



The EUROMET Review System

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SADCMET Workshop on
Regional Review of NMI Quality Systems

CSIR, Pretoria, 4 March 2002

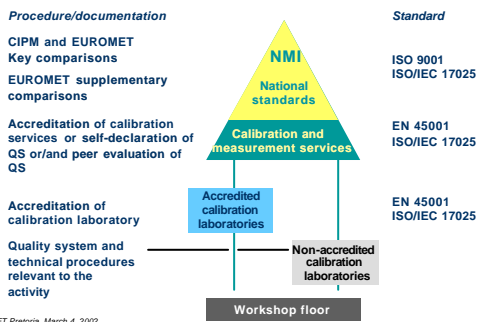


Overview

- EUROMET policy on quality
- Organisational structure
- Implementation process
- Present practice
- Future developments



Quality and traceability in national measurement systems



Guide no. 1 - EUROMET Policy a)

- *NMIs demonstrate their technical competence by a variety of means e.g. high level comparisons, CIPM KCs, EUROMET KCs, participation in the work of CIPM Consultative Committees, or involvement in relevant EUROMET projects.*
- *NMIs' routine calibration services for external customers should comply with the requirements of the MRA. Current best practice points to the ISO/IEC 17025. Operations in accordance with ISO/IEC 17025 criteria must include the demonstration of traceability to the SI through a national standard.*
- *EUROMET makes no distinction between third party accreditation and self-declaration. QS of EUROMET members should be consistent with the requirements of the CIPM's MRA.*



Guide no. 1 - EUROMET Policy b)

- *INTMET has set up a Sub-Committee to deal with QS issues.*
- *The EUROMET Chairman will look to this group to review and provide advice to him on the way in which all EUROMET members implement their QS and whether this is in accordance with the requirements of the CIPM's MRA.*
- *Declaration of a QS under self-declaration must provide a transparent insight to the operations of the NMI concerned, so that the confidence in its calibrations can be reliably established and maintained.*

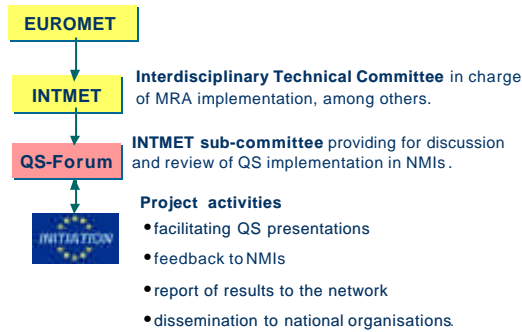


Establishment of QS-Forum

- *As a result of EUROMET project 512 "Implementation of CIPM's MRA for EUROMET member countries", a Quality System Forum (QS-Forum) was proposed and subsequently established by the Technical Committee "Interdisciplinary Metrology";*
- *with EUROMET project 517 "Ways of reviewing and implementing QS in EUROMET NMIs compliant with ISO/IEC 17025 and consistent with requirement of the CIPM's MRA ..." the forum was organised and started.*



Implementation of QS in EUROMET



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INITIATION project

A thematic network under the 5th Framework Programme of the European Commission

Members:

BEV (Austria), CMI (Czech Republic), BNM- LNE (France), OMH (Hungary), IMGC - CNR (Italy), NMI VSL (The Netherlands), JV (Norway), IPQ (Portugal), MIRS (Slovenia) and SMU (Slovakia).

Project Coordination:

NMI VSL (Hugo Ent, Cees van Mullem and Hans den Boer)

e-mail: initiation@nmi.nl

internet: www.initiation.nl

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INITIATION project objectives

- To ensure a **common understanding** of the requirements of ISO/IEC 17025 as they apply to NMIs.
- To develop a sound and coherent **leadership approach** to the relationship between metrology and quality.
- To coordinate this network activity with that of **RMOs** elsewhere.

