Major changes made to the WA-LISTS 2012-2016

11 July 2017

CAT 5P1
# Interception devices for GSM communications

Presentation: Mr Emmanuel Vandemergel
Prime Minister Services. Export Control.
France

Category 5 Part 1 - Telecommunications

New entry 5.A.1.f. to control systems or equipment designed to intercept and process mobile telecommunications.

The intent of the control is to capture ready-to-use interception systems which intercept the air interface by cloning operator BTS unit and client targeted phone, without consideration of cryptanalysis (systems including cryptanalysis are controlled under CAT 5 Part 2.).
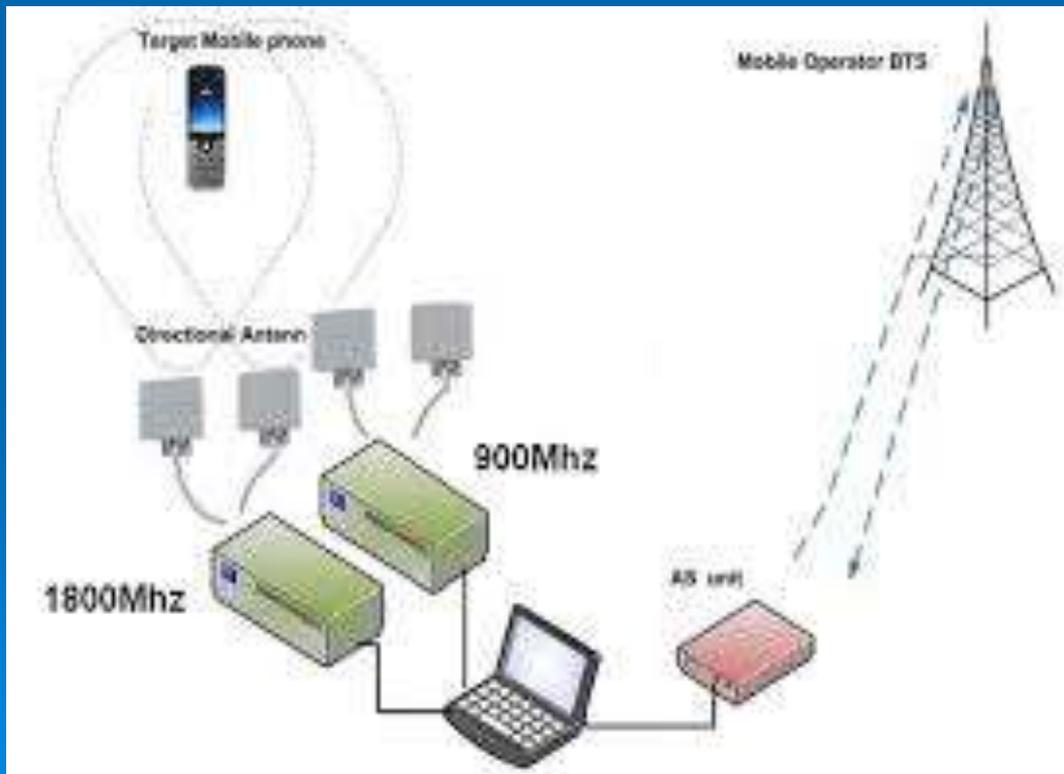
Decontrol notes ensure that systems intended for network operators or for the development and production of mobile communications are not controlled.

Category 4
'Cyber tools'

Presenter: Mr. John King
Export Control Joint Unit
Department for International Trade
**United Kingdom**

The concern

Cyber attacks by criminal organizations, and observed attacks by state actors.

Commercial organizations creating cyber toolkits, using vulnerabilities in software and sophisticated rootkit technology.

Used by law enforcement agencies as part of their legal remit.

