TERRIFFIC

ACCELERATED CBRNE RESPONSE

TERRIFFIC FROM AN END-USER PERSPECTIVE

BUILDING THE REQUIREMENTS & WORKING WITH PRACTITIONERS

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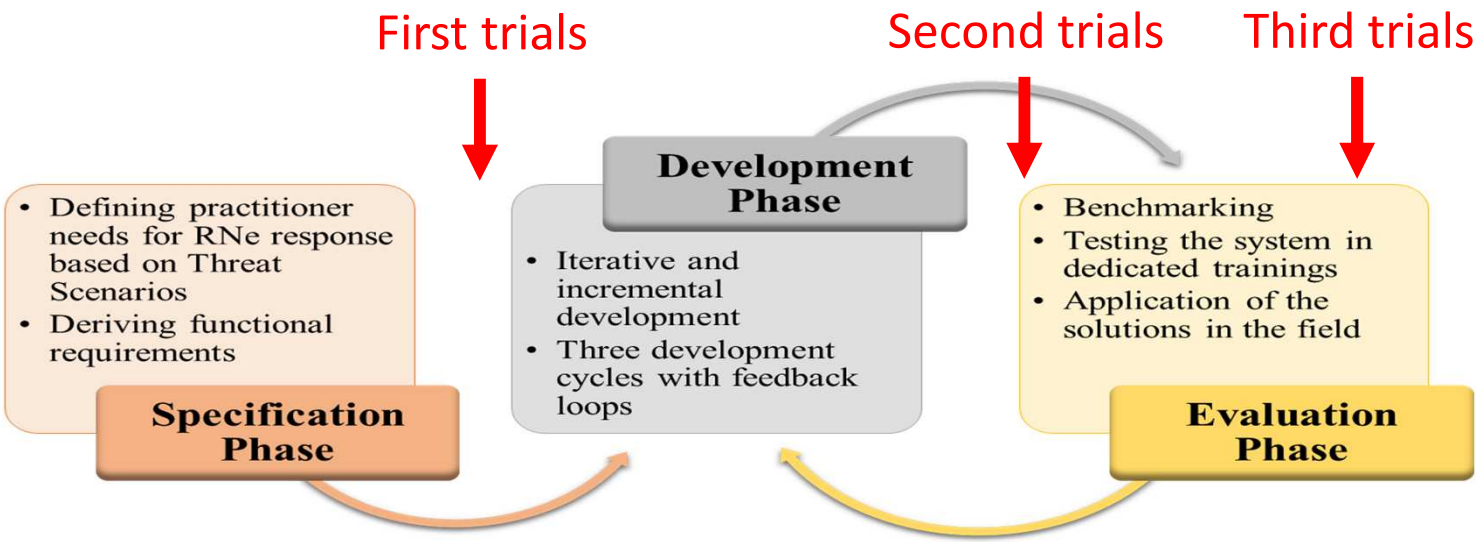
EXPECTED OPERATIONAL CAPABILITIES

OBJECTIVES

LOCALIZE THE PLUME AND ANTICIPATE ITS MOVEMENT

- First step: To define as quick as possible a safe working area and initial first estimate of the perimeter
  - Detect if there is a source
  - Elaborate the restrictive area
  - Establish the control area to secure the perimeter
- Second step: Improve the first 30 minutes of the intervention by helping the first responders to:
  - Provide information about the location of the high spot and the exposure rate
  - Determine if the people should be decontaminated or not
  - Decide on which equipment is needed on site
- **The number of deployed sensors depends on the total allocated budget for the mission**

R&I METHODOLOGY & ITERATION CYCLE



KEY PERFORMANCE INDICATORS

- Reduce:
  - the exclusion and potentially the control zone
  - the first information validation time for first responders intervention
  - Reduce risk for first responders exposure time
  - the training time by simplifying the system

- Help decision makers at two levels (tactical decisions and strategical decision levels)