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Practice of operation

QS-Forum and INITIATION

- INITIATION acts as a **facilitator** for the QS-Forum as it serves to organize, prepare, enable and make information available.
- Meetings (2000, 2001 and 2002)
- QS presentations
- Current status of QS presentations

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Meetings

- **INITIATION** Steering Committee meeting
 - Network and management decisions
- **QS-Forum** meeting
 - QS presentation (written and oral)
 - Discussion
 - Questions by the chairman:
 - ✓ Have all the required points been addressed by the presenting NMI?
 - ✓ Do the attending NMIs have sufficient confidence in the QS presented and its ability to fulfill the requirements of the MRA?
- **INITIATION** Plenary meeting
 - Discussion on the given QS presentations
 - Recommendations to QS-Forum
- Quality System Tour at host institute

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QS-Forum and INITIATION schedule

Meeting	Date	Place	Organisation
1 Initiation "Kick-off" QS-Forum	09-10 Nov 2000	Delft (NL)	NMI VSL
2 Initiation QS-Forum with 3 presentations	21-23 Mar 2001	Bratislava (SK)	SMU
3 Initiation QS-Forum with 2 presentations	27-29 Jun 2001	Teddington (UK)	NPL
4 Initiation "Mid-term" QS-Forum with 3 presentations QS-Forum with 2 presentations Initiation Workshop	09-12 Oct 2001	Wien (AU)	BEV
5 Initiation QS-Forum with 5 presentations	12-14 Dec 2001	Rotterdam (NL)	NMI VSL
6 Initiation QS-Forum with 5 presentations	19 -22 Feb 2002	Budapest (HU)	OMH
7 Initiation "Final" QS-Forum with 5 presentations	29-31 May 2002	Prague (CZ)	CMI
	24-27 Sep 2002	Turin (IT)	IMGC

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Documentation schedule

4 - 6 weeks before QS-Forum	1 - 4 weeks before QS-Forum	Presentation during QS-Forum	Up to 4 weeks after QS-presentation	1 - 8 weeks after QS-presentation
Preparation of documentation by presenting NMI Complete documentation to be sent to Project Coordinator: > preferably 6 weeks in advance > at least 4 weeks in advance	Questions from other NMIs sent to Project Coordinator (PC). PC makes division into general and specific questions. All questions should address clarity issues, in the docs, for optimising the learning effect Specific ("clarity") questions will be dealt with bilaterally between presenting NMI and the questioner	Presentation in QS-Forum. Presenting NMI addresses general questions during oral presentation.	Further questions for clarification sent to Project Coordinator	Answering of the questions by the NMI that presented their QS The (questions and) answers will be published on the INITIATION web-site (where possible)

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Written documentation (1)

Information	Objective	Guidance
Detailed organigram of NMI (structure and name) Steering mechanisms in the organisation (i.e. position of quality manager, policies)	Identify the responsibilities	Chapter 1 Presentation of the quality system of XXX 1.1 Policy 1.2 Structure of NMI (organigram) 1.3 QS Structure (steering mechanisms)
Detailed table of contents of the quality manual (date of revisions)	The contents of the summary permit to obtain a reasonable knowledge of the real development of the QS	Chapter 2 Information on QS development and ISO / IEC 17025 implementation 2.1 Table of Contents of Quality Manual 2.2 List of administrative or general procedures (reference and title) 2.3 List of technical procedures (reference and title)
List (exhaustive) of administrative and technical procedures	Same objective as for the Quality Manual	2.4 Table of cross-references. (The template proposed in document QSF_02_09 may be used)
Table of cross-references : ISO / IEC 17025 and quality documentation of NMI	Checking the implementation of ISO / IEC 17025	

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Written documentation (2)

Information	Objective	Guidance
List of calibration capabilities covered by the quality system	Checking the coherence between QS and services offered by the NMI	Chapter 3 QS and covered calibration capabilities Please declare if all the services corresponding to the CMCs adopted by the EUROMET fields groups, or if still under discussion, are covered by the quality system. If not, please indicate which services are not yet covered by the QS and explain the status of implementation
Number of complaints received from clients (per year) and the way they are processed	Information on the activity of the QS	Chapter 4 QS Life 4.1 Complaints Please indicate the number of complaints per year, but the most interesting information is how the NMI deals with them
Number of non-conforming work or departure from policy leading to corrective actions (per year)	Information on the activity of the QS	4.2 Non-conforming work Please indicate the number and how the NMI follows the corrective actions to ensure their effectiveness
Internal audits: Dates of reports, list of people involved	Information on the activity of the QS	4.3 Internal audits Please give in a table the dates of internal audits and the names and functions of the people involved in these audits
Management reviews : Dates of reports, list of people involved	Information on the activity of the QS	4.4 Reviews Please give in a table the dates of reviews and the names and functions of the people involved in these reviews

