



PROMETH₂O

20IND06 PROMETH2O

Overview of project planning

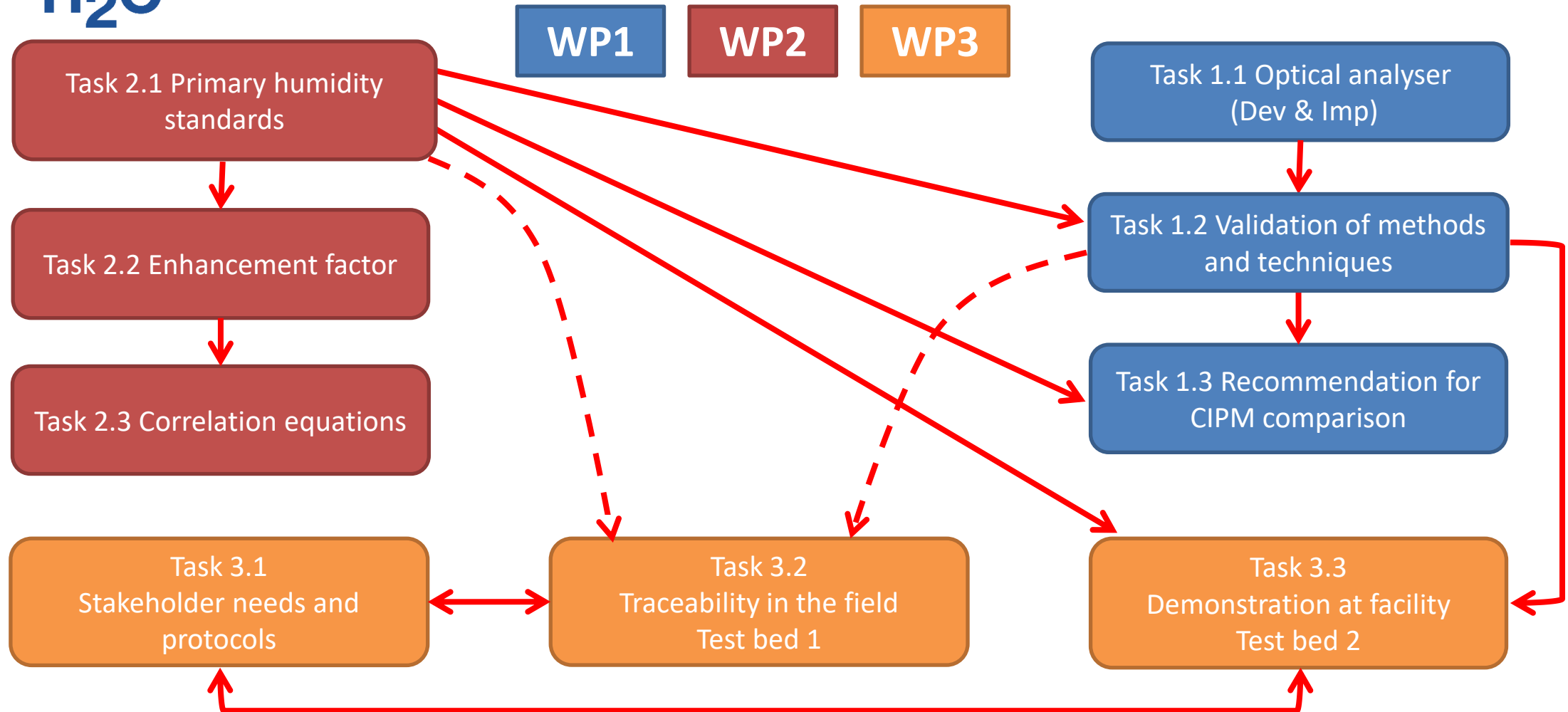
GANTT Chart

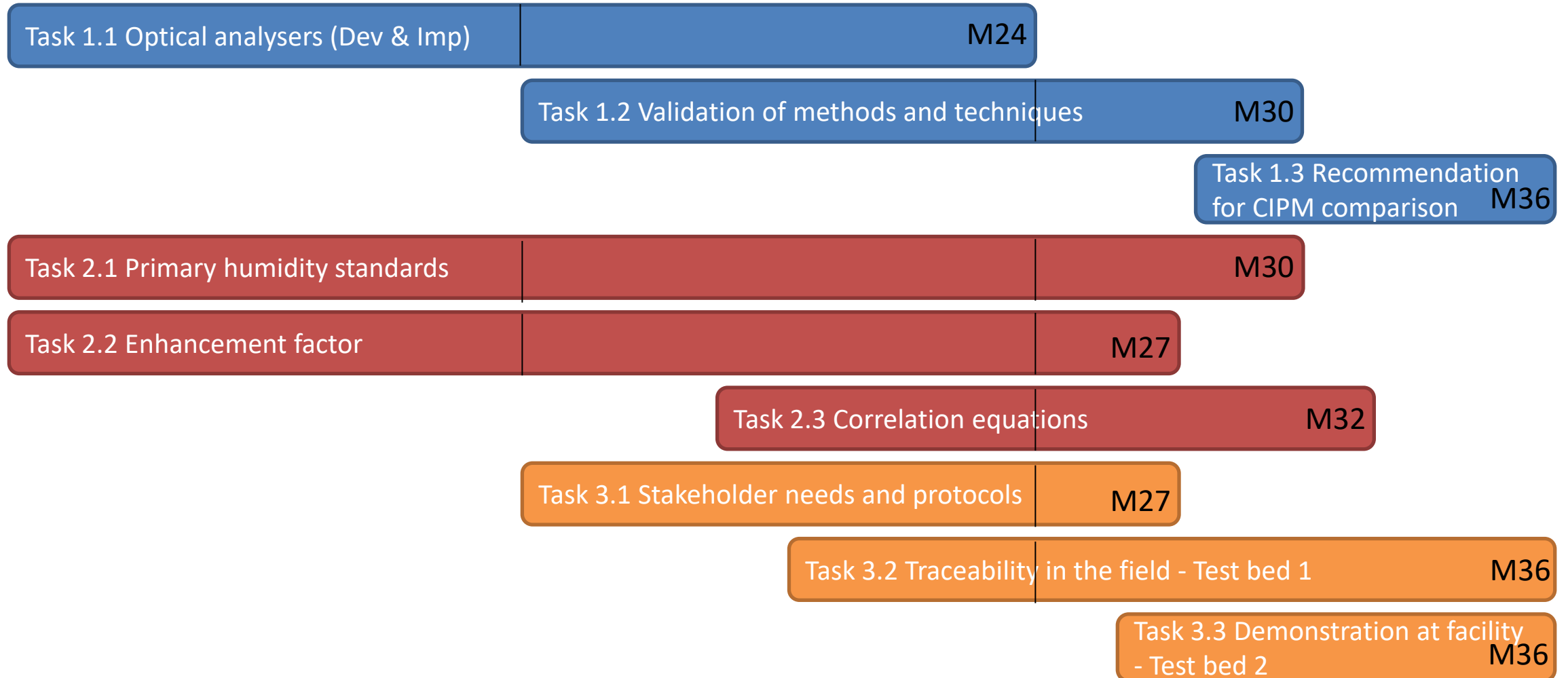
Project kick-off meeting
14th of June 2021

EMPIR



The EMPIR initiative is co-funded by the European Union's Horizon 2020 research and innovation programme and the EMPIR Participating States



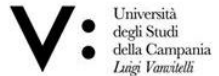


06/21 – M1

05/22 – M12

05/23 – M24

Task 1.1 Development and improvement of optical analysers



NIR-CC-FS-CRDS



Far-UV system



FTIR system



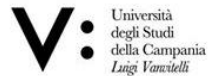
NIR CE-FM spectroscopy hygrometer

06/22 – M12

05/23 – M24

11/23 – M30

Task 1.2 Validation of the measurement methods and techniques



NIR-CC-FS-CRDS – Validation and inter-comparison with reference HG



CMH – Validation and inter-comparison with reference HG



NIR CE-FM – Validation and inter-comparison with reference HG



Far-UV system - Validation and inter-comparison vs transfer standard



FTIR system - Validation



