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AUTOMESS Bluetooth Project

as part of the CERN – HEPIA Collaboration

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Outline

Optimization of Dose Rate Measurements with AUTOMESS devices

- Motivations
- Project Scope
- Project requirements
- Project roadmap
- Python CODE
- Measurement results
- Practical demonstration
- Further options

python powered

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Optimization of Dose Rate Measurements
- Motivation / Goals -

Dose rate measurements shall be

- Reliable
- Representative
- Reproducible
- Operator and device “independent”

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Optimization of Dose Rate Measurements
- Project Scope -

Possible action fields

- Data acquisition
- Data handling

Development with focus on

- User-friendly software
- Easy to use
- Robust

Optimization of Dose Rate Measurements
- Project Requirements -

Detector types to consider

- AUTOMESS AD-6 and AD-b

TREC 3.0 compatibility for data type and result format

- Equivalent dose rate value with dimension
- Detector type and serial number
- Measurement distance
- Measurement date
- Background radiation value
- Operator

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Optimization of Dose Rate Measurements
- Project Roadmap -

First Ideas

- Wireless integration (Bluetooth and Wi-Fi)
  - Device to computer via BT
  - Computer to "TREC" via Wi-Fi
- Barcode reader as Operator -> Computer communication
- Python as programming language

Interface
- Serial Connection -

- Bluetooth serial connection
- AUTOMESS adaptor
- Synchronization 1Hz

Sends:

- Start of communication
- Detector Type
- Equivalent Dose Rate
- Checksum

Interface
- Bar Code Input -

- Bar code Reader with Bluetooth connection
- Necessary Input:
  - Operator
  - Background
  - Object
  - Detector

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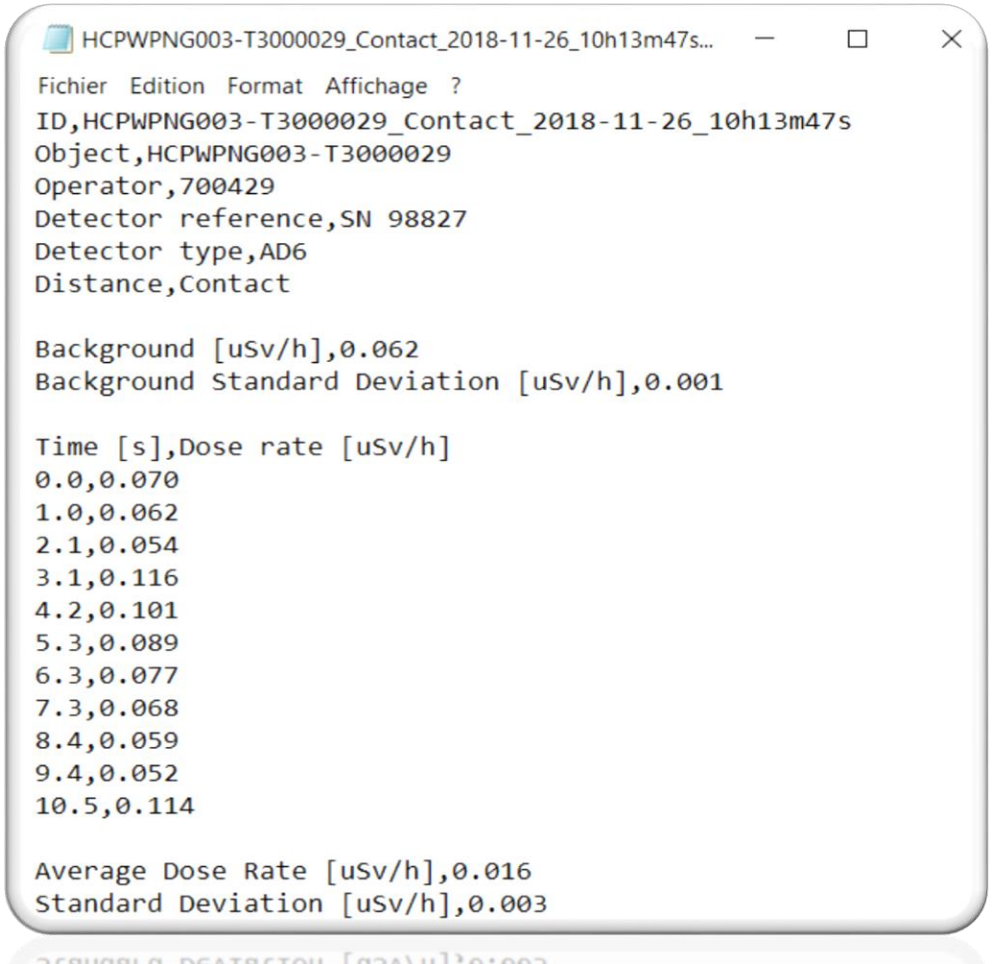
Optimization of Dose Rate Measurements - Measurement Results -

