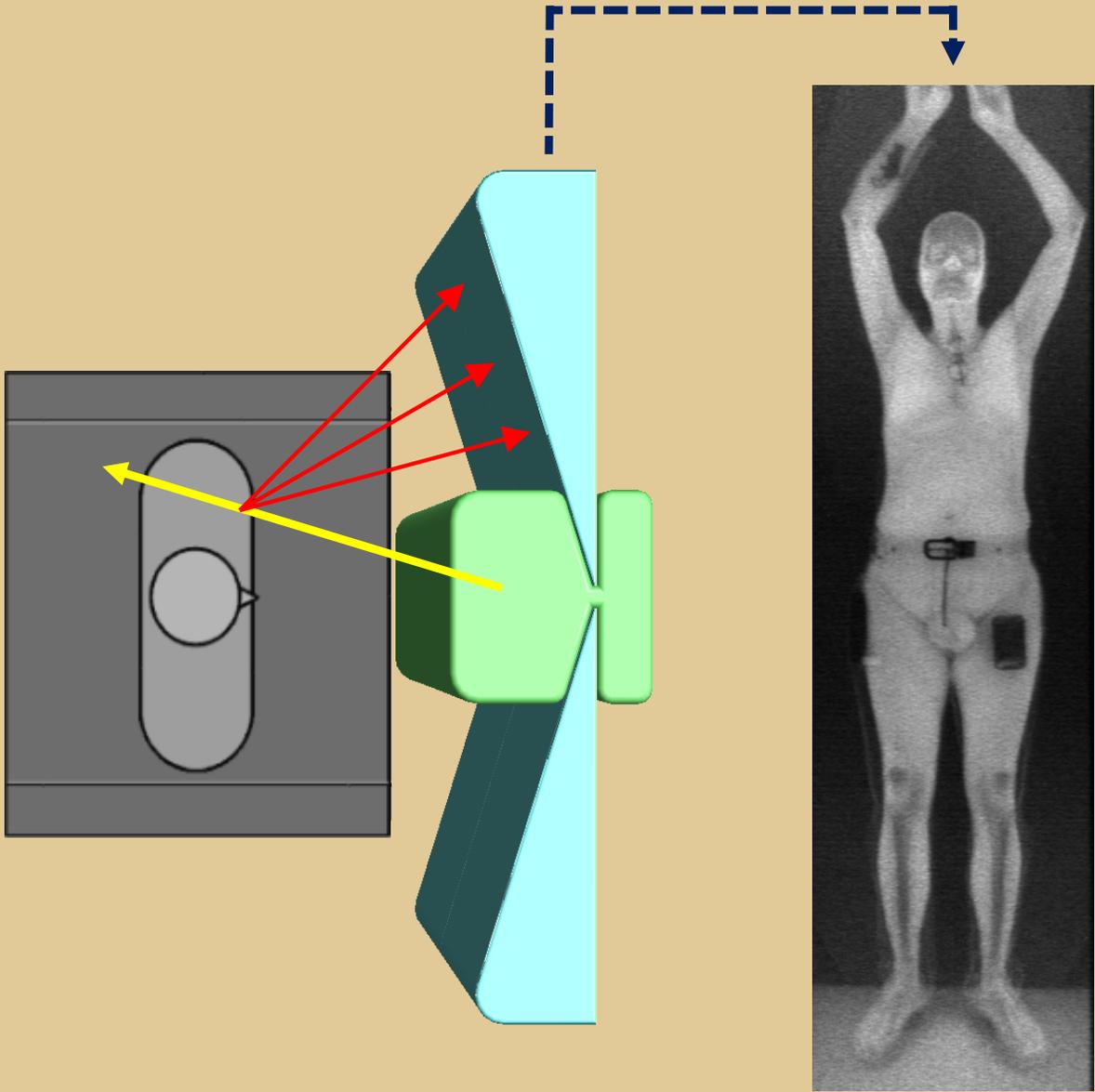


X-ray Body Scanners with Fused Backscatter and Transmission Imaging