Surveillance and intelligence gathering tools

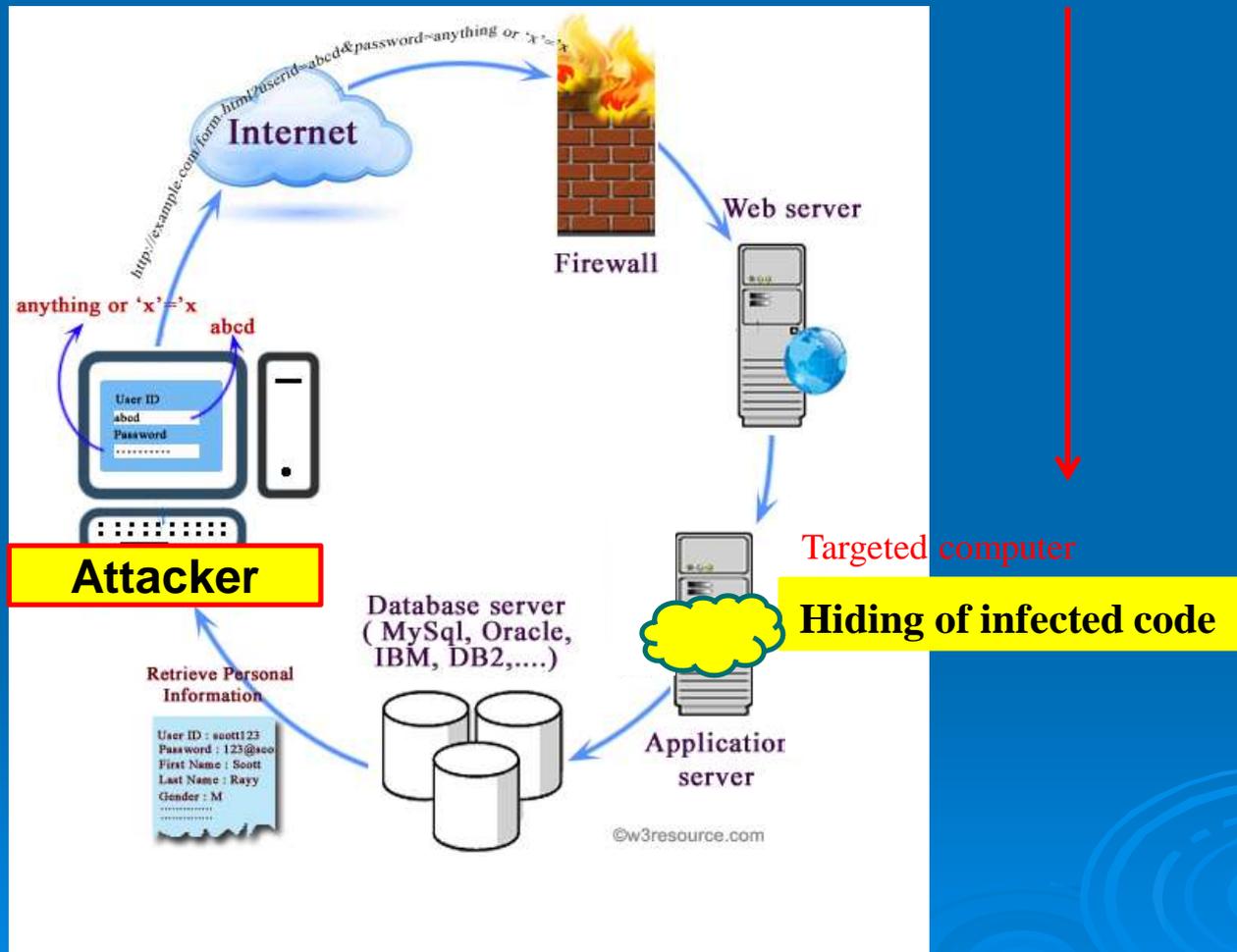**The attacker generates the malicious code 'offline', then goes 'online' and delivers the malicious code so that**
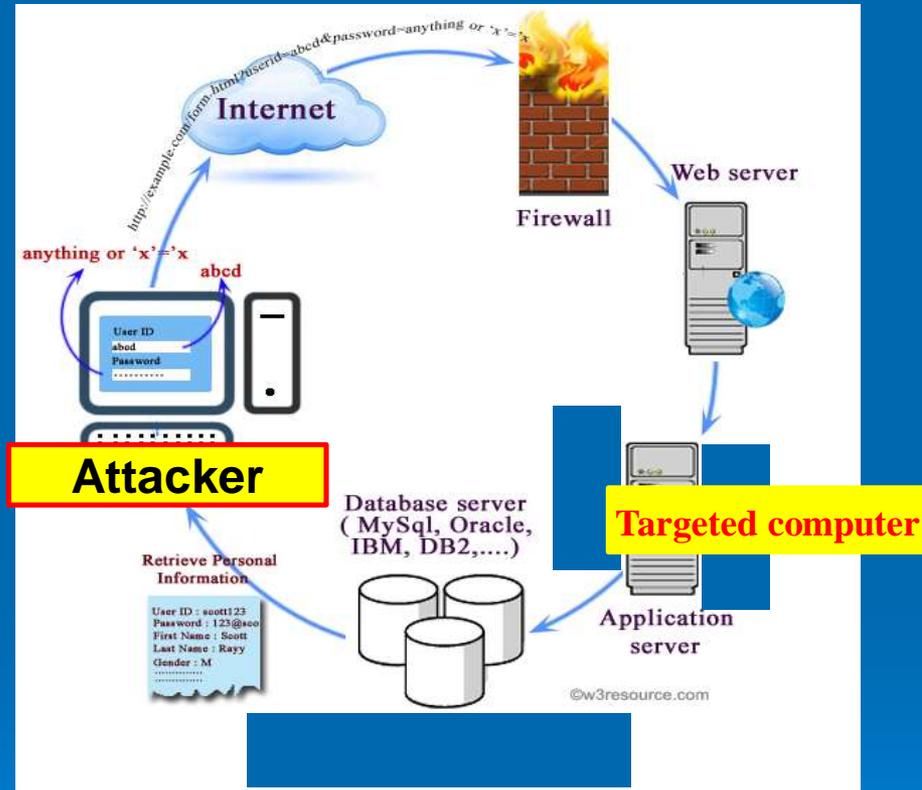
Surveillance and intelligence gathering tools

The malicious code is injected into the targeted computer or other network-capable device (e.g., smart phone).
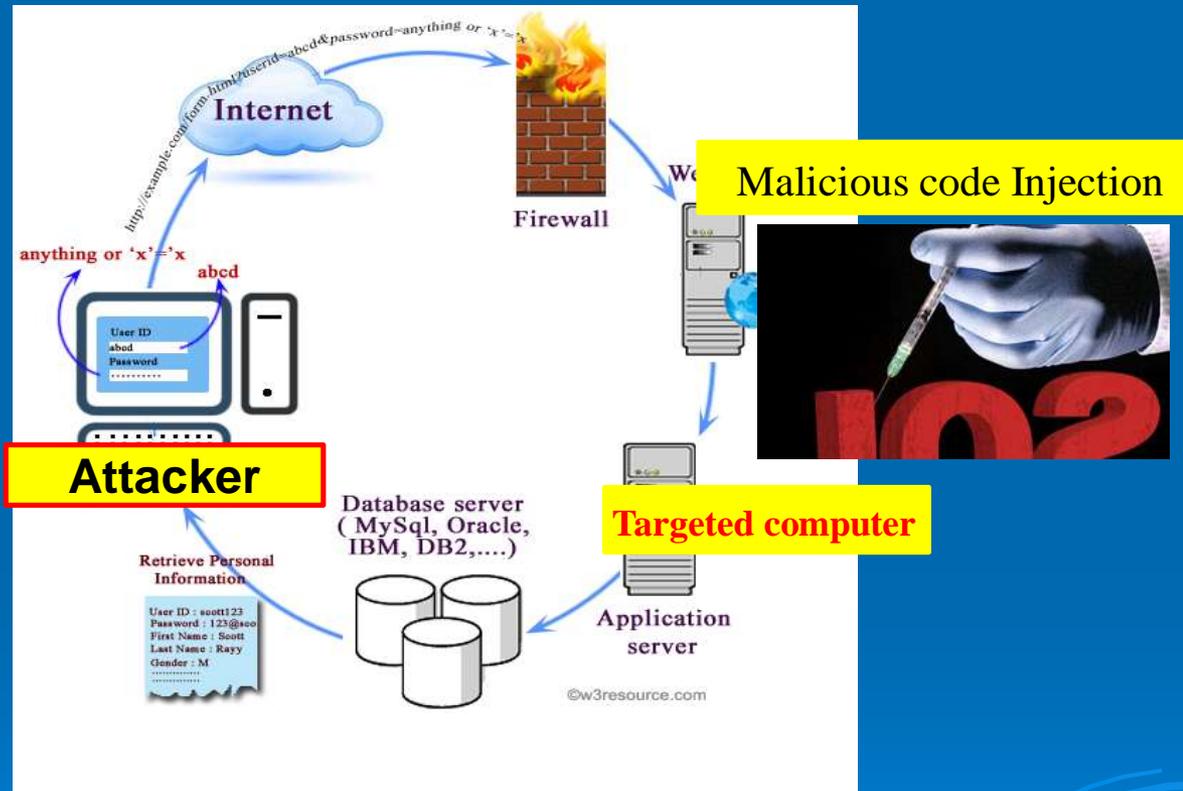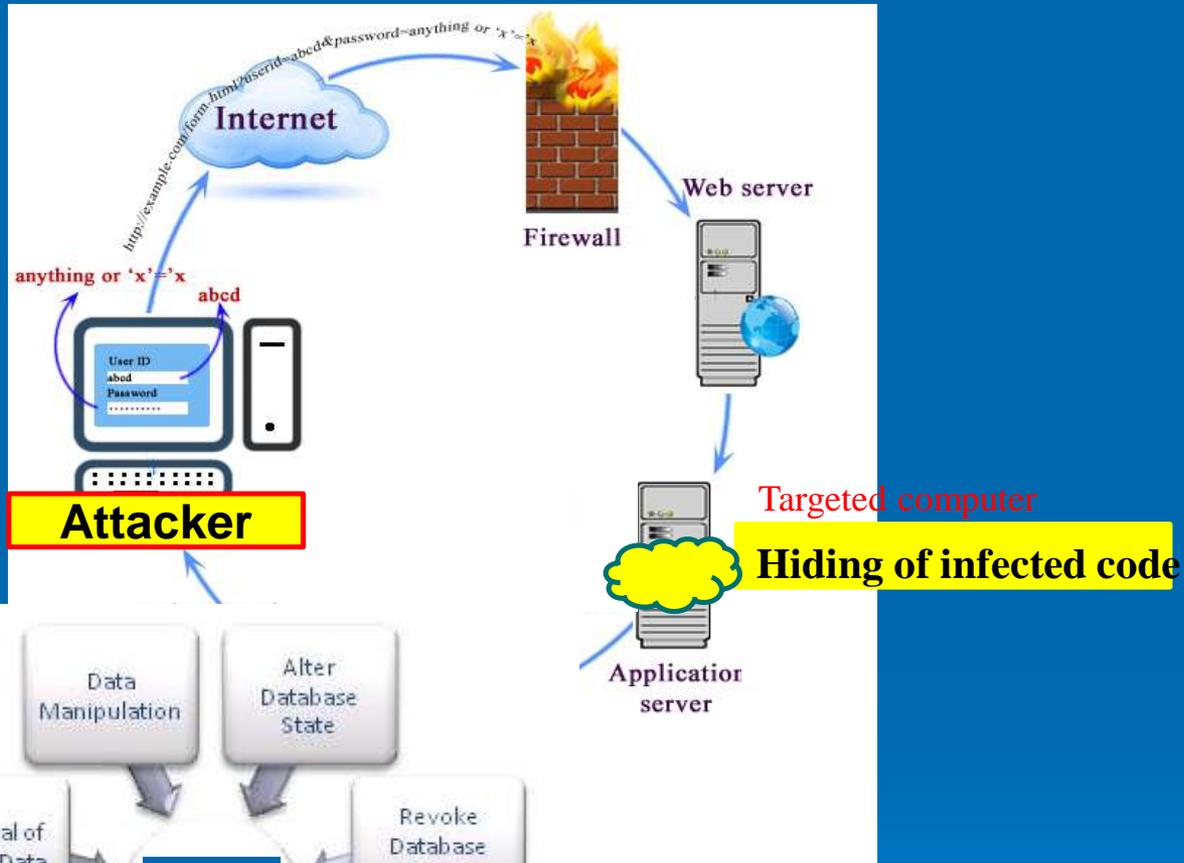
Surveillance and intelligence gathering tools

