



Laboratoire national de métrologie et d'essais



Journée des métrologues

iMERA, iMERA Plus et Article 169

Luc ERARD

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Projet européen 20 participants, 14 NMIs

Début du projet: 1er avril 2005

Fin du projet: 31 décembre 2008

Trois objectifs (1)

Elaborer (LNE) un programme européen de recherche en métrologie destiné à assurer une meilleure efficacité des travaux entrepris dans le cadre d'EUROMET, association des Laboratoires nationaux de métrologie:

EMRP: outline 2008

Trois objectifs (2)

Mettre en place les structures permettant de bénéficier d'un financement européen et de gérer les programmes de recherche en conformité avec les exigences européennes (PTB):

**EURAMET e.V.
EMRP**

Trois objectifs (3)

Bénéficier des possibilités offertes par l'article 169 du traité de Rome afin d'obtenir un financement européen pour ce programme (NPL).

Article 169, en cours

iMERA Plus

iMERA Plus

Executing the EMRP: iMERA-Plus

First step: iMERA-Plus, an ERA-NET Plus programme

38 participating institutes from 20 European states

65 M€ funding volume, 1/3 co-funding European Commission

3 years programme

Thematic areas:

- Dimensional Metrology
- Electromagnetic Metrology
- Metrology for Health
- New definition of SI units

During 2007 Call and project selection process

January 2008: 21 Joint Research Projects (JRP) launched

The Ranked List of JRPs: Recommended for funding

T1.J1.2	NAH	Avogadro and molar Planck constants
T1.J1.1	e-MASS	Watt balance
T1.J1.3	REUNIAM	Redefinition of the SI base unit ampere
T1.J2.1	OCS	Optical clocks for a new definition of the second
T3.J1.1	Nanoparticles	Traceable characterization of nanoparticles
T2.J10	TRACEBIOACTIVITY	Traceable measurements for biospecies and ion activity in clinical chemistry
T4.J01	Power & Energy	Next generation of power and energy measuring techniques
T3.J1.4	NANOTRACE	New Traceability Routes for Nanometrology
T2.J11	CLINBIOTRACE	Traceability of complex biomolecules and biomarkers in diagnostics
T4.J03	JOSY	Next generation of quantum voltage systems for wide range applications
T3.J3.1	Long distance	Absolute long distance measurement in air
T2.J07	EBCT	External Beam Cancer Therapy
T4.J07	EMF and SAR	Traceable measurement of field strength and SAR for the Physical Agents Directive
T2.J04	Regenmed	Metrology on a cellular scale for regenerative medicine
T1.J1.4	Boltzmann constant	Determination of the Boltzmann constant
T2.J06	Brachytherapy dosimetry	Increasing cancer treatment efficacy using 3D brachytherapy
T3.J2.2	NIMTech	Metrology for New Industrial Measurement Technologies
T4.J04	ULQHE	Development of ultimate metrological QHE devices
T1.J2.3	qu-Candela	Candela: Towards quantum-based photon standards
T2.J02	Breath analysis	Breath analysis as a diagnostic tool for early disease detection
T4.J02	NanoSpin	Nanomagnetism and Spintronics

iMERA PLUS Participation

- **Funded institutes in the selected JRPs:**
 - Number of participations: 149 ($\approx 7/\text{JRP}$)
 - Number of unique institutes: 31
 - Number of countries: 19 + EC
- **“Collaborators” in the selected JRPs:**
 - Number of participations: 26
 - Number of unique institutes: 24
 - Number of countries: 10 + BIPM

TP 1

Grand challenges on fundamental metrology

- 6 JRPs;
- Mass (2), ampere, **time**, candela, **temperature**;
- Directly related to main topic and first key challenge of the TP 1: the research contributing to the redefinition of the SI.

TP 2

Health

- 6 JRPs;
- Ionising radiation (2): Medical treatment, Brachytherapy and external beam therapy
- “Metrology in **chemistry**”/biology (4): diagnostic instrumentation, and traceable measurements for bio-species, molecules, markers.

TP 3

Length

- **4 JRPs;**
- **Nanometrology (2): traceability for nanoparticles and new routes**
- **Long distance measurement in air (1): spectrometric and interferometric methods for long distance meas.**
- **New industrial techniques (1) needs of industry (3D artefacts, freeform objects, CMM software,...)**

TP 4

Electricity and Magnetism

- **5 JRPs;**
- **New “quantum” standards/definition of units (2): voltage and resistance;**
- **Safety of the citizen and industrial needs (2): Physical agent directive (SAR and field strength), power and energy (EU directive)**
- **Future developments (1): metrological basis for the field of nanomagnetism.**

Overview

iMERA

iMERA Plus

Article 169

Article 169

Intégration de programmes nationaux dans un programme européen

Financement abondé par la Commission européenne

Gestion au niveau européen



State of the Play with A169

	Current offering:		
	<u>Total</u>	<u>EC</u>	<u>MS</u>
Research Projects	144 M€	164	180
Grants	40 M€	36	4
Running costs	16 M€	0	16
Total	400 M€	200	200