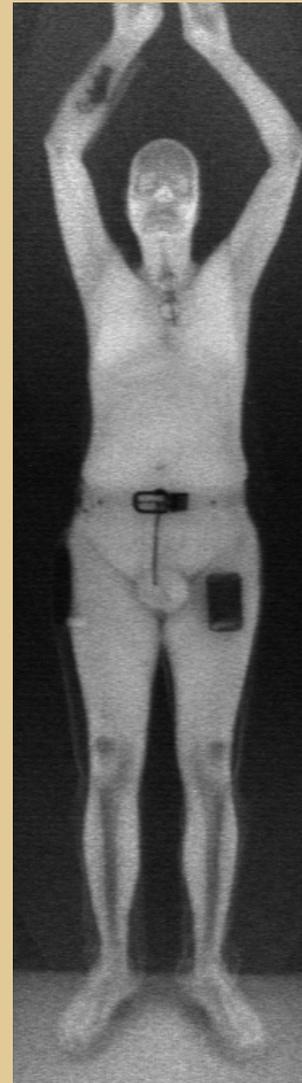
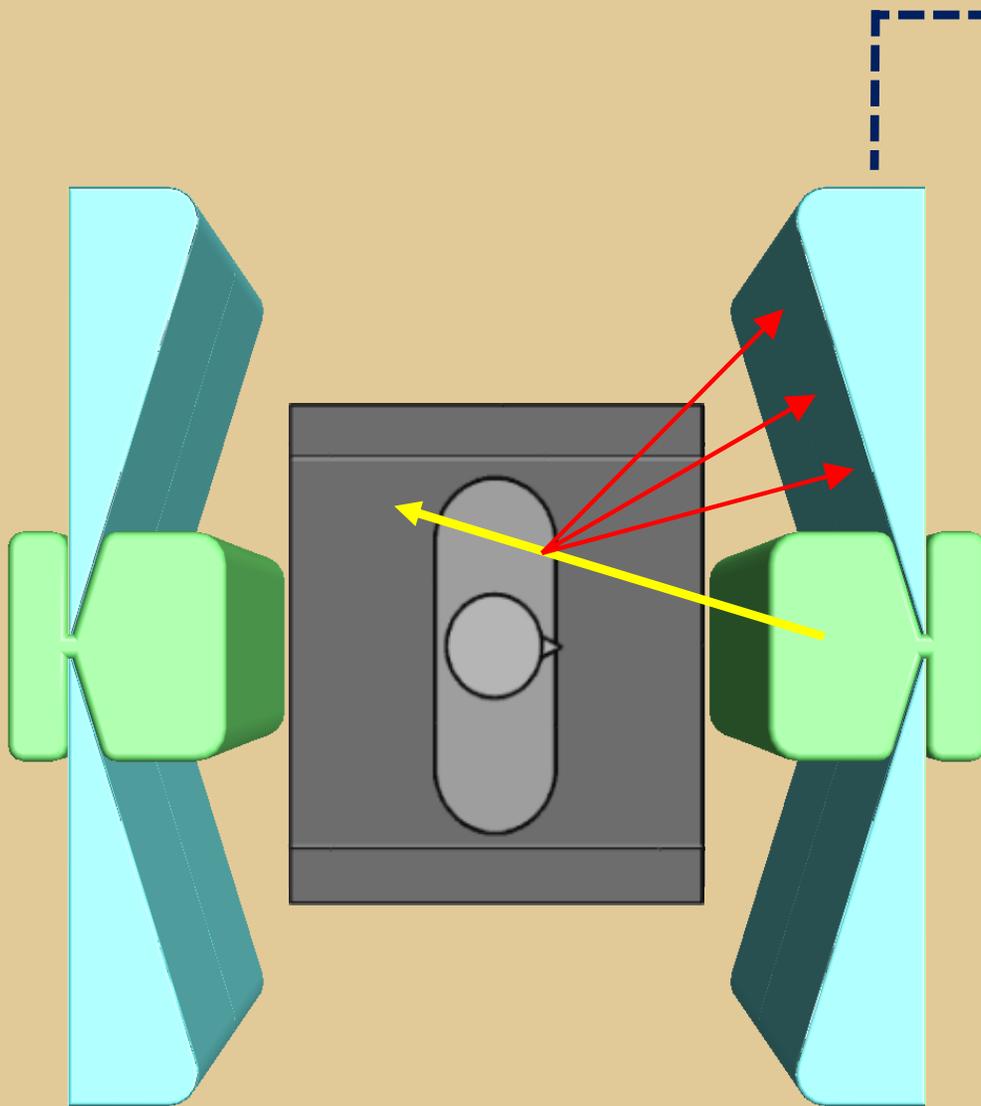
Steven W. Smith, Ph.D
Tek84 Engineering Group
Steve.Smith@Tek84.com