…in the meantime… everything looks normal

Surveillance and intelligence gathering tools

The attacker can now carry out the planned action(s)

WA Control text

4.A.5. Systems, …for the generation, command and control or delivery of "intrusion software".

4.D.4. "Software" … for the generation, command and control or delivery of "intrusion software".

4.E.1.c. "Technology" for the "development" of " intrusion software ".

WA Control text

Definition

Cat 4 "Intrusion software"

"Software" specially designed or modified to avoid detection by monitoring tools or to defeat protective countermeasures, of a computer or network-capable device, and performing any of the following :

- The extraction of data or information, from a computer or network-capable device, or the modification of system or user data; <u>or</u>

- The modification of the standard execution path of a program or process in order to allow the execution of externally provided instructions.

4.A.5. Systems, …for the generation, operation or delivery of, or com
with, "intrusion software".

4.D.4. "Software" … for the generation, operati
communication with, "intrusio

4.E.1.c. "Technology" intrusion software".

Definition
Cat 4 "Intrusi are"

Note: The **malicious code** is not itself subject to the export control.

Why not directly control "Intrusion software"

➢ Each instance of "Intrusion software" is different;

➢ Any computer or other device infected with "intrusion software" be a potential export violation.

13

What is not "intrusion software"?

- Hypervisors, debuggers or software reverse engineering tools.

- Digital rights management software

- Software designed to be installed by manufacturers, administrators or users, for asset racking or recovery.

Tools, software and technology specifically for these products are not controlled

Technology or software "in the public domain"

- "In the public domain" (GTN NTN GSN), as it applies herein, means "technology" or "software" which has been made available without restrictions upon its further dissemination (copyright restrictions do not remove "technology" or "software" from being "in the public domain").

Hence tools "in the public domain" are not captured.

Examples of controlled items

Commercial Malware Toolkit for Law Enforcement

- **Designed to extract information from suspects computer, undetected by anti-virus**

Penetration testing software

- **For testing the robustness of asset protection from cyber attacks**

Examples of items not controlled

Malware samples

Bug bounty reports

Open source penetration testing software

Thank you

Further information available at –

http://webarchive.nationalarchives.gov.uk/20160701134832/http://blogs.bis.gov.uk/exportcontrol/intrusion-software-tools-and-export-control-2/

Category 5 Part 1

Internet Surveillance Tools

Presentation: Mr Emmanuel Vandemergel
Prime Minister Services. Export Control.
France

"Internet surveillance systems or equipment"

Analysis at the <u>application layer</u>

Extraction of selected data (e.g. messages)

Execution of searches on the basis of data related to an individual

and

Mapping of the relational network of an individual

Perform on a carrier class IP network

"Internet surveillance systems or equipment"

Internet surveillance systems are using the process of intercepting and analysing messages to produce personal, human and social information from the communications traffic.

Governments may use these systems lawfully <u>or not.</u> <u>The new entry only controls unlawful interception.</u>

The monitoring and analysis of internet traffic on the basis of ethnical, religious, political or social characterization can lead to a comprehensive human and social mapping, and can be used for population control and repression on a wide scale.

Beyond Human Rights and internal repression issues, this capacity **can also enhance the security and military capabilities** of governments

.