Result analysis and Report

Report sub. to EURAMET D1

10/23 – M29

05/24 – M36

Task 1.3 Recommendation of transfer standard(s) for a future CIPM comparison



Selection of instruments to be used as transfer standard



Recommendation report



Report submission to EURAMET – D2

06/21 – M1

05/22 – M12

05/23 – M24

11/23 – M30

Task 2.1 Development of primary humidity standards



Thermodynamic saturation-based generator ($T_{fp} = -105\text{ °C}$, $P = 0.5\text{ MPa}$)



Thermodynamic saturation-based generator
($T_{fp} = -90\text{ °C}$, $P = 1\text{ MPa}$)



Coulometric-based generator ($x_w = 5\text{ ppb}$, $P = 0.11\text{ MPa}$)



Permeation-based generator ($x_w = 50\text{ ppb}$)



Mixed flow generator ($T_{fp} = -95\text{ °C}$, $P = 1\text{ MPa}$)



Report



Report
sub. to
EURAMET
D3

06/21 – M1

05/22 – M12

05/23 – M24

08/23 – M27

Task 2.2 Measurement of the enhancement factor

le cnam

By using a microwave-based trace water analyser
($-80\text{ °C} < T_{fp} < -30\text{ °C}$, $0.1\text{ MPa} < P < 1\text{ MPa}$)