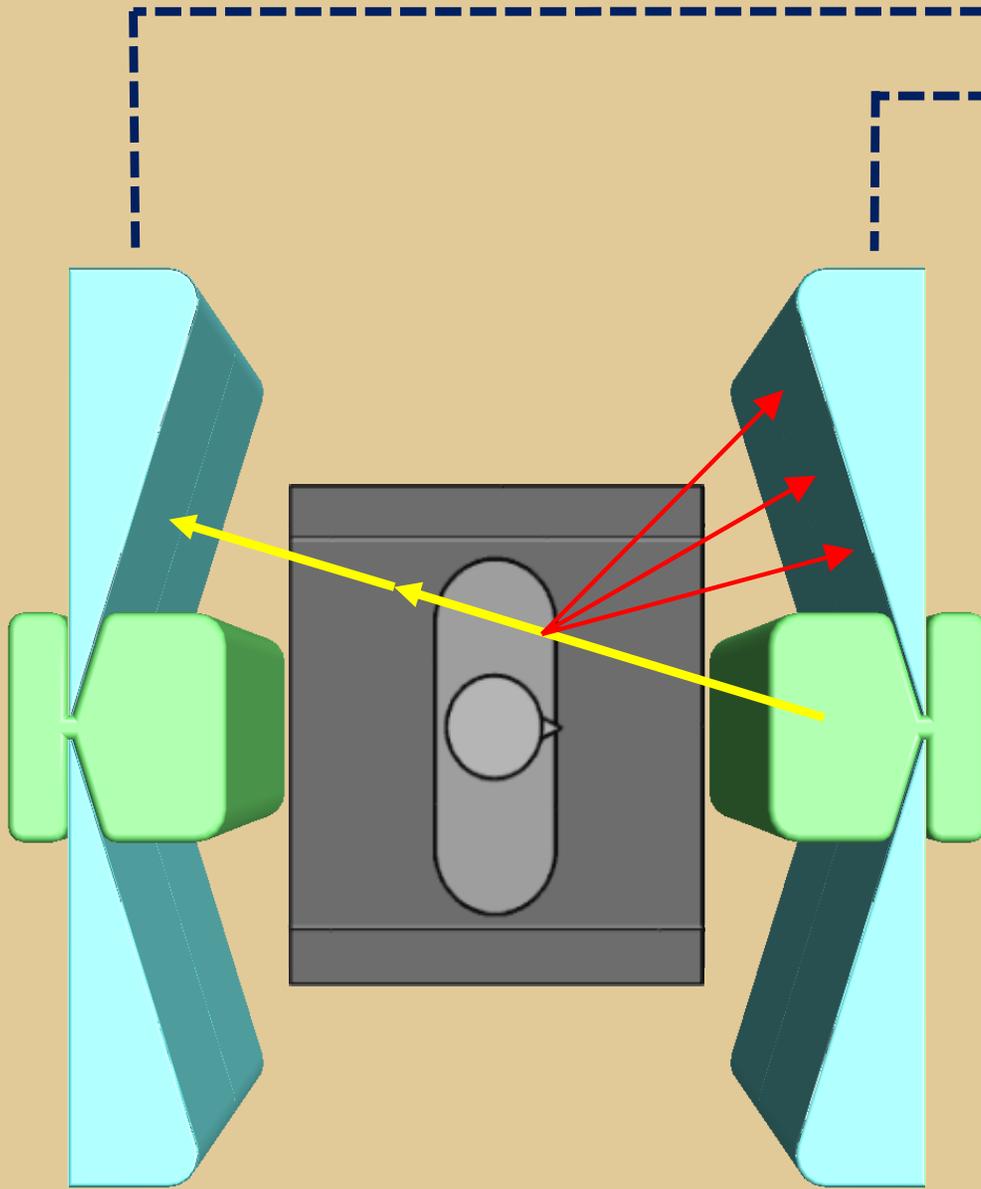
1. **Area:** Backscatter Body Scanners
2. **Problem:** Improving Automated Detection
3. **Method:** Fusing BackScatter & Transmission
4. **So what?** Revolutionary Improvements



Backscatter



Backscatter



Backscatter

Transmission



SECURE 1000 (Rapiscan)



SmartCheck (AS&E)



**Which products use
Transmission Imaging?**



Ait84 (Tek84 Engineering)



Not to be confused with...



