Bureau International des Poids et Mesures

GETTING STARTED

KCDB restricted web portal

KCDB
v. 2026-08-31
www.bipm.org/kcdb

KCDB

1 GETTING STARTED

The Key Comparison Database - KCDB – supports the Mutual Recognition Arrangement of the International Committee for Weights and Measures (CIPM MRA), implemented in 1999. It contains data on Calibration and Measurement Capabilities (CMCs) and comparison results of measurements in physics, chemistry and biology. The KCDB is an evidence-based database: all data included have been reviewed by international groups of experts and approved for mutual recognition.

The KCDB website www.bipm.org/kcdb gives access to the following open access services:

- Search published CMCs in the KCDB
- Search published comparison reports and results
- Information on statistics and recent news on issues linked to CMCs and comparisons
- A set of guidance documents

The KCDB website also provides a restricted-access platform for users. It gives support for the creation and review of CMCs, as well as tools for the registration of comparisons and submission of comparison reports and associated documents. Statistics on the review process are also available by restricted access.

The restricted access area is aimed only for persons involved in the review process and its coordination. The restricted area is accessible via a guest username/password communicated by technical committee chairs and other coordinators. Once on the platform, if applicable, a guest may request a personalized user account in which the profiles as a CMC writer/reviewer or comparison pilot may be combined. The writer, reviewer and pilot always represent their institute.

This document gives an overview of the facilities available via the KCDB website.

As a complement, video clips demonstrating selected actions are available on the KCDB website, https://www.bipm.org/en/cipm-mra/kcdb-help, and on the BIPM You Tube, https://www.youtube.com/thebipm.

Contents

1 Getting started 2
2 Home Page 11
3 Profile 14
3.1 Guest 14
3.2 TC Chair 14
3.3 Writer 15
3.4 Reviewer 15
3.5 NMI Secretary 15
3.6 RMO Secretary 15
3.7 WG CMC Chair 16
3.8 Pilot 16
3.9 KCDB Office and JCRB Executive Secretary (hereafter indicated as the KCDB Office) 16
4 User Account and Member Area 17
4.1 Guest account 17
4.2 Register for a user account 17
4.3 Approval of a user account 20
4.4 Update of an already registered account 20
4.5 Notifications on user accounts 20
5 Training Platform 22
6 CMC Review – Short Overview 23
6.1 Intra-RMO review 23
6.2 Notifications issued for the intra-RMO review 24
6.3 JCRB Review 24
6.4 Notifications issued for the JCRB review 25
7 CMC Code and Status 27
7.1.1 KCDB ID 27
7.1.2 CMC Review status 27
8 Tools in common 29
8.1.1 Read a CMC 29
8.1.2 Add a review comment 30
8.1.3 Read review comments 31

9 Writer Actions 33

9.1 My CMC Space 34

9.2 Institute CMCs 35

9.3 Read a CMC 36

9.4 Create a New CMC 36

9.5 Modify an already published CMC 36

9.6 Duplicate a CMC 38

9.7 Submit a CMC 38

9.7.1 Quality system 38

9.7.2 Intra-RMO review 39

9.7.3 JCRB review 39

9.8 Revise a CMC 39

9.9 Read review comments 40

9.10 Delete a Draft 40

9.11 Delete a Published CMC 40

9.12 Withdraw a CMC 40

9.13 Grey out a CMC 40

9.13.1 Grey out a CRM (Chemistry and Biology) 41

9.14 Reinstate a greyed-out CMC 41

9.14.1 Reinstate a greyed-out CRM (Chemistry and Biology) 43

9.15 Delete a greyed-out CMC 43

9.16 Export CMCs 43

9.17 Import CMCs 44

9.17.1 Some general hints before importing CMCs 45

9.17.2 Import new CMCs 46

9.17.3 Import modified CMCs 46

9.17.4 Import greyed out or cmcs to be deleted 47

9.17.5 Import an uncertainty table 47

9.17.6 Importation and special characters 48

10 Create a CMC 49

10.1 Create CMC - Physics 49

10.1.1 Branch (*) 50

10.1.2 Service, Sub-service and Individual service Codes (*) 50

10.1.3 Institute service identifier 50

10.1.4 Link to Institute service identifier 50

10.1.5 Quantity (*) 51
10.1.6 Instrument or artifact under study (*) 51
10.1.7 Instrument type or method applied (*) 51
10.1.8 International standard 51
10.1.9 Unit (*) 51
10.1.10 Lower limit 51
10.1.11 Upper limit 51
10.1.12 Parameters 52
10.1.13 (Uncertainty) Unit (*) 52
10.1.14 (Uncertainty) Lower limit (*) 53
10.1.15 (Uncertainty) Upper limit (*) 53
10.1.16 Coverage factor (*) 53
10.1.17 % confidence interval (*) 53
10.1.18 Absolute or Relative Uncertainty (*) 53
10.1.19 Edit table 53
10.1.20 Edit an uncertainty equation 54
10.1.21 Reference standard in calibration 55
10.1.22 Source of traceability (*) 55
10.1.23 Group identifier 56
10.1.24 KCDB support for CMC claim 57
10.1.25 Other support 57
10.1.26 Comments for publication 57
10.1.27 Read or add comments 57
10.1.28 Uploaded documents 57
10.1.29 Supporting evidence for Quality System provided (*) 57
10.2 Create CMC – Ionizing radiation 58
10.2.1 Branch (*) 58
10.2.2 Institute service identifier 58
10.2.3 Link to Institute service identifier 58
10.2.4 Quantity (*) 59
10.2.5 Instrument or artifact under study (*) 59
10.2.6 Instrument type or method applied (*) 59
10.2.7 International standard 59
10.2.8 Medium (*) 60
10.2.9 Nuclide (*) 60
10.2.10 Source (*) 60
10.2.11 Specification of nuclide or source (*) 60
10.2.12 Unit (*) 61

10.2.13 Lower limit 61
10.2.14 Upper limit 61
10.2.15 Parameters 61
10.2.16 (Uncertainty) Unit (*) 62
10.2.17 (Uncertainty) Lower limit (*) 62
10.2.18 (Uncertainty) Upper limit (*) 62
10.2.19 Coverage factor (*) 63
10.2.20 % confidence interval (*) 63
10.2.21 Absolute or Relative Uncertainty (*) 63
10.2.22 Edit table 63
10.2.23 Edit an uncertainty equation 65
10.2.24 Reference standard in calibration 66
10.2.25 Source of traceability (*) 66
10.2.26 Group identifier 66
10.2.27 KCDB support for CMC claim 66
10.2.28 Other support 66
10.2.29 Comments for publication 66
10.2.30 Read or add comments 67
10.2.31 Uploaded documents 67
10.2.32 Supporting evidence for Quality System provided (*) 67
10.3 Create CMC – Chemistry and Biology 68
10.3.1 Category (*) 68
10.3.2 Sub-category (*) 69
10.3.3 Institute service identifier 69
10.3.4 Web link to institute service identifier 69
10.3.5 Group 69
10.3.6 Matrix (*) 70
10.3.7 Analyte or component (*) 70
10.3.8 CAS number 70
10.3.9 Quantity 70
10.3.10 Unit (*) 70
10.3.11 Lower limit 70
10.3.12 Upper limit 70
10.3.13 (Uncertainty) Unit (*) 71
10.3.14 (Uncertainty) Lower limit (*) 71
10.3.15 (Uncertainty) Upper limit (*) 72
10.3.16 Coverage factor (*) 72
10.3.17 % confidence interval (*) 72

10.3.18 Absolute or Relative Uncertainty (*) 72
10.3.19 Edit table 72
10.3.20 Edit an uncertainty equation 73
10.3.21 CRM Value 74
10.3.22 Mechanism(s) for service delivery (*) 76
10.3.23 Source of traceability (*) 76
10.3.24 Measurement technique(s) used 76
10.3.25 Group identifier 77
10.3.26 Uncertainty convention 77
10.3.27 KCDB support for CMC claim 77
10.3.28 Other support 77
10.3.29 Comments for publication 78
10.3.30 Read or add comments 78
10.3.31 Uploaded documents 78
10.3.32 Clear description of supporting evidence for this claim 78
10.3.33 Details of calibrants used and assessment of their purity/certification 78
10.3.34 Exact nature of service delivered 79
10.3.35 Supporting evidence for Quality System provided (*) 79
10.3.36 Broad claims 79

11 Reviewer 80

11.1.1 Reviewer dashboard 80
11.1.2 Accept to review 80
11.1.3 Review the CMC 81
11.1.1 Read a CMC 84
11.1.2 Comment a CMC 84
11.1.3 Read CMC comments 84

12 TC Chair 85

12.1 TC Chair role and date limits 85
12.2 TC Chair menu 85
12.3 TC Chair Back Office 86
12.3.1 User account tool for TC Chair - overview 86
12.3.2 User account contents 88
12.4 TC Chair CMC menu and dashboard contents 89
12.4.1 TC Chair command buttons 90
12.4.2 TC Chair filters 90
12.4.3 TC Chair table for CMCs 90
12.4.4 TC Chair - read CMCs 92

12.4.5 TC Chair - read review comments....92
12.4.6 TC Chair – add documents....92
12.4.7 TC Chair – Greyed out CMCs for reinstatement....93
12.4.1 TC Chair - Comment a CMC....93
12.5 TC Chair: Intra-RMO Review....93
12.5.1 RMO: CMC without reviewer - Contact reviewer(s)....93
12.5.2 RMO: CMC with reviewer -- Study Review comments....96
12.5.3 CMCs not needing review....100
12.5.4 JCRB: CMCs from my RMO....101
12.6 TC Chair: JCRB Review....102
12.6.1 JCRB Request for Review....102
12.6.2 WG Chair dashboard read only - Overview of which RMO reviews what....102
12.6.3 JCRB: CMC without reviewer - Contact reviewer(s)....102
12.6.4 JCRB: CMC with reviewer - Study Review comments....103
13 Submit for Vote, Vote and Vote tracking....107
13.1 Originating RMO submits CMC....107
13.2 Voting RMOs....107
13.3 Vote tracking....108
14 Pending Actions....110
15 JCRB request for review....111
16 CMC WG Chair....111
16.1.1 CMC WG Chair and review....112
16.1.2 Read review comments....114
17 Update of reference data....116
17.1.1 Unit not available when drafting a CMC....116
17.1.2 Update of service categories....116
18 Comparisons....117
18.1 Comparison dashboard....118
18.2 Register a comparison....118
18.2.1 Comparison conducted by....120
18.2.2 Approved by....120
18.2.3 Comparison identifier....120
18.2.4 Comparison type....120
18.2.5 Metrology area....120
18.2.6 Comparison sub-field....120

18.2.7 Comparison linked to 120
18.2.8 Summary description 120
18.2.9 Measurand 120
18.2.10 Measurand values 120
18.2.11 Parameters 120
18.2.12 Transfer device or sample 121
18.2.13 Progress status 121
18.2.14 Additional contact person 121
18.2.15 Measurement start year 121
18.2.16 Measurement end year 121
18.2.17 Supporting document(s) 121
18.2.18 Supporting link(s) 121
18.2.19 Comments 121
18.2.20 Optional message to the KCDB Office 121
18.2.21 Save and register 121
18.2.22 Participants 121
18.2.23 Submit registration 122
18.3 Review and approval of the comparison report 122
18.4 Submit the final report of a comparison 122
18.5 Update Status 124
19 Pilot Study Report 125
19.1 Submit a Pilot Study Report 125
19.1.1 Comparison conducted by 125
19.1.2 Associated Consultative Committee 125
19.1.3 Comparison identifier 126
19.1.4 Comparison type 126
19.1.5 Metrology area 126
19.1.6 Summary description 126
19.1.7 Progress status 126
19.1.8 Save and register 126
19.1.9 Final report 126
19.1.10 Final report authors 126
19.1.11 Submit final report 126
19.2 Pilot Study Report Dashboard 126
20 Statistics 127
20.1.1 CMC statistics 127
20.1.2 Comparison statistics 127

21 References 129
22 Browser integration 129
22.1 Desktop 129
22.2 Mobile and tablet 129
23 Appendix 130
23.1 User Account Notifications 130
23.2 CMC Notifications 130
23.3 Comparison Notifications 136
23.3.1 Comparison Pilot Presents a comparison 136
23.3.2 Confirmation of registration from the KCDB Office 137
23.3.3 Request to Pilot to update an already registered comparison 137
23.3.4 The Pilot submits the Final Report and data on degrees of equivalence 138
23.3.5 The KCDB Office completes the publication of comparison results (for Key Comparisons) 138
23.4 Browser integration 139
23.4.1 Desktop 139
23.4.2 Mobile and tablet 139
23.5 Branch codes used for importation 140
23.6 Field size 141
23.6.1 Accessible field size of CMC interactive forms 141
23.6.2 Accessible field size of Comparison interactive forms 142
24 Revision History 143

2 HOME PAGE

The home page gives open access to four main sections:

- **CMC**: Search
- **Comparisons**: Search
- **News**: Search for recent news on issues linked to CMCs and comparisons
- **Statistics**: CMCs and comparisons.

Direct links to the BIPM website **https://www.bipm.org/en/home** and to the list of **CIPM MRA Participants** are situated at the top of the screen, where it is also possible to reach the restricted user area via **Login**.

Quick access to documents related to i) the KCDB, ii) the CIPM MRA, and iii) the CLASSIFICATION OF SERVICES (established by the Consultative Committees of the CIPM for each metrology area) are listed at the bottom of the Home page.

An Application Programming Interface (API) for search on published CMCs is available via “Help on the KCDB”.

Logos giving direct access to each RMO are listed in the very bottom of the page.

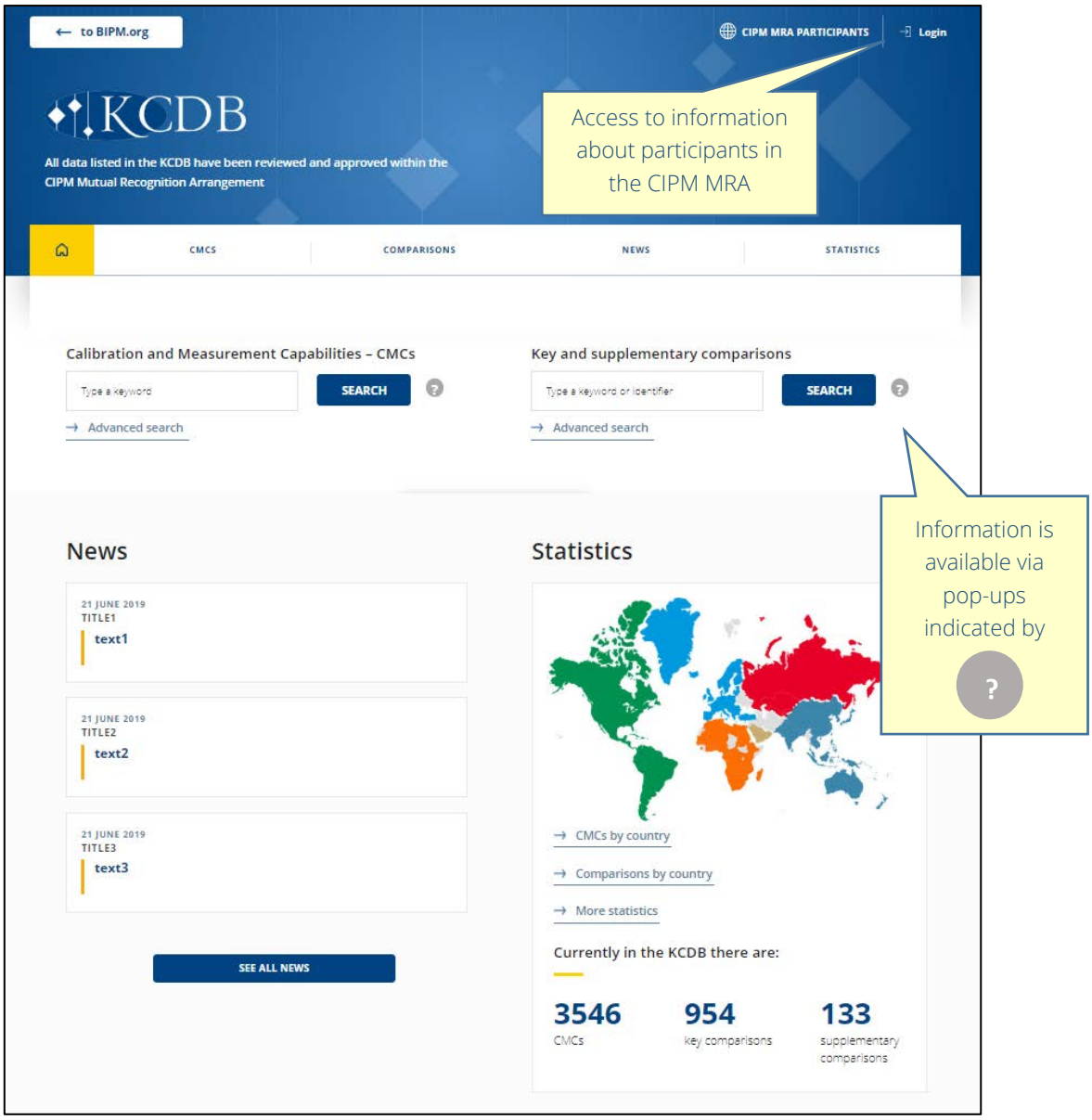


Figure 1 Upper part of the KCDB home page.

Figure 2 Lower part of the KCDB home page.

3 PROFILE

Restricted access to the user platform is designed for 9 different profiles:

- Guest
- TC Chair
- Writer
- Reviewer
- NMI Secretary
- RMO Secretary
- WG CMC Chair
- Pilot
- KCDB Office and JCRB Executive Secretary (hereinafter indicated as the KCDB Office)

Each account is associated with an e-mail address. For each role, it is possible that several persons have access to the same working area. As an example, during a time overlap between exiting and entering TC Chairs, it is possible that both have access to the same working are. It is then necessary that each person knows “who-does-what”.

3.1 GUEST

A guest has access to the restricted area, giving access to the list of Pending Actions for CMCs submitted for JCRB review and the list of CMCs being made available for vote. The Guest account also allow to consult review statistics.

The Guest may access the KCDB platform with a generic username and password that can be communicated by the TC Chair.

3.2 TC CHAIR

The TC Chair is an RMO coordinator within a specific scientific field and acts as a gate keeper. He[1] coordinates the intra RMO review of CMCs and is the contact person for the RMO for the specific metrology area(s) and expertise. He receives the submitted CMCs from the Writers within the RMO. He may choose reviewer(s) for a CMC for the intra-RMO and JCRB reviews and will vote on the approval of CMCs when required.

The TC Chair may approve the creation of user accounts.

[1] “He” is used to refer to a person, regardless of gender.

The TC Chair is informed via the KCDB platform on the creation and updates of comparisons.

The TC Chair is assigned an account by the KCDB Office on request from the RMO, while being in office.

A WG CMC Chair role cannot be combined in the same account with a TC Chair role for technical reasons – they must be associated to different user accounts.

3.3 WRITER

The Writer is the author of a CMC with the authority to act as such for his institute. He interacts mainly with his TC-Chair. He may submit new CMCs, modify, or delete published CMCs, and grey out (momentarily remove) CMCs.

A Writer account may be requested by a person representing a metrology area and expertise within an institute participating in the CIPM MRA. The TC Chair of the metrology area/Expertise approves the account.

It is possible to act as Writer, Reviewer and Pilot using the same account.

3.4 REVIEWER

The Reviewer is invited by the TC-Chair of the RMO to review CMCs within his metrology area and expertise. He interacts mainly with his TC-Chair. He may accept a CMC or ask for revision.

A Reviewer account may be requested by a person representing a metrology area and expertise within an institute participating in the CIPM MRA. The TC Chair of the metrology area/Expertise approves the account.

It is possible to act as Writer, Reviewer and Pilot using the same account.

3.5 NMI SECRETARY

The NMI Secretary represents the Institute (for example the NMI Director or a Director of Department) but who does not write or review CMCs.

The NMI Secretary is assigned an account by the KCDB Office on request.

The NMI Secretary profile gives access to all Writer pages for all or selected metrology areas, in a ‘read only’ mode for the Institute concerned.

3.6 RMO SECRETARY

The RMO Secretary represents the RMO (the RMO President or any person having a strategic position within the RMO) but who does not write or review CMCs.

The RMO Secretary is assigned an account by the KCDB Office on request.

The RMO Secretary profile gives access to all TC Chair pages for all metrology areas, in a 'read only' mode for the RMO concerned.

3.7 WG CMC Chair

If used, the WG CMC Chair represents the TC Chairs of one metrology area on the JCRB level (for inter-RMO reviews). To avoid reviewing a given CMC by several RMOs he may dispatch and suggest the CMC for review to different RMOs.[2]

The WG RMO Chair is assigned an account by the KCDB Office.

A WG CMC Chair role cannot be combined in the same account with a TC Chair role for technical reasons – they must be associated to different user accounts.

3.8 Pilot

A Pilot is the main contact person for a comparison. The Pilot may register a comparison and is invited to update the indicated status at regular intervals. The Pilot interacts with the appropriate representative for review of the comparison report and ultimately with the KCDB Office.

A Pilot account may be requested by a person representing a metrology area and expertise within an institute participating in the CIPM MRA. The TC Chair of the metrology area/Expertise approves the account.

It is possible to act as Writer, Reviewer and Pilot using the same account.

3.9 KCDB Office and JCRB Executive Secretary (hereafter indicated as the KCDB Office)

The KCDB Office is composed of BIPM staff who support the coordination of the database, and the JCRB Executive Secretary, who maintains contact with the RMOs.

[2] This does not prevent other RMOs from reviewing the CMC if necessary or desired.

4 USER ACCOUNT AND MEMBER AREA

The member area is restricted to persons directly associated with activities of the CIPM MRA.

4.1 GUEST ACCOUNT

The member area is accessible via a **guest account**.

The username is **tcguest@bipm**

The password is **TContact1%**

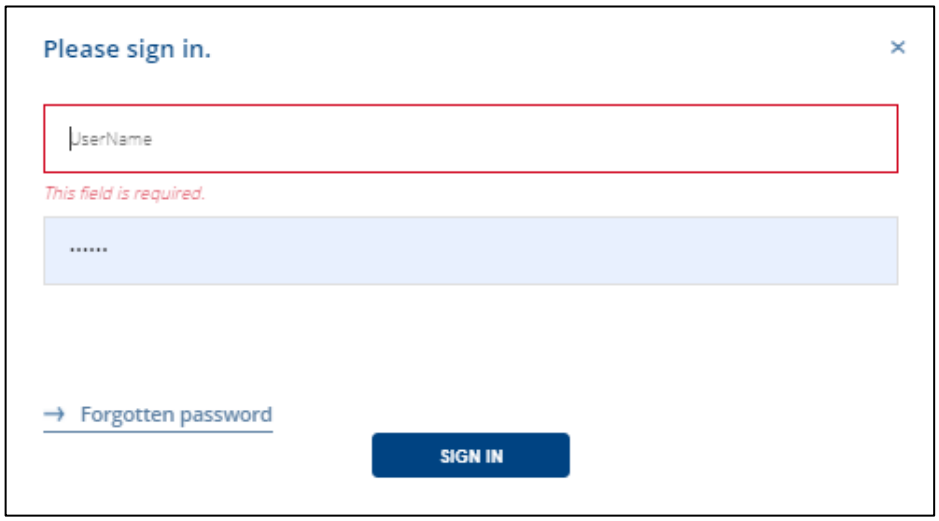


Figure 3 Pop-up window to log-in.

In addition to the open website, the Guest account gives access to

- Pending actions
- Vote tracking
- Statistics on review performance

4.2 REGISTER FOR A USER ACCOUNT

After having logged in with the Guest account, the user may register for a personalized user account. **Only persons who will write CMCs, review CMCs or pilot a comparison should request a user account. Accounts for TC Chair, RMO**

Secretary and WG CMC Chair are issued by the KCDB Office. The profiles as Writer, Reviewer or Pilot for a comparison can be included in the same account.

Please note that persons who formerly have previously piloted a comparison may already have been assigned a user account. You will notice this when requesting a new account by the massage "This e-mail address already exists. Please enter another valid e-mail address.". In this case you may recover your account using the action "Forgotten password".

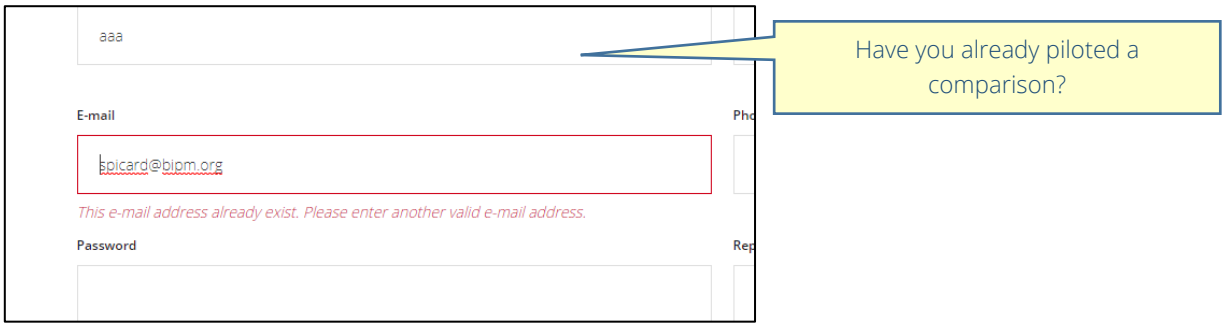


Figure 4 You may already have a user account.

Figure 5 Registration form to request a user account.[3]

[3] Information on the user is displayed on the open web when the person acts as comparison pilot. Information on the user is displayed to reviewers and TC Chairs on the restricted web within the CMC review process.

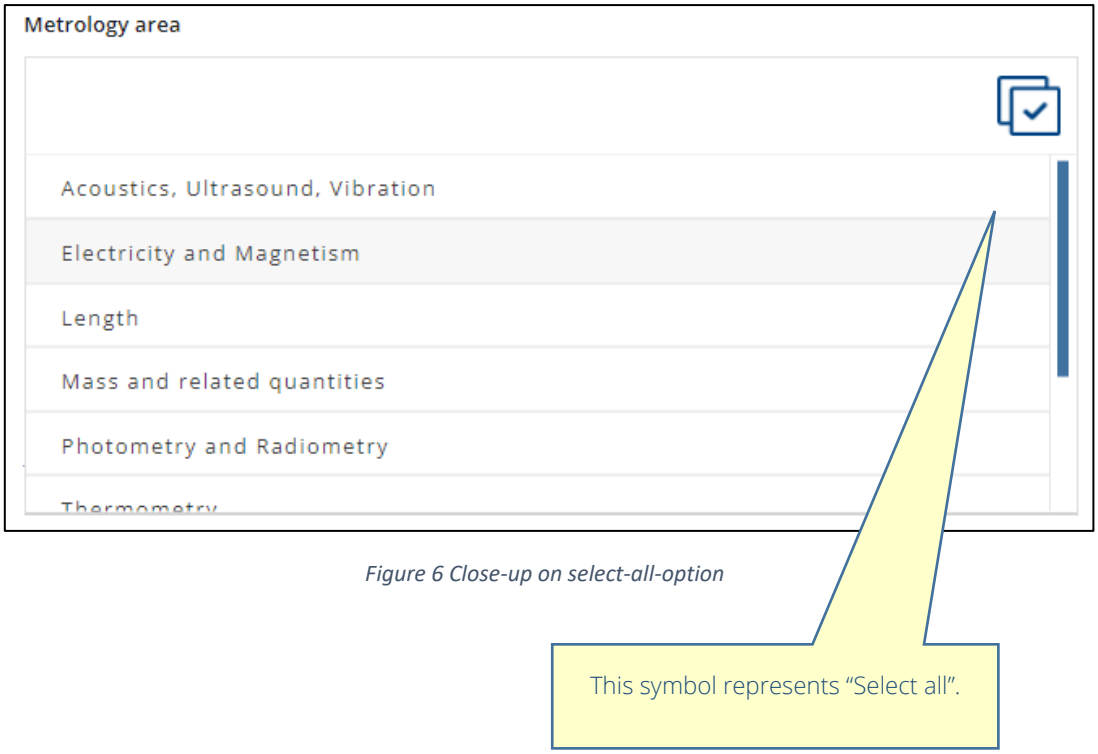


Figure 6 Close-up on select-all-option

Information on name, e-mail address, password, RMO[4], country[5], institute and profiles must be given. At least on metrology areas should be indicated, but several are accepted (see orange text below).

Passwords must contain at least 10 characters, including 1 capital letter, 1 number and a special character, allowed: ! & # @ % * < > $.

Associated with the metrology area is on or several fields of expertise which will filter the accessible data. **If an expertise is not indicated, no CMCs for that expertise will be displayed.** No other fields apart from those directly concerning the user should be indicated.

For Chemistry and Biology the expertise is defined by the Working Group concerned. It is here necessary to include expertise **"Not attributed"** which presently label any of the CMCs not yet classified and OAWG, IAWG,...[6]

Once the account has been approved by the TC Chair, any modification of metrology area and/or expertise must be requested from the TC Chair.

If the account includes more than one Metrology Area, the KCDB Office should be informed by e-mail by the user, the TC Chair concerned placed in copy.

[4] For international organizations the RMO involved in the review process should be indicated.
[5] For international organizations, the country is indicated as the organization acronym and name.
[6] Users wishing to access CMCs in GAWG or EAWG only do not need to indicate "Not Attributed".

The registered **user account** is personal to the extent that the registered e-mail is the account identifier. Nevertheless, the registered user always represents the institute.

In addition to the open website, the registered account gives access to

- Pending actions
- Vote tracking
- Statistics on review performance
- Platform tools according to the profile

4.3 APPROVAL OF A USER ACCOUNT

The submission to request a user account is addressed via an automatic e-mail notification to the associated TC-Chair within the RMO and the KCDB Office. In general, it is the TC Chair who approves, or rejects, the request.

4.4 UPDATE OF AN ALREADY REGISTERED ACCOUNT

When your account has been approved, you will see the account details as displayed in Figure 7. **The fields coloured in grey cannot be modified by the user – the TC Chair can carry out the update on request.**

4.5 NOTIFICATIONS ON USER ACCOUNTS

A set of automatically generated e-mail notification gives information on the progress of the registration.