CATALOGUE OF CBRN SCENARIOS

ANALYSIS OF THE OPERATIONAL PRACTICES OF END USERS

1. Dirty bomb in a bin
2. Dirty bomb in a bus
3. Dirty bomb in a subway
4. Dirty bomb in a large meeting (semi-enclosed)
5. Loss of integrity on a radioactive railroad waste
6. Loss of a gammagraphic probe
7. Destruction of a soil hygrometer with dispersion of radioactive agent
8. Attack with chemical and radioactive agent in a commercial mall
9. Discrete contamination of a crowd in movement
10. Radioactive agent dispersion by a drone during a concert
11. Radioactive agent dispersion during a political demonstration using "radioactive Ping-Pong balls”
12. Terrorist attack against a container including radioactive material on a truck
13. Massive irradiation of the passengers of a train or bus by a diverted gamma radiography source

EVALUATION CRITERIA

DETECTION CRITERIA

- Able to detect the type of radiations and chemicals
- Adapted detection threshold, low level sensitivity
- Adapted range of measurement and detection

USING CRITERIA

- Compact size / adapted shape
- Weight
- Ranges:
  - Maximum and minimum temperature
  - Humidity
- Impact resistance
- Reliability
- Battery or storage battery (rechargeable)
- Ability to change the batteries on field
- Relevance of the situation identification

ERGONOMICS CRITERIA

- Reaction speed / fast trend visibility
- Language
- Readability of the screens
- Ease of use
- Commands tree
- Integrated tool or coordinated scale that can handle all tasks / compatibility with other equipment in use
- Pre-alarms and alarms
- Ease of maintenance
- Price
- Maintenance cost

EXAMPLE OF INITIAL TESTS

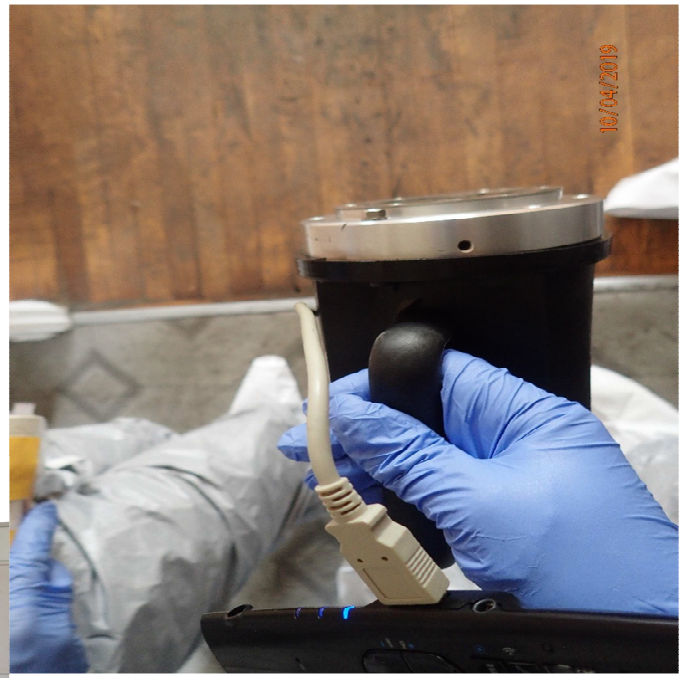
BETA – PHOTONS PROBE

INTRODUCTION TO DETECTION CONDITIONS

Putting researchers and private companies agents in radiological situation

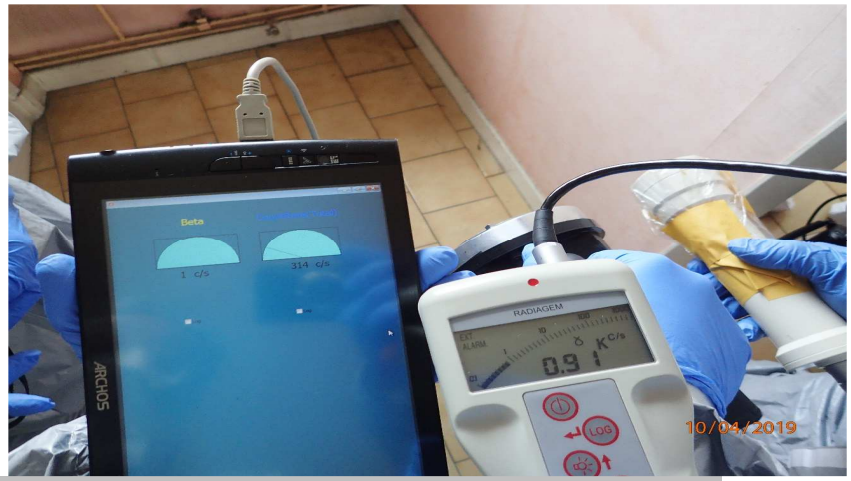
- Used sources :
  - Contamination:
    - 400 MBq, Tc99m
    - 111 MBq, Tl201
  - Sealed sources: 400 MBq, Cs 137
- Various parameters:
  - Detection efficiency compared with other probes/detectors
  - Detection =f(distance)
  - Ease of use under PPE