Transmission Only Body Scanners

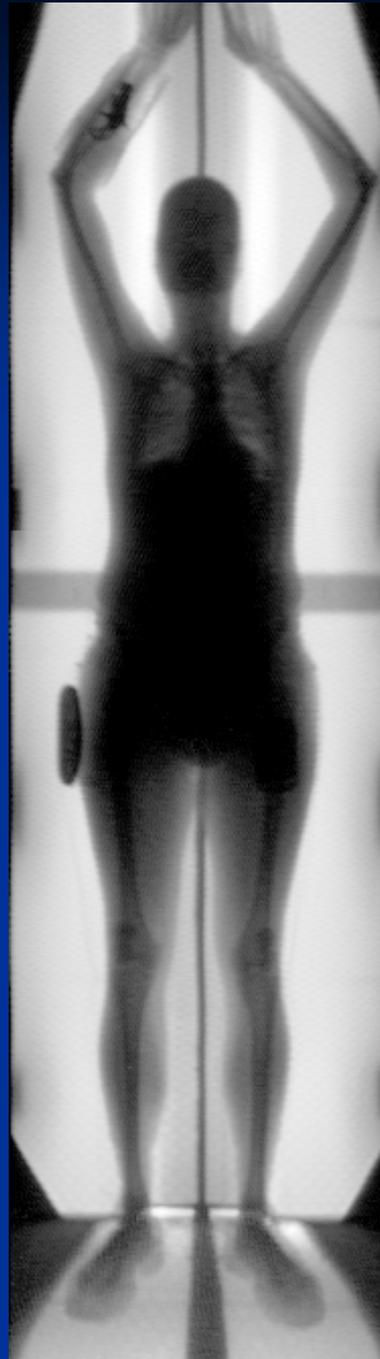
- 10-100x Dose Level
- Detect items in body cavities
- Extremely cluttered image
- Difficult false alarm resolution
- Market: Prisons and Jails

Importance #1

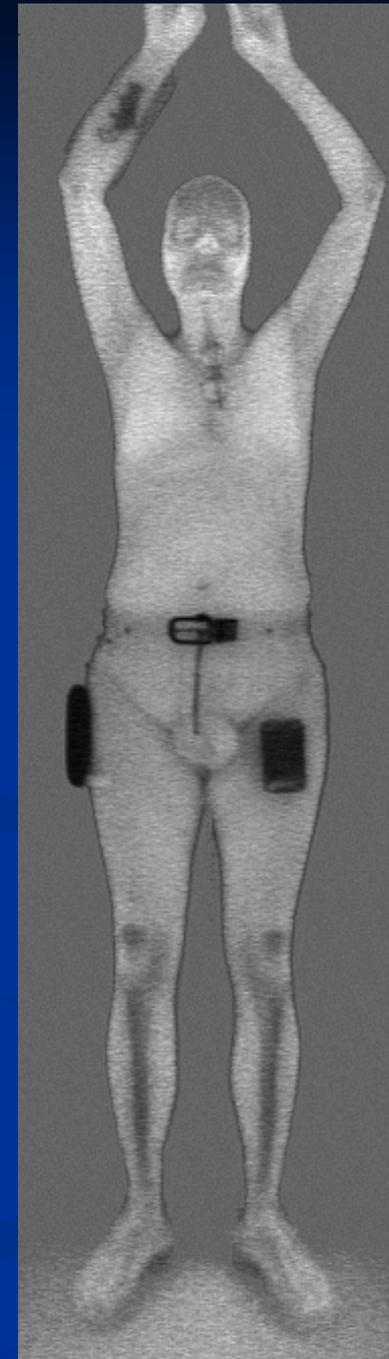
Detection of Metal on
the Side of the Body