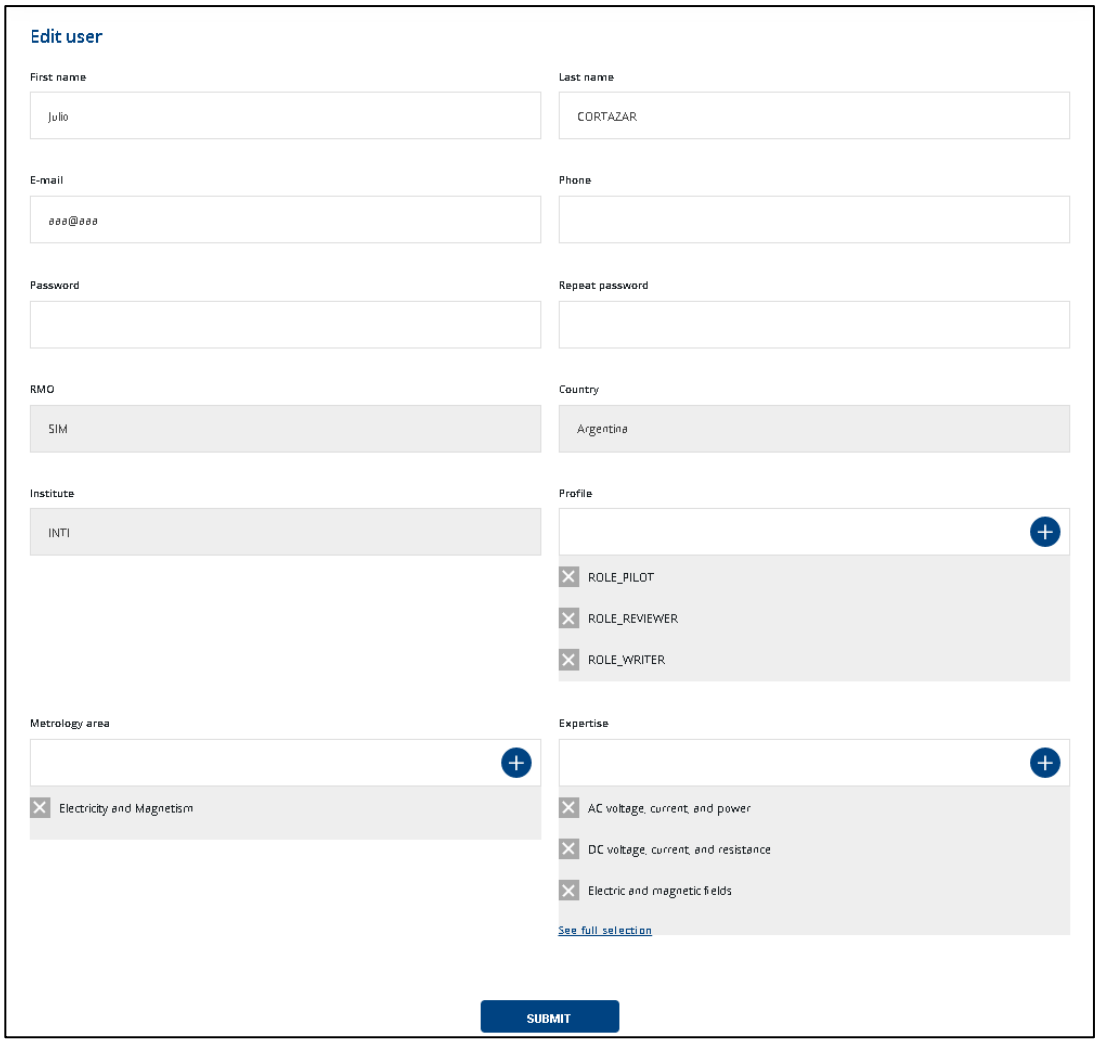


Figure 7 Pop-up window to log-in.

5 TRAINING PLATFORM

A **training platform** is available at https://kcdb-cbkt.bipm.org:8443/kcdb/ which is a copy of recent KCDB software. The database is not an exact copy of the official KCDB but allows for the users to test and carry out actions without any consequences on the official site. It can be distinguished from the official site by an additional yellow banner.

Figure 8 Home page for the TRAINING PLATFORM.

It is possible to register for a Writer, Reviewer or Pilot account on the **training platform**. No e-mail notifications are generated on the training platform. Therefore, you need to contact your TC Chair or the KCDB Office to get your training user account validated.

6 CMC Review – Short Overview

6.1 Intra-RMO review

The intra-RMO review has been designed to mirror the JCRB (also known as inter-RMO) review. The CMC may be revised an unlimited number of times. Set date limits are not programmed and are hence, in respect to the software, not fixed.

A CMC is drafted by the Writer and submitted to the TC Chair for intra-RMO review. The TC Chair may accept, or not accept, the CMC, or ask the writer for a revision. The TC Chair may also consult reviewers within the same RMO.

Writer, Reviewer and TC Chair may add comments to each CMC during the intra-RMO review process. When the CMC has been accepted by the RMO, it can be submitted for the JCRB review. The Writer or the TC Chair has the possibility to add additional documents for the submission, such as the mandatory QMS support documentation.

CMCs are treated one-by-one. To avoid 'drip-drip' effects, the acting TC-Chairs may agree on common dates for submission and review.

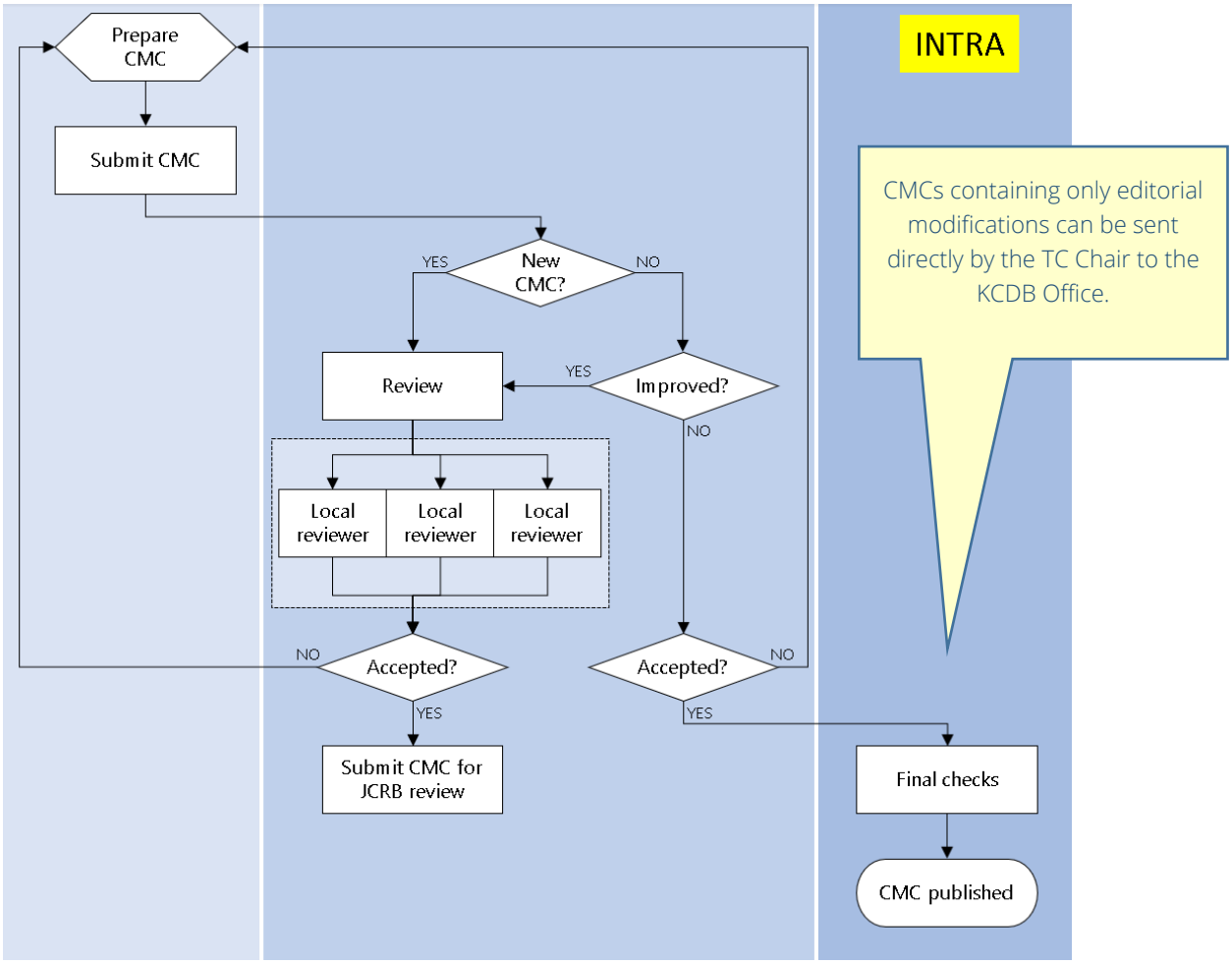


Figure 9 Flow diagram for intra-RMO review (extracted from CIPM MRA G-13).

6.2 NOTIFICATIONS ISSUED FOR THE INTRA-RMO REVIEW

A set of automatically generated e-mail notification gives information on the progress of the registration, see appendix 22.2.

6.3 JCRB REVIEW

The JCRB review follows the JCRB rules [CIPM MRA G-13], where time limits are fixed for the process. Contrary to the intra-RMO review, the CMC may not be revised an unlimited number of times – it can be revised once.

The CMCs submitted by the TC Chairs for JCRB review are indicated in

- Pending actions (available to all logged-in users)
- JCRB request to review (available to the TC Chairs)

The TC Chair should first indicate the intention to review, or not to review a CMC. The TC Chair may then indicate the date for review.

The TC Chair may approve the CMC or ask the writer for revision. The TC Chair may also consult reviewers within his own RMO.

The reviewer and TC Chair may add comments to each CMC during the JCRB review process.

If the CMC is approved by all reviewing RMOs, it is automatically transmitted to the KCDB Office for publication and will not be submitted to a vote.

If at least one of the reviewing RMOs asks for a revision, the CMC is made available to the Writer for revision, as soon as all reviewing RMOs have indicated their standpoint, or at latest when the time limit for review has passed. The revised CMC is returned to the TC Chair of the originating RMO who will submit the CMC for vote. Unanimous approval will enable the KCDB Office to publish the CMC.

CMCs are treated one-by-one. To avoid 'drip-drip' effects, the acting TC-Chairs may agree on common dates for submission and review.

6.4 NOTIFICATIONS ISSUED FOR THE JCRB REVIEW

A set of automatically generated e-mail notification gives information on the progress of the registration, see appendix 22.2.

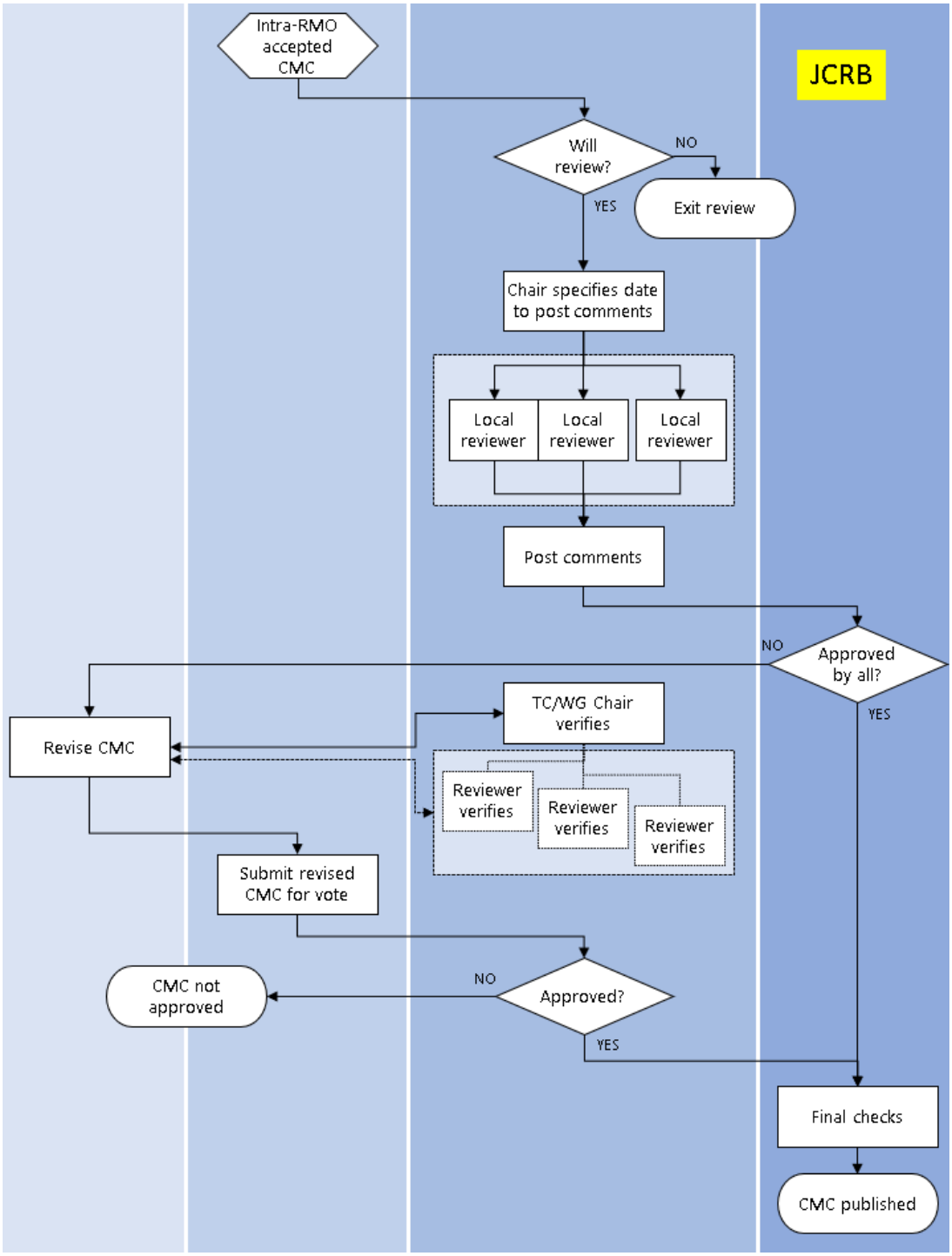


Figure 10 Flow diagram for JCRB (inter-RMO) review (extracted from CIPM MRA G-13).

7 CMC CODE AND STATUS

A CMC is composed of a set of information describing the capability or service. The contents depend on the metrology area. Some of the CMC information is mandatory, other information is optional. Part of the CMC information that is given when it is edited on the platform is intended only for the review and is not available on the open website once published.

7.1.1 KCDB ID

When available on the open web, a CMC is identified by its institute and associated service code.

In the database, and during the review process, the CMC is identified by the unique KCDB identifier that is attributed to all CMCs in the database. It is composed of:

RMO-**MetrologyArea**-**CountryCode**-**CMCNumber**-**VersionNumber**, where

RMO – Abbreviation of the Regional Metrology Organization

MetrologyArea – Abbreviation of the metrology area

CountryCode – 2-letter ISO country code (such as DE for Germany) or up to 4 letters international organizations (such as IAEA).

CMCNumber – an 8-digit alphanumerical-code where each digit spans from 0 to Z

VersionNumber – the alphanumerical version value from 1 to Z

The CMCNumber is automatically attributed by incrementing the latest number of CMC by +1 when a new CMC is added or updated. If a CMC is deleted, no other CMC will ever carry the same unique KCDB identifier. Deleted CMCs remain in the database.

7.1.2 CMC Review status

During the review process the status of the CMC is indicated in the dashboards available to the Writer, Reviewer and TC Chair.

Draft	status of CMC before having been submitted for intra-RMO review
Withdrawn	the Writer has withdrawn the CMC from the already initiated review.
Greyed out	the CMC has been submitted for intra-RMO review
Published	the CMC is approved and published in the KCDB for open access

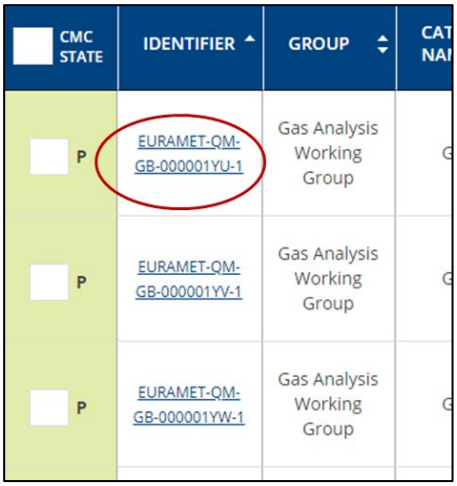
RMO: Submitted	the CMC has been submitted for intra-RMO review
RMO: Under review	a reviewer has accepted to review, alternatively the TC Chair has reviewed the CMC
RMO: Review completed	at least one selected reviewer has completed the review
RMO: Revision requested	the Writer has been requested to revise the CMC and has again access to edit the CMC contents
RMO: Revision completed	the CMC has, after revision, been resubmitted to the TC Chair
RMO: Accepted	the CMC has been accepted and can be submitted for JCRB review is appropriate
RMO: Turned down	the CMC submission has been definitely rejected by the TC Chair
Submitted to the JCRB	the CMC has been submitted by the TC Chair to the JCRB for review.
JCRB: Under review	a reviewer has accepted to review; alternatively, at least one of the TC Chairs has reviewed the CMC
JCRB: Revision requested	the Writer has been requested to revise the CMC and has regained access to edit the CMC contents
JCRB: Revision completed	the Writer has revised the CMC and re-submitted it to the TC Chair. The TC Chair may now submit the CMC for vote.
JCRB: Review completed	at least one selected reviewer has completed the review
JCRB: Waiting for VOTE	the revised CMC is accessible for voting
JCRB: Approved	all RMOs have approved the CMC
JCRB: Not approved	at least one of the TC Chairs has not approved the revised CMC.
JCRB: Waiting for publication	the CMC has been published by the KCDB Office and will appear online within 5 minutes
Submitted to the KCDB	the CMC has been submitted directly to the KCDB Office by the TC Chair

8 TOOLS IN COMMON

8.1.1 Read a CMC

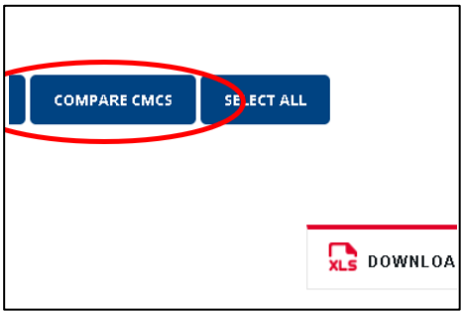
The logged-in user may read the CMCs by

1) clicking on the KCDB identifier (one-by-one)



or by

2) clicking on the blue button “COMPARE” (one or several)



or by

3) exporting the data to an Excel file.

8.1.2 Add a review comment

A review comment tool is accessible for the bottom of a CMC form.

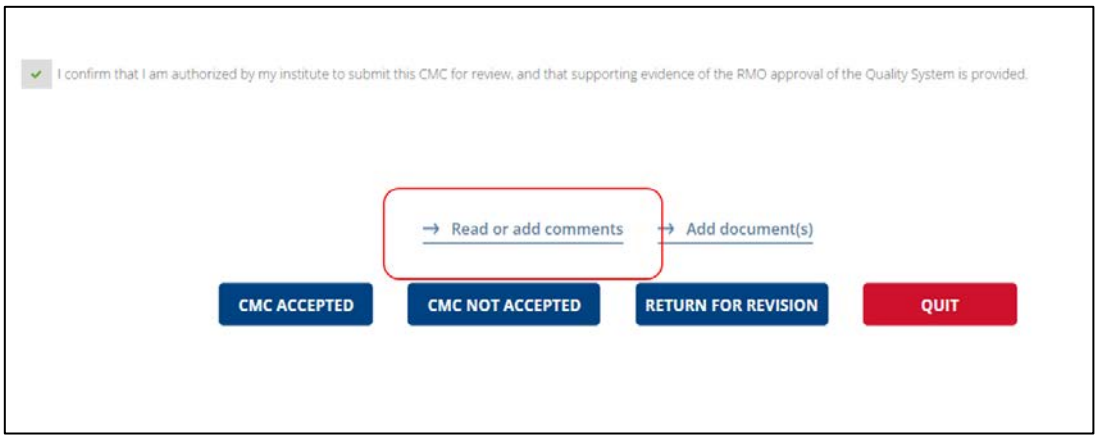


Figure 11 Place for access to comment tool (TC Chair example)

Via this tool, each added comment is identified by its nature - Technical, Editorial, Missing evidence or Other - date and who made the comment.

The Writer should indicate the nature of modification for modified CMCs.

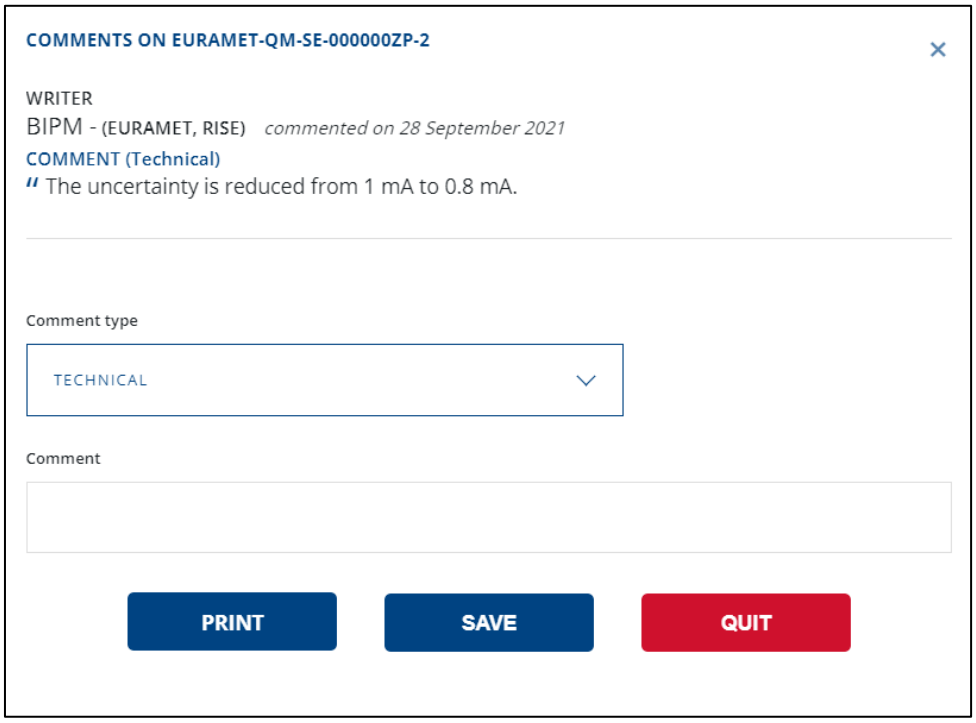


Figure 12 Example of comment given by the Writer to indicate a modification.

8.1.3 Read review comments

CMCs that contain at least one comment are indicated with a “balloon” as illustrated in Figure 13. The content included is displayed by clicking on the “balloon”.

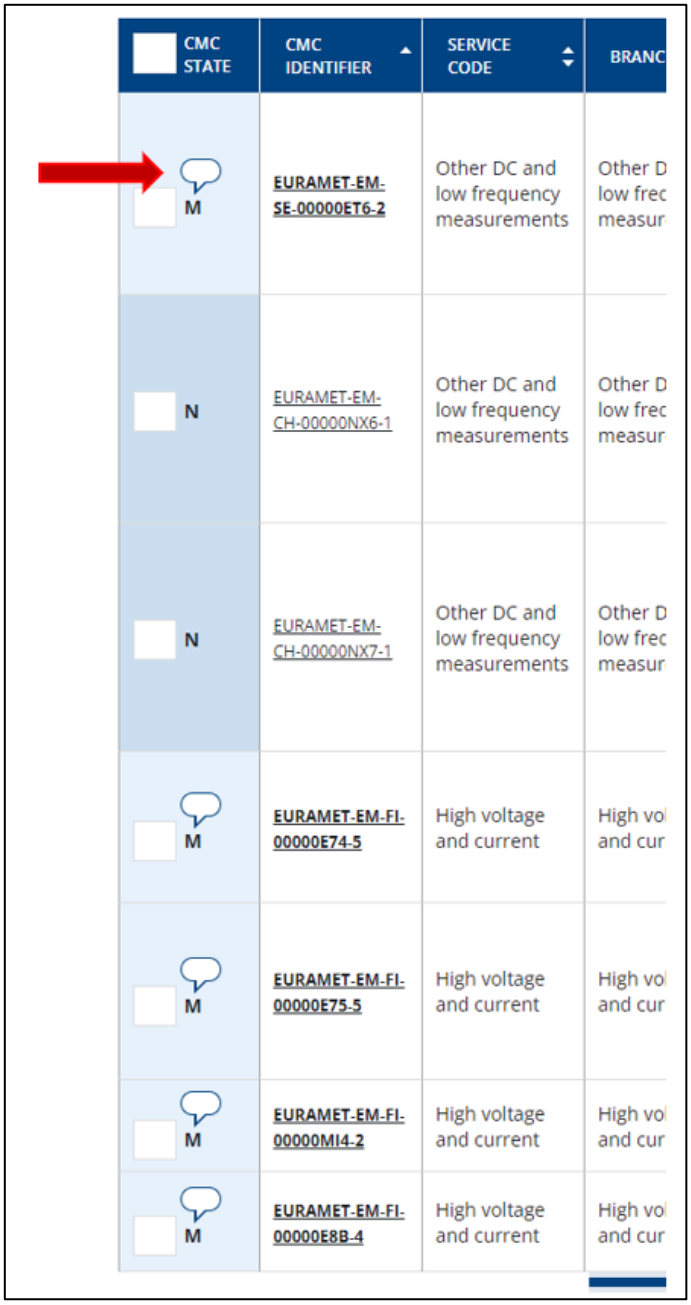
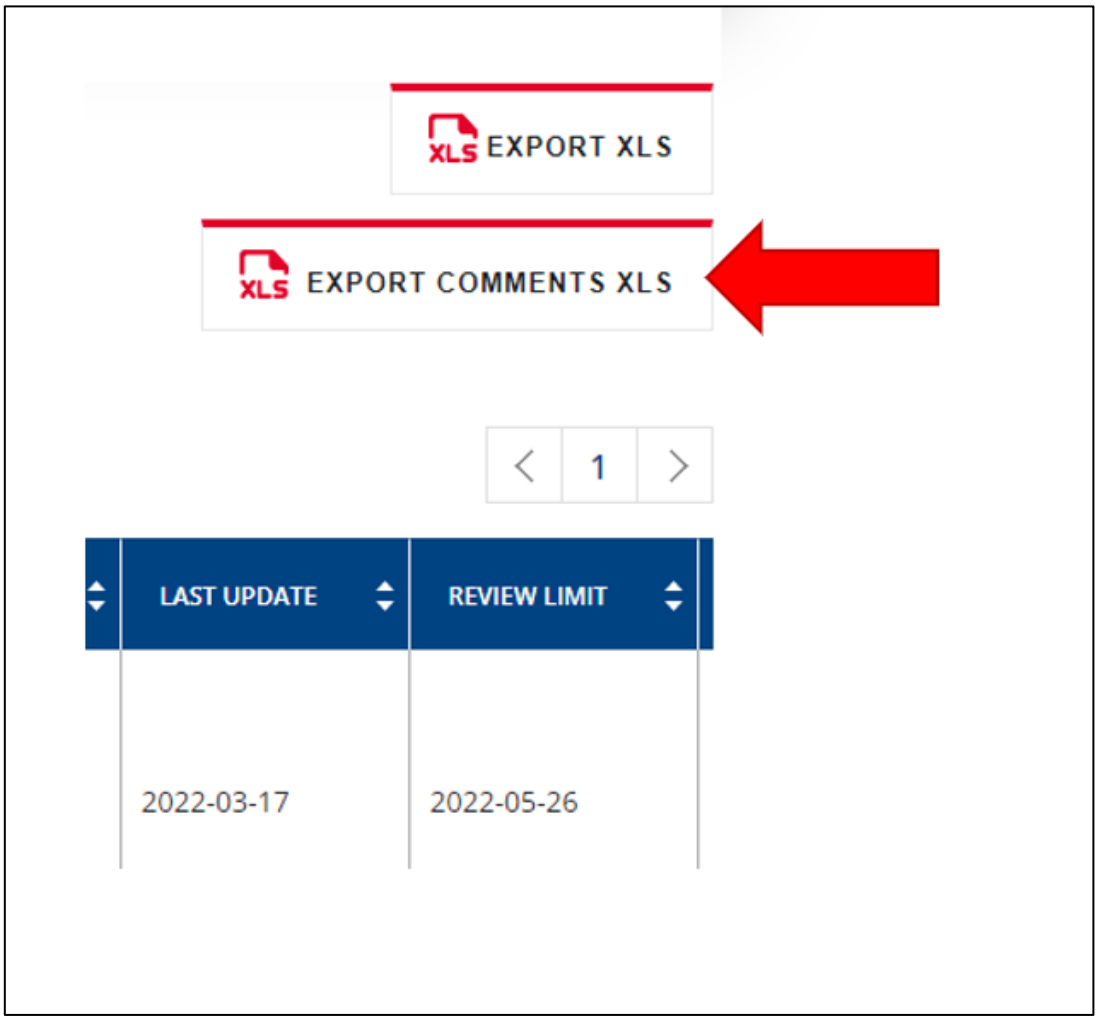


Figure 13 A “balloon” indicates that there are comments included. By clicking on the “balloon”, the contents is displayed. on the balloon"

It is possible to export up to 10 comments to an Excel file. To do this, select the CMCs concerned and click on the button “EXPORT COMMENTS XLS”. Each comment is displayed in a separate sheet, labelled by the CMC code.



9 WRITER ACTIONS

The Writer

- represents an institute that takes part in the CIPM MRA
- can create, update, delete, grey out[7], and request for the reinstatement of greyed out, CMCs
- can submit CMCs for review to the TC Chair in his field

The Writer has unique access to three different screens via the menu:

- Create CMC
- My CMC space
- Institute CMCs

The Writer has also access to the 3-point preparation and submission checklist.

A structured form is dedicated for the creation of a CMC; it contains the sections

- **Classification of service**
- **Measurand, Parameters**
- **Expanded uncertainty,** and
- **References**.

Fields attributed for mandatory information are marked by a **red star (*)**.