Internet surveillance systems or equipment

" 5.A.1.j. IP network communications **surveillance systems or equipment** … having all of:

➢ **Performing all of the following on a carrier class IP network** (e.g., national grade IP backbone):
- Analysis at the application layer …;
- **Extraction of selected metadata and application content** (e.g. messages); **and**
- Indexing of extracted data;

and

➢ Being specially designed to **carry out all of** the following:
- **Execution of searches on the basis of 'hard selectors'; and**
- **Mapping of the relational network** of an individual or of a group of people.
Note: …

Technical Note **'Hard selectors':** *data or set of data, related to an individual (e.g., family name, street address, phone number).*

Internet surveillance systems or equipment

Some important words

"**Carrier-class**" **IP network** points out a specificity of the targeted systems which process data coming from an Internet provider core network

'**Hard selectors**' **definition** gives a detailed indication of the search parameters and reinforces the idea of individual-oriented searches

Searches on the basis of 'hard selectors' helps discriminating from
Systems dedicated to the QoS of a network, or
Cyber defence equipment.

Category 5 Part 2
Information security-Restructure

Presentation: Mr .John King
Export Control Joint Unit
Department for International Trade
United Kingdom

General Notes

➢ New General "Information Security" Note

  ● Replaces Note 1 in Category 5 Part 2

Note 3 - Cryptography Note

➢ Note added to provide guidance to the <u>Note 3</u> – <u>Cryptography Note.</u>

- Aids interpretation of the phrase "Generally available to the public"

➢ Hardware and software components of 'mass market' items included in <u>Note 3</u> – <u>Cryptography Note.</u>

Decontrols

➤ Items with dormant cryptography

➤ Personal Area Networks (PAN)

➤ Radio Access Networks (RAN)

➤ Routers, Switches and Relays

➤ General purpose computing equipment or servers

Complete restructure of CAT 5P2

Problem

➢ Current text was becoming more difficult to understand and interpret.

➢ Text had grown in size and complexity, difficult to negotiate additions or amendments.

➢ Category 5 Part 2 differs in structure from other Categories

Complete restructure of CAT 5P2

Objective

➢ Produce a Category with positive text and a structure similar to other Categories in the Dual-Use List.

➢ Minimise difficulties adding new items.

➢ Maintain no change in scope of control.

Complete restructure of CAT 5P2

Results

➢ New structure agreed in 2016.

- 5A2 – Cryptographic Security

- 5A3 – Non-Cryptographic Security

- 5A4 – Defeating, weakening or bypassing information security (includes cryptanalysis and code-breaking)

- 5A2a simplified and Note 4 deleted – aim to avoid double negative language.

Complete restructure of CAT 5P2

- Decontrol Notes reduced and made applicable only to the specific areas they refer to, in most cases 5A2a

- Introduction of a definition for "authentication" and 'cryptography for data confidentiality'.

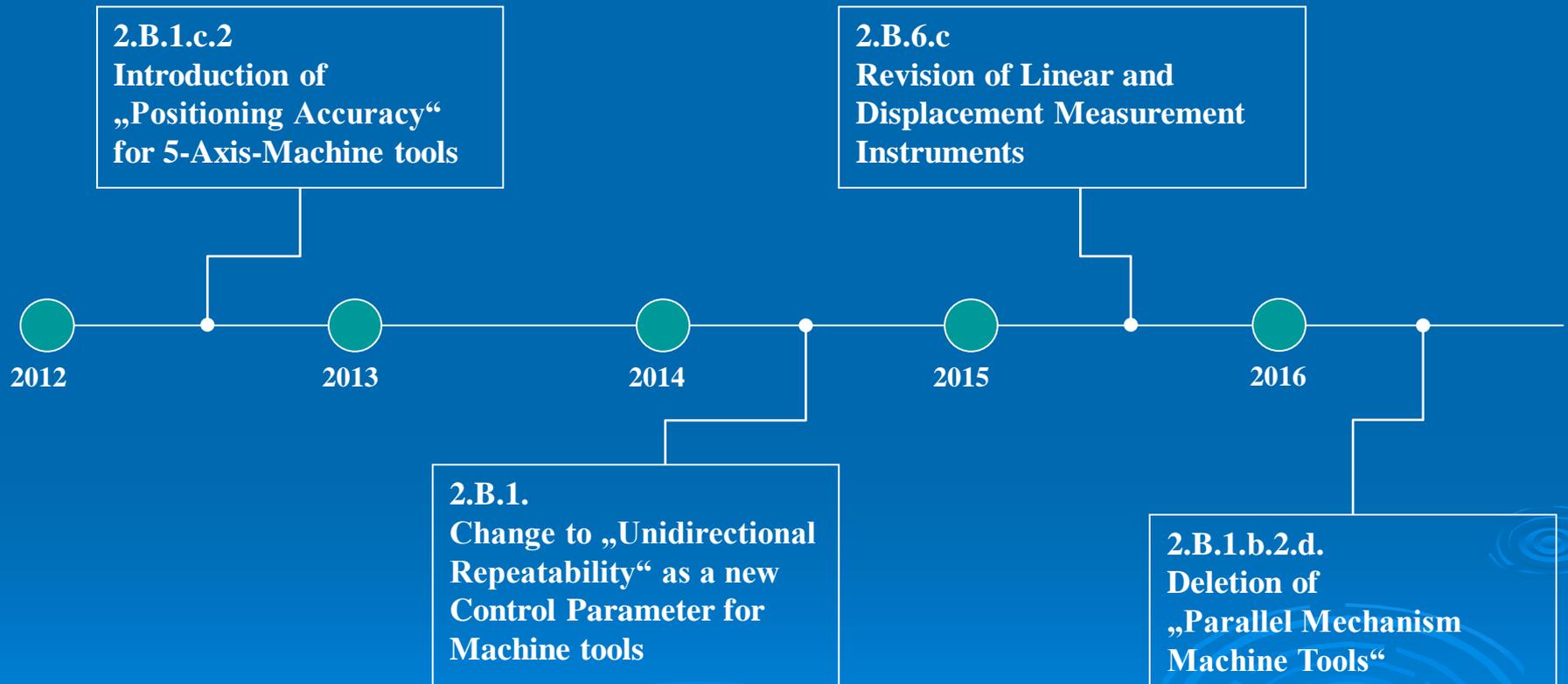- Multiple refinements of the text for improved clarity.