BackScatter



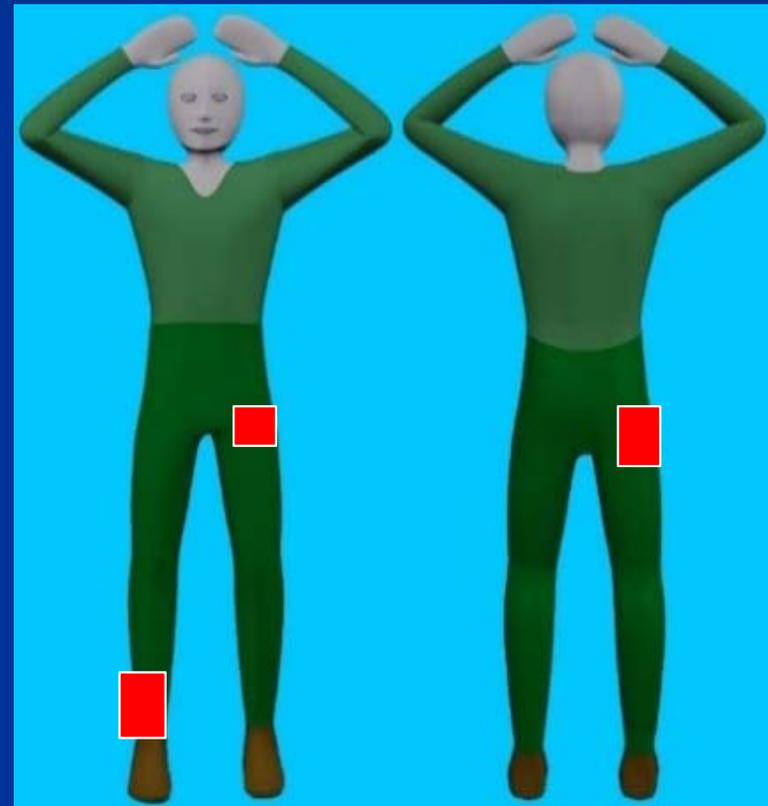
Transmission



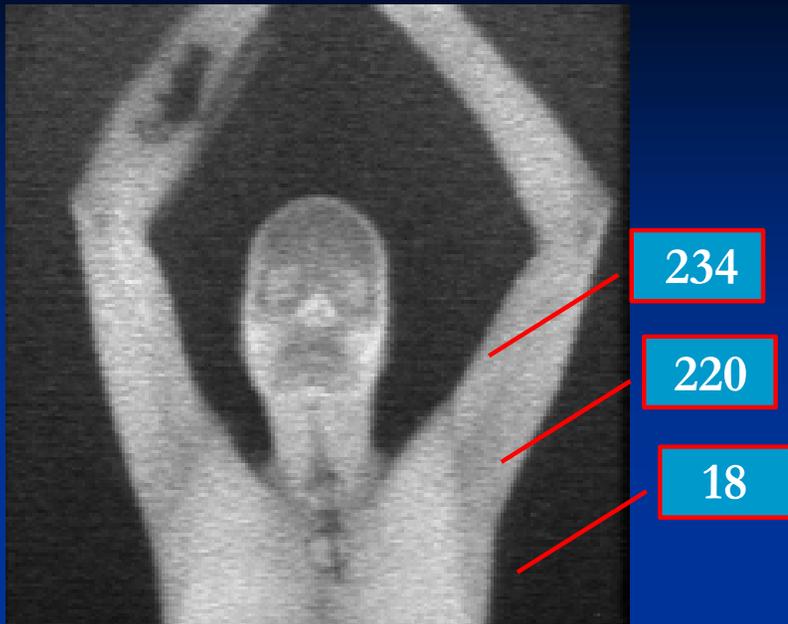
Fused

Importance #2

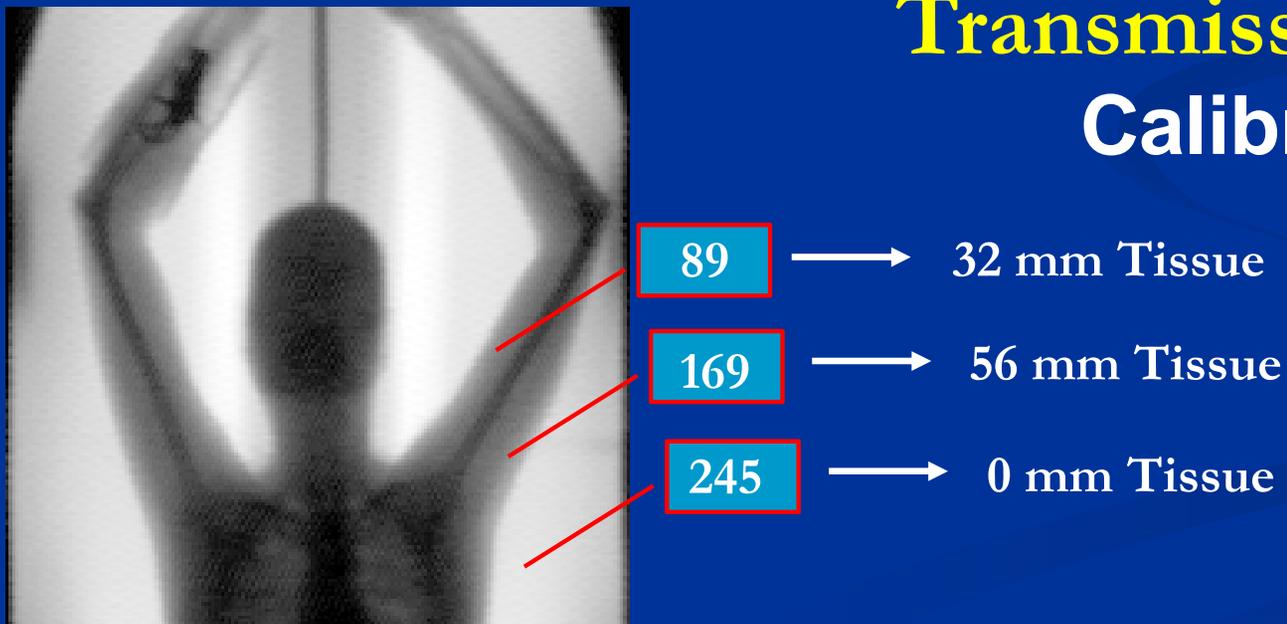
Enabling Technology for ATR



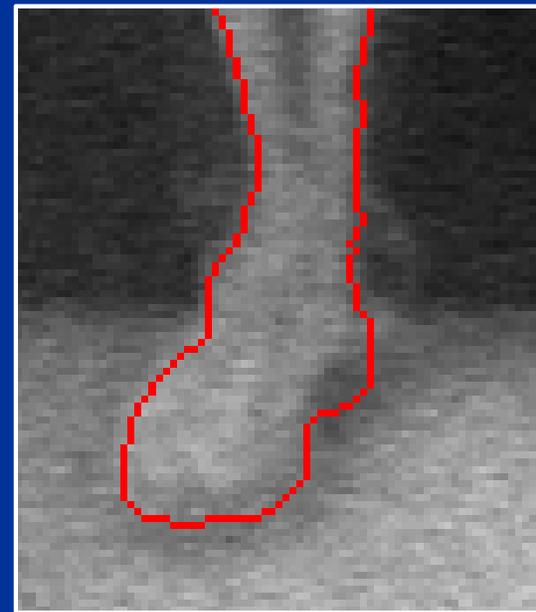
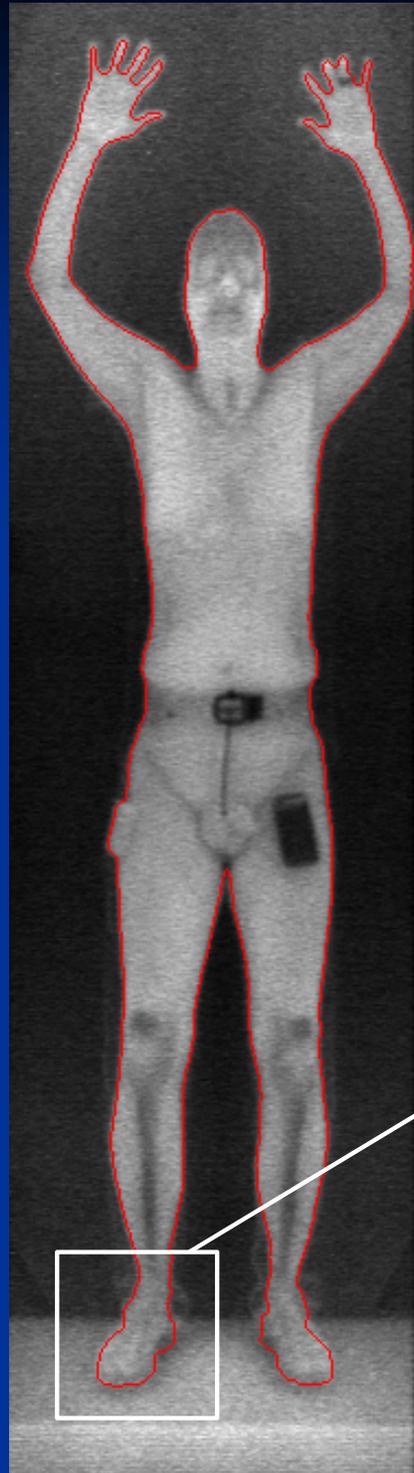
BackScatter Image Uncalibrated



Transmission Image Calibrated



One Example: Body Outlining



Relative Importance for ATR:

1. Image Processing 1
2. Image Processing 2
3. **Calibrated Transmission Image**
4. Image Processing 3
5. Image Processing 4

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Leading the world in body scanning technology