Automatically generated result file

- Standard file format => .txt or .csv (conforms with specifications of EDMS 1964700)
- Unique file name: TREC-ID, measurement mode and time stamp
- Data conforms with TREC 3.0 requirements



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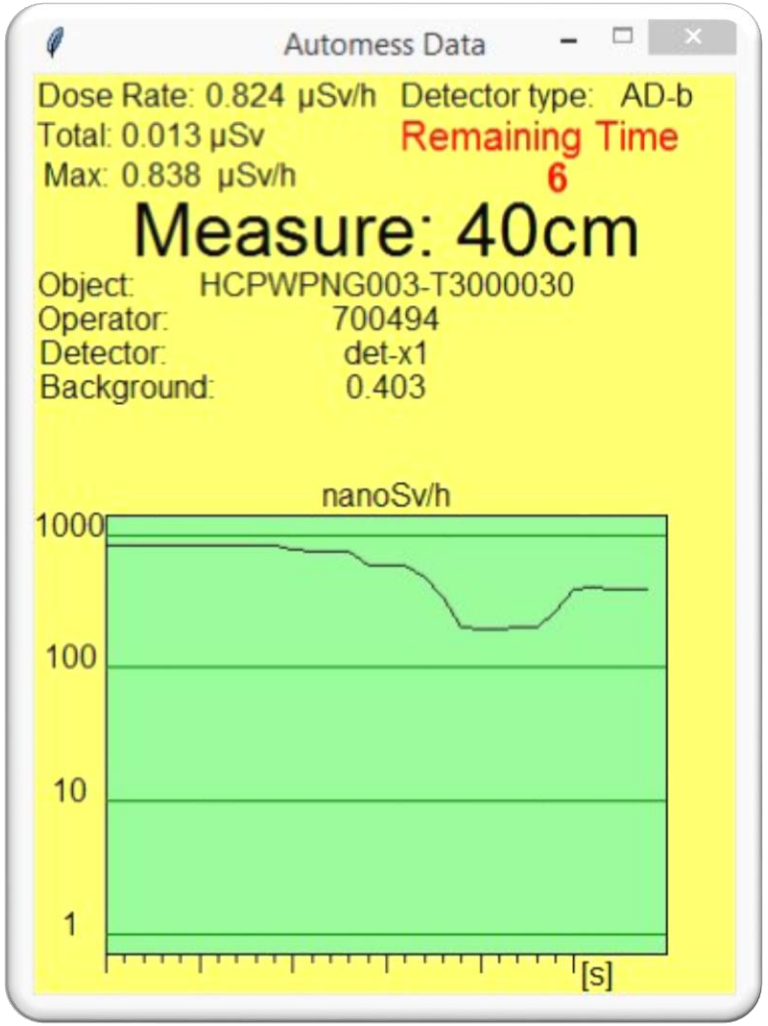
Optimization of Dose Rate Measurements
- Practical Demonstration -



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Optimization of Dose Rate Measurements
- Further Options -

Modular structure allows flexible development

- Display Pictures: object photo or exact measurement position;
- Play Sounds: interactive beep or confirmation via voice
- Connect to database data: device calibration or operator formation
- Ultra minimalistic hardware configurations possible: raspberry Pi
- …

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Thank you for your attention!