When filling in the form, the Writer must first indicate the metrology area. An already started form may be saved as a Draft, to be completed later. It is possible to check how the information may appear once published via the function PREVIEW. QUIT allows the CMC to be abandoned without saving. SUBMIT will save and submit the CMC immediately to the TC Chair for intra-RMO review.

When modifying a CMC that already has been published, the modifications should be described in the "Read or add comments" tool available in the lower part of the form.

'Tip-tools' are incorporated as additional guidance.

The available actions for the Writer are listed below

[7] Temporarily withdraw.

A set of automatically generated e-mail notification gives information on the progress of the review, see appendix 22.2.

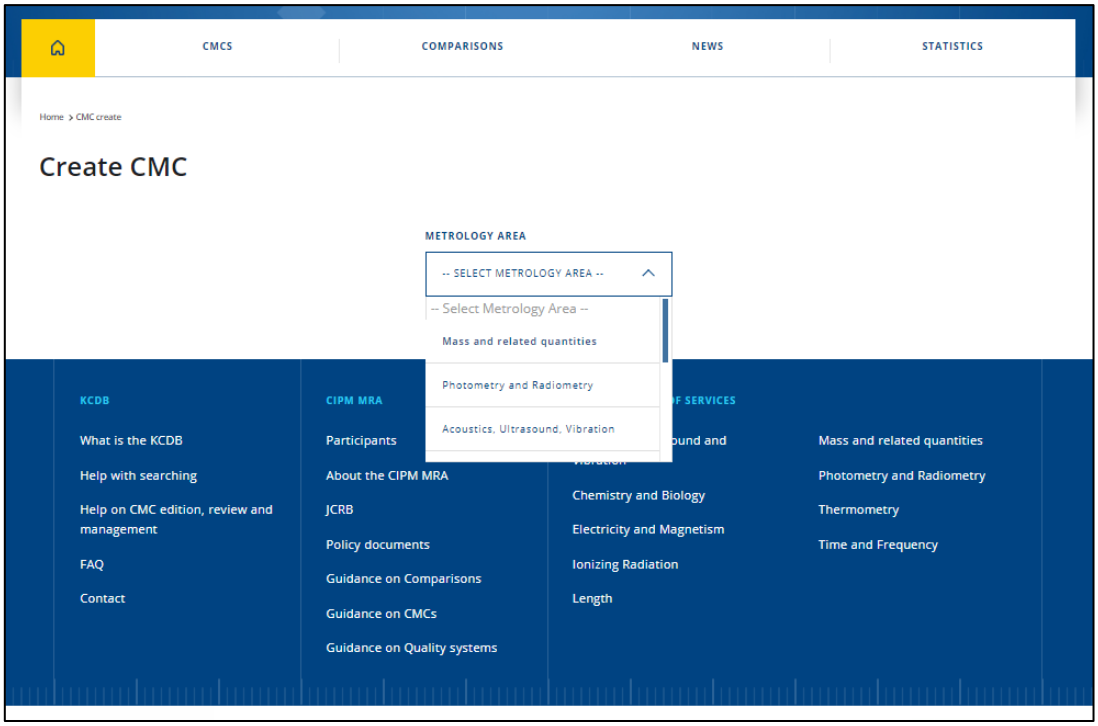


Figure 14 Chose the metrology area before drafting the CMC.

9.1 My CMC Space

The **My CMC space** gives access to a dashboard with the CMCs that have been drafted by the user. At the beginning of KCDB 2.0, this space will be empty, as none of the already published CMCs are associated with the Writer.

A CMC that has been drafted but not yet submitted to the TC Chair is only available to the Writer and has the status “Draft”.

The Writer has access to a set of filters, placed to the left of the dashboard.

The condition of the CMC is indicated by a combination of colour-and-letter, where

N – New M – Modified G – Greyed out P – Published

The actions on the CMC can be triggered by

- using the blue buttons displayed above the dashboard
- the actions available in the column listed to the far right of the table. These actions allow to update, duplicate or ask for the reinstatement of a greyed-out CMC.

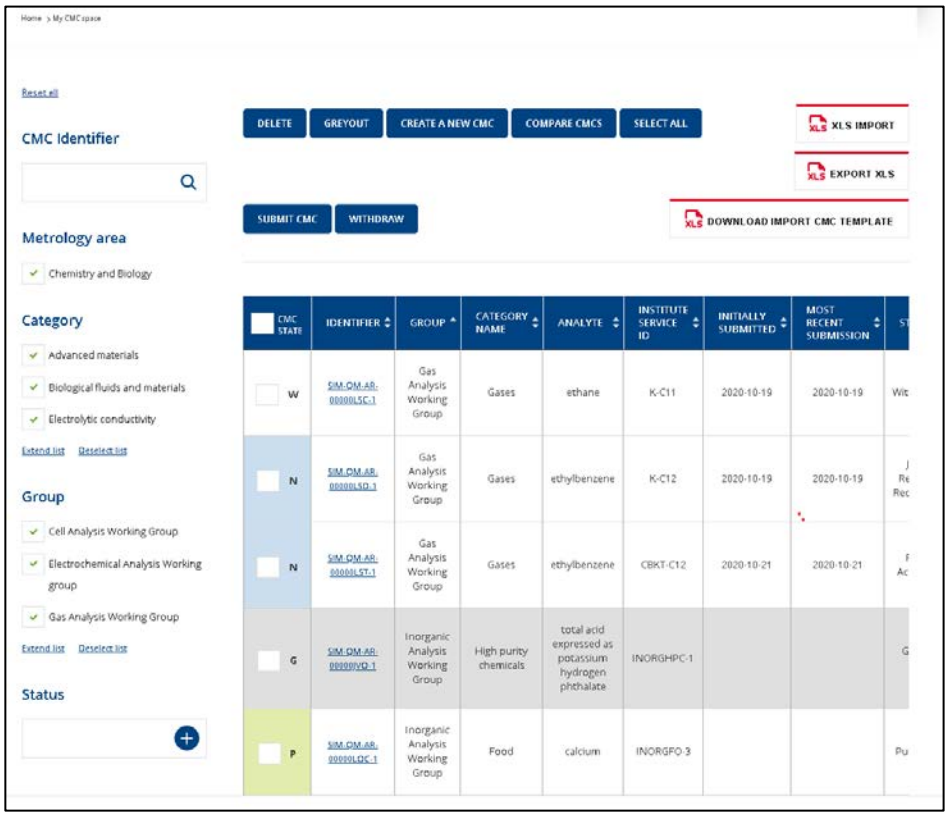


Figure 15 My CMC space (example for Chemistry and Biology

9.2 INSTITUTE CMCS

Institute CMCs provides almost the same facilities as the My CMCs space but gives access to a dashboard with all CMCs that have been published by the Writer's institute within the same expertise of the Writer. Furthermore, as soon as a CMC has been submitted for review or greyed out it will be indicated on this page. CMCs that are presently saved as a Draft by a Writer will not appear in the list.

9.3 READ A CMC

See Section 8.1.1 Read a CMC.

9.4 CREATE A NEW CMC

An empty CMC form will appear. When pressing SAVE it will be marked as new, "**N**", in the CMC table. The version number of the KCDB code will become "1", cf. 7.1.1.

9.5 MODIFY AN ALREADY PUBLISHED CMC

A CMC that is published can be modified.

The already published CMC to modify can be accessed via **Institute CMCs**, cf. 9.2.

If it has already be treated by the Writer, it will also appear in **My CMC Space**, cf 9.1.

By clicking in the **column far right**, the modify (update) function can be triggered. The CMC form will open and the modification can be made.

When modifying a CMC, the items that have been changed must be indicated using the "Read or add comments" tool available in the lower part of the form.

When saving the modified CMC it will be marked as "**M**" in the CMC table.

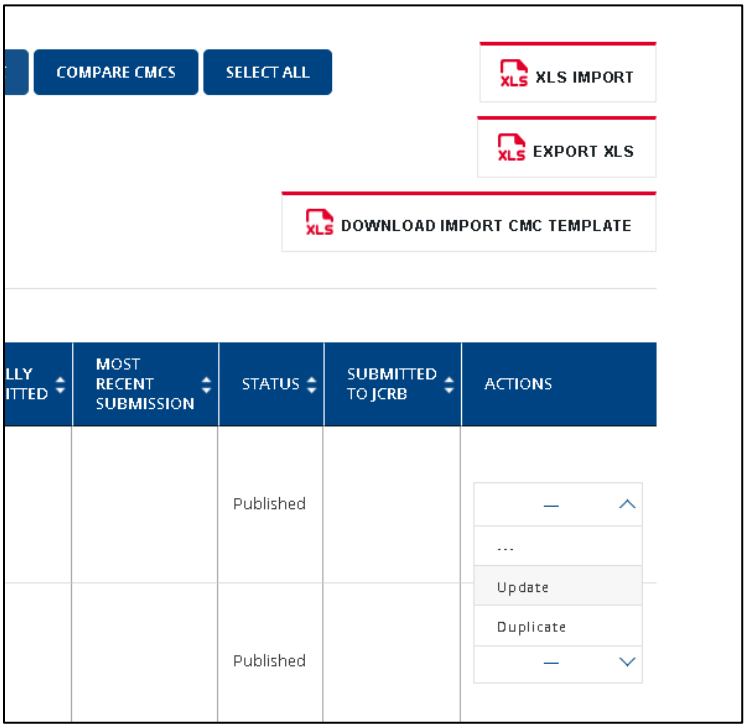


Figure 16 Option to duplicate the CMC or to create a modified version.

Figure 17 The contents of modifications should be indicated in "Read or add comments".

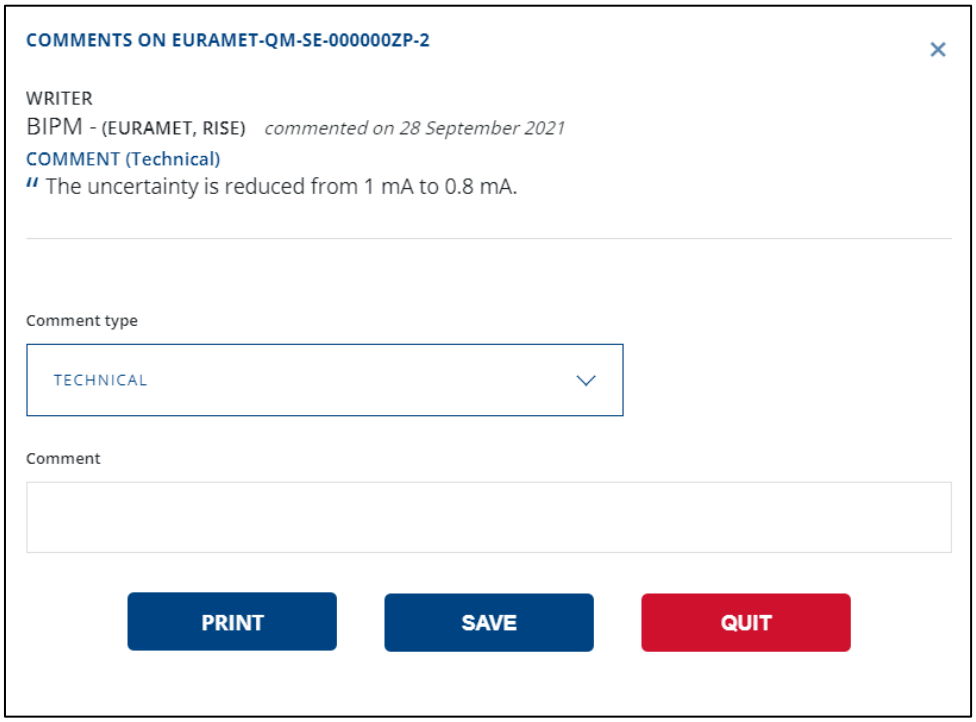


Figure 18 Example of comment given by the Writer to indicate a modification.

When an update is made, **the originating CMC remains published until the modified CMC has been approved and published**. The modified CMC will carry the same KCDB code but a new version number, incremented by +1, cf. 7.1.1.

When the Modified CMC has been published, it will be marked as "**P**". The former version of the CMC will no longer appear in the Writer screens.

9.6 DUPLICATE A CMC

A published CMC or a Draft CMC can be duplicated if a new CMC is to be created, having similar contents compared to the latter. When pressing “Duplicate” in the column far right a new CMC form will appear, containing the data of the original CMC but having a new KCDB code. When pressing SAVE, the CMC will appear as new, “**N**”, in the CMC table. The version number will hence be “1”.

9.7 SUBMIT A CMC

The CMC can be submitted directly from the form when this is open. This action will save the CMC and submit the CMC to the TC Chair.

The CMC can also be submitted from the dashboard, using one of the blue buttons.

When a CMC has been submitted to the TC Chair, it can no longer be modified by the Writer. It can be modified again by the Writer when the CMC has been made available for revision. The submitted CMC will be listed in the screen “Institute CMCs”, visible to all Writers having the same registered expertise.

9.7.1 Quality system

It is mandatory to confirm that existence of a valid quality system before submitting the CMC.

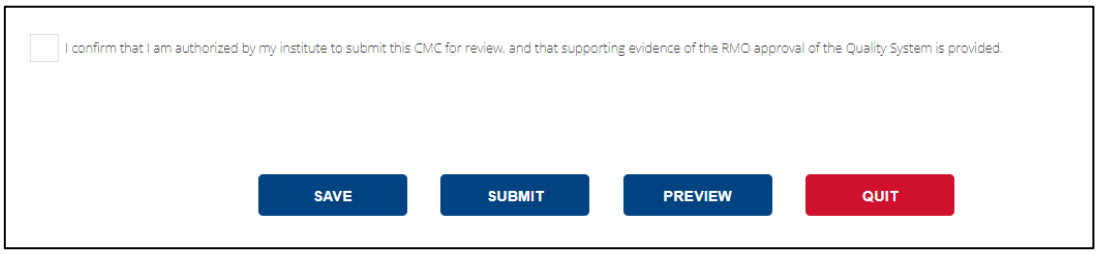


Figure 19 Tick box for confirming the support by a valid quality system displayed in the bottom of the CMC form.

If this tick box has been left out, it is still possible to make the confirmation at submission. It is also possible to confirm the quality system for several CMCs simultaneously, see Figure 20.

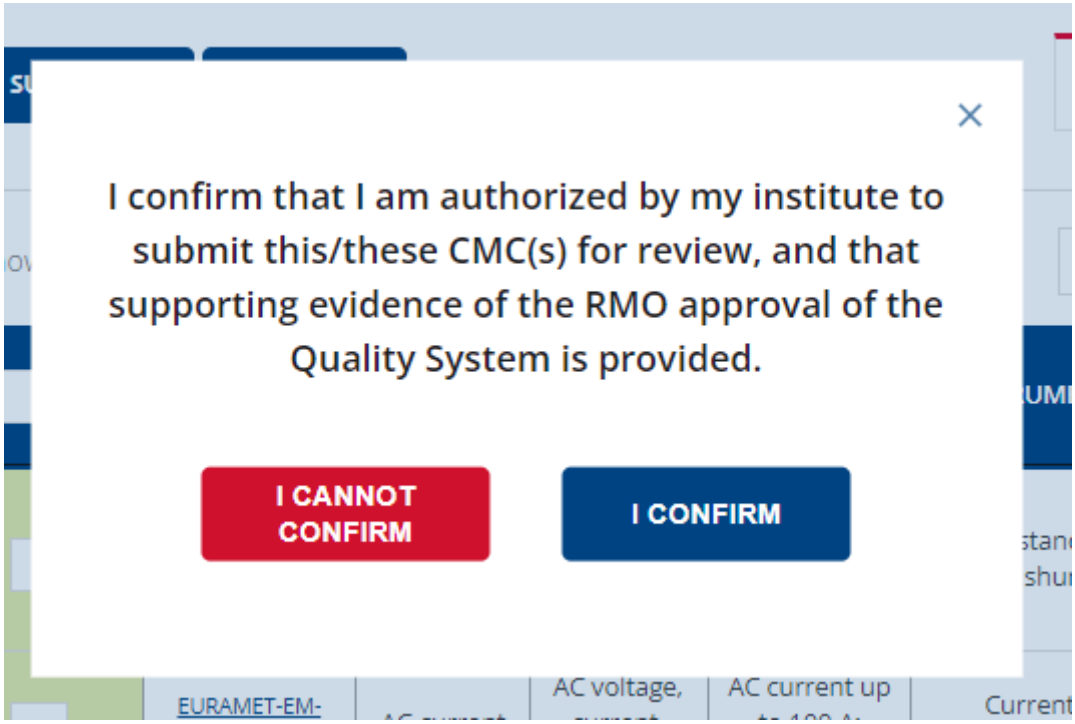


Figure 20 Pop-up when submitting a CMC where the tick box confirming a quality system has not been indicated.

9.7.2 Intra-RMO review

If the TC Chair indicates a request for revision, the Writer will again get access to the CMC in "My CMC space" to make the requested revision. The Writer may re-submit a revised CMC an unlimited number of times during the intra-RMO review.

The writes may submit using the i) blue **SUBMIT** button, ii) use the submit function in the column far right of the table, or iii) submit the CMC when the form is open.

9.7.3 JCRB review

Reviewing TC Chairs may also ask for a revision during the JCRB review. In this case the Writer will again get access to the CMC in "My CMC space" once the latest deadline for review has passed, or all reviewing RMOs have replied, to make the requested revision. The Writer may re-submit a revised CMC only once during the JCRB (inter-RMO) review. There is no programmed time-limit on submissions.

9.8 Revise a CMC

The CMC is edited for revision by selecting "Edit" in the column placed far right of the dashboard. It is possible to give additional information via the comment tool, see Section 8.1.2 Add a review comment.

Intra-RMO reviewed CMCs allows an illimited number of revisions.

JCRB reviewed CMCs allows only one revision. Any further exchange with the Reviewer must here be made via e-mail, chat or other ordinary communication tools.

9.9 Read review comments

See Section 8.1.3 Read review comments.

9.10 Delete a Draft

A CMC draft can be deleted. The draft CMC will then no longer be displayed to the user, nor in "My CMC space". As soon as a CMC has been submitted, it is no longer possible to delete the unpublished CMC.

9.11 Delete a Published CMC

A published CMC may be deleted by the action "Delete". The CMC will no longer be accessible to the Writer in any of the screens, nor will it appear via search on the web.

9.12 Withdraw a CMC

When a CMC has been submitted for review, it may happen that the submitting institute wishes to interrupt the review. Such CMC may be withdrawn from the review by the action "WITHDRAW". To withdraw a CMC, it must have been returned to the Writer for revision.

The CMC will be displayed in "My CMC space" with the status "Withdrawn" during 2 months. It is no longer possible to re-submit a displayed withdrawn CMC.

9.13 Grey out a CMC

A CMC may be greyed out by the action "Grey out" (see CIPM MRA G-13). This will remove public access to the CMC until the CMC has been reinstated. Greyed out CMCs are marked with **G**.

CMC STATE	IDENTIFIER	SERVICE CODE	BRANCH	QUANTITY	INSTRUMENT	INSTITUTE SERVICE ID	INITIALLY SUBMITTE
G	SIM-EM-AR-000006J4-1	AC current	AC voltage, current, and power	AC current up to 100 A: sources	AC current source, multifunction calibrator	INTI/102.02.03.05.10.003	

Figure 21 Display of a greyed-out CMC.

The CMCs that have been greyed out can be exported by filtering on Status “Greyed out” and selecting the CMCs concerned via the tick boxes (“SELECT ALL” export ALL CMCs).

When a CMC has been greyed out, it appears in “List of greyed-out CMCs”, available in the Statistics tab on the KCDB home page for logged-in users.

9.13.1 Grey out a CRM (Chemistry and Biology)

It may happen that only the CRM part should be greyed out for a valid CMC. In this case, the CMC and CRM should be greyed out, but the CMC part should remain published. To do so, the following actions should be carried out for each CRM to be greyed out:

1) DUPLICATE the CMC **A** that contains the CRM to be greyed out. The new CMC (copy of A) is here called **B**.

2) Edit the form of **B** and delete the CRM data in **B** (but keep the CMC data).

3) Add a comment in **B** via "Read or add comments", write that the CRM is greyed out and indicate the CMC ID of **A** (RMO-QM-COUNTRY-000...). This information will only appear internally, but not to the users on the open web.

4) SAVE the CMC **B**.

5) SUBMIT the newly duplicated CMC **B** to the TC Chair. This CMC should not require a JCRB review but can be submitted by the TC Chair directly to the KCDB Office for publication.

6) GREYOUT the original CMC **A**.

As soon as a CMC has been greyed out it is visible in the statistics to logged-in users.

9.14 Reinstate a greyed-out CMC

An already greyed-out CMC may be reinstated by the action available in the column on the far right.

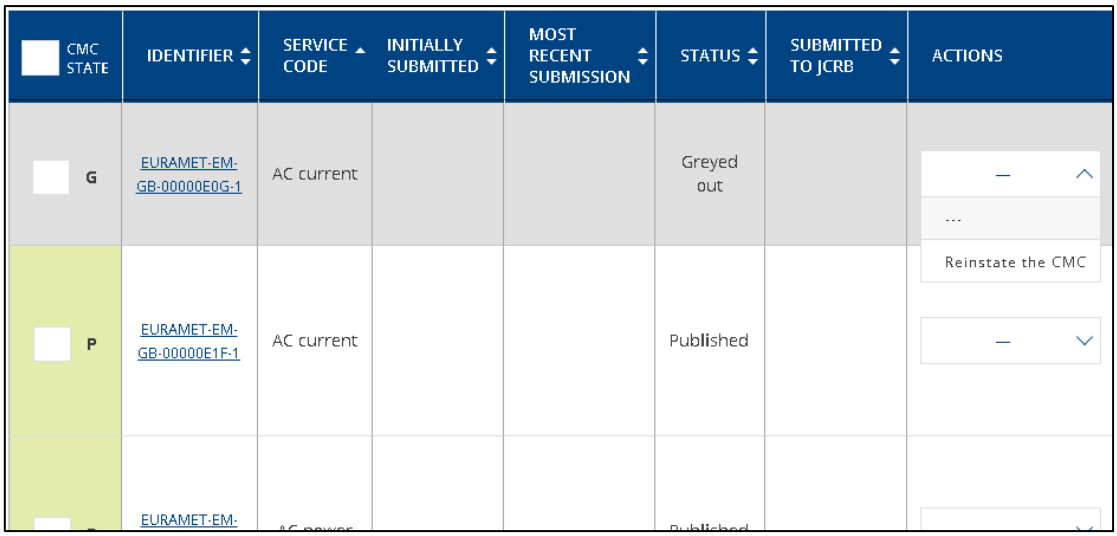


Figure 22 The column far right allows to reinstate a greyed-out CMC.

When the command “Reinstate the CMC” a draft version will appear **My CMC screen**.

Figure 23 A new version will be created when requesting reinstatement.

It is now possible to modify the contents if necessary. Describe the modifications using the “Read or add comments” tool available in the lower part of the form.

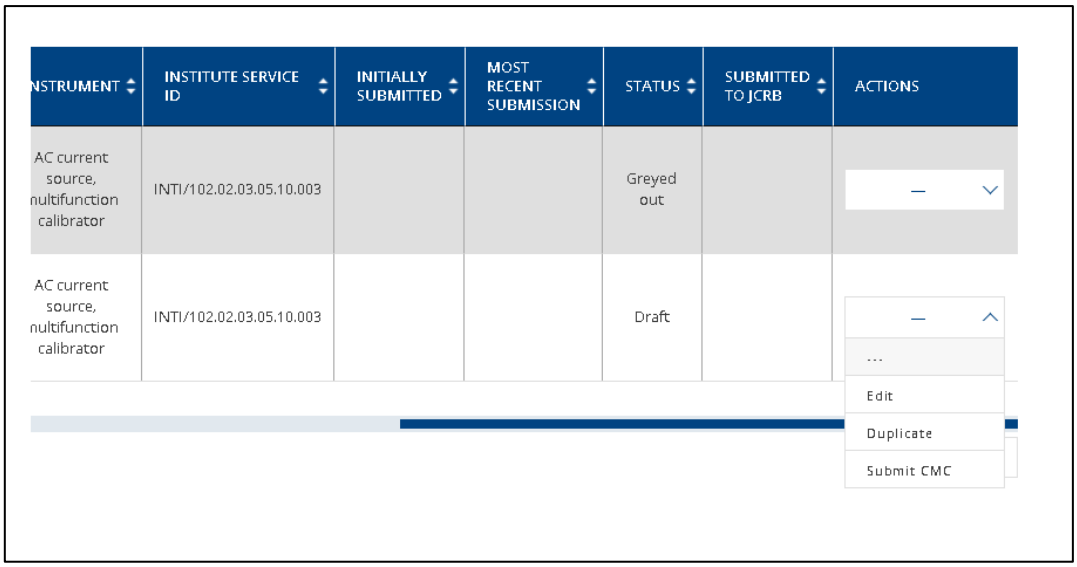


Figure 24 Edit the new version if necessary.

You may now submit the CMC to the TC Chair for reinstatement. The former version that is "all-grey" and its inclusion in the greyed-out statistics will remain until the reinstated CMC has been published.

9.14.1 Reinstate a greyed-out CRM (Chemistry and Biology)

Select the greyed-out CMC in the writer space and indicate "Submit for reinstatement".

When the reinstates CMC has been published, remember to delete the CMC containing only the CMC part.

9.15 Delete a greyed-out CMC

It is possible to delete a greyed-out CMC.

9.16 Export CMCs

It is possible to export selected CMCs to an Excel file. The exported data represents CMC-related information registered in the KCDB for the selected CMCs.

By using "SELECT ALL" all CMCs are exported.

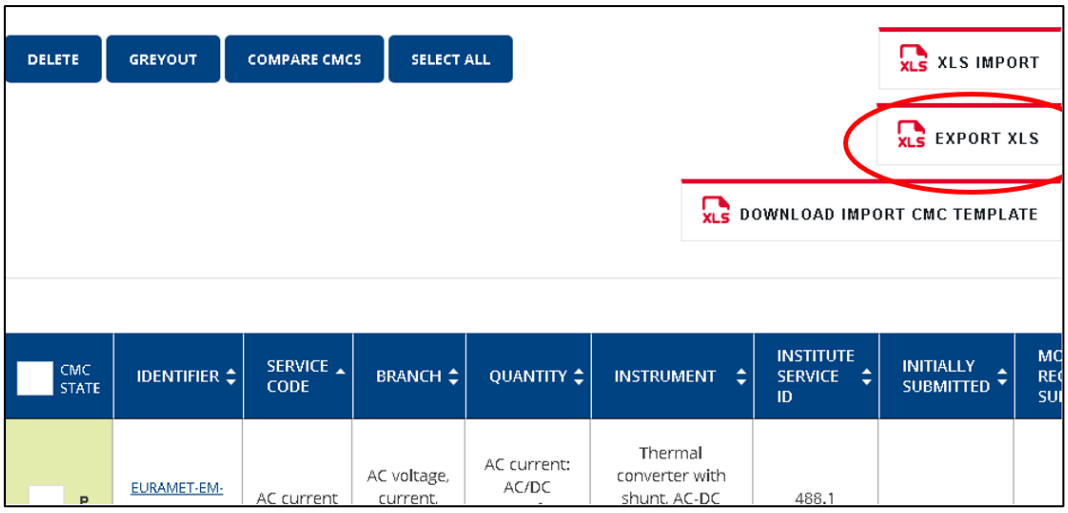


Figure 25 Export facility when logged in on the web platform.

The exported CMC data is contained in an Excel spread sheet names “Sheet1”.

Included uncertainty tables are exported to separate sheets. Each CMC having an uncertainty table will have a corresponding sheet, marked by the uncertainty table name. It may happen that several CMCs have the same uncertainty table, carrying the same *name*. The first appearance of the uncertainty table will carry the label *name* and contain the uncertainty data. The copies of the uncertainty table will carry the label *name(1)*, *name(2)* etc. These sheets are empty.

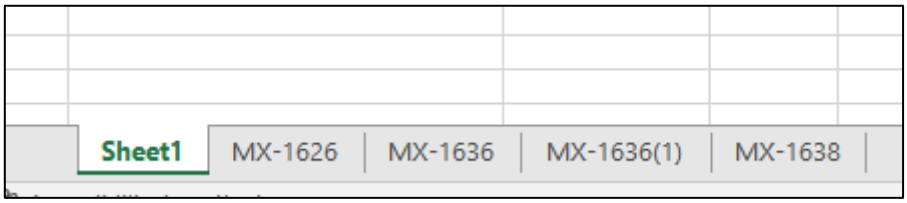


Figure 26 Example of labelling of Excel sheets for CMC data and associated uncertainty tables. in this case, MX-1626, MX-1636 and MX-1638 contain data, while MX-1636(1) is empty.

9.17 IMPORT CMCS

It is possible to import CMCs from an Excel file[8]. If for any reason the Writer wishes to import the CMCs using an Excel sheet, a template can be downloaded from the platform containing the necessary information.

However, the format of the contents is strict to match with the expected information hosted by the database. It is therefore recommended to use the web form when editing CMCs, at least for the first time.

[8] Excel 2010 or later version are supported.

An importation template is available for each domain. Another method to check the consistency of format is by exporting already edited or published CMCs having similar contents, where the exported file may serve as a basis for the importation file having the same format.

An exported file contains columns AQ, AR and AS giving information on the previous writer, approval date and CMC status. These columns must be erased before importation.

It is possible to import new and CMCs to be modified from a common sheet.

Figure 27 Import facility and access to an importation template when logged in on the web platform.

9.17.1 Some general hints before importing CMCs

- Make sure that the first row – the header – is an exact reproduction of what is contained in the template.
- It is possible that some of the units accepted at the initial implementation of KCDB 2.0 are no longer accepted. The accepted units are listed when using the CMC form as support. When the importation fails for this reason, this is clearly stated in an error message.
- Only numbers are accepted as CMC measurand, CRM and uncertainty lower and upper limit.
- When adding an uncertainty table, it must be appropriately labelled and completed.
- Do not import other CMCs that those that are new or have been modified.

9.17.2 Import new CMCs

When new CMCs are imported the cell *KCDB internal CMC identifier* must be **empty**. A unique KCDB code will be attributed when the CMC is imported.

	A	B	C	D	E	F
1	Type	KCDB internal CMC identifier	Metrology area	Branch	Service code	Sub service
2	PHYSICS		EM	EM/AC	6	1
3	PHYSICS		EM	EM/AC	6	2
4	PHYSICS		EM	EM/AC	6	2
5	PHYSICS		EM	EM/AC	6	2
6	PHYSICS		EM	EM/AC	6	2
7	PHYSICS		EM	EM/AC	6	2
8	PHYSICS		EM	EM/AC	6	2
9	PHYSICS		EM	EM/AC	6	2

Figure 28 Example of a part of the importation sheet for new CMCs, here given for Physics.