Category 2

Machine tools

Presentation: Mr Christian Eisele
Federal Office for Economic Affairs and
Export Control
Germany

# Overview: Major List Changes in Cat 2
Machine tools

2.B.1.c.2
Introduction of „Positioning Accuracy" for 5-Axis-Machine tools

2.B.6.c
Revision of Linear and Displacement Measurement Instruments

2012 — 2013 — 2014 — 2015 — 2016

2.B.1.
Change to „Unidirectional Repeatability" as a new Control Parameter for Machine tools

2.B.1.b.2.d.
Deletion of „Parallel Mechanism Machine Tools"

2.B.1.c.2 Introduction of Positioning Accuracy
Machine tools

- Before 2012, all 5-Axis-Machine tools were controlled

- Due to technical progress, e.g. in machine tool controls, and foreign availability, WA agreed to control 5-Axis-Machine tools with high precision

- Introduction of Positioning Accuracy of :

  - ≤ 3 μm for linear axis < 1 m;

  - ≤ 4.5 μm for linear axis ≥ 1 m < 2m;

  - $\leq 4.5 + 7x(L-2)$ μm for linear axis ≥ 2m
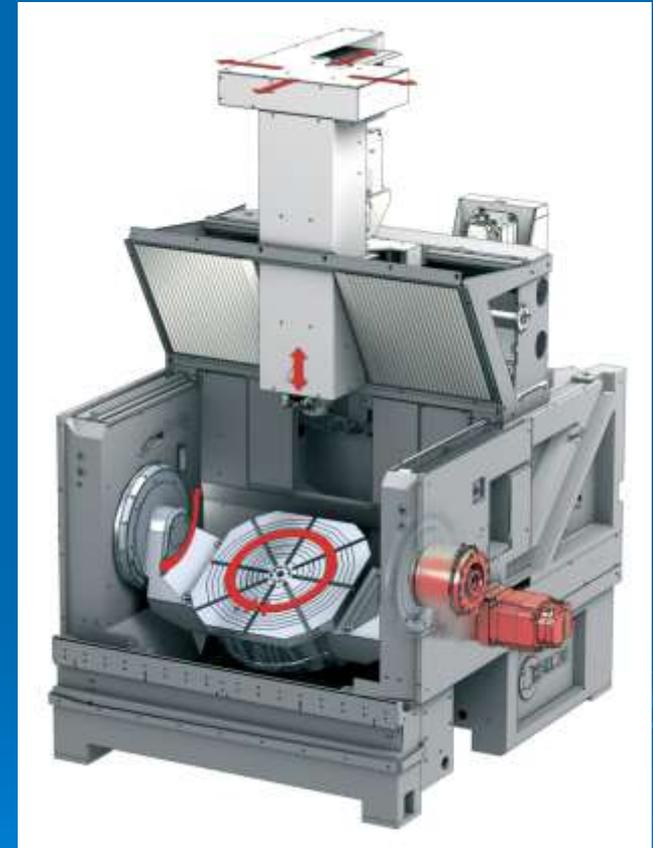
2.B.1. Unidirectional positioning repeatability
Machine tools

- Positioning accuracy (A) control parameter replaced with "Unidirectional positioning repeatability" (UPR).

Ideal Positioning System

Starting Point   End Point

Bad Positioning Accuracy
Bad Repeatability
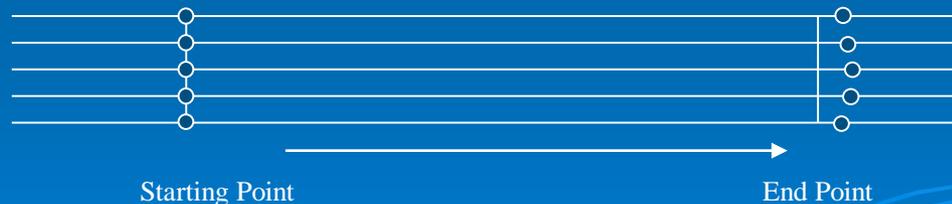
Starting Point   End Point

Bad Positioning Accuracy
High Repeatability

Starting Point   End Point

High Positioning Accuracy
High Repeatability

Starting Point   End Point

35

2.B.1. Unidirectional positioning repeatability
Machine tools

- UPR represents the best possible accuracy for machine tools.

- No systematic error in the measurement of UPR
  - ► no influence of compensation capability of Machine Tool

- Limit potential scope of interpretation and possible loopholes in export controls

- Value of agreed UPR-threshold was Based on real machine tools data

- Intention was to keep the scope of control neutral as far as possible
  - → no significant increase in controls, no drastic decontrol

2.B.6.c. – Laser Interferometers
Machine tools

- Laser interferometers are used for either the lithography stage of semiconductor manufacturing or as a tool in the manufacture of high precision optical components

- No application in the control of the quality of manufactured parts

- Adjustments of the performance threshold to be consistent with the current WA lithography tool specification:

    - "resolution" over their full scale of **0.2 nm** & "measurement uncertainty" equal to or less (better) than (**1.6** + L/2,000) **nm**

2.B.1.b.2.d. Deletion of „Parallel Mechanism Machine Tools"
Machine tools

- Before 2016, "parallel mechanism machine tools" were controlled

- The accuracy as well as the reliability of "parallel mechanism machine tools" do not meet the performance levels 5-Axis-Machine tools

→ Deletion of "parallel mechanism machine tools"

Category 9

Spacecraft

Presentation: Mr Aime Lissassi-Nienie
Strategic Affairs. Ministry of Defence
France

In 2012 - ML 11.c ("Spacecraft" for military use)

ML 11. Electronic equipment, **"spacecraft" and components, … :**

    a. Electronic equipment specially designed for military use …

    b. Global Navigation Satellite Systems (GNSS) …

    **c. "Spacecraft" specially designed or modified for military use,
      and "spacecraft" components specially designed for military use.**
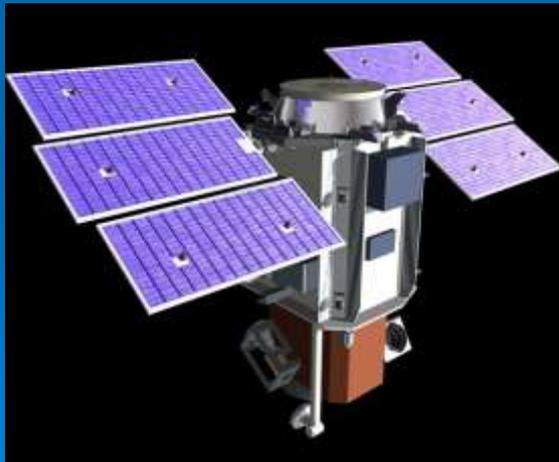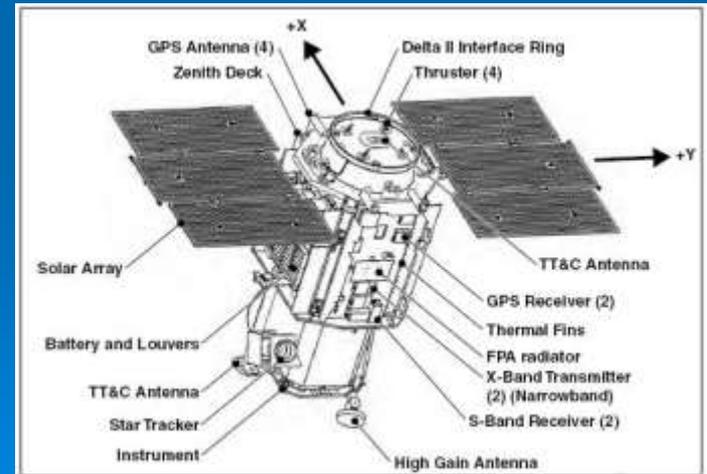