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Oral presentation

Addressing the points :

- national metrology system (Remark: "briefly" (because this item is already covered in the QS-documentation supplied))
- documentation part (Remark: "briefly"; no "repeat presentation" of items dealt with in the QS documentation already supplied, but highlighting the "how" aspects)
- ISO/IEC 17025 management and technical requirements (especially with respect to "how" requirements are implemented and interpreted; "process information")
- points waiting for implementation
- the dynamic process (because presentations are only a snapshot)
- weak and strong points
- (solutions found for) problems encountered

During the presentation attending QS-Forum members should be invited to ask as much as possible "how" items are dealt with. A real, interactive two-way communication stimulates a fast(er) learning from another.

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Status of review 1

Country and name of NMI	QS fully implemented ?	Confidence given ?	Questions to be answered ?	Actions to be carried out ?
Slovakia: SMU	No	Yes. Also actions to be carried out.	Yes (several questions). Are answered sufficiently.	- Present an overview of the current implementation status of the QS (status: action completed) - Report about final implementation situation before the end of the transition period of the MRA
Denmark: DANAmet	Yes	Yes	No	No
The Netherlands: NMI VSL	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA (see for the planning of implementation table 1 on page 14 of QSF_03_02_a)
U.K.: NPL	Yes	Yes	No	No
U.K.: NEL	Yes	Yes	No	No
U.K.: LGC	Yes	Yes	No	No
Germany: PTB	Yes	Yes	No	- Report about execution of management review at company level
Germany: BAM	No	Yes, if questions are answered. Also action to be carried out	Yes (several questions). Answering in progress.	- Report about final implementation situation before the end of the transition period of the MRA
Germany: UBA	No	Yes, if questions are answered. Also action to be carried out	Yes (several questions). Answering in progress.	- Report about final implementation situation before the end of the transition period of the MRA

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Status of review 2

Country and name of NMI	QS fully implemented?	Confidence given ?	Questions to be answered ?	Actions to be carried out ?
Norway: JV	No	Yes, if questions are answered. Also action to be carried out.	Yes (several questions). Answering in progress.	- Report about final implementation situation before the end of the transition period of the MRA
Sweden: SP	Yes	Yes	No	No
Sweden: SSI	Yes	Yes	No	No
France: BNM-RM	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
France: BNM-LNH0	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
France: BNM-LNE	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
France: BNM-LPTF	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
France: CEA-CESTA-LEA	Yes	Yes	No	No
France: CETIAT	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
France: ENSAM	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
France: IRSN-LRDE	Yes	Yes	No	No

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Status of review 3

Country and name of NMI	QS fully implemented ?	Confidence given ?	Questions to be answered ?	Actions to be carried out ?
France: LADG	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
France: LPMO	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
France: LCIE	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
France: Observatoire de Besençon	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
Switzerland: METAS	No	Yes, but action to be carried out.	No	- Report about final implementation situation before the end of the transition period of the MRA
Switzerland: EMPA	Yes	Yes	No	No
Switzerland: BRA	Yes	Yes	No	No

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Status of review 4

Country and name of NMI	Questions to be answered	Status of questions
Slovakia: SMU	- From NPL: Give more details on how corrective action and cause analysis are identified. When preventive actions are required, how are they implemented and how does the Laboratory ensure their effectiveness. - From CMI: Does SMU have a procedure for what should be the content of a calibration procedure report <u>refer to the detailed uncertainty analysis described</u>	Solved
Germany: BAM	- From NPL: As an interim measure prior to full acceptance, report back on the operating record of customer complaints - From NPL: Policy and procedure for the resolution of complaints received - From NPL: Advise when accreditation is achieved including the name of the accreditation body and assessors used (as specified in T.J. Quinn's 24.11.99 letter to RMO chairman) and scope of accreditation - From NMI VSL: Provide procedure (or other information) for customer satisfaction and a acquiring total overview of complaints - From NMI VSL: Provide procedure (or other information) for avoiding CMC-overlap with PTB - From NMI VSL: Provide procedure (or other information) for altering CMC's, including the review-process of changes	- Solved - In progress - Solved - Solved
Germany: UBA	- From NPL: As an interim measure prior to full acceptance, report back on the operating record of customer complaints - From NPL: Policy and procedure for the resolution of complaints received - From NPL: Advise when accreditation is achieved including the name of the accreditation body and assessors used (as specified in T.J. Quinn's 24.11.99 letter to RMO chairman) and scope of accreditation - NMI VSL: Present an overview of the current implementation status of the QS, the planning of further implementation and report back about meeting the planning - From IPD: Concerning the German QS-structure in the field of Gas analyses, is the first row of the structure organism at the same traceability level? If so, what are the reasons for it? - From LNE: What is the schedule of implementation of all aspects of ISO/IEC 17025.	- In progress - In progress - In progress - Partly solved - Solved - In progress