The newly imported CMCs will be listed in **My CMC Space**, marked by "**N**" and with the CMC status **Draft**.

9.17.3 Import modified CMCs

When a CMC is to be modified and then imported, the KCDB code for the presently published version should be listed. This code is listed for the already published version that is to be modified.

Only published CMCs can be subject for importation in this case.

The same KCDB code will be attributed when the CMC is imported, but with a version number incremented by **+1**.

	A	B	C	D	E	
1	Type	KCDB internal CMC identifier	Metrology area	Branch	Service code	Sub s
2	PHYSICS	EURAMET-EM-SE-00000EUS-1	EM	EM/AC	6	
3	PHYSICS	EURAMET-EM-SE-00000EV4-1	EM	EM/AC	6	
4	PHYSICS	EURAMET-EM-SE-00000EV5-2	EM	EM/AC	6	
5	PHYSICS	EURAMET-EM-SE-00000N8U-1	EM	EM/AC	6	
6	PHYSICS	EURAMET-EM-SE-00000N8V-3	EM	EM/AC	6	
7	PHYSICS	EURAMET-EM-SE-00000N8W-1	EM	EM/AC	6	
8	PHYSICS	EURAMET-EM-SE-00000N8X-1	EM	EM/AC	6	
9	PHYSICS	EURAMET-EM-SE-00000N8Y-1	EM	EM/AC	6	

Figure 29 Example of a part of the importation sheet for modified CMCs, here given for Physics.

If the already published CMCs have been drafted by a Writer different from the person importing the data a message will appear, see Figure 1Figure 30.

The newly imported CMCs will be listed in **My CMC Space**, marked by "**M**" and with the CMC status **Draft**.

CMCs that have been modified via importation should be completed by a description of the modification using the comment tool available in the bottom of the CMC form.

9.17.4 Import greyed out or cmcs to be deleted

It is not possible to import CMCs to be greyed out, reinstated, or deleted. These actions must be carried out in the Writer screen.

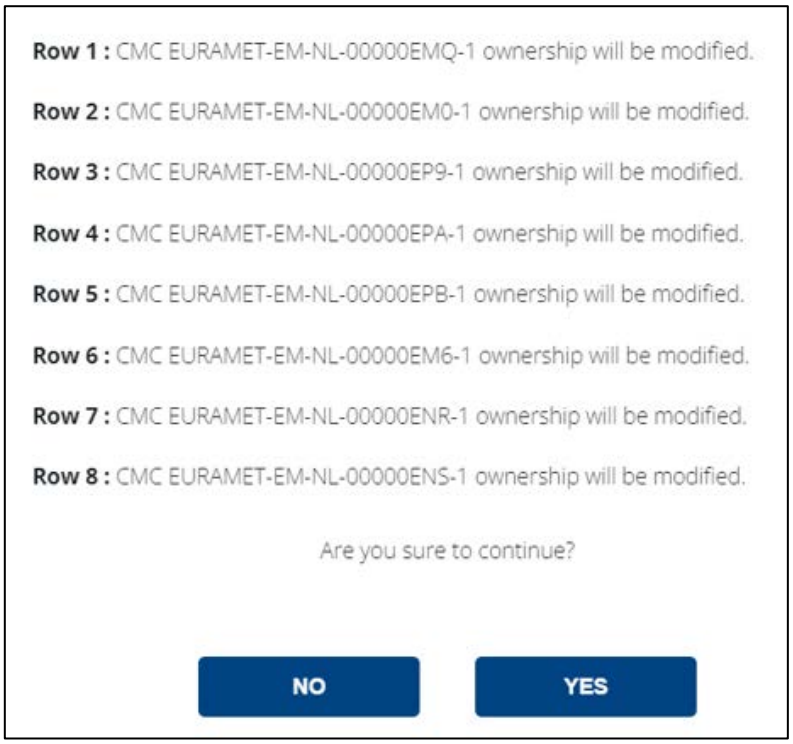


Figure 30 Message when importing CMCs originally registered for another user.

9.17.5 Import an uncertainty table

It is possible to import associated uncertainty tables when doing the importation of CMCs. The sheet containing the uncertainty table should be labelled by the same name as marked in the column AG, *Expanded uncertainty Table name*.

If the same uncertainty table is used for several CMCs in the same file, the corresponding Excel sheet should only appear once. For formatting imported uncertainty tables, cf. 10.1.19.

9.17.6 Importation and special characters

Symbols used for units and prefixes, such as Ω or µ must be represented by the expected code when importing data.

For example, Ω used as a unit must be represented by 03A9 HEX, while µ must be represented by 00B5 HEX. The choice of font is only an obligation for unts and prefixes, which have been pre-programmed.

10 CREATE A CMC

10.1 CREATE CMC - PHYSICS

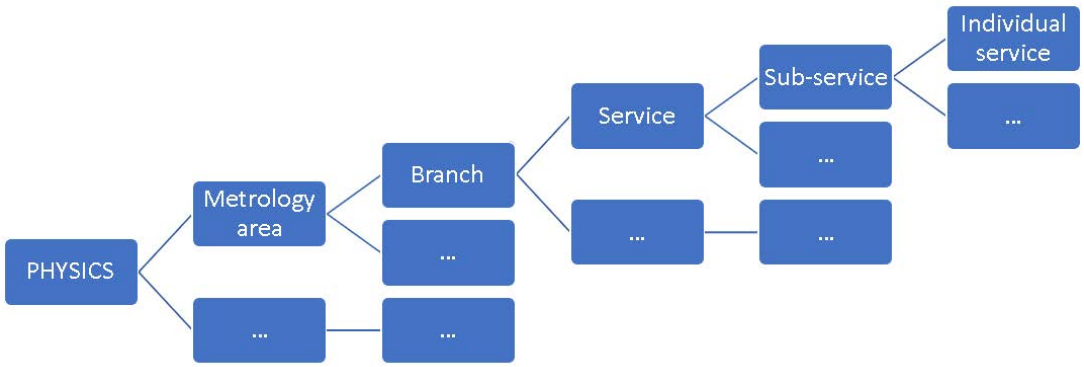


Figure 31 Scheme for classification of Service - Physics.

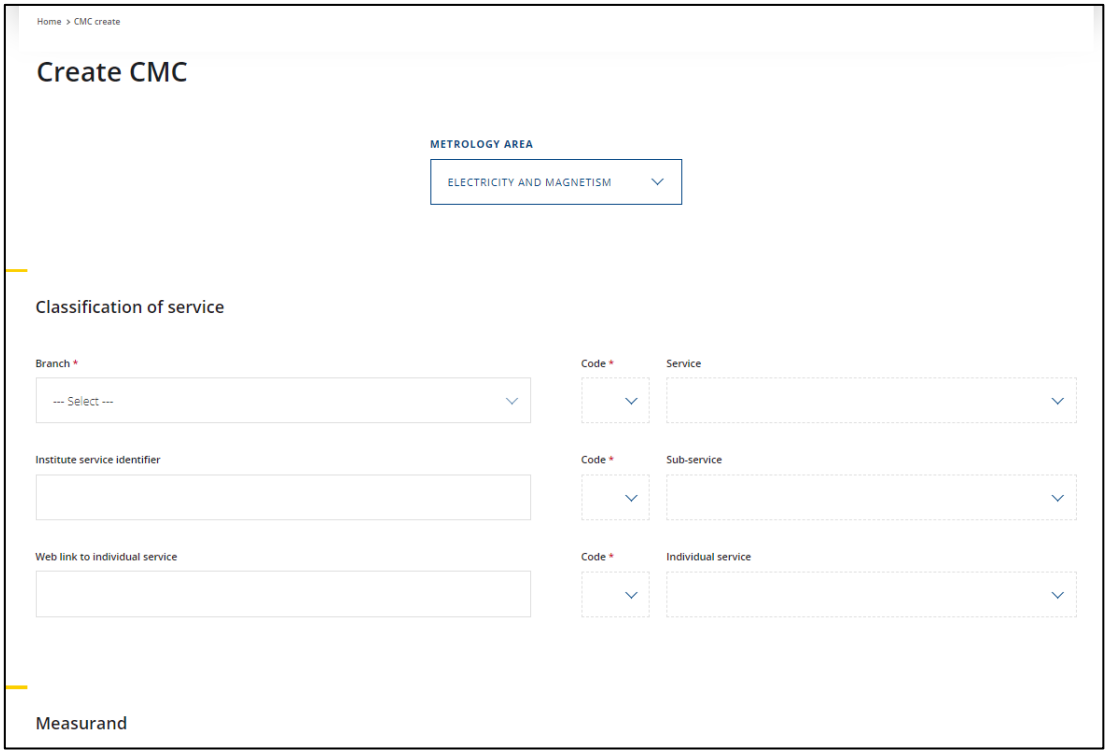


Figure 32 Form for classification of Service - Physics.

10.1.1 Branch (*)

Choose the Branch. For guidance on the structure, the specific service list established by each consultative committee is available in the bottom of the page.

10.1.2 Service, Sub-service and Individual service Codes (*)

This information can either be indicated by the dedicated number, or the explicit category. For guidance on the structure, the specific service list, established by each Consultative Committee, is available at the bottom of the page.

10.1.3 Institute service identifier

Each institute may, and are recommended to, attribute a specific identifier for their service, which is indicated here. It may be completed by a link.

10.1.4 Link to Institute service identifier

The specific link to the service (or the institute web page for services, or the web page of the institute, etc.) can be indicated. It is the responsibility of the originating institute to update the link if it changes.

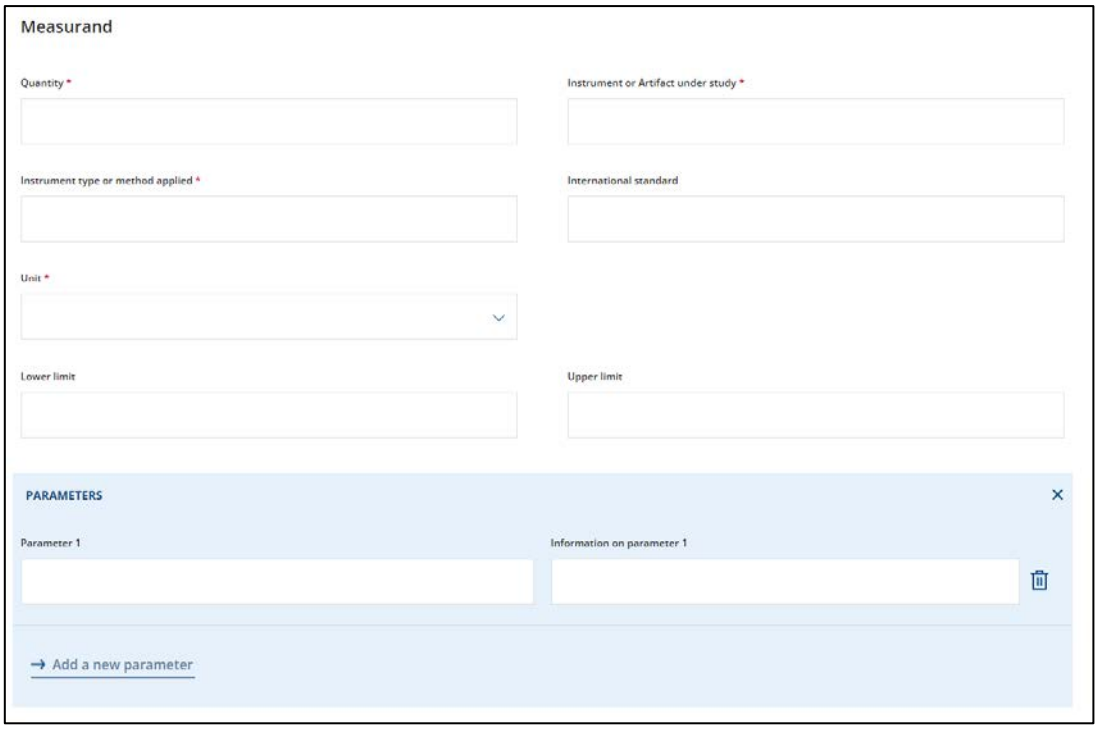


Figure 33 Measurand - Physics.

10.1.5 Quantity (*)

Quantity expressions already included in the database are suggested in a menu (type 3 letters first), but it is also possible to indicate a personalized expression when needed.

10.1.6 Instrument or artifact under study (*)

Indicate the instrument or artefact that can be calibrated.

10.1.7 Instrument type or method applied (*)

Indicate the instrument type or method that is applied.

10.1.8 International standard

Indicate if a specific international standard[9] or other recommendations[10] is followed, standards already included in the database are suggested in a menu[11], but it is also possible to indicate a new standard if it is missing from the list.

10.1.9 Unit (*)

The unit is chosen in a fixed drop-down menu. “(dimensionless)” may be chosen for measurands without units, such as ratios or indices and will create an empty space when displayed. The unit “dimension 1” may be chosen when the unit “1” is targeted. Please make sure that the chosen unit is in line with the quantity. If a unit is not available, the Writer is invited to contact the KCDB Office: (bipm.kcdb@bipm.org).

10.1.10 Lower limit

“Lower limit” is the lower limit of the measurand range. If the lower and upper limits are identical, they should be indicated the same in both fields. A point (.) is used as the decimal separator. The symbol “E” represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.1.11 Upper limit

“Upper limit” is the upper limit of the measurand range. If the lower and upper limits are identical, they should be indicated the same in both fields. A point (.) is used as the decimal separator. The symbol “E” represents

[9] Examples: IAEA, ISO, IEC standards or documents established by Consultative Committees.
[10] Example: References expressed by the Consultative Committees.
[11] Made by autocomplete: if the 3 first letters correspond to already recorded contents, these will be suggested.

exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.1.12 Parameters

As many as five sets of parameters may be indicated, if required, by opening the parameter window. The laboratory conditions, such as temperature or humidity, or specific measurement settings such as applied frequency or voltage, can be indicated.

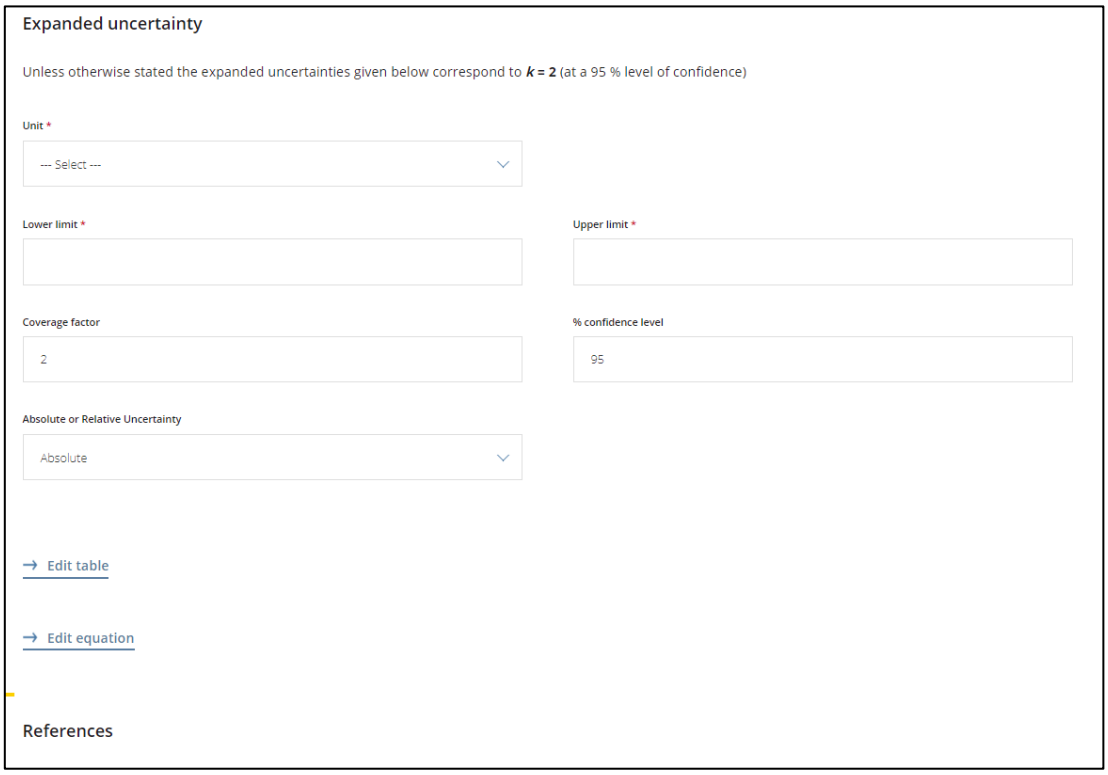


Figure 34 Expanded uncertainty - Physics.

10.1.13 (Uncertainty) Unit (*)

The uncertainty unit is chosen in a fixed drop-down menu. “(dimensionless)” may be chosen for measurands without units, such as ratios or indices and will create an empty space when displayed. The unit “dimension 1” may be chosen when the unit “1” is targeted. Please make sure that the chosen uncertainty unit is in line with the quantity and the indicated measurand unit. If a unit is not available, the Writer is invited to contact the KCDB Office: (bipm.kcdb@bipm.org).

10.1.14 (Uncertainty) Lower limit (*)

"Lower limit" represents the lower limit of the expanded uncertainty with a coverage factor of approximately 95 %. If the lower and upper limits are identical, they should be indicated the same in both "Lower limit" and "Upper limit" fields. A point (.) is used as the decimal separator. The symbol "E" represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.1.15 (Uncertainty) Upper limit (*)

"Upper limit" represents the upper limit of the expanded uncertainty with a coverage factor of approximately 95 %. If the lower and upper limits are identical, they should be indicated the same in both "Lower limit" and "Upper limit" fields. A point (.) is used as the decimal separator. The symbol "E" represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.1.16 Coverage factor (*)

The coverage factor k represents the term for which $k \times u$ has a coverage factor of 95 %, u representing the standard uncertainty of the measurand value. The default value is $k = 2$.

10.1.17 % confidence interval (*)

The default value of the coverage factor is 95 %, as stated in the CIPM MRA.

10.1.18 Absolute or Relative Uncertainty (*)

The absolute or relative nature of the stated uncertainty must be selected from the drop-down menu.

10.1.19 Edit table

When several services are covered by the same instrument or technique, they may be grouped into one single CMC with an associated uncertainty table.

Applications are for example

- measured AC voltage at different frequencies
- mass standards of a set
- a radionuclide measured using different techniques.

This grouping can then be indicated in a common table indicating the uncertainty for each case. This grouping facilitates, in general, the review of the CMCs and the overview of the services.

First indicate the unique name of the table under "Uncertainty table name".

The table is edited by first indicating the number or rows and columns (headers included). Each field is then completed.

Each cell should contain a symbol – indicate by a hyphen symbol (-)

In the table comment field, an indication of units (for example "*Uncertainties given in μV*") or other essential information can be given.

A table may also be imported from an Excel file. This file must contain only the uncertainty table and will populate the table including indicating the numbers of rows and columns. Each cell must contain a symbol – indicate empty cells by a hyphen symbol (-).[12]

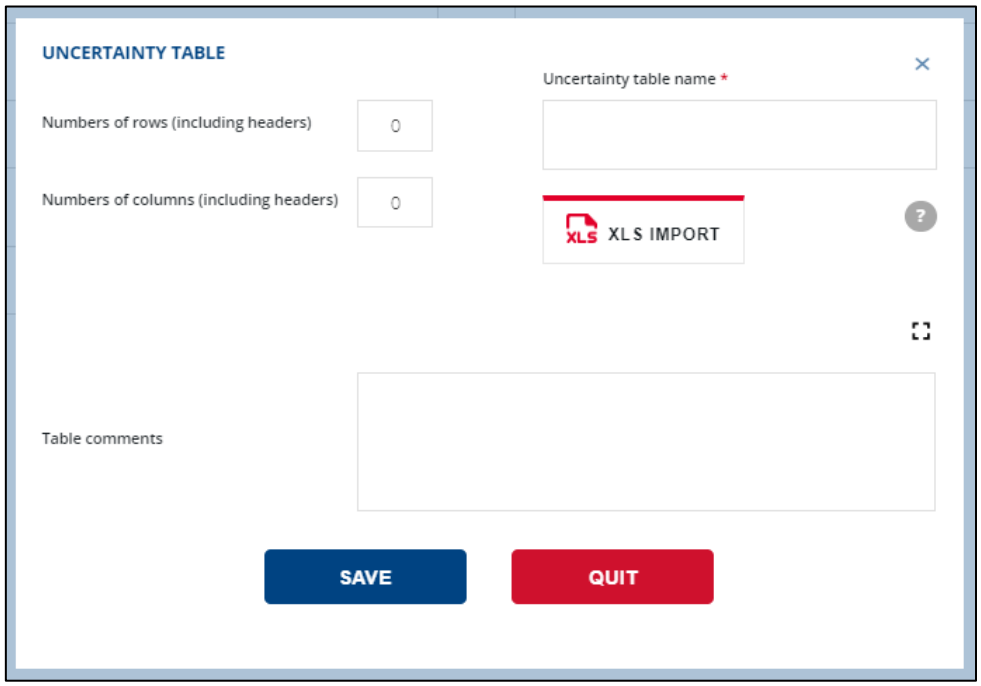


Figure 35 Table for uncertainties - Physics.

10.1.20 Edit an uncertainty equation

Uncertainties expressed as an equation are edited in this pop-up. A comment on the equation can be given, where notably the representation of different symbols may be indicated, for example "*L* representing length".

The format of quantity-based equations was adopted at the Consultative Committee Presidents' meeting in June 2018 [Report CIPM 2018]. Information

[12] Excel 2010 or later version is supported. If the table data is already listed in an Excel file of a previous version, it must be copy/pasted as "values" (not reproducing the original format).

on quantity-based equations is given in "Guide to converting numerical equations into quantity equations for KCDB applications".

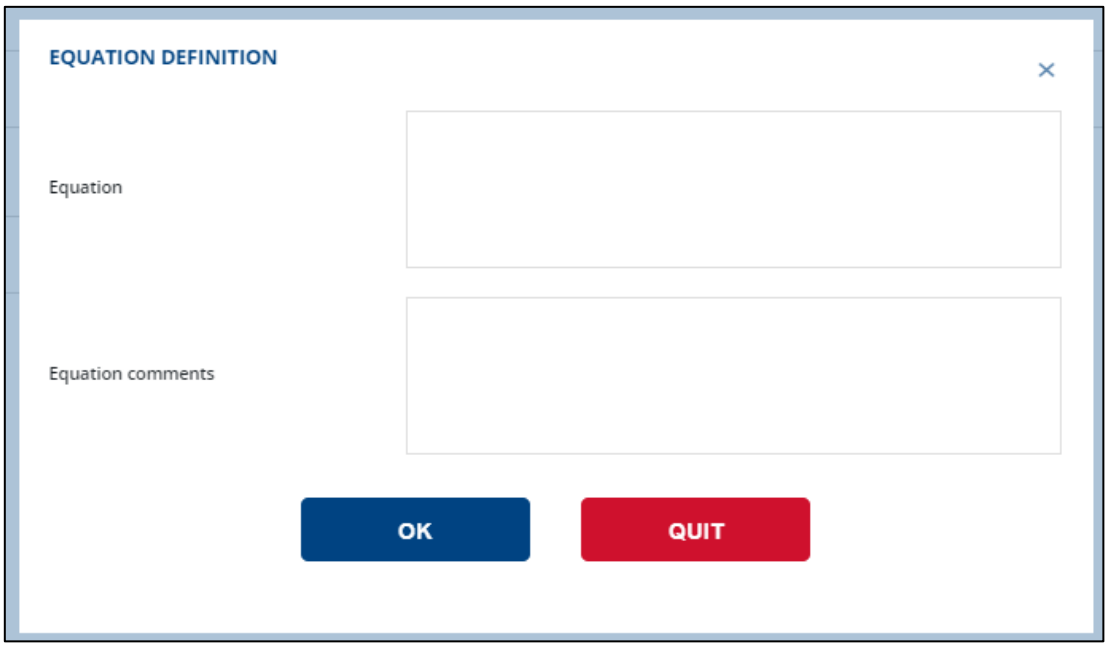


Figure 36 Field for equation - Physics.

10.1.21 Reference standard in calibration

The reference standard used for the calibration is indicated here.

10.1.22 Source of traceability (*)

The source of traceability refers to the institute to which measurement traceability is connected.

Indicate the institute by its acronym.

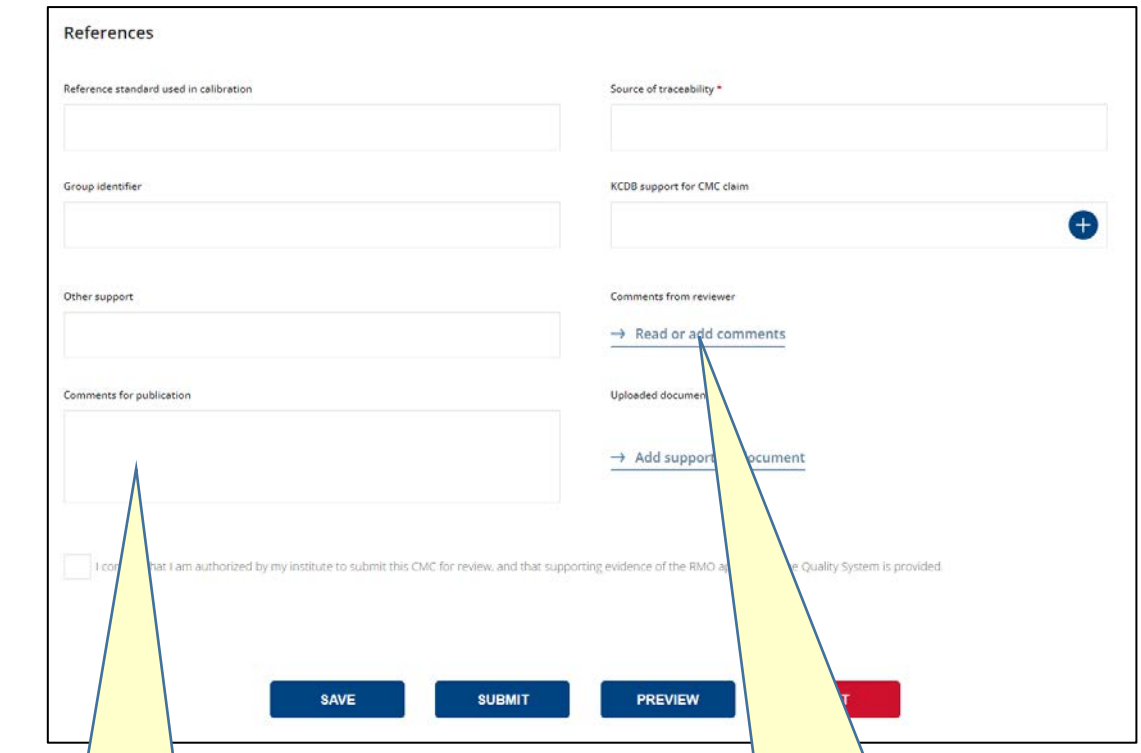


Figure 37 References - Physics.

10.1.23 Group identifier

The Group identifier is a "tag" that can be attributed to a set of CMC that are related. The identifier should be unique for the metrology area.

Examples:

- In electricity and magnetism, amplitude and phase of a measurand are declared as separate CMCs but are related.
- In chemistry and biology, several analytes may be detected simultaneously within the same chemical matrix. These are regarded as separate CMCs but are related.
- In ionizing radiation, several radionuclides may be detected simultaneously within the same matrix. These are regarded as separate CMCs but are related.

When the CMC is published on the open KCDB website, it will be indicated by a special "link" symbol

Clicking on this symbol will display the related CMCs.

10.1.24 KCDB support for CMC claim

You may add one or more references to comparisons published in the KCDB.

10.1.25 Other support

Indicate one or more support other than comparisons published in the KCDB.

10.1.26 Comments for publication

These comments will be published on the open website. **This field is not aimed for review comments.**

10.1.27 Read or add comments

The contents here are intended for the Writer, TC Chairs and Reviewer during the review process. Indicate possible modifications of the CMC here.

10.1.28 Uploaded documents

Please upload the documents to which you refer (other than KCDB comparisons) to give the reviewing experts access to the documents.

10.1.29 Supporting evidence for Quality System provided (*)

The Writer confirms that a validated Quality System exists before engaging the review procedure. The CMC cannot be submitted without having confirmed this fact.

10.2 CREATE CMC – IONIZING RADIATION

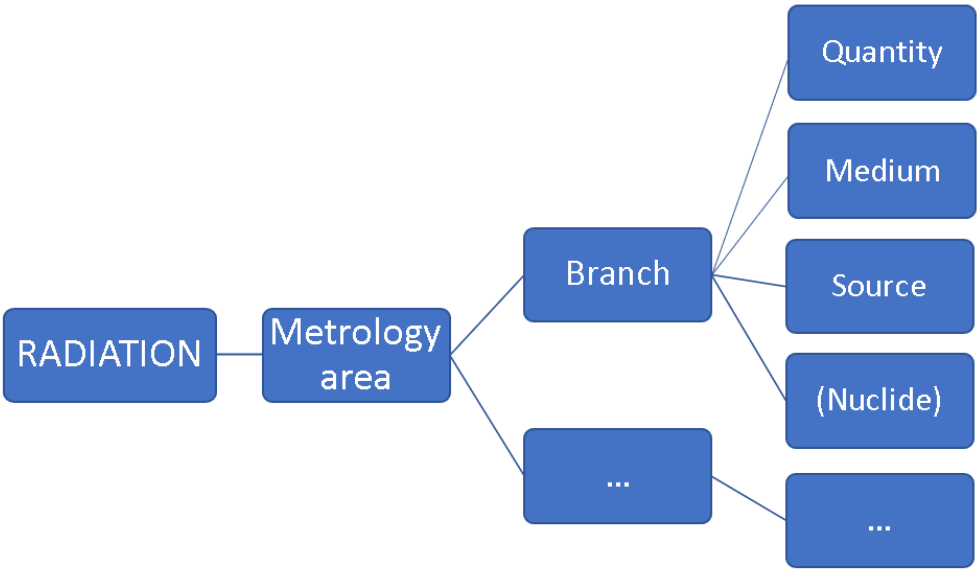


Figure 38 Scheme for classification of Service - ionizing radiation.