Civil satellite
(QuickBird 2)

Figure 2: Line drawing of the QuickBird-2 spacecraft (image credit: DigitalGlobe)

Spacecraft equipment

Reaction wheel including Sun sensor

9.A.4 Space launch vehicles, "spacecraft"… :

a. Space launch vehicles;

b. "Spacecraft";

c. "Spacecraft buses";

d. "Spacecraft payloads" incorporating items specified by …

e. On-board systems … for "spacecraft" and having … functions for:
    1. 'Command and telemetry data handling'
    2. 'Payload data handling'; <u>or</u>
    3. 'Attitude and orbit control';

f. Terrestrial equipment, specially designed for "spacecraft" as follows:
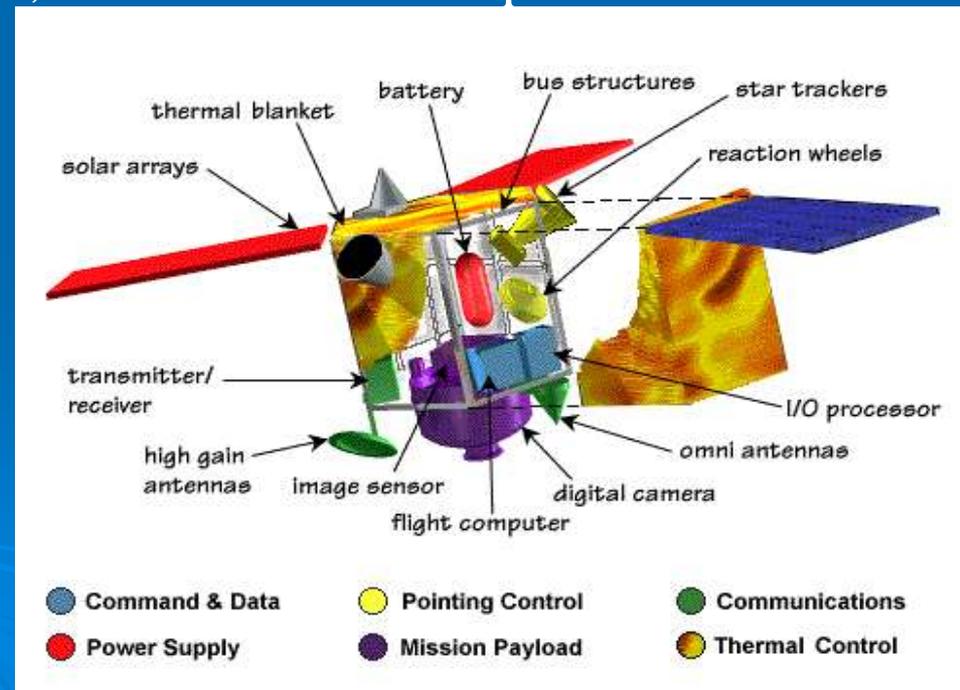   1. Telemetry and telecommand equipment;
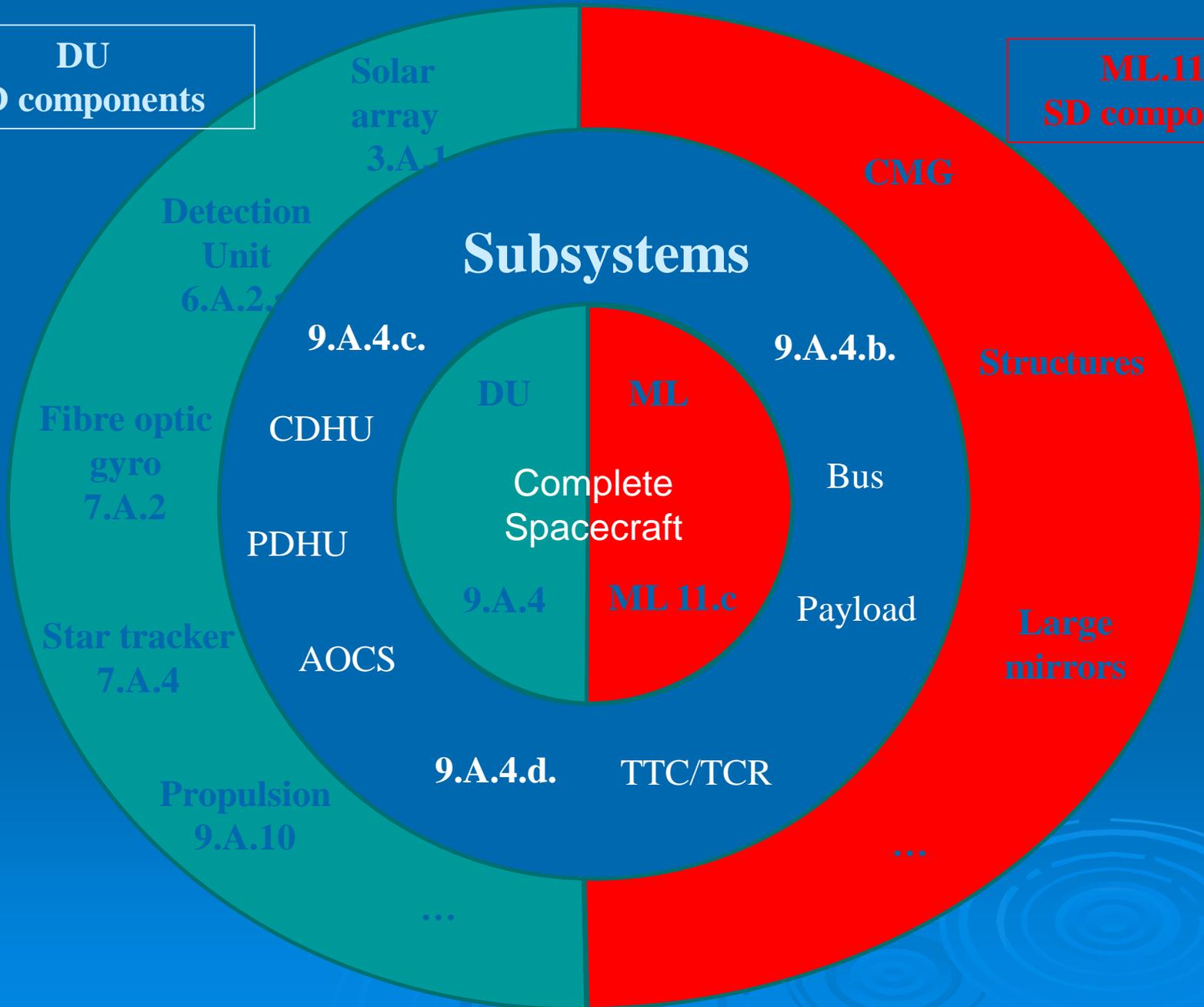   2. Simulators.

