WELMEC RESPONSE FORM
for WELMEC members to contribute to *Horizon Europe partnership program, 2021, Green Deal, NRM or RPT.*

Objective: to identify the outstanding measurement challenges facing the legal metrology community for input into the future 2021 Horizon Europe partnership program.

WELMEC committee members have been invited by EURAMET to put forward their **testing and measurement needs in legal metrology** for consideration by metrology institutes for the 2021 Horizon Europe call. *

Relevant groups are invited to contribute with

- a short introduction of their unaddressed measurement need and
- a contact person (secretary, chair, convenor, liaison officer, etc.) whom proposers for the legal metrology based Potential Research Topics can contact

after completing this Response Form please send it to:

EURAMET Management Support Unit (MSU) empir.msu@euramet.org with the title "WELMEC submission" in the subject heading.

Deadline for the consultation: **11 December 2020** *Supporting document(s) demonstrating the proof of need is highly recommended for a successful submission*.

European entity responsible for submission of the need	*Ministry of Economic Affairs and Climate Policy, The Netherlands*
Person that can be contacted for more detail	Name: Dr. Wilfried de Waal Email: w.a.j.dewaal@minezk.nl Telephone: +31611376326 Country: The Netherlands
Unaddressed need	Title: Nonconventional measuring instruments Short description: The traditional image of a measuring instrument as a box with a single function and a display is rapidly vanishing. How can we keep legal metrology up to speed with the fast developments in technology?
More detailed explanation of need if required	A good example of the leaving the box-concept of a measuring instrument is the wish or tendency to use smartphones as an interface or display for measuring instruments (e.g. electricity meters, petrol pumps, charging stations for electric vehicles). In addition, the measuring function becomes increasingly integrated with other functions like steering of processes, communication, diagnostics and forms of artificial intelligence. In many instruments these different functions are or will be also physically integrated in the printed circuits in the instrument. More and more separate sensors can be connected or even integrated with smartphones.

	This confronts the metrological community with new challenges: in what way can we create flexibility in legislation without losing trust in the metrological performance, what are the possibilities and limitations of integrating metrological requirements in regulations that address all requirements and not only metrology (or do we need to broaden the scope for metrology?), how can we do conformity assessment of an instrument that is not clearly isolated from its surroundings (the conventional box), how can we ascertain that the instrument keeps working properly while in use by making use of technological possibilities like diagnostics? Under which conditions can (internal or external) diagnostics be an alternative for periodical reverification? Just some questions that we will have to address in the near future, in a situation where metrologists tend to adhere to the single box concept.
Supporting document(s) attached:	☐ Yes X No

* For an example of previous calls in these fields in EMPIR program see: **EURAMET website**