Article 169/EMRP Letters of commitment

Participant Country	Averaged Annual (€)		Total for (notional) 7 years (€)		Balanced budget (% of commitment)	Commitment letter
	core commitment	reserve commitment	core commitment	reserve commitment		
Austria	120,000	60,000	840,000	420,000	0.420	D(09)107156 from 30/01/2009
Belgium	120,000	60,000	840,000	420,000	0.420	
Czech Republic	613,512	306,756	4,294,582	2,147,291	2.147	D(09)502007 from 30/01/2009
Denmark	319,312	159,656	2,235,185	1,117,592	1.118	
Estonia	60,000	30,000	420,000	210,000	0.210	
Finland	1,147,528	573,764	8,032,695	4,016,348	4.016	
France	2,716,353	1,358,177	19,014,471	9,507,236	9.507	
Germany	10,224,763	5,112,381	71,573,341	35,786,670	35.787	D(08)596760 -16/12/2008
Italy	2,011,639	1,005,819	14,081,472	7,040,736	7.041	
Norway	199,570	99,785	1,396,990	698,495	0.698	D(08)596684 - 16/12/2008
Portugal	120,000	60,000	840,000	420,000	0.420	D(08)591266 - 27/11/2008
Slovakia	360,889	180,445	2,526,224	1,263,112	1.263	
Slovenia	179,613	89,807	1,257,291	628,646	0.629	D(09)108383 from 05/02/2009
Spain	639,289	319,645	4,475,026	2,237,513	2.238	
Sweden	341,265	170,632	2,388,854	1,194,427	1.194	
Switzerland	917,690	458,845	6,423,828	3,211,914	3.212	
The Netherlands	1,546,668	773,334	10,826,676	5,413,338	5.413	
Turkey	226,845	113,422	1,587,913	793,956	0.794	
United Kingdom	6,406,493	3,203,247	44,845,452	22,422,726	22.423	D(09)108383 from 05/02/2009
Romania	120,000	60,000	840,000	420,000	0.420	
Hungary	120,000	60,000	840,000	420,000	0.420	D(08)593703 - 05/12/08
Poland	60,000	30,000	420,000	210,000	0.210	D(09)500043 - 05/01/09
	28,571,429	14,285,714	200,000,000	100,000,000	100.000	



A169 - Key points – status today

Completed
Impact Assessment
Inter service consultation (internally in the Commission)
Translations
Commission budget
Formal Proposal from Commission to European Parliament &
Council of Ministers
3rd December 2008

Outstanding
Ex Ante audit (begins 30th March)
and follow up action plan
Final Council text
Co decision
Legal signing of legislative parties (Council and Parliament)
Contract between EURAMET and Commission

Call Timetable

2008	2009	2010	2011	2012	2013	2014	2015	2016
iMERA-plus								
execution phase SI, Health, EM, Dimensional								
EMRP-169								
	call 1	execution call 1						
		call 2	execution call 2					
			call 3	execution call 3				
				call 4	execution call 4			
					call 5	execution call 5		

Call budget

call 1	2009: 17	Energy 34
call 2	2010: 48	Environment 48
		Metrology for Industry (1 st , new production technologies, ..) 48
call 3	2011: 45	Health (2 nd) 30
		SI (1 st , broader scope ¹⁾) 30
		New Tech (ICT, security, nano, biotec, new materials ..) 30
call 4	2012: 45	Metrology for Industry (2 nd) 40
		SI (2 nd , broader scope ¹⁾) 40
		Open excellence call 10
call 5	2013: 45	Energy (2 nd) 55
		Environment 2 nd (different focus) 35

1) not only base units; gives chance for all NMIs and TCs, respectively, to contribute

red: COM commitment appropriations

green: total budget to be committed

Grants

B1. Researcher excellence grants	Any organisation except NMI or DI	Member States and countries associated to the Seven Framework Programme
B2. Researcher mobility grants	<p><i>From :</i> (1) NMI and DI or (2) an organisation benefiting from a researcher excellence grant (3) researchers from EURAMET member countries <u>not</u> participating in the EMRP which currently have limited or no metrology research capability</p> <p><i>To :</i> (1) NMI and DI or (2) an organisation benefiting from a researcher excellence grant</p>	Member States and countries associated to the Seven Framework Programme
B3. Early-stage researcher mobility grants	<p><i>From :</i> NMI or DI</p> <p><i>To :</i> (1) NMI and DI or (2) other organisations participating in the EMRP project (consortium)</p>	EMRP participating States

A169 – Distribution of work and responsibilities

		Targeted Programme (TP)	EMRP guardian/ subcommittee chair - <i>suggestions</i> -
call 1	2009	a) Energy (1 st)	<i>LNE</i>
call 2	2010	b) Environment (1 st)	<i>PTB</i>
		c) Metrology for Industry (1 st)	<i>VSL or CMI or METAS</i>
call 3	2011	d) Health (2 nd)	<i>PTB or NPL</i>
		e) SI broader scope (1 st)	<i>LNE</i>
		f) New Technologies	<i>NPL</i>
call 4	2012	g) Metrology for Industry (2 nd)	<i>VSL or CMI or METAS</i>
		h) SI broader scope (2 nd)	<i>CMI or PTB or VSL</i>
		i) Open excellence call	<i>NPL</i>
call 5	2013	j) Energy (2 nd)	<i>VSL</i>
		k) Environment (2 nd)	<i>PTB</i>

**MERCI DE VOTRE
ATTENTION**