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Status of review 5

Country and name of NMI	Questions to be answered	Status of questions
Norway: JV	- From NPL: Before the UK can accept JV's quality systems as fully compliant with the MRA requirements, NPL requests a report/presentation with the evidence that all MRA requirements have been met and are fully functioning, including the names of those external experts used in the audits and the names of those used as peer reviewers as specified in T.J. Quinn's 24.11.99 letter to RMO chairman. - From PTB: Report about final implementation situation before the end of the transition period of the MRA	- Answering in progress - Is action to be carried out (see table 1)

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QS-Forum presentations 1

- Presentations up to Feb. 2002
 - 14 countries
 - 59 NMIs and associated laboratories
- Further presentations expected by Sept. 2002
 - 10 countries
 - 28 NMIs and associated laboratories (*notional*)
- Expected total
 - 24 countries (incl. CEC)
 - 87 NMIs and associated laboratories (*notional*)

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QS-Forum presentations 2

- Up to Dec. 2001
 - 27 NMIs (or organisations) from 9 countries presented their QS.
 - 11 NMIs (41%) have declared a fully implemented QS and have got confidence by the attending NMIs.
 - 16 NMIs (59%) have been requested to produce a report about the final implementation situation. For 9 of these NMIs, some questions were raised.

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INITIATION additional outcomes

- **Workshop** for NMIs on solving practical problems when implementing a QS based upon ISO/IEC 17025. Recommendations.
- **National dissemination plans** towards interested organisations.
- Compilation of **issues related to the objective 2** (Metrology and Quality relationship).

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INITIATION workshop for NMIs

Solving practical problems when implementing a Quality System based upon ISO/IEC 17025

Theme I <i>High level standards and ISO/IEC 17025</i>	Theme II <i>Validation</i>	Theme III <i>Internal versus external aspects</i>
Subtheme A Assuring the quality of test and calibration results	Subtheme A Validation of the determination of uncertainty	Subtheme A Customer focus of NIMs with respect to ISO/IEC 17025
Subtheme B Relation of ISO/IEC 17025 and high level primary measurement standards	Subtheme B Validation of calibration methods	Subtheme B Level of detail, suitability and reasonability of technical procedures
Subtheme C Design/development of new methods	Subtheme C How to ensure traceability of measurements etc. in software applications	Subtheme C Preventive actions
Subtheme C Maintenance of national/primary standards in relation to ISO/IEC 17025	Subtheme C Handling and validation of software	Subtheme C Internal audits and auditors



Some topics for realising "Objective 2"

- Cooperation with accreditation bodies.
- Relations with testing laboratories.
- Awareness of metrology/traceability in ISO 9001.
- Training of the auditors.
- PT and ILC schemes in chemistry.
- Conformity assessment and calibration.



Future developments

- To ensure continuity of QS-Forum operations after the end of INITIATION project .
- To extend to QS-Forum the same background and practice of TCs, e.g. regular meetings, learning effect, visits by peers, new and renewed presentations.
- QS-F options as: present INTMET sub-committee or new technical committee.



Conclusions

- ♦ **QS-Forum has become a platform for European NMIs to share and develop QS knowledge on the ISO/IEC 17025 standard, and to gain experience and mutual confidence in their QS;**
- ♦ **QS-Forum is the EUROMET way of doing QS review by peers;**
- ♦ **successful presentations and discussions of NMI QS provide evidence to fulfilling the QS requirements of the MRA;**
- ♦ **reportsto the JCRB increase confidence among RMOs in the QS implementation of their NMIs.**