By comparing
thermodynamic saturation-
based generator with
amount fraction analyser(s)
($-90\text{ °C} < T_{fp} < -30\text{ °C}$
 $0.1\text{ MPa} < P < 1\text{ MPa}$)



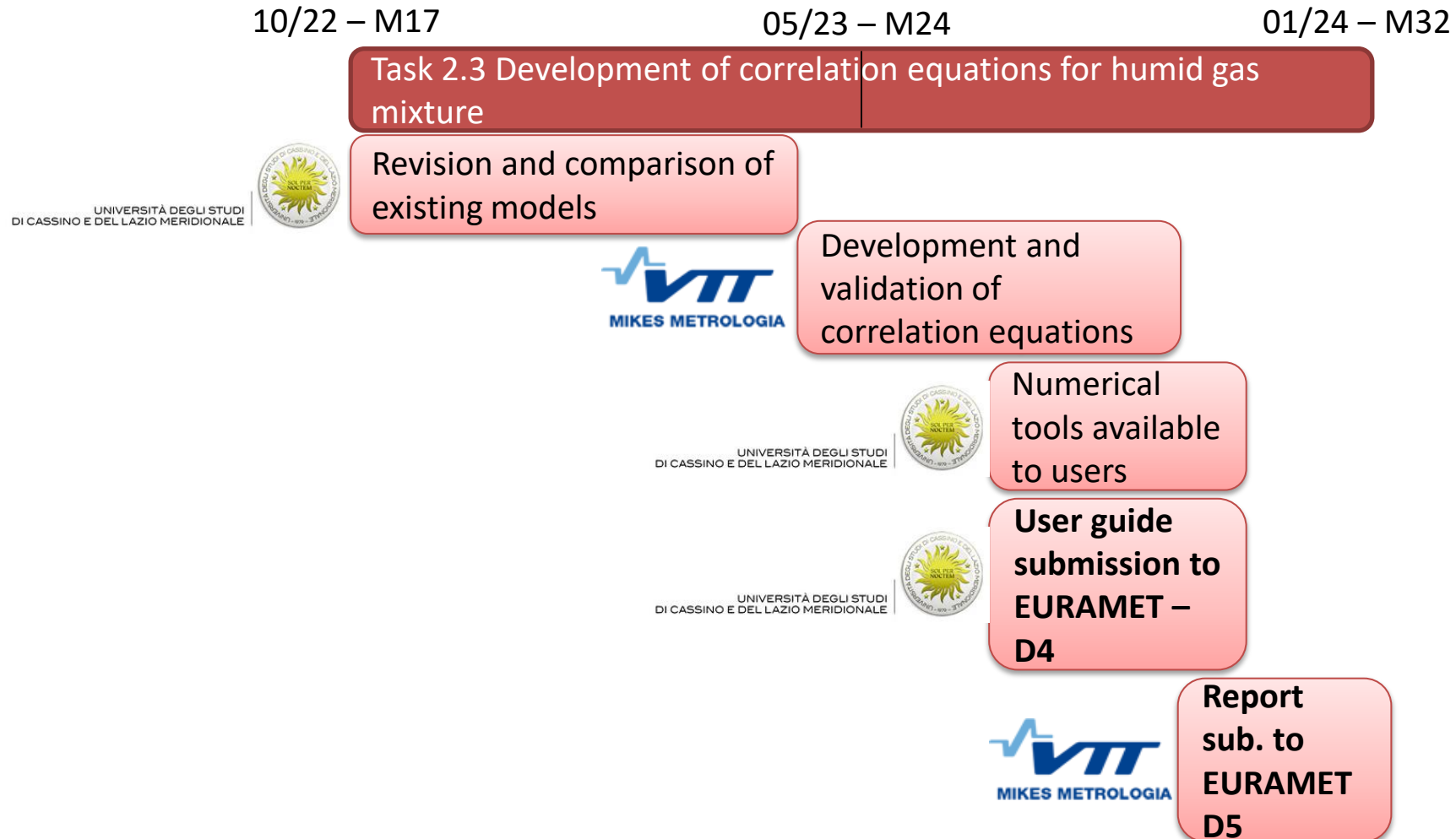
Cylinder production and upgrade of
microwave – based frost point
hygrometer