THE B Γ PROBE PROTOTYPE AND PROTECTION OF TESTER



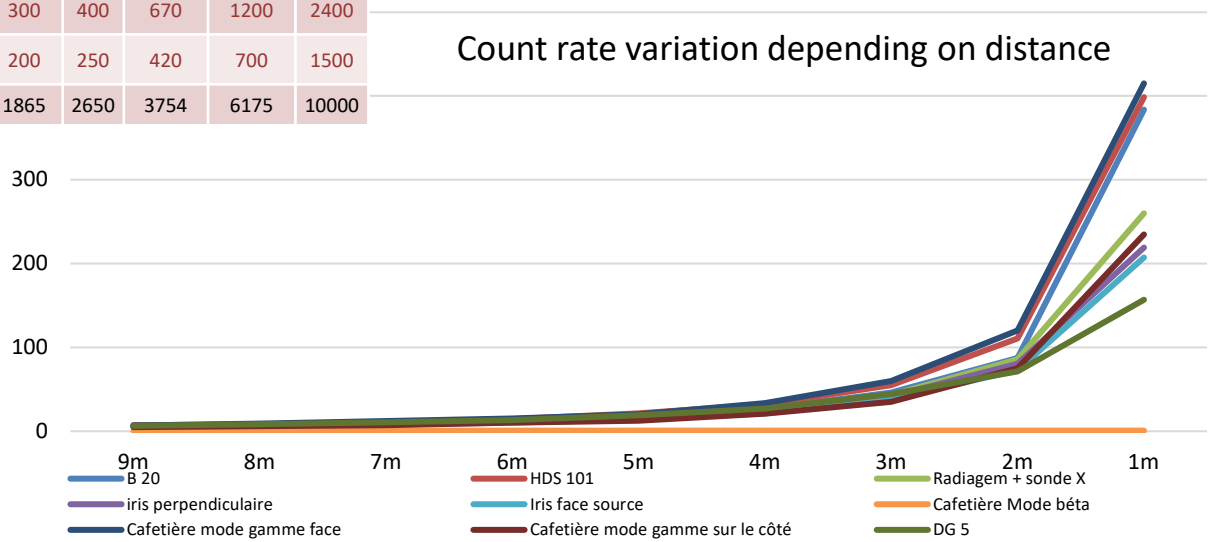
EVALUATION WITH CONTAMINATION

AND COMPARISON OF DETECTION LEVELS



MEASUREMENTS

	9m	8m	7m	6m	5m	4m	3m	2m	1m
B 20	0,5	3,57	3,82	3,91	5,75	8,97	13,3	23	43,6
HDS 101	140	1000	1100	1500	2000	3000	4500	7700	15500
Radiagem + X probe	21	123	147	185	236	342	515	903	1800
Iris perpendicular=side	220	1300	1530	1930	2500	3500	5350	9100	17700
Iris face to source	220	1200	1340	1715	2240	3100	4700	8320	16000
Beta-Gamma probe Mode b	1	1	1	1	1	1	1	1	1
Beta-Gamma mode g face	20	140	180	240	300	400	670	1200	2400
Beta-Gamma mode g side	20	100	120	140	200	250	420	700	1500
DG 5	140	940	1142	1480	1865	2650	3754	6175	10000



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