10.2.1 Branch (*)

Choose the Branch. For guidance on the structure, the specific service list established by each consultative committee is available in the bottom of the page.

10.2.2 Institute service identifier

Each institute may attribute a specific identifier for their service, which is indicated here. It may be completed by a link.

10.2.3 Link to Institute service identifier

The specific link to the service (or the institute web page for services, or the web page of the institute, etc.) can be indicated. Please note that it is the responsibility of the originating institute to update the link if it changes.

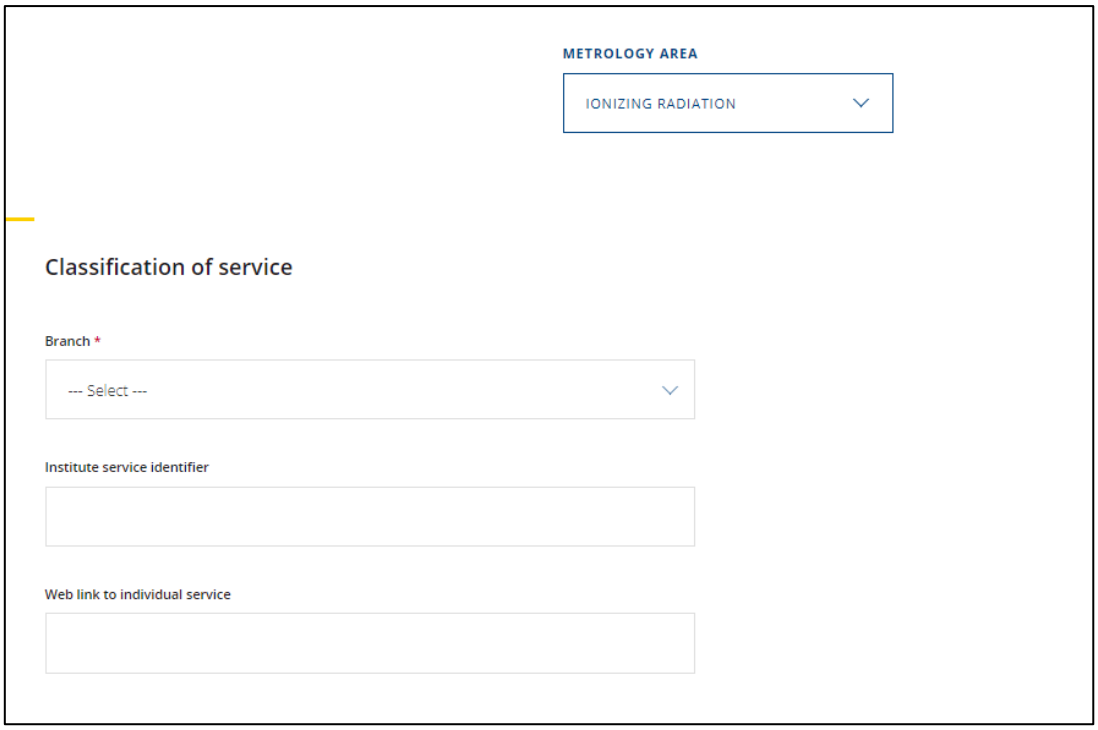


Figure 39 Form for classification of service – Ionizing radiation.

10.2.4 Quantity (*)

Select the quantity.

10.2.5 Instrument or artifact under study (*)

Indicate the instrument or artefact that can be calibrated.

10.2.6 Instrument type or method applied (*)

Indicate the instrument type or method that is applied.

10.2.7 International standard

Indicate if a specific international standard[13] or other recommendations[14] is followed, standards already included in the database are suggested in a menu[15], but it is also possible to indicate a new standard if it is missing from the list.

[13] Examples: IAEA, ISO, IEC standards or documents established by Consultative Committees.
[14] Example: References expressed by the Consultative Committees.
[15] Made by autocomplete: if the 3 first letters correspond to already recorded contents, these will be suggested.

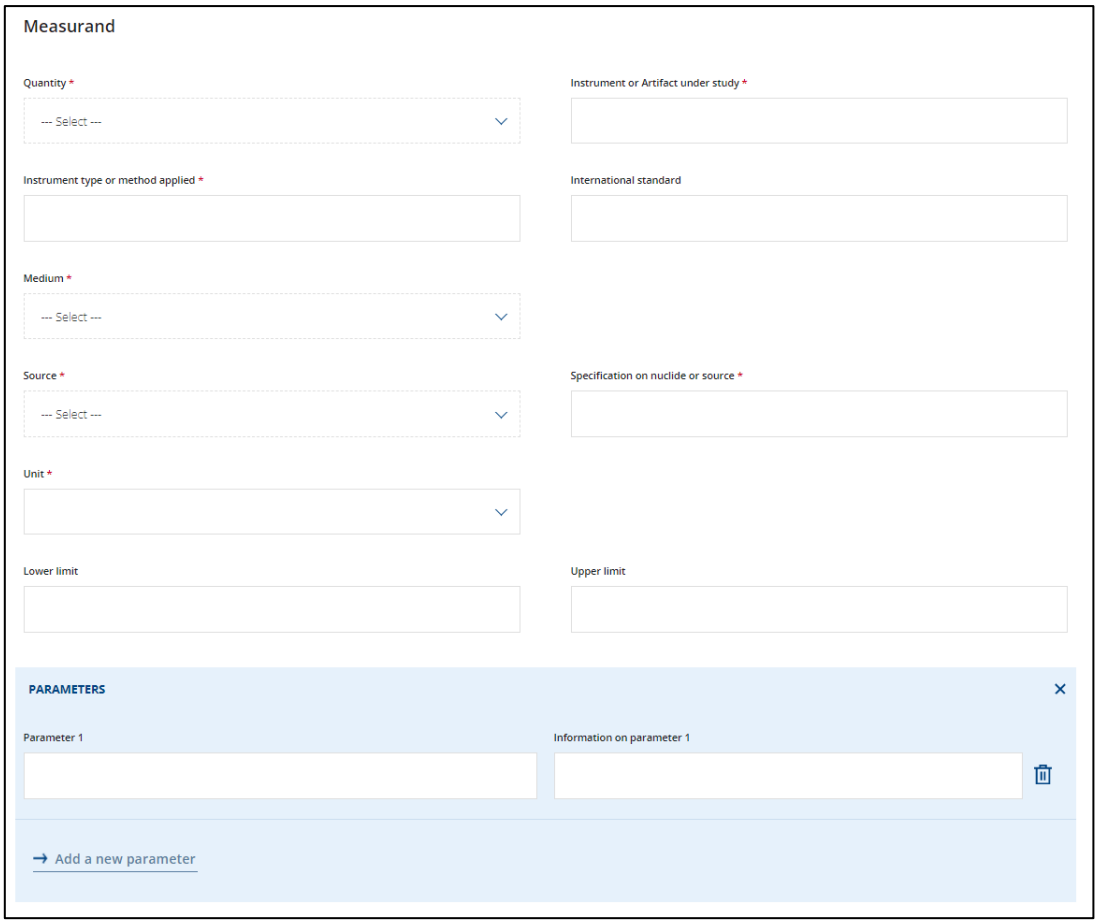


Figure 40 Measurand – Ionizing radiation.

10.2.8 Medium (*)

Indicate the medium.

10.2.9 Nuclide (*)

Indicate the nuclide.

10.2.10 Source (*)

Indicate the source.

The field "NUCLIDE" is visible only when the branch "Radioactivity" has been chosen.

10.2.11 Specification of nuclide or source (*)

If the branch concerns radioactivity, please indicate the nuclide specifications here.

If the branch concerns dosimetry or neutron measurements, please indicate the source specifications here.

10.2.12 Unit (*)

The unit is chosen in a fixed drop-down menu. “(dimensionless)” may be chosen for measurands without units, such as ratios or indices and will create an empty space when displayed. The unit “dimension 1” may be chosen when the unit “1” is targeted. Please make sure that the chosen unit is in line with the quantity. If a unit is not available, the Writer is invited to contact the KCDB Office: (bipm.kcdb@bipm.org).

10.2.13 Lower limit

“Lower limit” is the lower limit of the measurand range. If the lower and upper limits are identical, they should be indicated the same in both fields. A point (.) is used as the decimal separator. The symbol “E” represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.2.14 Upper limit

“Upper limit” is the upper limit of the measurand range. If the lower and upper limits are identical, they should be indicated the same in both fields. A point (.) is used as the decimal separator. The symbol “E” represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.2.15 Parameters

As many as five sets of parameters may be indicated, if required, by opening the parameter window. The laboratory conditions, such as temperature or humidity, or specific measurement settings such as applied frequency or voltage, can be indicated.

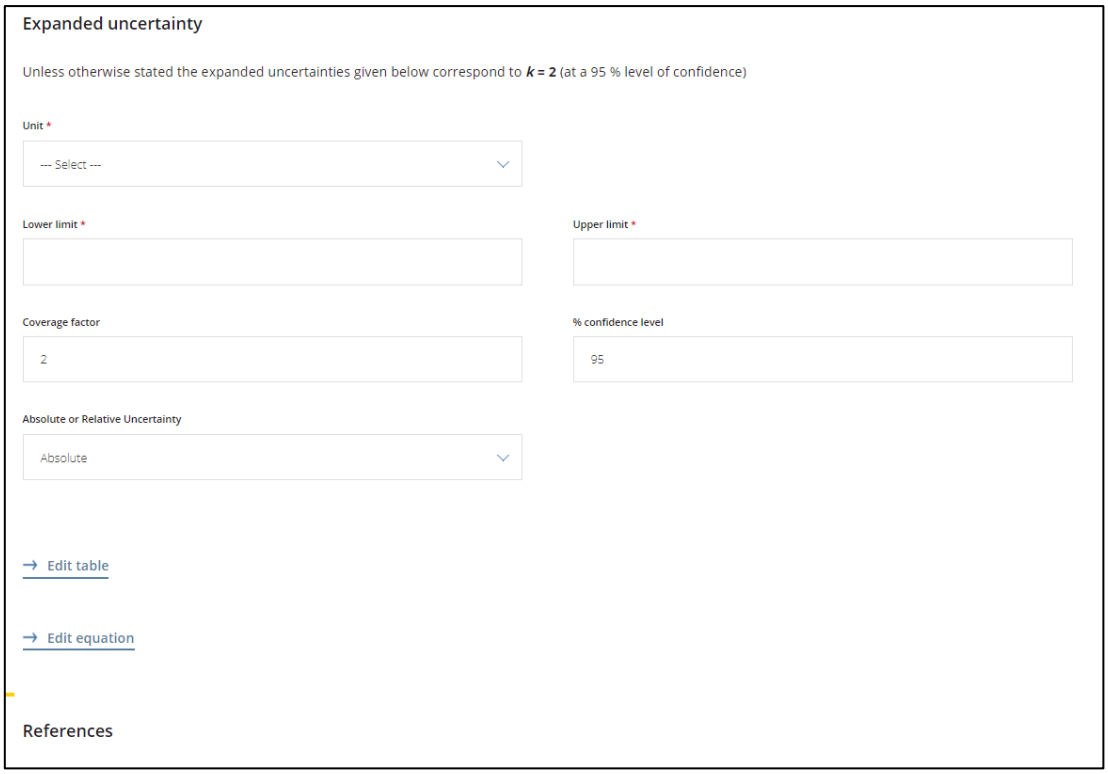


Figure 41 Expanded uncertainty - Ionizing radiation.

10.2.16 (Uncertainty) Unit (*)

The uncertainty unit is chosen in a fixed drop-down menu. "(dimensionless)" may be chosen for measurands without units, such as ratios or indices and will create an empty space when displayed. The unit "dimension 1" may be chosen when the unit "1" is targeted. Please make sure that the chosen uncertainty unit is in line with the quantity and the indicated measurand unit. If a unit is not available, the Writer is invited to contact the KCDB Office: (bipm.kcdb@bipm.org).

10.2.17 (Uncertainty) Lower limit (*)

"Lower limit" represents the lower limit of the expanded uncertainty with a coverage factor of approximately 95 %. If the lower and upper limits are identical, they should be indicated the same in both "Lower limit" and "Upper limit" fields. A point (.) is used as the decimal separator. The symbol "E" represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.2.18 (Uncertainty) Upper limit (*)

"Upper limit" represents the upper limit of the expanded uncertainty with a coverage factor of approximately 95 %. If the lower and upper limits are

identical, they should be indicated the same in both “Lower limit” and “Upper limit” fields. A point (.) is used as the decimal separator. The symbol “E” represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.2.19 Coverage factor (*)

The coverage factor *k* represents the term for which *k* × *u* has a coverage factor of 95 %, *u* representing the standard uncertainty of the measurand value. The default value is *k* = 2.

10.2.20 % confidence interval (*)

The default value of the coverage factor is 95 %, as stated in the CIPM MRA.

10.2.21 Absolute or Relative Uncertainty (*)

The absolute or relative nature of the stated uncertainty must be selected from the drop-down menu.

10.2.22 Edit table

When several services are covered by the same instrument or technique, they may be grouped into one single CMC with an associated uncertainty table.

Applications are for example

- measured AC voltage at different frequencies
- mass standards of a set
- a radionuclide measured using different techniques.

This grouping can then be indicated in a common table indicating the uncertainty for each case. This grouping facilitates, in general, the review of the CMCs and the overview of the services.

First indicate the unique name of the table under “Uncertainty table name”.

The table is edited by first indicating the number or rows and columns (headers included). Each field is then completed.

Each cell should contain a symbol – indicate by a hyphen symbol (-)

In the table comment field, an indication of units (for example “*Uncertainties given in Bq*”) or other essential information can be given.

A table may also be imported from an Excel file. This file must contain only the uncertainty table and will populate the table including indicating the

numbers of rows and columns. Each cell must contain a symbol – indicate empty cells by a hyphen symbol (-).[16]

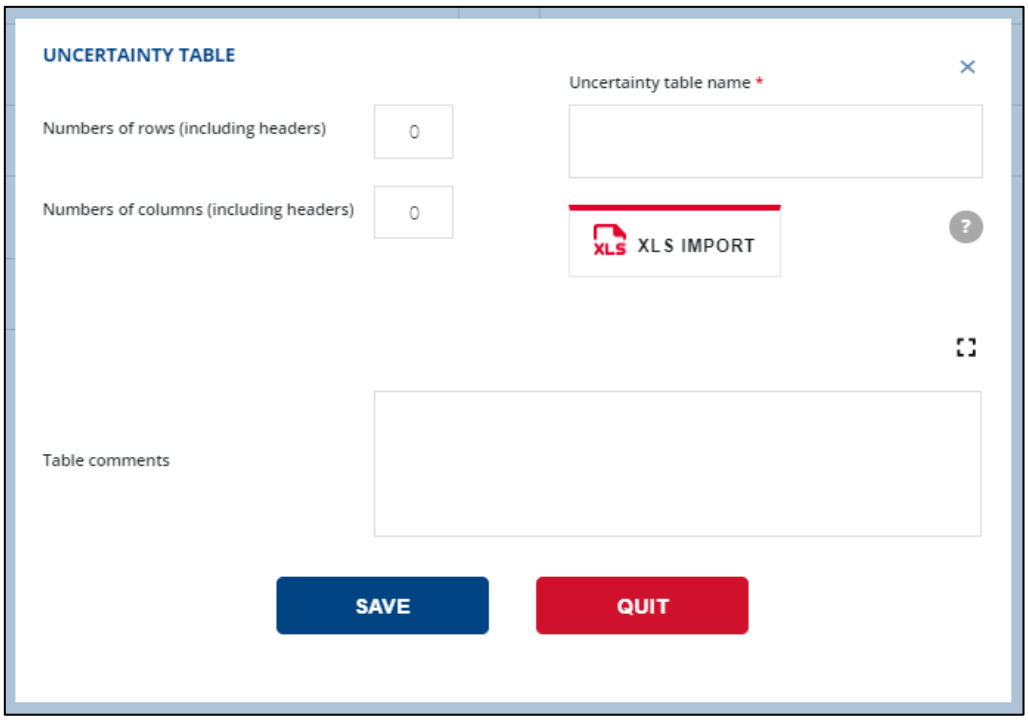


Figure 42 Table for uncertainties - Ionizing radiation.Edit an uncertainty equation

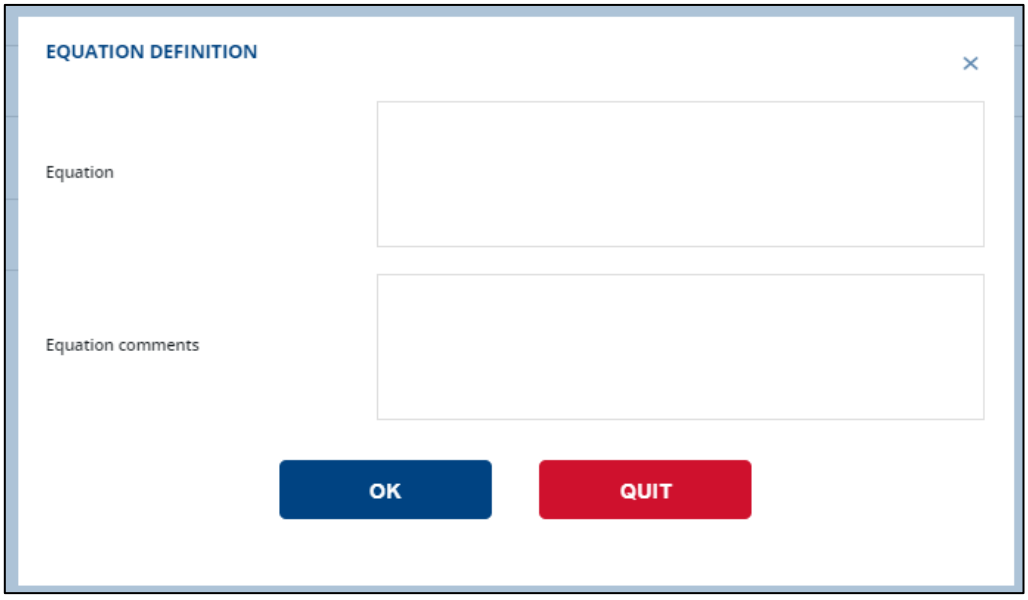


Figure 43 Field for equation - Ionizing radiation.

[16] Excel 2010 or later version is supported. If the table data is already listed in an Excel file of a previous version, it must be copy/pasted as "values" (not reproducing the original format).

10.2.23 Edit an uncertainty equation

Uncertainties expressed as an equation are edited in this pop-up. A comment on the equation can be given, where notably the representation of different symbols may be indicated, for example *"D representing the absorbed dose".*

The format of quantity-based equations was adopted at the Consultative Committee Presidents' meeting in June 2018 [Report CIPM 2018]. Information on quantity-based equations is given in "Guide to converting numerical equations into quantity equations for KCDB applications".

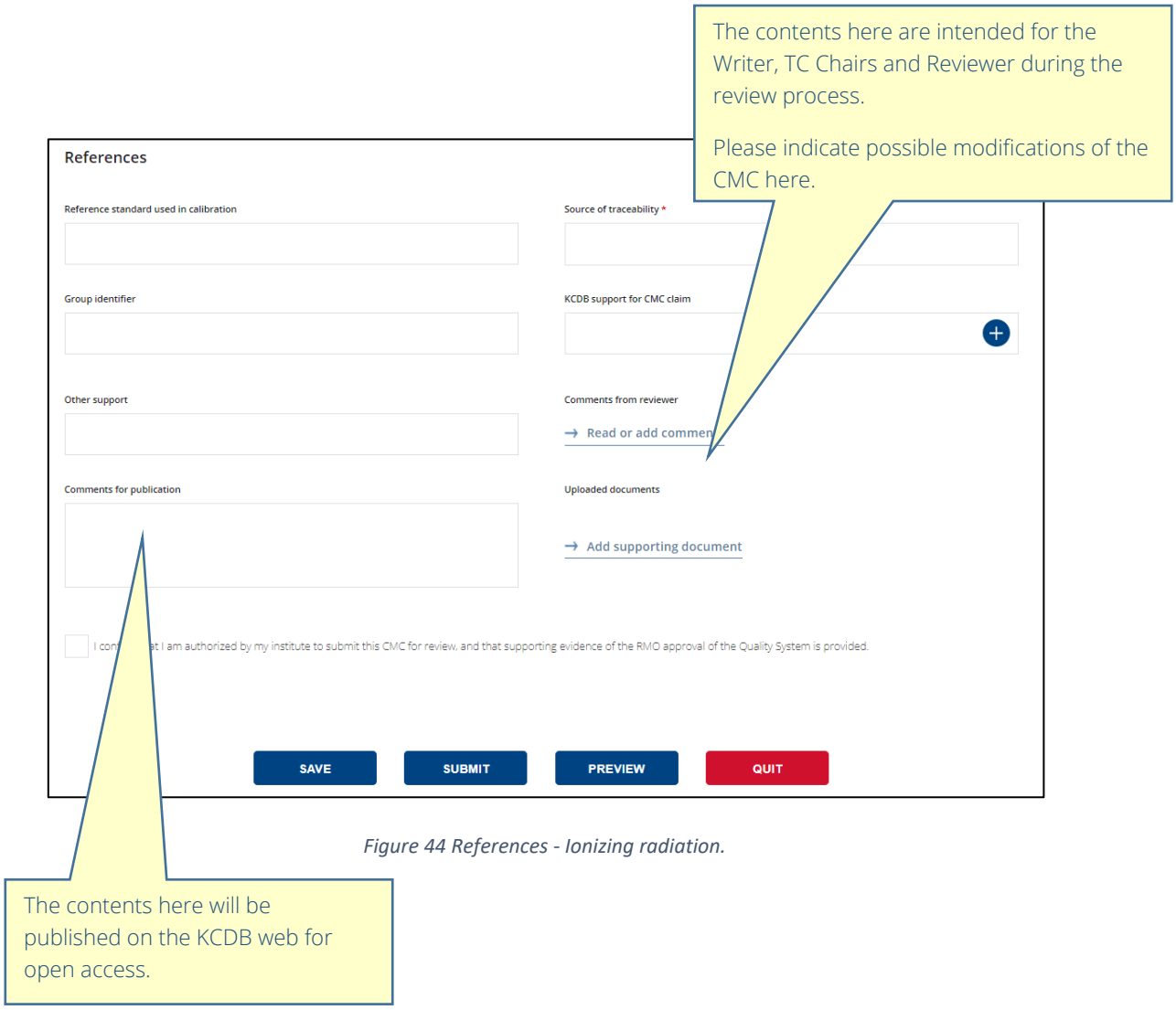


Figure 44 References - Ionizing radiation.

10.2.24 Reference standard in calibration

The reference standard used for the calibration is indicated here.

10.2.25 Source of traceability (*)

The source of traceability refers to the institute to which measurement traceability is connected.

Indicate the institute by its acronym.

10.2.26 Group identifier

The Group identifier is a “tag” that can be attributed to a set of CMCs that are related. The identifier should be unique for the metrology area.

Examples:

> In electricity and magnetism, amplitude and phase of a measurand are declared as separate CMCs but are related.
>
> In chemistry and biology, several analytes may be detected simultaneously within the same chemical matrix. These are regarded as separate CMCs but are related.
>
> In ionizing radiation, several radionuclides may be detected simultaneously within the same matrix. These are regarded as separate CMCs but are related.

When the CMC is published on the open KCDB website, it will be indicated by a special “link” symbol

Clicking on this symbol will display the related CMCs.

10.2.27 KCDB support for CMC claim

You may add one or more references to comparisons published in the KCDB.

10.2.28 Other support

Indicate one or more support other than comparisons published in the KCDB.

10.2.29 Comments for publication

These comments will be published on the open website. **This field is not aimed for review comments.**

10.2.30 Read or add comments

The contents here are intended for the Writer, TC Chairs and Reviewer during the review process. Indicate possible modifications of the CMC here.

10.2.31 Uploaded documents

Please upload the documents to which you refer (other than KCDB comparisons) to give access to the documents by the reviewing experts.

10.2.32 Supporting evidence for Quality System provided (*)

The Writer confirms that there exists a validated Quality System before engaging the review procedure. The CMC cannot be submitted without having confirmed this information.

10.3 CREATE CMC – CHEMISTRY AND BIOLOGY

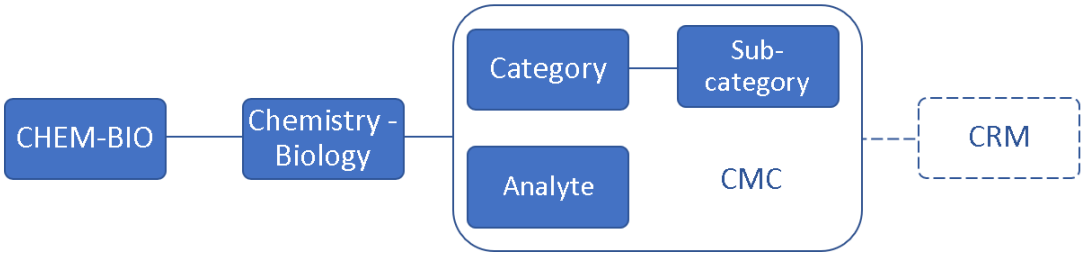


Figure 45 Scheme for classification of service – Chemistry and Biology.

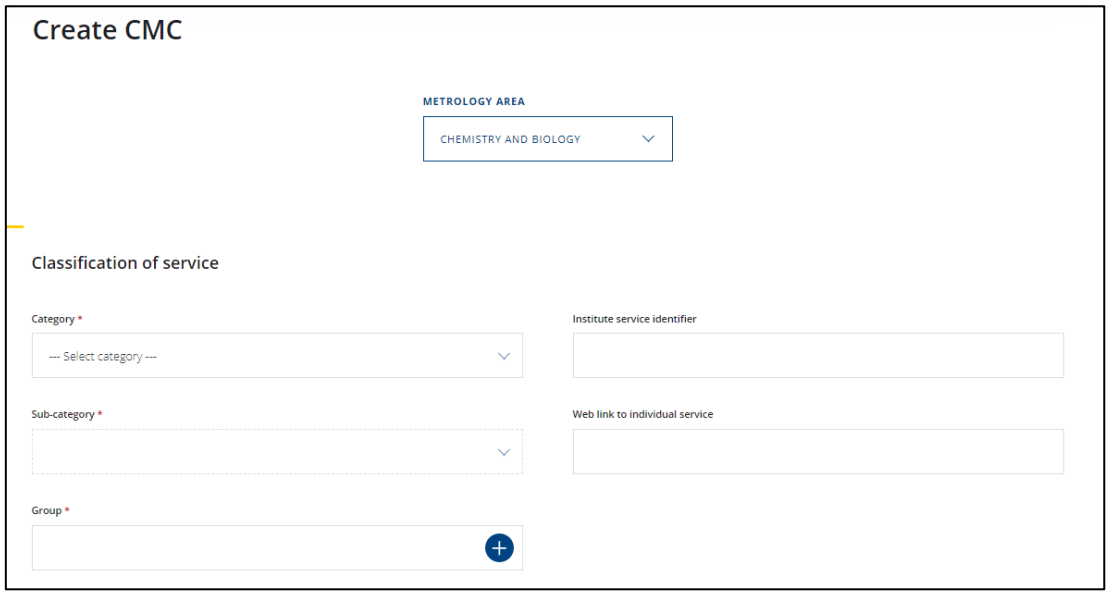


Figure 46 Form for classification of service – Chemistry and Biology.

10.3.1 Category (*)

Choose the category. For guidance on the structure, the specific service list established by each Consultative Committee is available at the bottom of the page.

10.3.2 Sub-category (*)

Choose the sub-category. For guidance on the structure, the specific service list established by each Consultative Committee is available at the bottom of the page.

10.3.3 Institute service identifier

Each institute may attribute a specific identifier for their service which is indicated here. It may be completed by a link.

10.3.4 Web link to institute service identifier

The specific link to the service (or the institute webpage for services, or the web page of the institute…) can be indicated. Please note that it is the responsibility of the originating institute to update the link if it changes.

10.3.5 Group

Choose one or more groups that are relevant to the contents of the CMC.

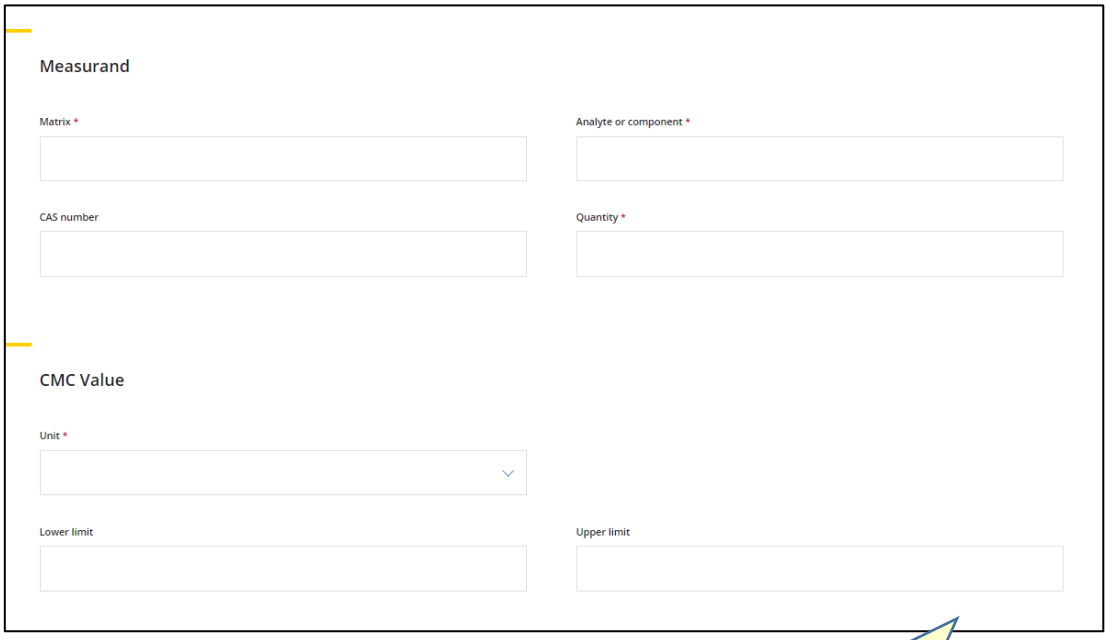


Figure 47 Measurand and CMC value - Chemistry and Biology.

When **modifying** a CMC, if the CMC group is indicated as "Not attributed" (except those for the Electrochemical Analysis and Gas Analysis group), please update the relevant group(s).