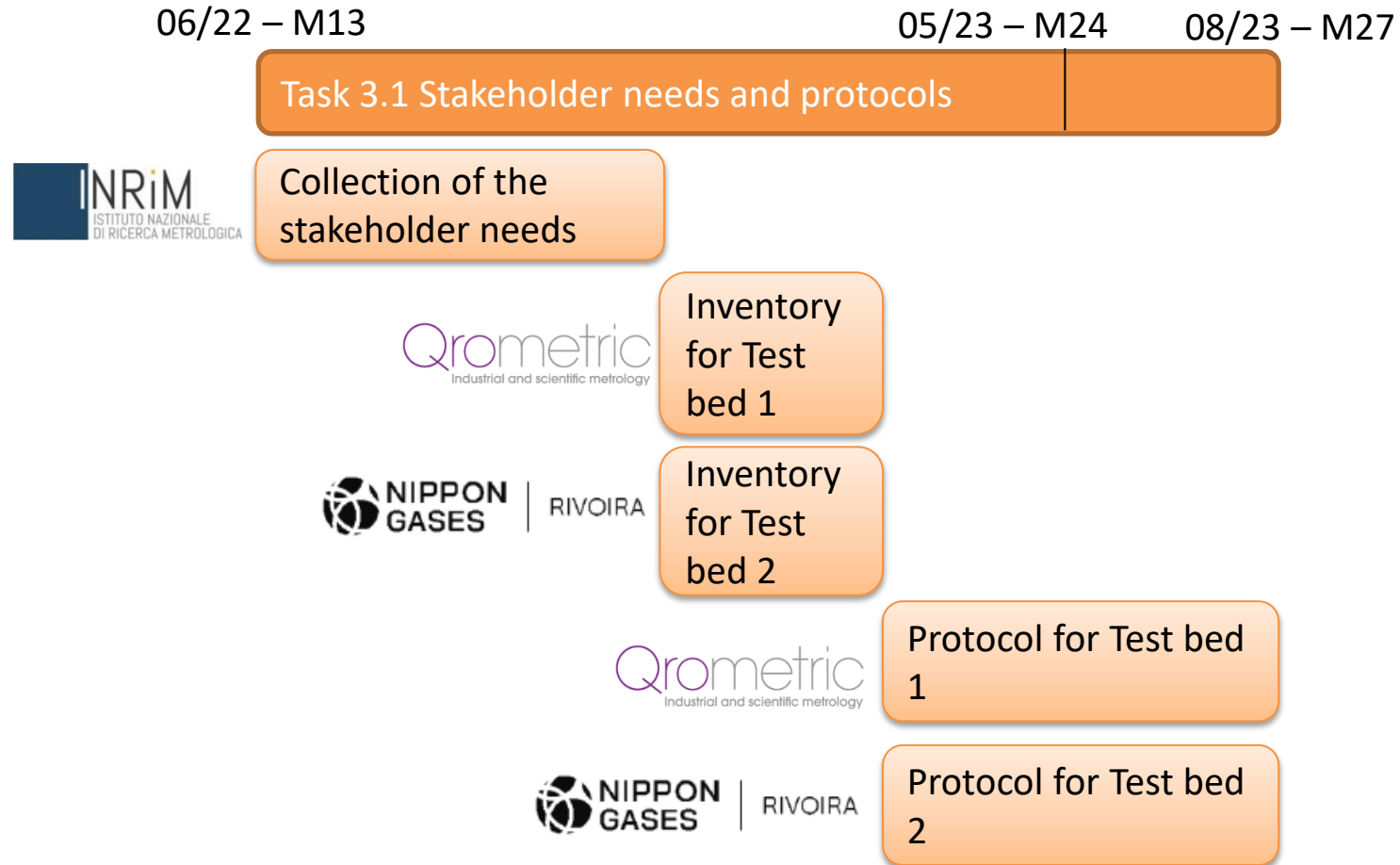
UVa

By using a microwave-based frost point analyser
($-75\text{ °C} < T_{fp} < -30\text{ °C}$, $0.1\text{ MPa} < P < 1\text{ MPa}$)

le cnam

Report





12/22 – M19

05/23 – M24

05/24 – M36

Task 3.2 Traceability provision in the field - Test bed 1 and FHa

Qrometric
Industrial and scientific metrology

Meeting for
Test bed 1

Qrometric
Industrial and scientific metrology

Portable generator temp.
extension down to $T_{fp} = -90\text{ °C}$

Univerza v Ljubljani



Validation of
portable
generator

Qrometric
Industrial and scientific metrology

Onsite
calibration of
 H_2 sensor at
FHa



Report on
demonstration
at FHa

Qrometric
Industrial and scientific metrology

Report sub. to
EURAMET- D6

08/23 – M27



05/24 – M36

Task 3.3 Demonstration at facility - Test bed 2

Meeting for
Test bed 2

Measurement of trace water in N₂ and Ar production in
Test Bed 2

Report on results at
Test Bed 2

**Report submission to
EURAMET – D7**



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Thank you for your attention

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