Spacecraft equipment

"Spacecraft bus": Equipment that provides the support infrastructure of the "spacecraft" and location for the "spacecraft payload".

"Spacecraft payload": Equipment, attached to the "spacecraft bus", designed to perform a mission in space (e.g., communications, observation, science).

DU
SD components

ML.11.c
SD components

Solar array 3.A.1

Detection Unit 6.A.2.

Fibre optic gyro 7.A.2

Star tracker 7.A.4

Propulsion 9.A.10

…

CMG

Structures

Large mirrors

…

Subsystems

9.A.4.c.

CDHU

PDHU

AOCS

9.A.4.d.   TTC/TCR

9.A.4.b.

Bus

Payload

DU

ML

Complete Spacecraft

9.A.4

ML 11.c

Category 9

Unmanned Aerial Vehicles

Presentation: Mr Emmanuel Vandemergel
Prime Minister Services. Export Control.
France

9.A.12. Unmanned aerial vehicles…

Before 2014 : A single control parameter :
Autonomous flight control and navigation capability, or
remote control out of direct visual range.
A decontrol note for "model aircraft".

**No clear distinction between commercial
UAVs and UAVs of concern**

9.A.12. Unmanned aerial vehicles…

After 2015 : Multiple control parameters :

Autonomous flight control and navigation capability, or remote control out of direct visual range.

And

Flight endurance greater than 1 hour OR

Flight endurance between 30 min. and 1 hour AND capable to withstand 25 knots wind conditions

Better distinction of UAVs of concern

Munitions List

Other significant changes

Presentation: Mr John King
Export Control Joint Unit
Department for International Trade
United Kingdom

ML 1
Deactivated Firearms

Introduction of a definition in the Definitions List to set out a minimum standard for deactivating firearms.
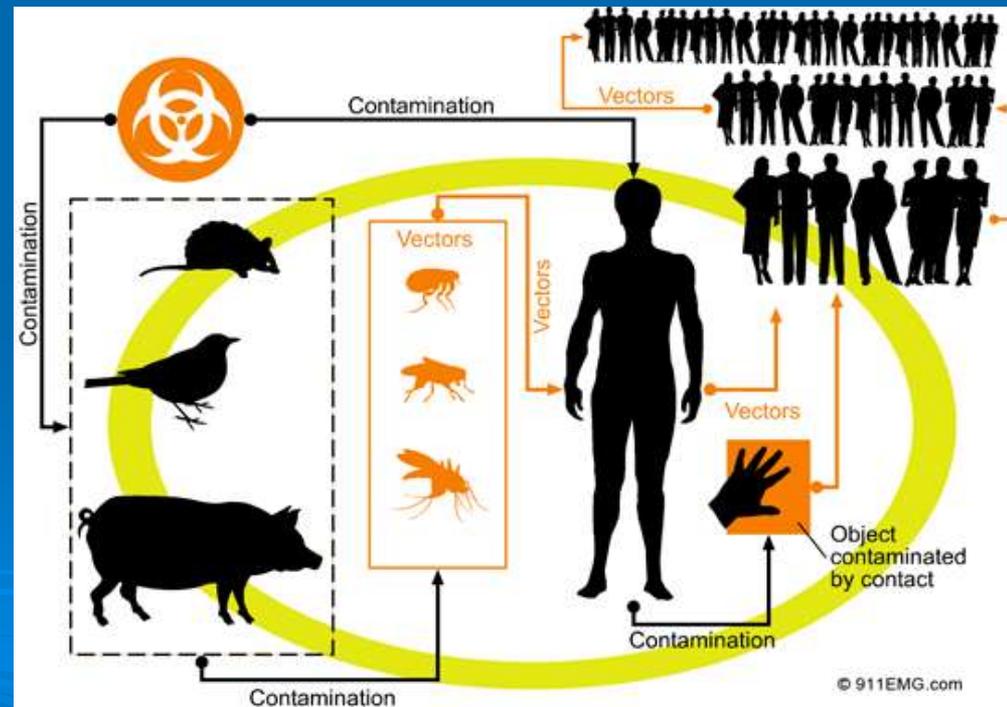
ML 7. Chemical or biological toxic agents,… radioactive materials…

ML 7.a. amended to remove the phrase "adapted for use in war".

New definition in the definitions List for "biological agents"

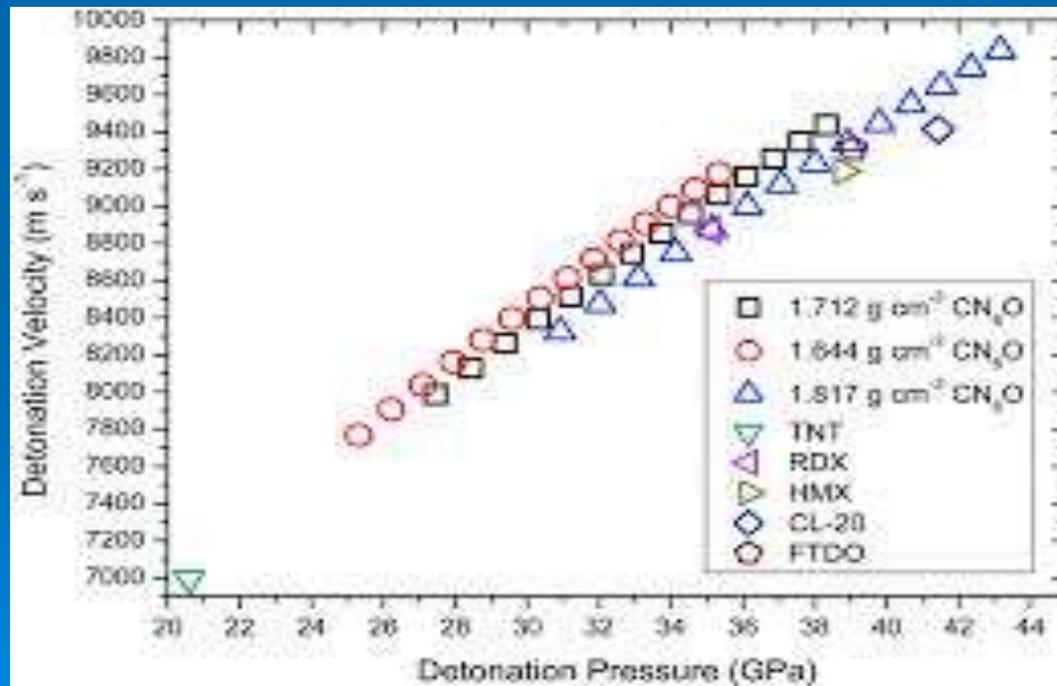Aim to update and clarify the control text, focus on technical parameters and remove ambiguous language.