10.3.6 Matrix (*)

Matrix expressions already included in the database are suggested in a pull-down menu (type 3 letters first), but it is also possible to indicate an unlisted expression if needed.

10.3.7 Analyte or component (*)

Analyte or component expressions already included in the database are suggested in a menu (type 3 letters first), but it is also possible to indicate an unlisted expression if needed.

10.3.8 CAS number[17]

By typing 3 characters, already registered CAS numbers will be suggested. Indicating the CAS number is optional.[18]

10.3.9 Quantity

Quantity expressions already included in the database are suggested in a menu (type 3 letters first), but it is also possible to indicate an unlisted expression if needed.

10.3.10 Unit (*)

The unit is chosen in a fixed drop-down menu. “(dimensionless)” may be chosen for measurands without units, such as ratios or indices and will create an empty space when displayed. The unit “dimension 1” may be chosen when the unit “1” is targeted. Please make sure that the chosen unit is in line with the quantity. If a unit is not available, the Writer is invited to contact the KCDB Office: (bipm.kcdb@bipm.org).

10.3.11 Lower limit

“Lower limit” is the lower limit of the measurand range. If the lower and upper limits are identical, they should be indicated the same in both fields. A point (.) is used as the decimal separator. The symbol “E” represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.3.12 Upper limit

“Upper limit” is the upper limit of the measurand range. If the lower and upper limits are identical, they should be indicated the same in both fields.

[17] Chemical Abstracts Service

[18] For technical reasons, not all analytes can be attributed a CAS number in the database. To add new CAS numbers, please contact the KCDB Office bipm.kcdb@bipm.org.

A point (.) is used as the decimal separator. The symbol "E" represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.3.13 (Uncertainty) Unit (*)

The uncertainty unit is chosen in a fixed drop-down menu. "(dimensionless)" may be chosen for measurands without units, such as ratios or indices and will create an empty space when displayed. The unit "dimension 1" may be chosen when the unit "1" is targeted. Please make sure that the chosen uncertainty unit is in line with the quantity and the indicated measurand unit. If a unit is not available, the Writer is invited to contact the KCDB Office: (bipm.kcdb@bipm.org).
If a unit is not available, the writer is invited to contact the KCDB Office: bipm.kcdb@bipm.org.

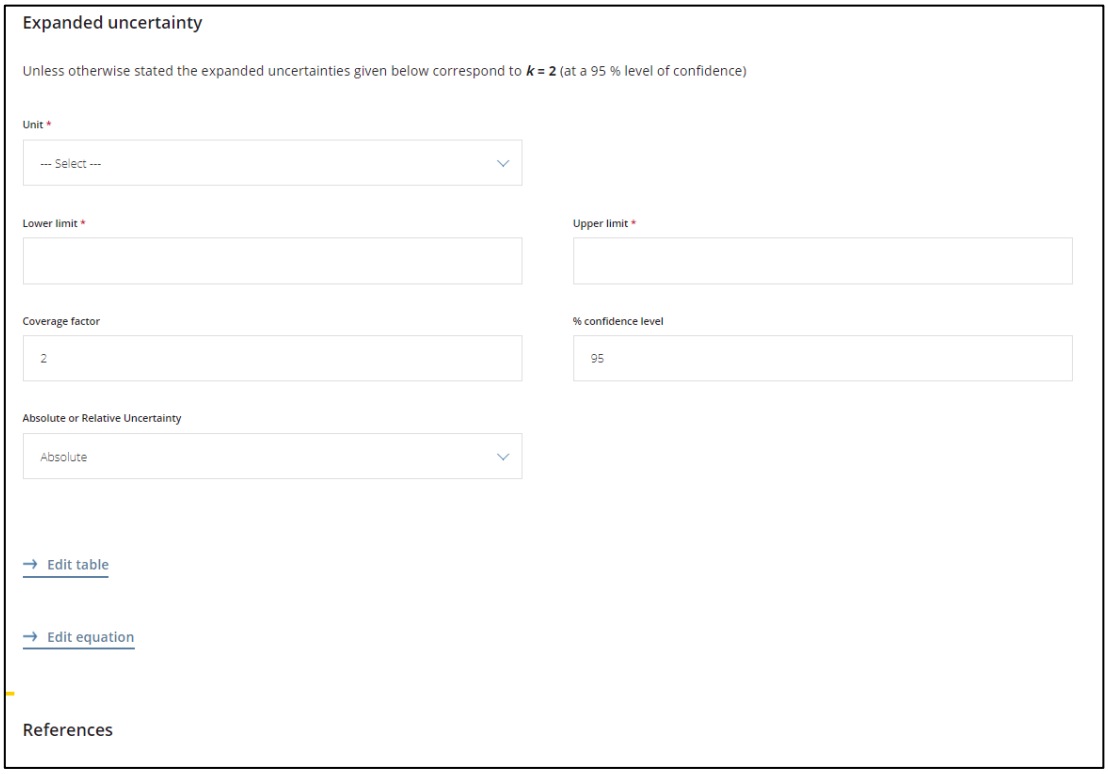


Figure 48 Expanded uncertainty – Chemistry and Biology.

10.3.14 (Uncertainty) Lower limit (*)

"Lower limit" represents the lower limit of the expanded uncertainty with a coverage factor of approximately 95 %. If the lower and upper limits are identical, they should be indicated the same in both "Lower limit" and "Upper limit" fields. A point (.) is used as the decimal separator. The symbol "E"

represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.3.15 (Uncertainty) Upper limit (*)

"Upper limit" represents the upper limit of the expanded uncertainty with a coverage factor of approximately 95 %. If the lower and upper limits are identical, they should be indicated the same in both "Lower limit" and "Upper limit" fields. A point (.) is used as the decimal separator. The symbol "E" represents exponential of 10. For example, 10300 may be expressed as 1.03E04; 0.0067 may be expressed as 6.7E-03.

10.3.16 Coverage factor (*)

The coverage factor k represents the term for which $k \times u$ has a coverage factor of 95 %, u representing the standard uncertainty of the measurand value. The default value is $k = 2$.

10.3.17 % confidence interval (*)

The default value of the coverage factor is 95 %, as stated in the CIPM MRA.

10.3.18 Absolute or Relative Uncertainty (*)

The absolute or relative nature of the stated uncertainty must be selected from the drop-down menu.

10.3.19 Edit table

When several services are covered by the same instrument or technique, they may be grouped into one single CMC with an associated uncertainty table.

Applications are for example

- measured AC voltage at different frequencies
- mass standards of a set
- a radionuclide measured using different techniques.

This grouping can then be indicated in a common table indicating the uncertainty for each case. This grouping facilitates, in general, the review of the CMCs and the overview of the services.

First indicate the unique name of the table under "Uncertainty table name".

The table is edited by first indicating the number or rows and columns (headers included). Each field is then completed.

Each cell should contain a symbol – indicate by a hyphen symbol (-)

In the table comment field, an indication of units (for example "*Uncertainties given in μV*") or other essential information can be given.

A table may also be imported from an Excel file. This file must contain only the uncertainty table and will populate the table including indicating the numbers of rows and columns. Each cell must contain a symbol – indicate empty cells by a hyphen symbol (-).[19]

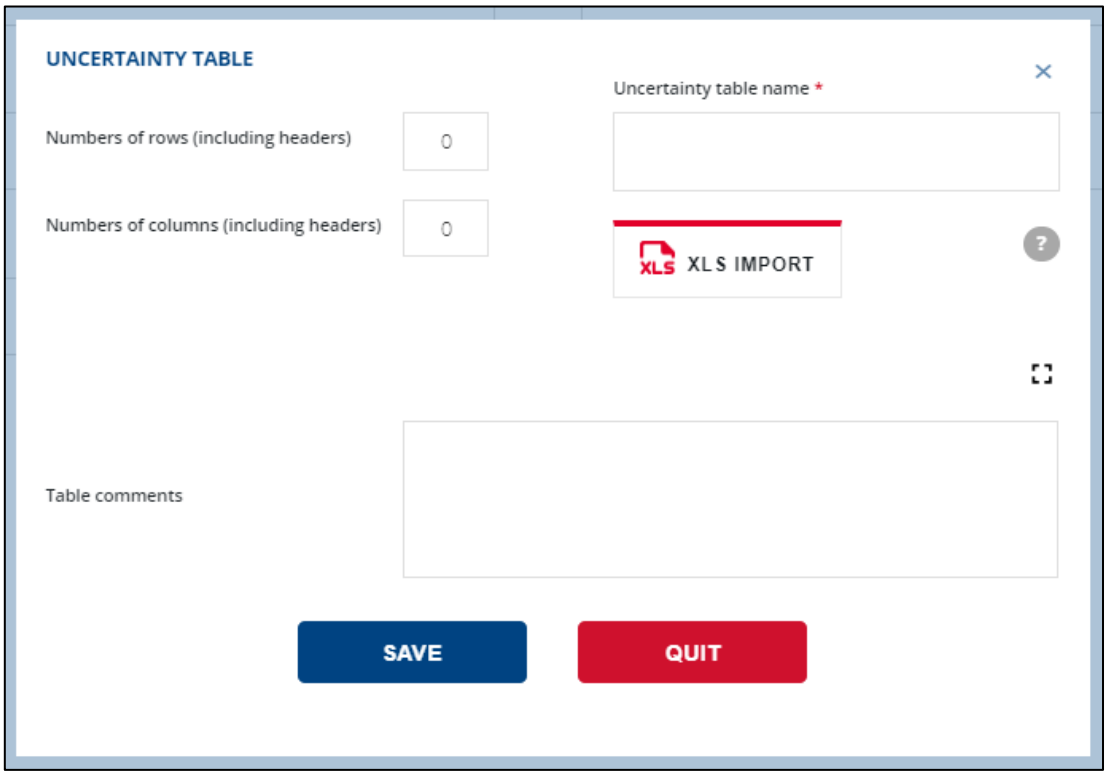


Figure 49 Table for uncertainties - Chemistry and Biology.

10.3.20 Edit an uncertainty equation

Uncertainties expressed as an equation are edited in this pop-up. A comment on the equation can be given, where notably the representation of different symbols may be indicated, for example "*c* representing molar concentration".

[19] Excel 2010 or later version is supported. If the table data is already listed in an Excel file of a previous version, it must be copy/pasted as "values" (not reproducing the original format).

The format of quantity-based equations was adopted at the Consultative Committee Presidents' meeting in June 2018 [Report CIPM 2018]. Information on quantity-based equations is given in "Guide to converting numerical equations into quantity equations for KCDB applications".

10.3.21 CRM Value

Registering a CRM value is optional. The type of content is identical to that described above for CMCs.

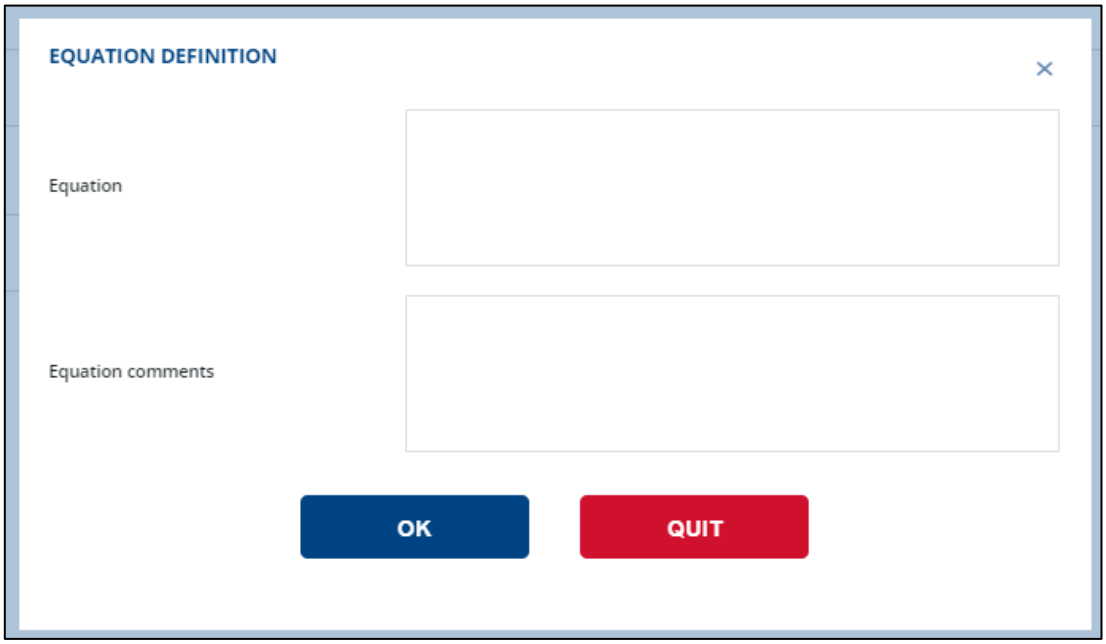


Figure 50 Field for equation - Chemistry and Biology.

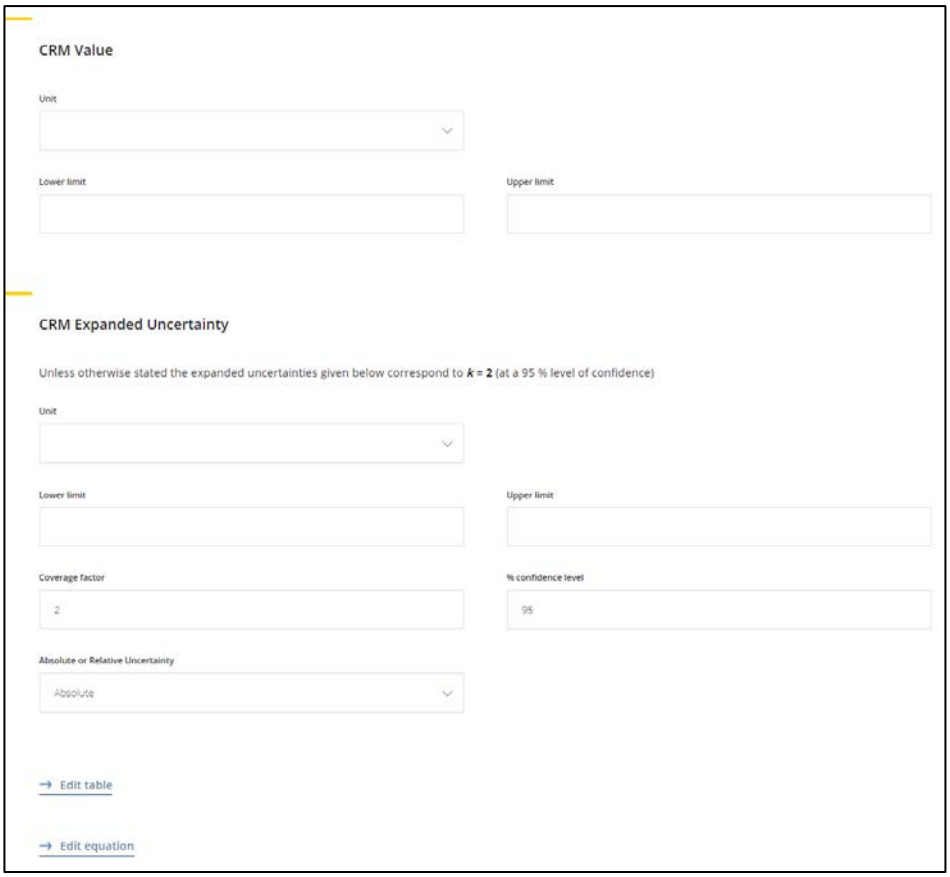


Figure 51 Field for CRM - Chemistry and Biology.

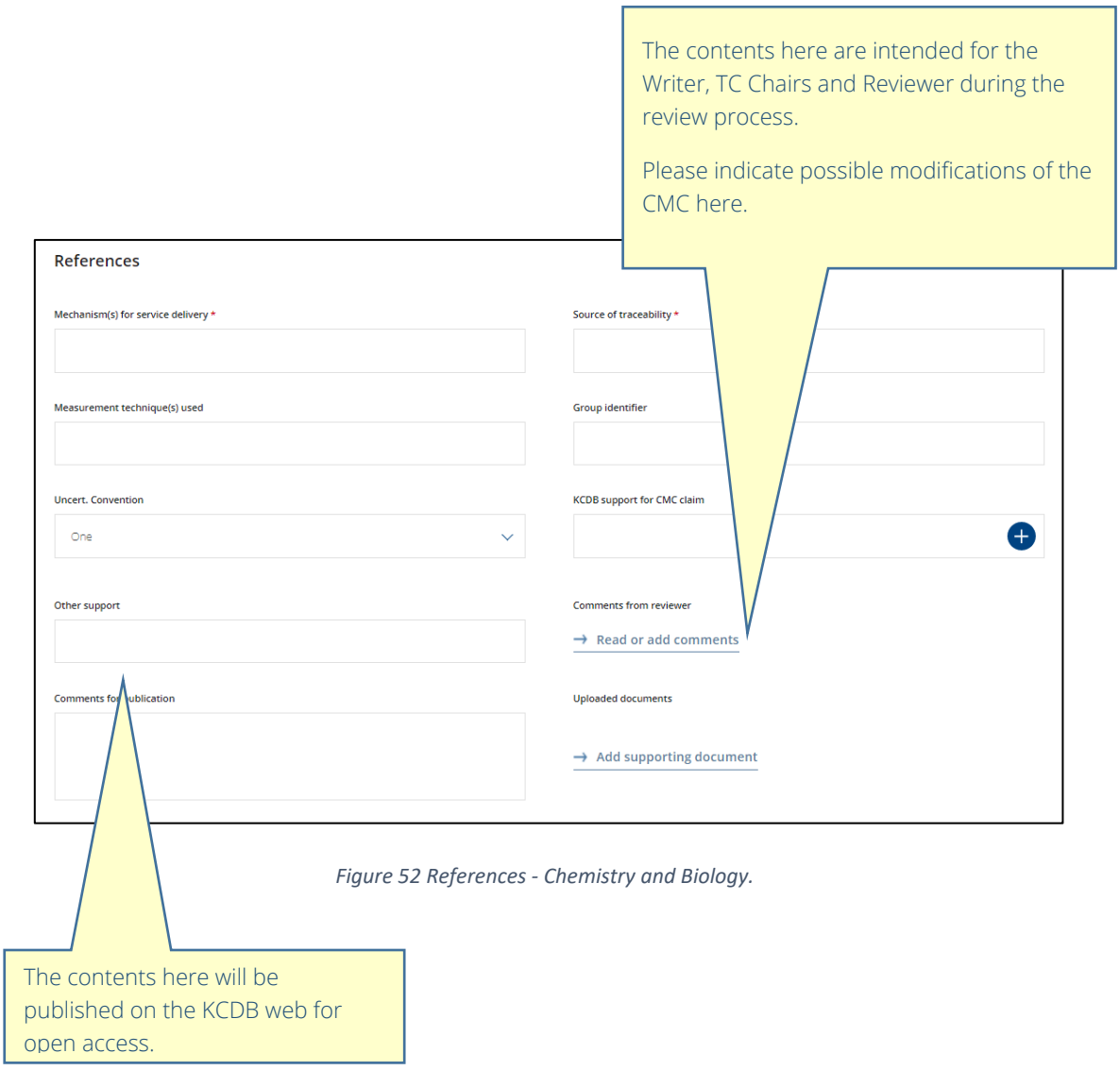


Figure 52 References - Chemistry and Biology.

10.3.22 Mechanism(s) for service delivery (*)

Indicate the institute by its acronym.

The mechanism for the delivery of service is indicated here.

10.3.23 Source of traceability (*)

The source of traceability refers to the institute to which measurement traceability is connected.

10.3.24 Measurement technique(s) used

Give information on the measurement technique(s).

10.3.25 Group identifier

The Group identifier is a “tag” that can be attributed to a set of CMCs that are related. The identifier should be unique for the metrology area.

Examples:

- In electricity and magnetism, amplitude and phase of a measurand are declared as separate CMCs but are related.
- In chemistry and biology, several analytes may be detected simultaneously within the same chemical matrix. These are regarded as separate CMCs but are related.
- In ionizing radiation, several radionuclides may be detected simultaneously within the same matrix. These are regarded as separate CMCs but are related.

When the CMC is published on the open KCDB website, it will be indicated by a special “link” symbol

Clicking on this symbol will display the related CMCs.

10.3.26 Uncertainty convention

The expanded uncertainty range may be expressed according to two conventions. For 'Uncertainty convention 1', the expanded uncertainty range spans from the smallest numerical value of the uncertainty to the largest numerical value of the uncertainty found within the quantity range. For 'Uncertainty convention 2', the expanded uncertainty range is expressed as the uncertainty of the smallest value of the quantity to the uncertainty of the largest value of the quantity.

10.3.27 KCDB support for CMC claim

You may add one or several references to comparisons published in the KCDB.

10.3.28 Other support

Indicate support other than comparisons published in the KCDB

10.3.29 Comments for publication

These comments will be published on the open website. **This field is not aimed for review comments.**

10.3.30 Read or add comments

The contents here are intended for the Writer, TC Chairs and Reviewer during the review process. Indicate possible modifications of the CMC here.

10.3.31 Uploaded documents

Please upload the documents to which you refer (other than KCDB comparisons) to allow the reviewing experts to access the documents.

10.3.32 Clear description of supporting evidence for this claim

This information is specific for Chemistry and Biology.

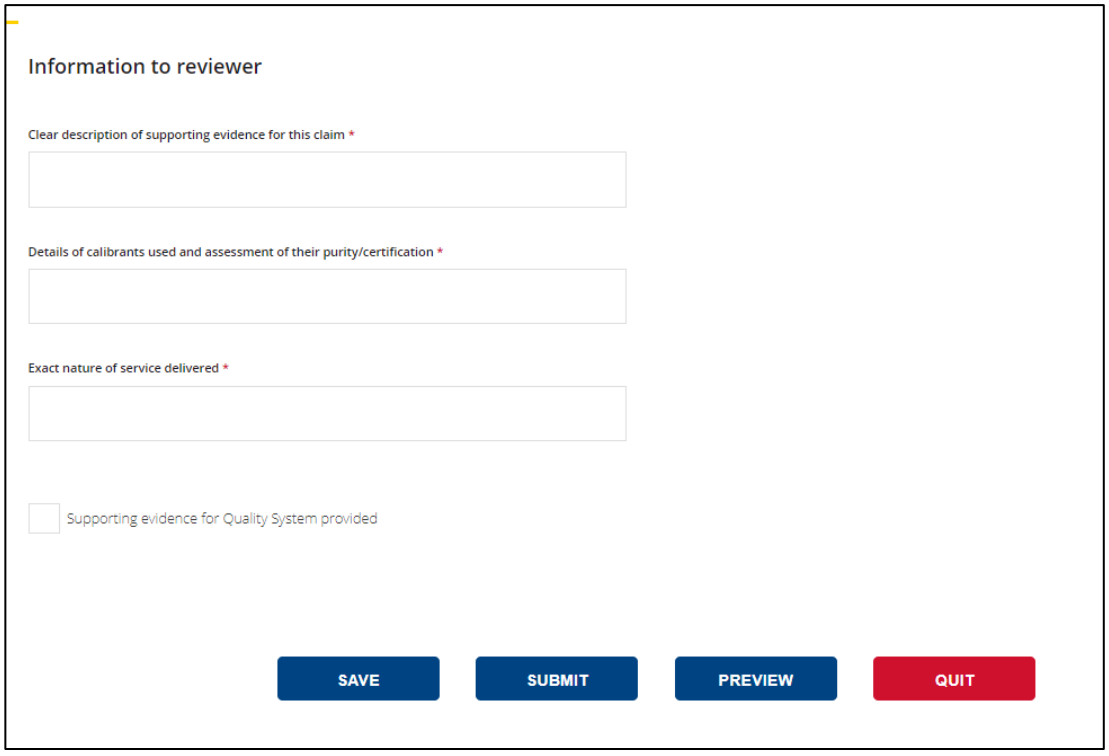


Figure 53 Information to reviewer - Chemistry and Biology.

10.3.33 Details of calibrants used and assessment of their purity/certification

This information is specific for Chemistry and Biology.

10.3.34 Exact nature of service delivered

This information is specific for Chemistry and Biology.

10.3.35 Supporting evidence for Quality System provided (*)

The Writer confirms that a validated Quality System exists before engaging the review procedure. The CMC cannot be submitted without having confirmed this information.

10.3.36 Broad claims

CMC broad claims did not reach consensus within the Consultative Committee for Amount of Substance (CCQM) and its associated working groups before that the KCDB platform was initially implemented.

For more information on broad claims the delegated RMO coordinator should be consulted.

11 REVIEWER

The deadlines for review are set by the TC Chair, and are not fixed for the intra-RMO review – nothing will happen automatically after having passed the date. However, the JCRB rules are applied in the JCRB review in which the indicated deadlines are fixed; if the review is not completed before the date, the review will not be accepted.

11.1.1 Reviewer dashboard

A reviewer has access to review dashboards under

- **My RMO space** for Intra-RMO review
- **JCRB space** for JCRB review

The **Reviewer** and **JCRB Reviewer dashboards** give access to the CMCs that have been submitted to the Reviewer by the TC Chair. The actions made by the Reviewer for the intra-RMO review and the JCRB review are identical.

The Reviewer has access to a set of filters, placed to the left of the dashboard.

The condition of a CMC is indicated by a combination of colour-and-letter, where

N – New M – Modified G – Greyed out for reinstatement

The actions on the CMC can be triggered by

- using the blue buttons displayed above the dashboard, cf. Figure 56
- the actions available in the column listed to the far right of the table, cf. Figure 54. These actions allow indication of “Will review/Will not review” and subsequently “CMC accepted/CMC not accepted”.
- The actions available in the form once accepting to review, cf. Figure 55.

11.1.2 Accept to review

The Reviewer should first indicate if or not he will review.

If the Reviewer indicates “Will not review” the CMC is no longer displayed in the dashboard.

Figure 54 The Reviewer should first indicate whether to review or not.

11.1.3 Review the CMC

When the Reviewer has indicated whether to accept or not accept the CMC, the CMC remains in the dashboard:

- Until the CMC has been submitted for JCRB review for the RMO screen.
- Until two months after approval/non approval in the JCRB review screen.

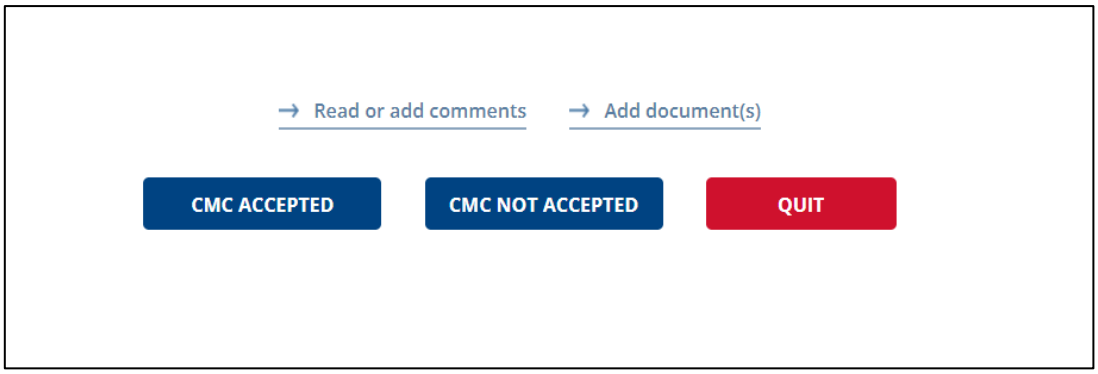


Figure 55 Actions are possible form the CMC form once accepting to review.

It is possible to export selected CMCs to an Excel file. The exported data represents information registered in the KCDB on that particular CMC.

The Reviewer can add documents to support the review. The Reviewer may indicate comments at the bottom of the form via 'Read or add comments'.

The Reviewer should give a comment/reason when not accepting the CMC. The comment will be accessible for the TC Chair. The Writer will access the comments when the CMC has been returned for revision.

The Reviewer may alter the accept/not accept indication for revised CMCs during the intra-RMO review

- if the status is "RMO: Revision Completed" or "RMO: Under Review",
- if the TC Chair has not yet indicated accepted/not accepted, and
- if the review date limit set for the reviewer has not been reached.

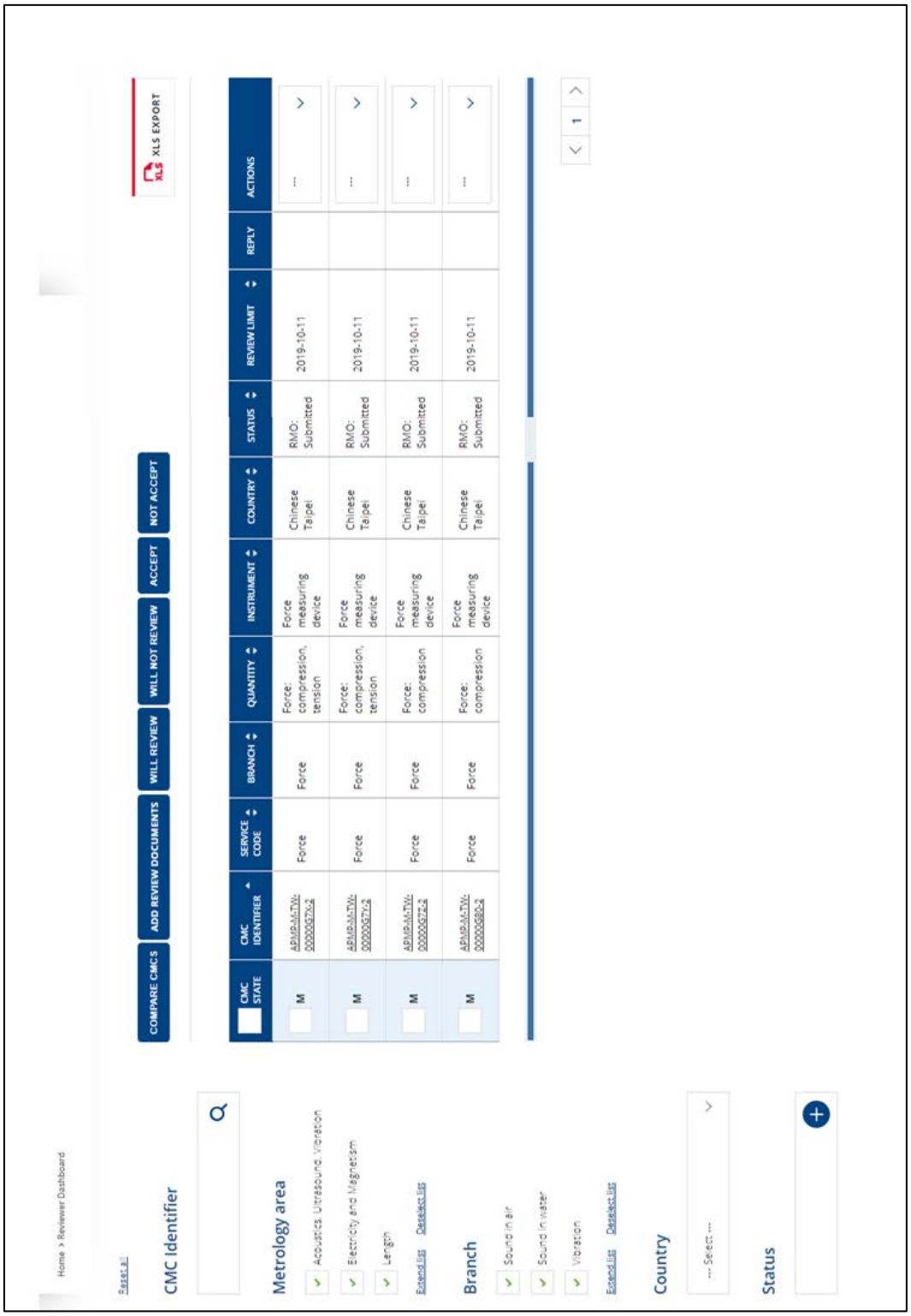


Figure 56 Reviewer dashboard (example for Mass and related quantities).

