department of Homeland Security & Counter Terrorism Technical Support Office to Tonsley
- Micro-X Chief Imaging Scientist based in USA
- Mx & LLNL preparing joint applications for DHS funding
- Focus on Backscatter and Phased Array Imaging HME materials characterisation

# MX1: This year's Achievements

## Patents Lodged for New Imaging Modality



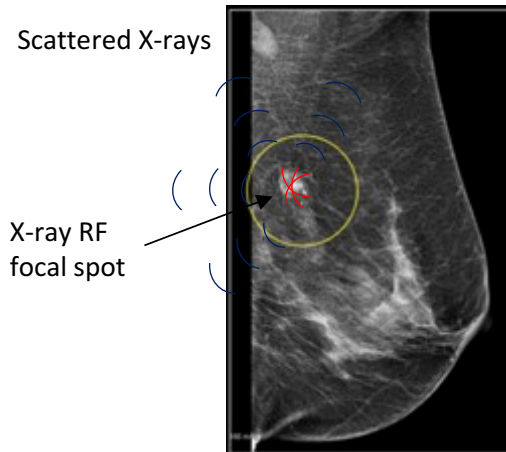
- The x-ray beam can be modulated because the CNT x-ray tube is electronically controlled
- Beam modulation can be used in an array for beam steering and for getting distance information
- Thus single viewpoint 3-dimensional imaging is possible



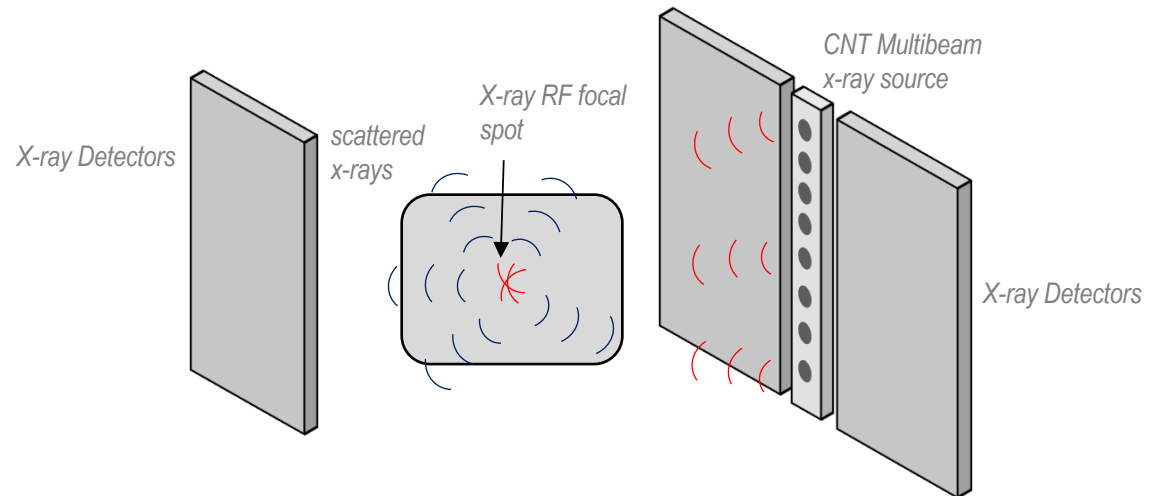
# Phased Array X-ray Scatter Radar

## Game-Changing Imaging Modality

### Medical Applications



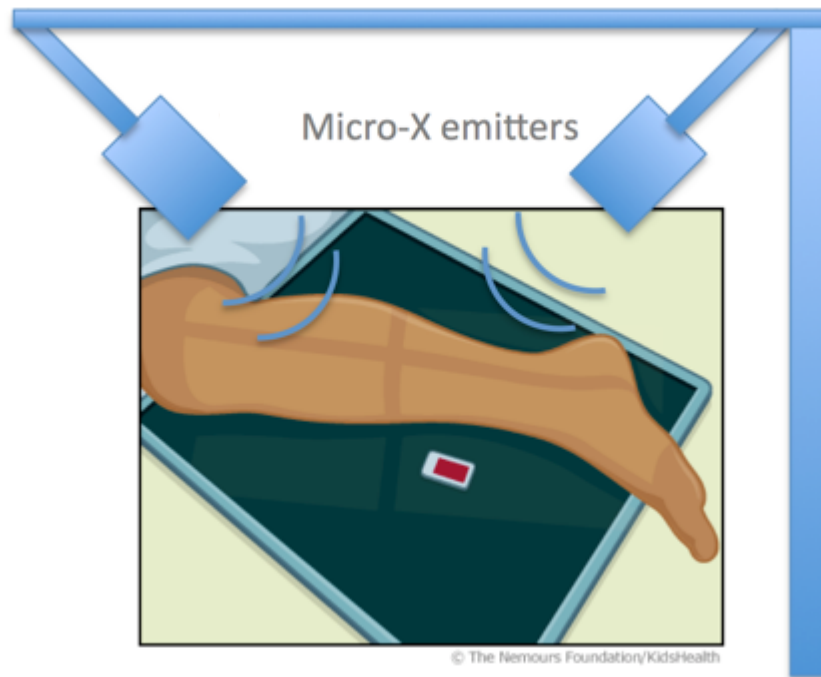
### Security/Non-Destructive Testing



- Beamforming can concentrate X-ray dose in small focal point away from array.
- By focusing the X-rays within an object the coherent scatter can be measured.
- Coherent scatter uniquely identifies a material.
- Security Applications: ***More accurate discrimination of threat items from 3D view***
- Medical Applications: ***Tissue biopsies with X-rays***

## MX1: This year's Achievements:

### New Product Concept: Bedside Cone-Beam CT – First Proof-of-Concept Images



- Multiple X-Ray sources
- Rapidly switched using CNT control
- No tube motion
- Nano technology minimises Tube Head weight

# Product Opportunity:

## The current definition of Mobile CT



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# Product Opportunity : Bedside CT

Tomosynthesis Proof of Concept Test – Conventional Chest Image using Nano



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# Possible Product Opportunity : Bedside CT

Proof of Concept Test – Initial Reconstruction from Nano Images



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## The coming months in prospect :

- Nano Trade Trials in USA
- Nano CE Marking
- Nano First Customer Shipments
- High Power Rover Ph2 Imaging Demo
- MBI Voice-of-customer trials
- US engagement with DHS





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**Thank You; Any questions?**