ML 8 - Energetic materials and related substances

New high performance explosives -
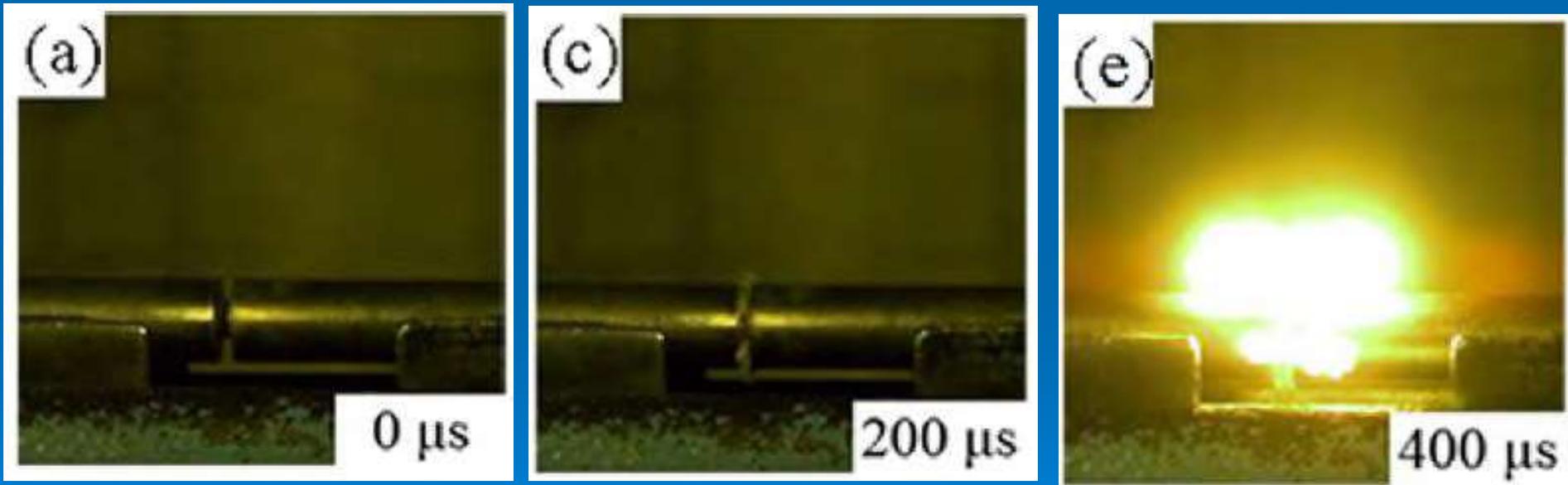ML 8.a.40 : BTNEN
ML 8.a.41 : FTDO

ML 8 - Energetic materials and related substances

ML 8.h. New entry for reactive materials.

Reactive materials can be used to produce key components for military applications. For example missile cases where the effectiveness of a warhead may be increased.
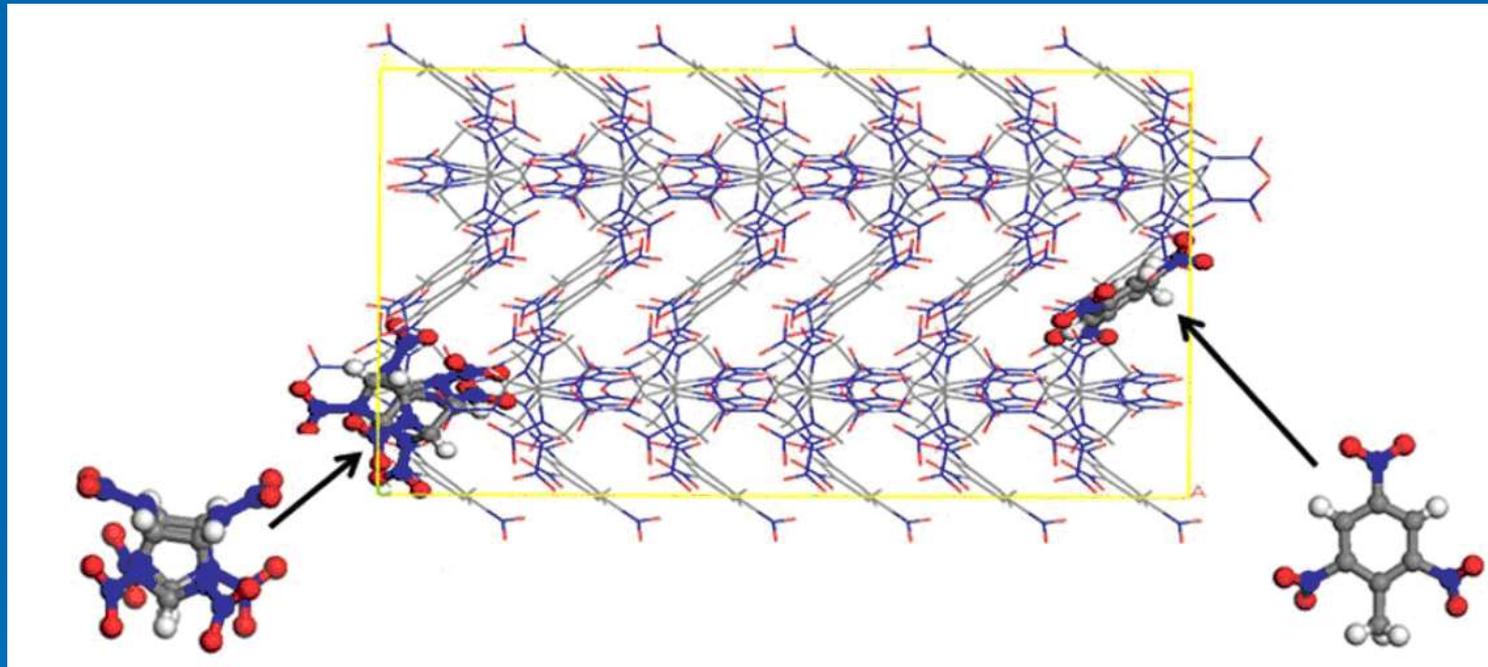

High speed impact   compression   combustion

ML 8 - Energetic materials and related substances

➤ **Explosive co-crystals now included in ML8a**

CL-20 molecule (left), TNT molecule (right) and CL-20/TNT co-crystalline form (centre) in a 1:1 molar ratio