11.1.1 Read a CMC

See Section 8.1.1 Read a CMC.

11.1.2 Comment a CMC

See Section 8.1.2 Add a review comment

11.1.3 Read CMC comments

See Section 8.1.3 Read review comments.

12 TC CHAIR

The TC Chair (named WG Chair in SIM) has a coordinating role. He is in contact with the representatives of all connected institutes within his RMO and metrology area/expertise.

The TC Chair coordinates the intra-RMO review and surveys so that the submitted CMCs attain such quality that they are expected to be approved after a JCRB review.

He oversees the submission of the CMCs for JCRB review and should liaise with the TC Chairs of the other RMOs on common issues in a general sense.

He manages the contents of the user accounts of the attributed metrology area/expertise and approves new user accounts.

12.1 TC CHAIR ROLE AND DATE LIMITS

Several of the actions on the KCDB platform are restricted to date limits.

There are no programmed date limits for the intra-RMO review.

For the JCRB review, the following date limits are **strictly** applied:

- Reply to an invitation for JCRB review of a CMC: within 3 weeks after issued invitation
- Set date limit to complete a JCRB review: cannot be recovered if the date limit has passed
- Set date limit to vote on the approval for a CMC: within 3 weeks after issued invitation

There is no date limit for the revision of a CMC that has been returned to the Writer. Nevertheless, it is advisable that the Writer acts on the review comments within a reasonable delay.

12.2 TC CHAIR MENU

The TC Chair has access 5 menus where two are of particular importance: **CMCS** and **BACK OFFICE**.

12.3 TC Chair Back Office

12.3.1 User account tool for TC Chair - overview

The Back Office tool for **user accounts** allows managing these. The dashboard contains

a) A set of command buttons at top of the dashboard

b) A set of filters at the left of the screen

c) Navigation tools.

DELETE	The platform is made inaccessible to the user and ear marked DELETED
APPROVE	The platform is made accessible to the user
REFUSE ACCOUNT	The account is deleted from the user list, only applicable to new user account requests
SELECT ALL	Select all filtered items for export to and Excel file

The User account dashboard gives access to a summary of the credentials, as well as the date when the account was registered and last updated[20]. The dashboard is illustrated in Figure 57 and Figure 58.

The TC Chairs are invited to indicate accounts as "deleted" when they know that the person concerned is no longer active.

Some generic accounts have been created for the use KCDB Office – these should not be deleted.

[20] Information added for accounts registered or updated after 18 July 2022.

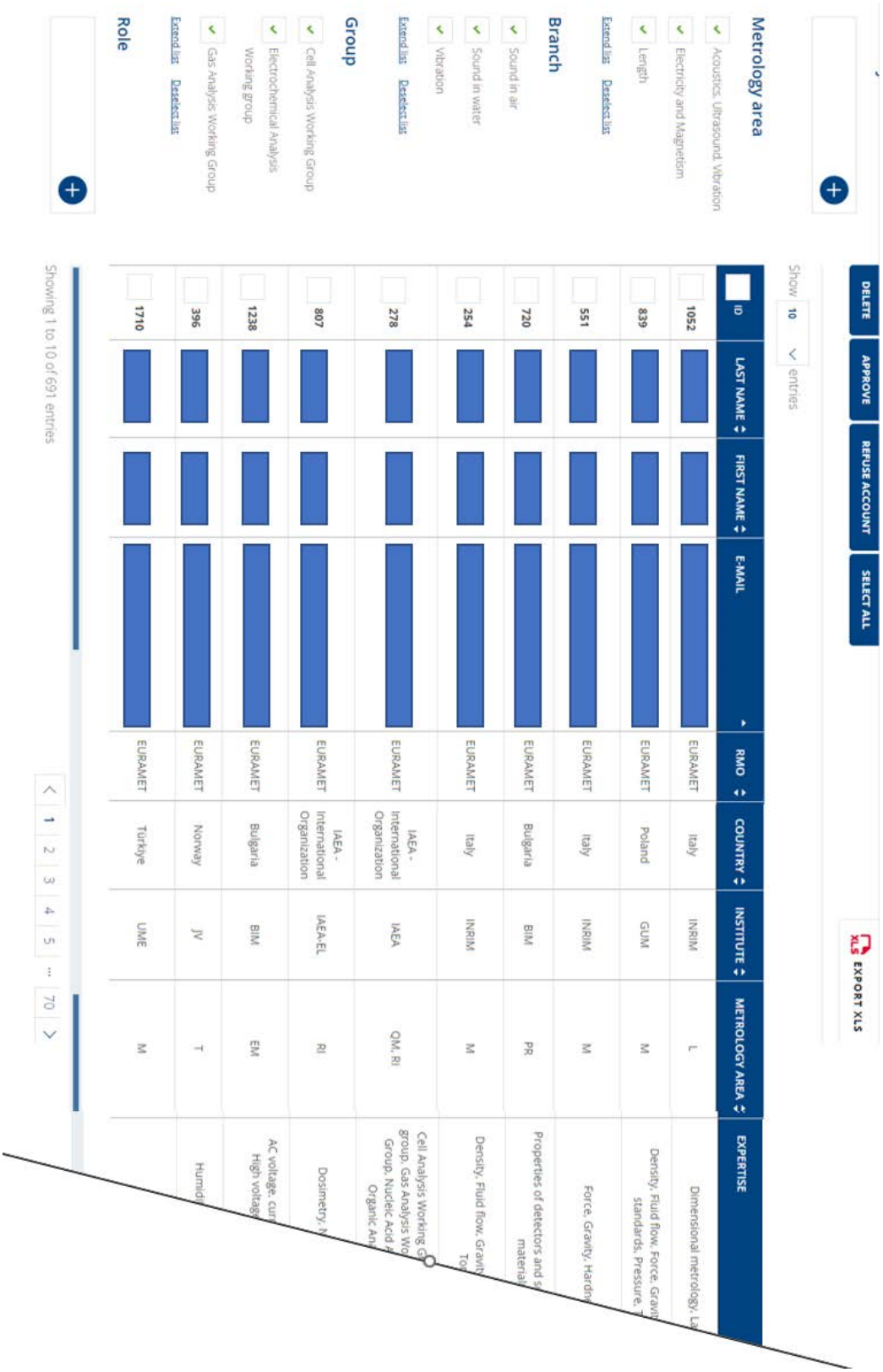


Figure 57 Left part of the User account dashboard.

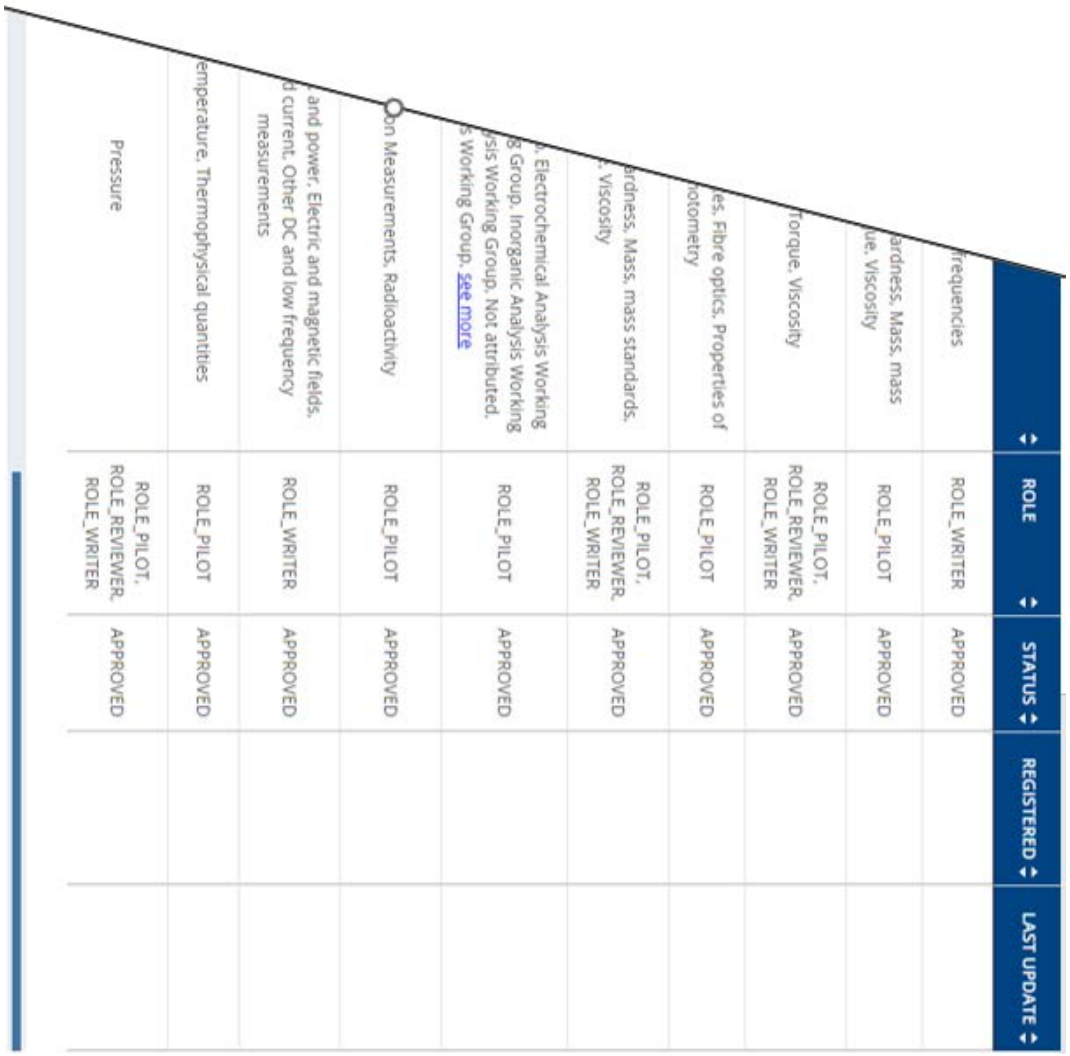


Figure 58 Right part of the User account dashboard.

12.3.2 User account contents

When a new account request has been received, filter on NEW to access rapidly the new accounts.

Registered RMO, Institute and country are permanent for accounts and cannot be modified. Already registered **ROLE, METROLOGY AREA** and **EXPERTISE** cannot be altered by the WRITER **BUT** can be updated by the TC Chair.

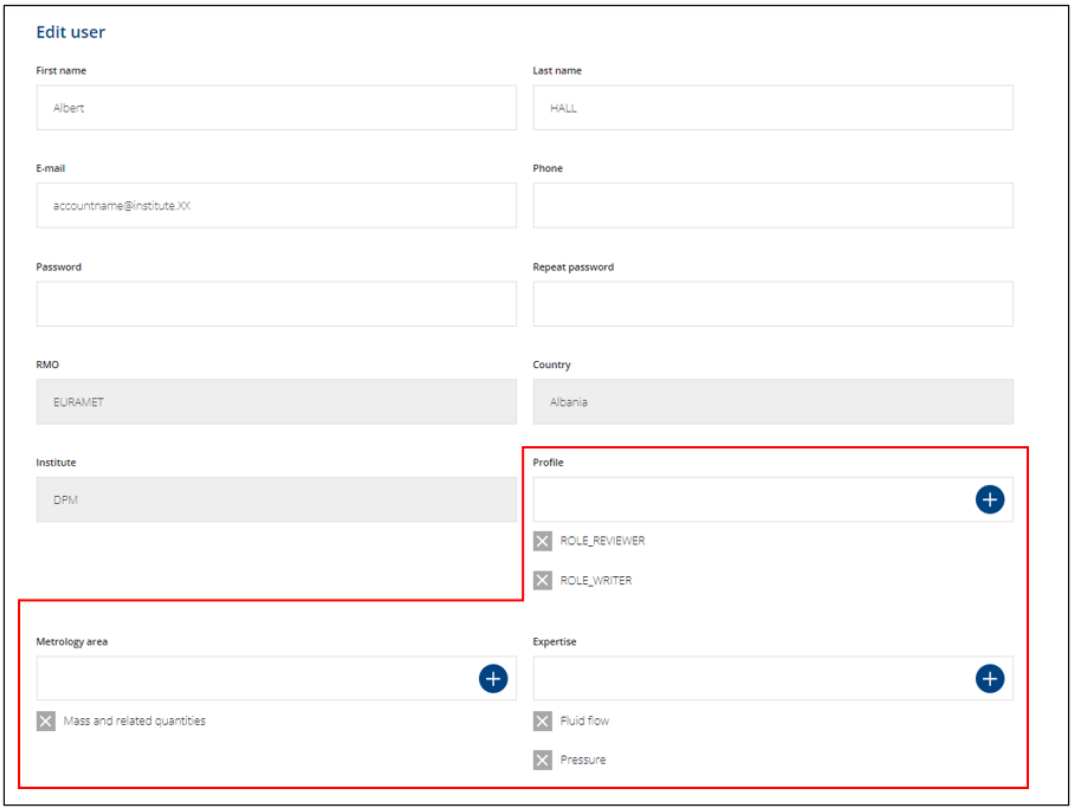


Figure 59 Encircled fields can be modified by the TC Chair.

12.4 TC CHAIR CMC MENU AND DASHBOARD CONTENTS

Via the CMC menu, the TC Chair has notably access to

- **My RMO space** for Intra-RMO review
- **JCRB space** for JCRB review

Each section contains several dashboards, consisting of

d) A set of command buttons at top of the dashboard

e) A set of filters at the left of the screen

f) A CMC table with navigation tools.

12.4.1 TC Chair command buttons

The command buttons allow in some cases to make an action on several CMCs simultaneously. These actions vary depending which kind of review is being made. They are described in the following sections.

12.4.2 TC Chair filters

The filter “CMC identifier” allows filtering on the CMC unique identifier.

The filter on Reviewer allows filtering the CMCs on the selected reviewer. The **first name, family name or the e-mail address** are used as search criteria.

All other filters are in select mode.

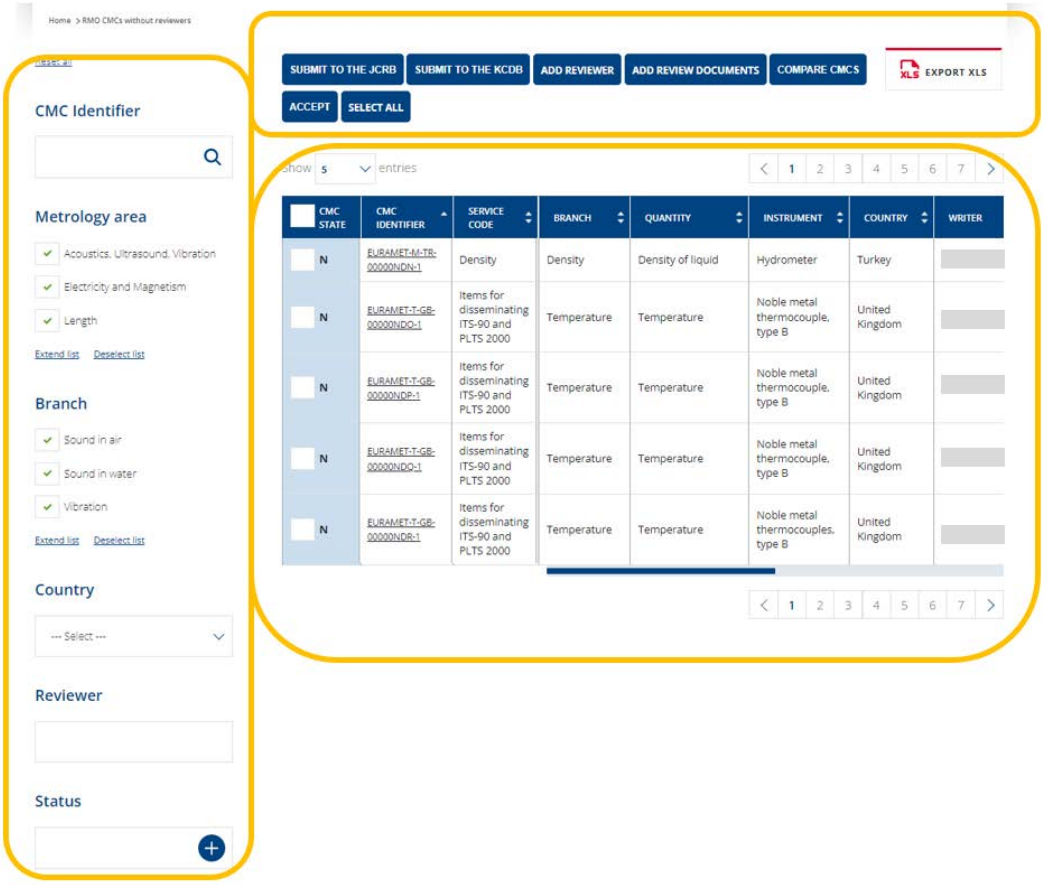


Figure 60 Typical layout of a TC Chair dashboard.

12.4.3 TC Chair table for CMCs

The condition of the CMC is indicated by a combination of colour-and-letter, where

N – New M – Modified G – Greyed out for reinstatement

The actions on the CMC can be triggered by

- using the blue buttons displayed above the dashboard, as an example see Figure 61.
- the actions available in the column listed to the far right of the table, cf. Figure 62. These actions allow to indicate approval or a request for revision.
- The actions available in the form once accepting to review, as an example see Figure 67.Figure 55

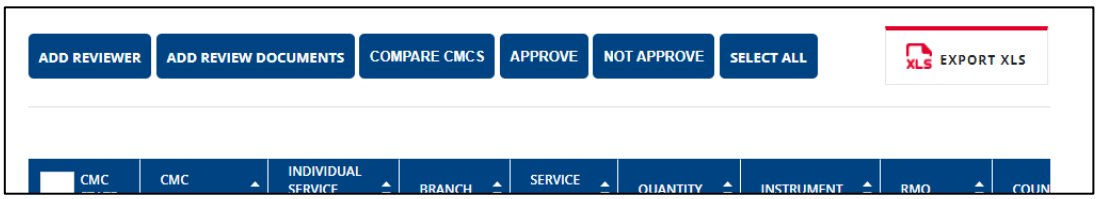


Figure 61 Blue buttons available for actions, here the top of JCRB CMC Without reviewer screen.

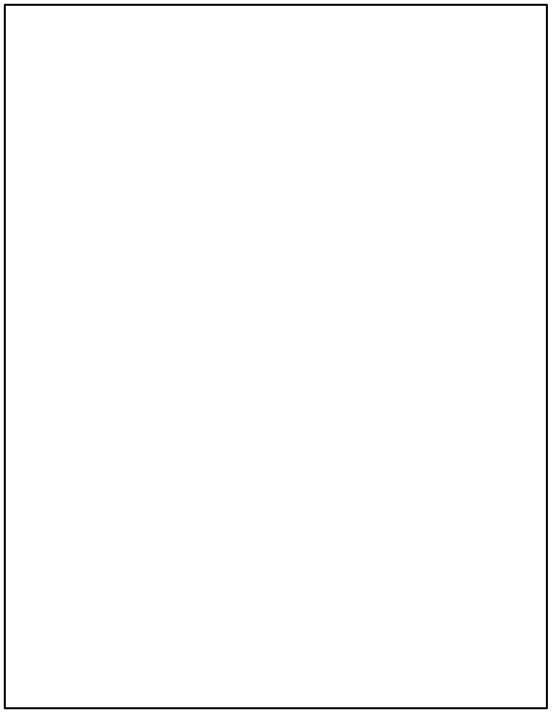


Figure 62 Actions available for the TC Chair in the far-right column. Here and example from the JCRB With Reviewer screen.

The deadlines for review are set by the TC Chair. The deadline is not fixed for the intra-RMO review – nothing will happen automatically after having passed the date. However, the JCRB rules are applied for the JCRB review, for which deadlines are fixed. If the review is not completed before the date, the review will not be accepted.

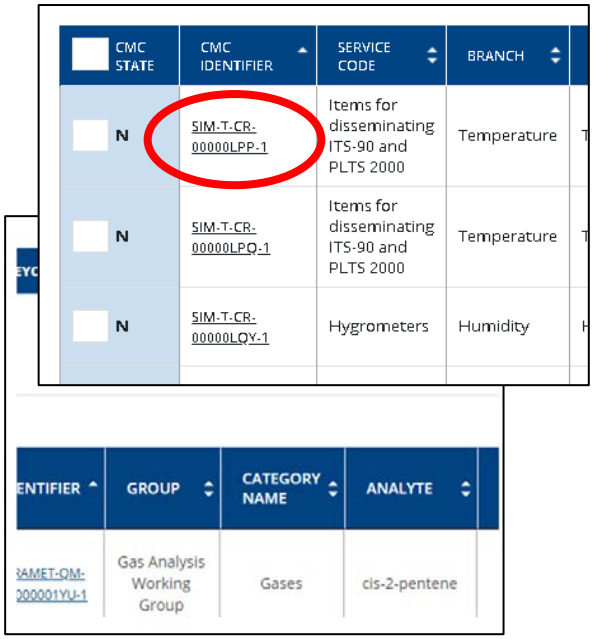
12.4.4 TC Chair - read CMCs

The TC Chair may read the CMCs by

clicking on the CMC identifier (one-by-one)

or by

clicking on the blue button “COMPARE” (one or several)



It is possible to export selected CMCs to an Excel file.

12.4.5 TC Chair - read review comments

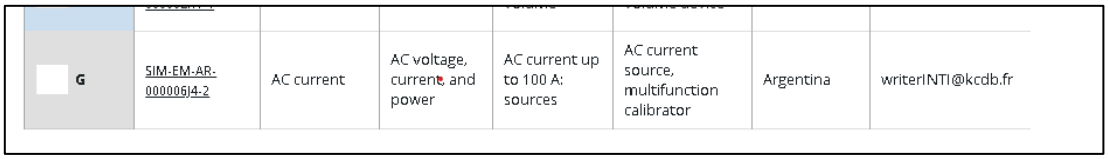
See Section 8.1.3 Read review comments.

12.4.6 TC Chair – add documents

The TC Chair can add documents associated with review and indicate comments in the bottom of the form.

12.4.7 TC Chair – Greyed out CMCs for reinstatement

Greyed out CMCs submitted for re-instatement wilm appear as indicated below.



G	SIM-EM-AR-000006J4-2	AC current	AC voltage, current, and power	AC current up to 100 A: sources	AC current source, multifunction calibrator	Argentina	writerINTI@kcdb.fr

12.4.1 TC Chair - Comment a CMC

See Section 8.1.2 Add a review comment

12.5 TC Chair: Intra-RMO Review

In **My RMO space** for Intra-RMO review, the TC Chair has access to two dashboards:

- CMC without reviewer
- CMC with reviewer

All CMCs submitted by the Writers within the RMO for intra-RMO review are initially available in **CMC without reviewer**.

12.5.1 RMO: CMC without reviewer - Contact reviewer(s)

The TC Chair may ask experts within the same RMO to review one or several CMCs. By clicking on the blue "**ADD REVIEWER**" button, all Reviewers that have user accounts with a profile "Reviewer" covering the same expertise can be selected by the TC Chair. The TC Chair ends the action by indicating a deadline.

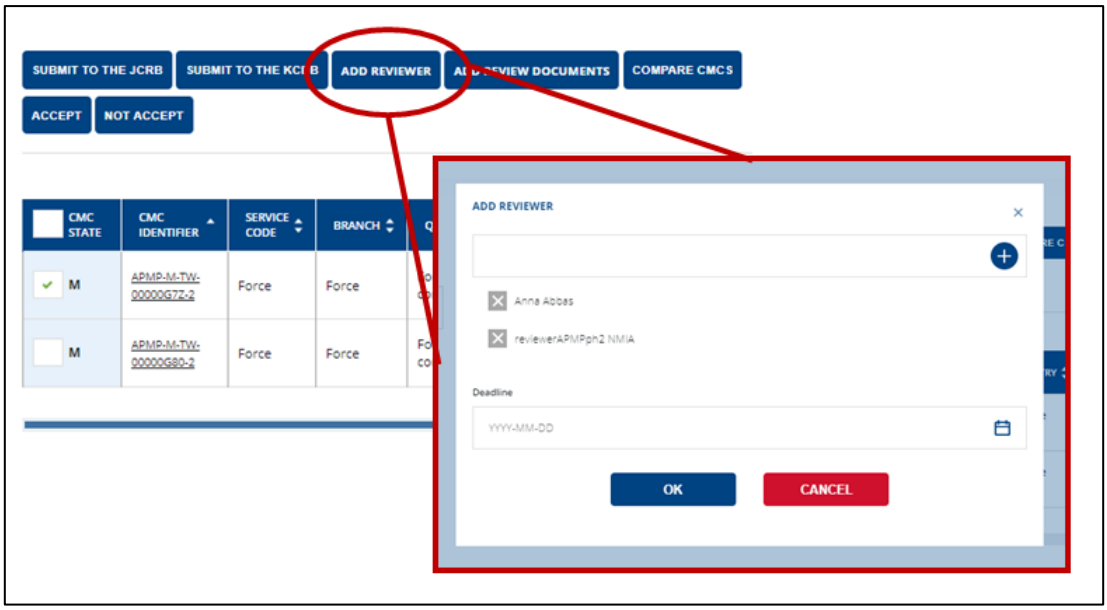


Figure 63 TC Chair can select reviewers within the RMO and metrology area (example for Mass and related quantities).

- If the TC Chair submits a CMC to the JCRB, the CMC is automatically considered as accepted in the intra-RMO review. The CMC will no longer be available as "**CMC without reviewer**" but will become available on the "**CMC with reviewer**" dashboard.
- The CMC remains in the "**CMC without reviewer**" dashboard until at least one of the selected reviewers has indicated "Will review" or the TC Chair has indicated his review conclusion at this stage. The CMC will then no longer be available as "CMC without reviewer" but will become available on the "**CMC with reviewer**" dashboard.
- A TC Chair may also review a CMC without engaging an external reviewer. The TC Chair may hence accept the CMC or ask the Writer for revision. In these two cases, the CMC will no longer be dispayed. The option "Not accept" removes the possibility for the Writer to revise the CMC.

External reviewers and the TC Chair may review the same CMC, if necessary, but the TC Chair must wait for the review reply and the TC Chair reply will be the final decision.

CMCs having undergone only editorial modifications, reduced measurand range or increased uncertainty can be submitted directly by the TC Chair to the KCDB Office for publication in the KCDB [CIPM MRA-G-13]. For large sets, the TC Chair is invited to inform the KCDB Office bipm.kcdb@bipm.org. See also Section 12.5.3.

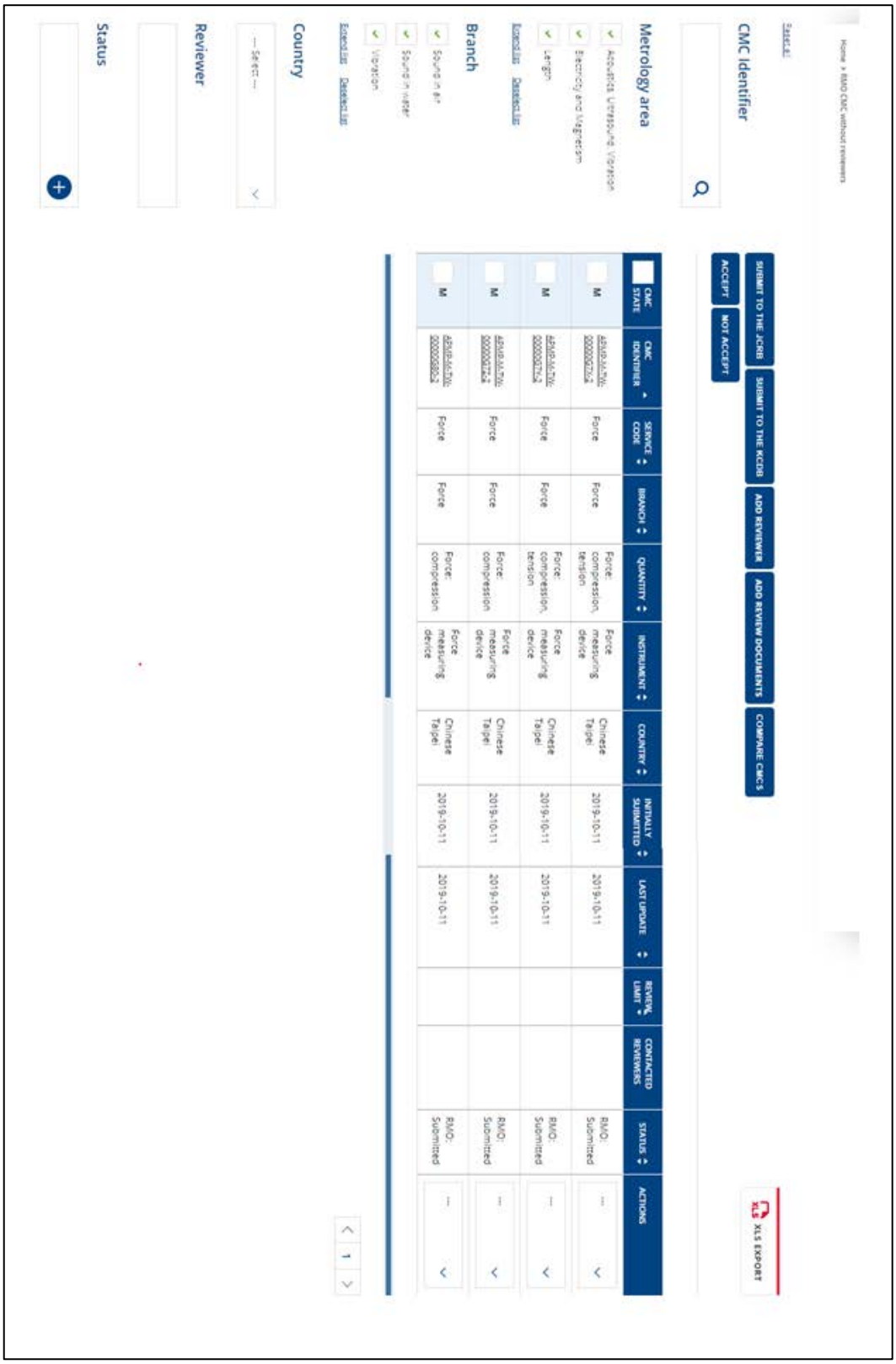


Figure 64 Without-reviewer dashboard (example for Mass and related quantities).Complete the intra-RMO review ("CMC with reviewer")

12.5.2 RMO: CMC with reviewer -- Study Review comments

As soon as at least one reviewer has accepted to review a CMC, it is no longer be available as "**CMC without reviewer**" but becomes available on the "**CMC with reviewer**" dashboard.

It is still possible for the TC Chair to add Reviewers at this stage, if necessary, via the column far right.

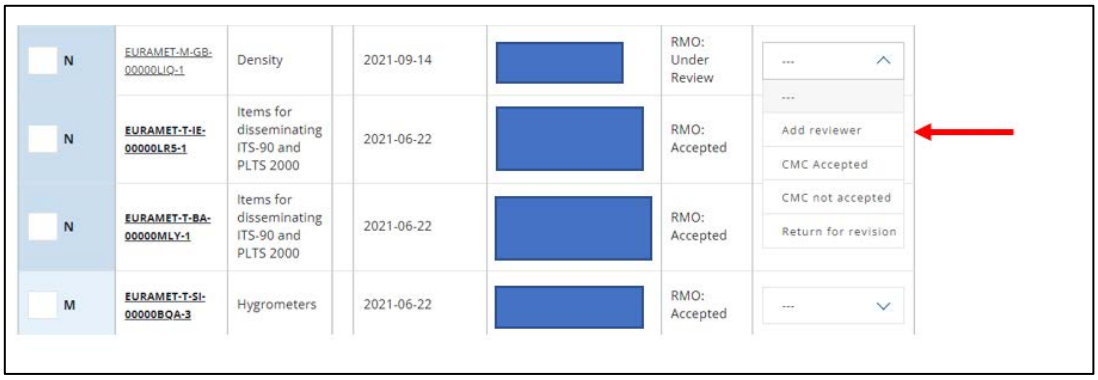


Figure 65 It is also possible for the TC Chair to add Reviewers in the screen "CMC with reviewer".

Reviewed CMCs that have been commented have their CMC ID in bold in the "**CMC with reviewer**" dashboard.

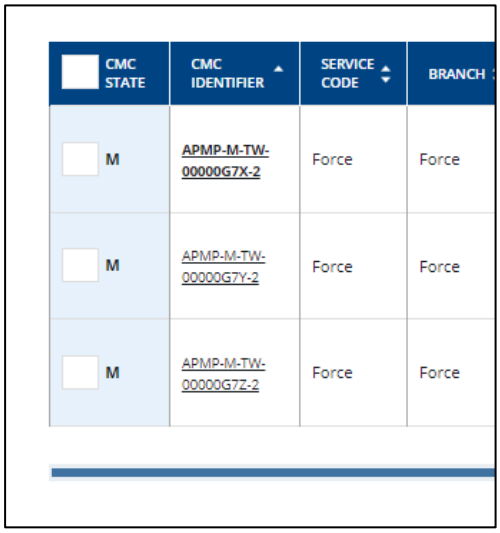


Figure 66 The code for a commented CMC is indicated in bold font.

The TC Chair can indicate the review conclusion from the column far-right of the table, cf. Figure 62, or using the blue buttons at the top of the screen. He can also use the

bottom of the form when reading the CMC, as illustrated in Figure 67. Once the TC Chair has indicated his choice, the choice is firm.

A CMC should be accepted before being submitted for JCRB review. The CMC can be returned to the Writer for revision by the Writer when necessary.

The Reviewer may alter the accept/not accept indication for revised CMCs during the intra-RMO review.

The CMC remains in the dashboard until the CMC has been submitted for JCRB review.

Only in rare cases the CMC is "not accepted". This means that the CMC cannot be re-submitted. It will obtain the status "RMO: Turned down" and will be displayed for the TC Chair for 60 days. It will the automatically be erased from the screen.

Figure 67 The TC Chair may indicate the review conclusion when reading the CMC.

The TC Chair shall make sure that the reason for revision is clearly stated via the comment tool, cf. Figure 68.

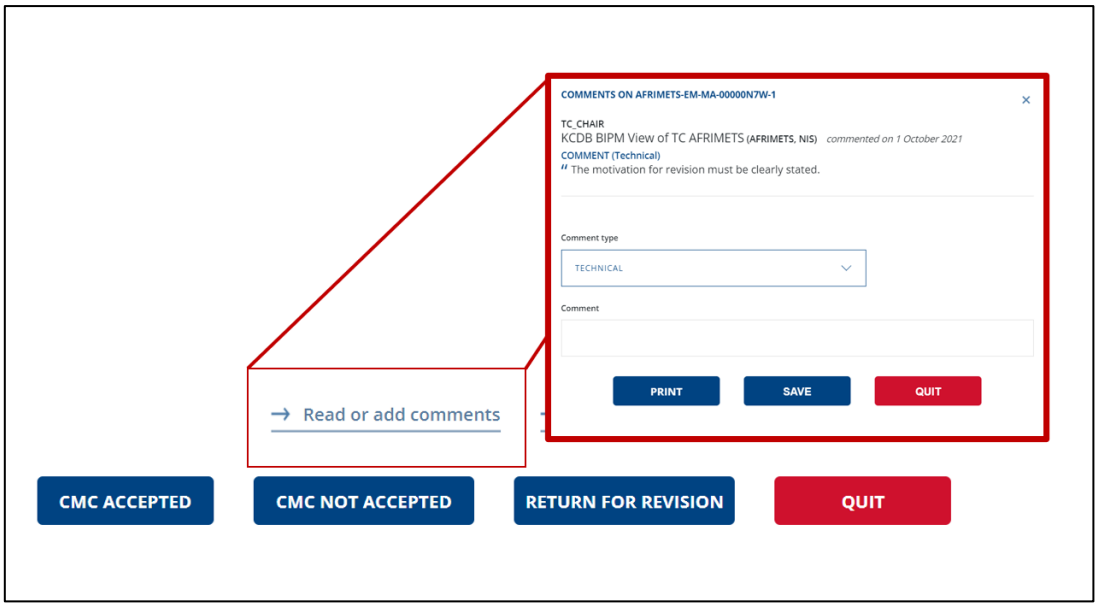


Figure 68 The reason for revision must be clearly indicated.

See also Section 8.1.3 Read review comments.

Reviewed CMCs that have been commented have their CMC ID in bold and a "balloon" in the "**CMC with reviewer**" dashboard.

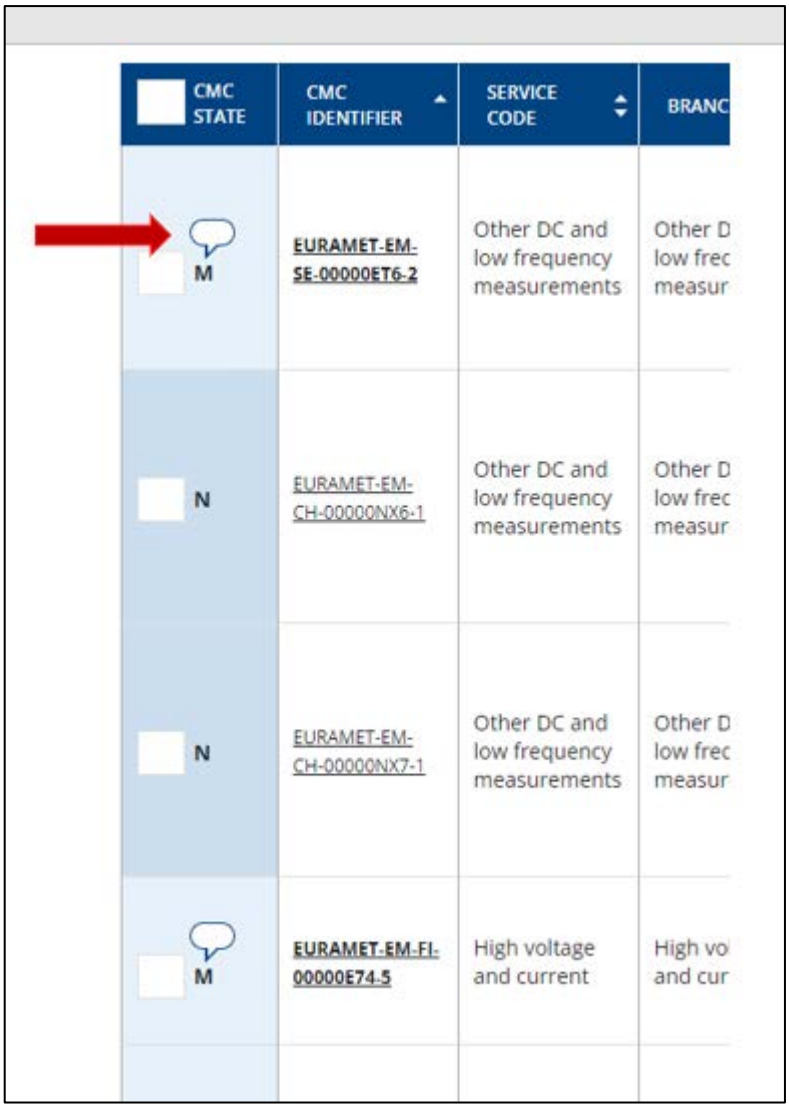


Figure 69 The code for a commented CMC is indicated in bold font and by a "balloon"..

The conclusion of the Reviewer(s) and TC Chair are shown by pictograms: green "tick" represents "**Accepted**" while a red cross represents "**not accepted**". It should be noted that a Reviewer's indication of "Not accept" is a recommendation, as the TC Chair choice to not accept removes the possibility for the Writer to revise the CMC.

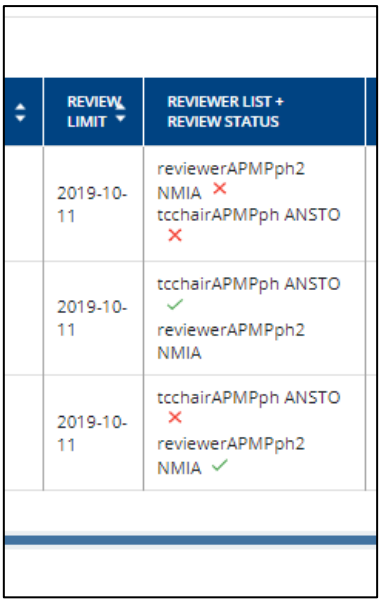


Figure 70 Different symbols indicate the replies from the consulted Reviewers.

Those CMCs that have been accepted are now ready to be submitted to the JCRB for review by selecting the CMCs and clicking on the blue button "**SUBMIT TO THE JCRB**".

CMCs that have been submitted to the JCRB are no longer available in the "**CMC without reviewer**" or "**CMC with reviewer**" dashboards, but in **CMCs from my RMO** in the JCRB menu.

12.5.3 CMCs not needing review

When an updated CMC fulfil a combination of the following conditions only:

- Editorial modification
- Enlarged uncertainty
- Reduced range for measurand

The CMCs does not need a new review and approval.

The TC Chair should in this case submit the CMC directly to the KCDB Office by using the blue button **SUBMIT TO THE KCDB**.

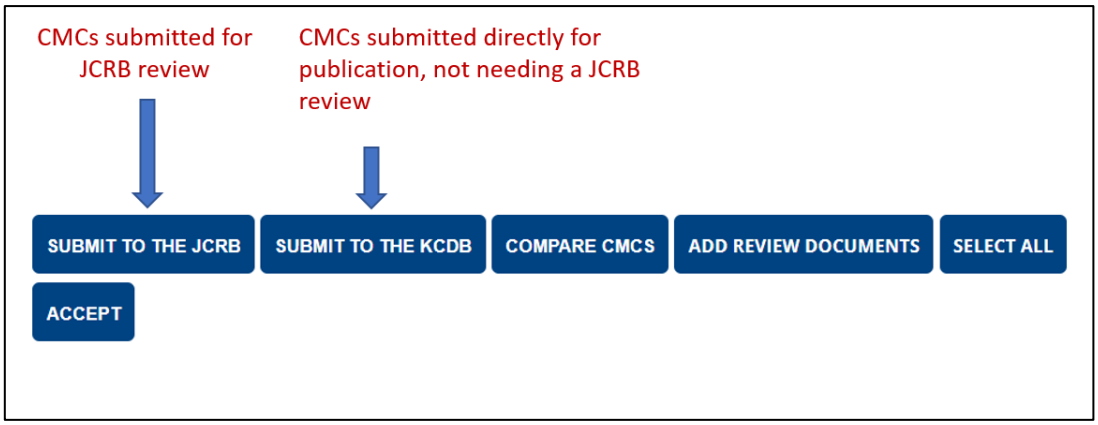


Figure 71 New and modified CMCs should undergo a JCRB review. In some cases, modified CMCs can be directed to the KCDB Office for publication (see CIPM MRA G-13).

12.5.4 JCRB: CMCs from my RMO

CMCs that have been submitted to the JCRB are available in the menu **JCRB space** "**CMCs from my RMO**" dashboard. The TC Chair has the possibility to follow the review progress. The TC Chair may also submit CMCs for voting in this dashboard.

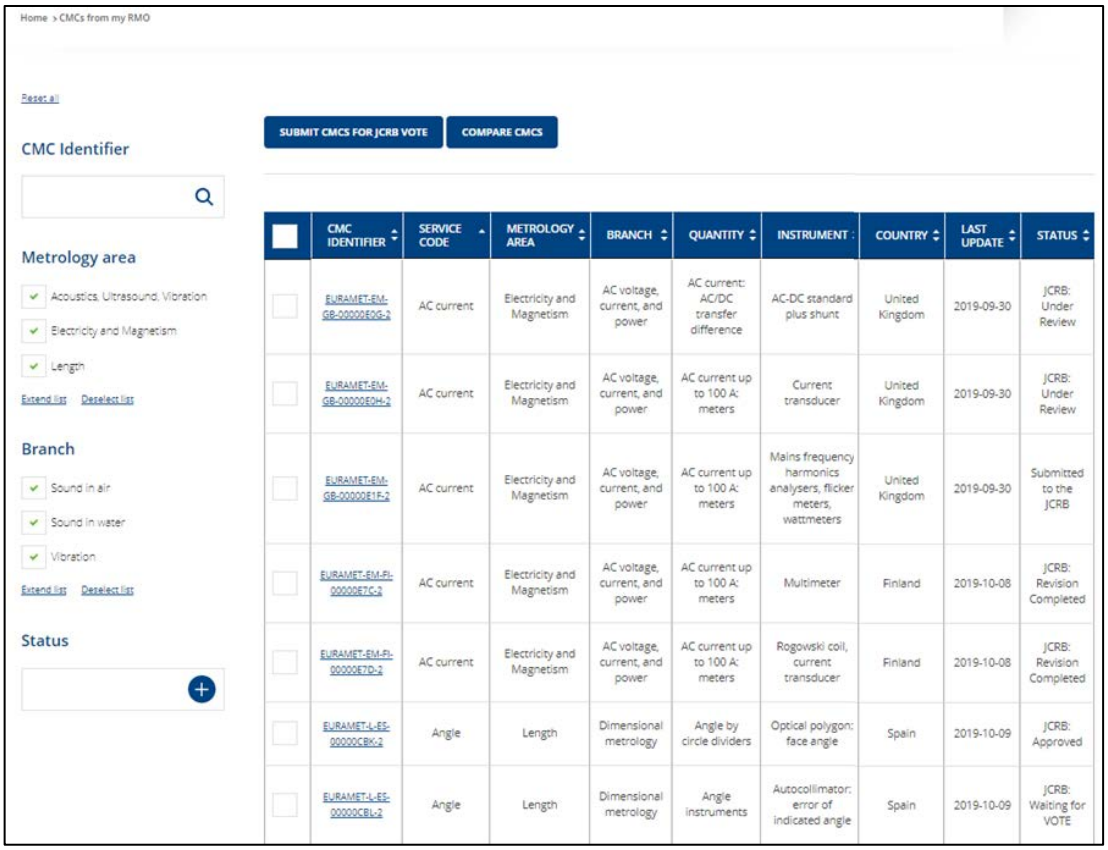


Figure 72 "CMCs from my RMO" dashboard (several metrology areas in this example

12.6 TC CHAIR: JCRB REVIEW

All information on the JCRB review is listed in the menu **JCRB space**.

When a TC Chair has submitted one or several CMCs to the JCRB for review they are listed as "**Pending actions**".

12.6.1 JCRB Request for Review

TC Chairs from the other RMOs are first requested to consult "**JCRB request for review**" to indicate

- If they Will or Will not review
- Indicate a deadline for the review

It is mandatory to indicate "Will review" to get access to the CMCs to review in "**JCRB space / CMC without reviewer**".

The screens for the JCRB review are very much similar those for the RMO review.

There are a few distinct differences for the JCRB review compared to the intra-RMO review:

- Deadline dates are fixed and follow the JCRB rules.
- If all reviewing TC Chairs approve the CMC, the CMC will not be submitted to vote but will automatically become available to the KCDB Office for publication.
- If at least one of the reviewing TC Chairs asks for revision, the revised CMC should be submitted for vote after revision.
- A CMC at this stage can be revised only once by the Writer.
- The outcome of the review is concluded (latest) at the latest date set for review deadline by the reviewing TC Chairs but may end earlier if all reviewing partners have completed their review.

12.6.2 WG Chair dashboard read only - Overview of which RMO reviews what

The TC Chair has the possibility to observe which other RMO has accepted to review a CMC via the screen **WG Chair dashboard read only**. CMCs that have been accepted to be reviewed are indicated by a green field. See also Section 16.

12.6.3 JCRB: CMC without reviewer - Contact reviewer(s)

The TC Chair may ask experts within the same RMO to review one or several CMCs. By clicking on the blue "**ADD REVIEWER**" button, all Reviewers that have user

accounts with a profile “Reviewer” covering the same expertise can be selected by the TC Chair. The TC Chair ends the action by indicating a deadline.

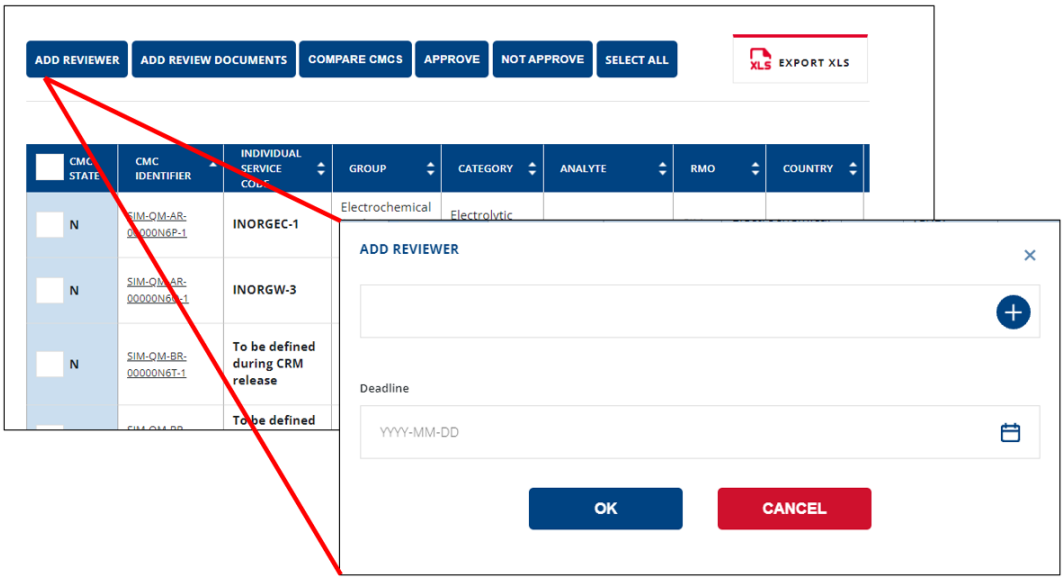


Figure 73 TC Chair can select reviewers within the RMO and metrology area (example for Chemistry and Biology).

- The CMC remains in the “**CMC without reviewer**” dashboard until at least one of the selected reviewers has indicated “Will review” or the TC Chair has indicated his review conclusion at this stage. The CMC will then no longer be available as “CMC without reviewer” but will become available on the “**CMC with reviewer**” dashboard.
- A TC Chair may also review a CMC without engaging an external reviewer. The TC Chair may hence approve the CMC or ask the Writer for revision. In these two cases, the CMC will no longer be displayed.

External reviewers and the TC Chair may review the same CMC, if necessary. The TC Chair review represents the final decision and cannot be modified.

12.6.4 JCRB: CMC with reviewer - Study Review comments

As soon as at least one reviewer has accepted to review a CMC, it is no longer be available as “**CMC without reviewer**” but becomes available on the “**CMC with reviewer**” dashboard.

It is still possible for the TC Chair to add Reviewers at this stage, if necessary, via the column far right.

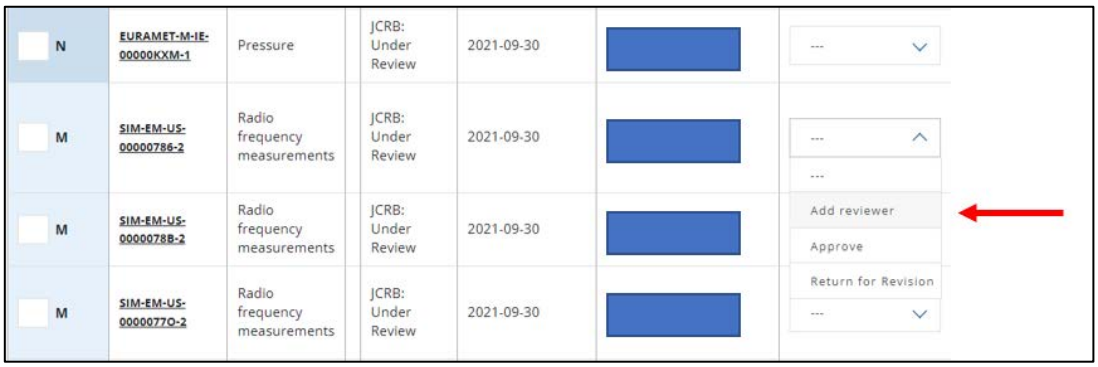


Figure 74 It is also possible for the TC Chair to add Reviewers also in the screen "CMC with reviewer" (the names of the reviewers have been shaded).

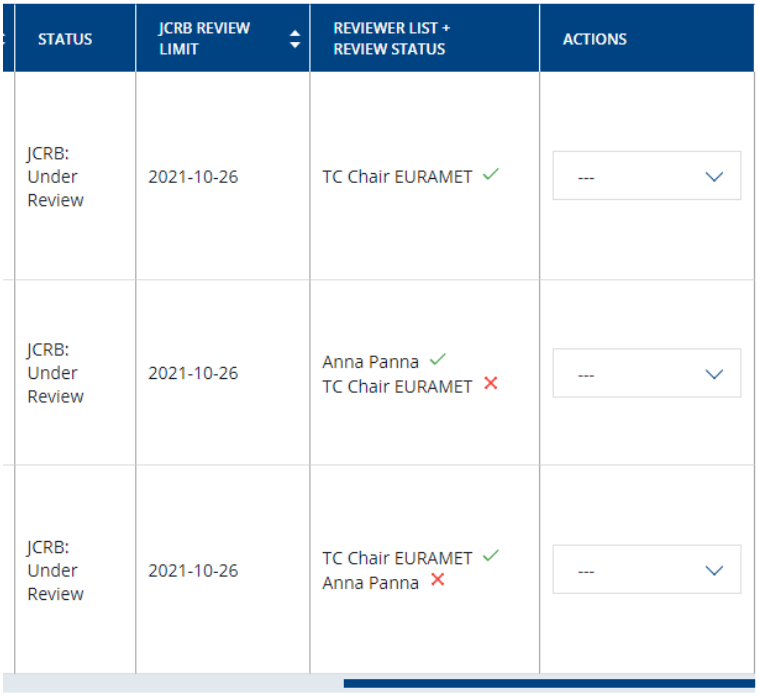


Figure 75 Display of review results. In this example the TC Chair has not followed the recommendation by the Reviewer.

The conclusion of the Reviewer(s) and TC Chair are shown by pictograms, cf. Figure 75. A green "tick" represents "**Accepted**" while a red cross represents "**Not accepted**" by the Reviewers.

However, a green "tick" for the TC Chair now represents "**Approved**" while a red cross represents "**Return for revision**".

The TC Chair can indicate the review conclusion from the column far-right of the table, cf. Figure 62, or using the blue buttons at the top of the screen. He can also use the bottom of the form when reading the CMC, as illustrated in Figure 76. Once the TC Chair has indicated his choice, the choice is firm.

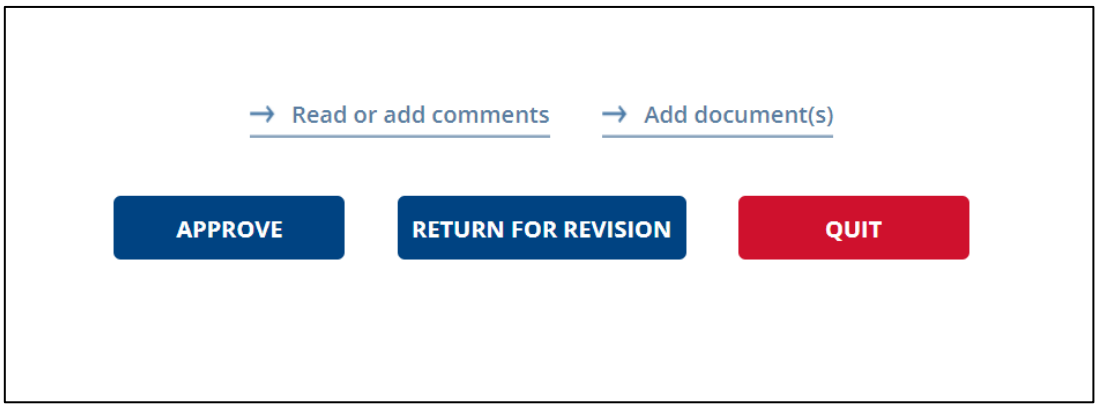


Figure 76 The TC Chair may indicate the review conclusion when reading the CMC.

The TC Chair shall make sure that the reason for revision is clearly stated via the comment tool, cf. Figure 77. Figure 68

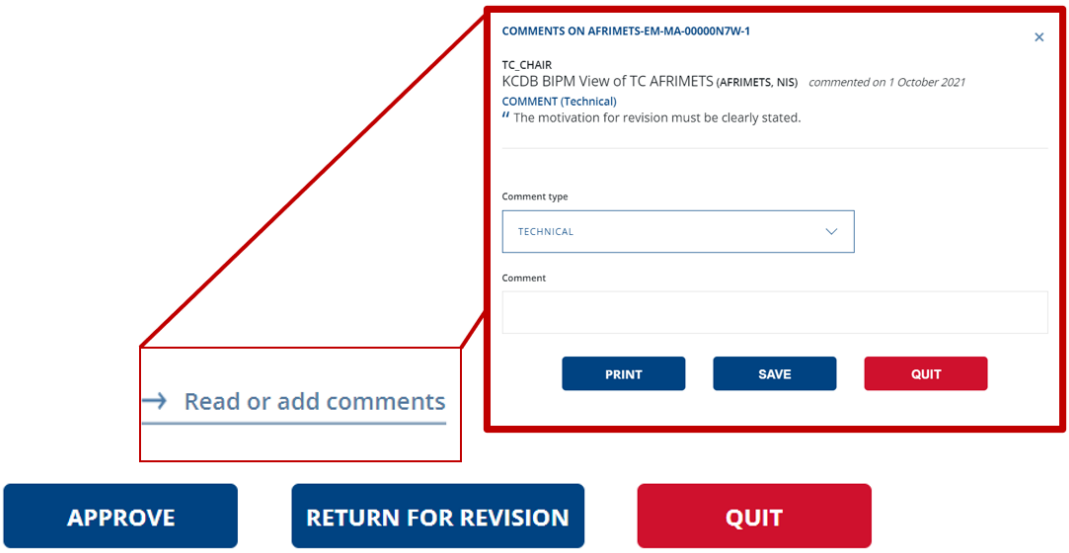


Figure 77 The reason for revision must be clearly indicated.

CMCs in intra and inter RMO review for which revision has been requested remain in the Reviewer and TC Chair dashboard until they are submitted for JCRB review for those in intra RMO review or until they are approved in JCRB review. Additionally,

CMCs in JCRB review remain in the TC Chair and reviewer dashboard for 2 months following the decision ‘JCRB: Not approved’.

13 SUBMIT FOR VOTE, VOTE AND VOTE TRACKING

A CMC that has been revised during the JCRB review will be subject to a vote.

13.1 ORIGINATING RMO SUBMITS CMC

The revised CMC is submitted by the Writer to the corresponding TC Chair. This CMC will appear in ”CMCs **from my RMO**” in the TC Chair JCRB menu and has the status “**JCRB: Revision completed**”. The TC Chair selects the CMC(s) in question and submits these to the JCRB for voting by clicking on the blue button at the top of the dashboard.

Figure 78 "JCRB CMC with reviewers” carrying the status “JCRB: Waiting for vote” (encircled in red) are available to be submitted for vote by the originating RMO.

13.2 VOTING RMOS

The voting TC Chair will find the revised CMC, submitted for vote, in “**JCRB CMC with reviewers**” carrying the status “**JCRB: Waiting for vote**”.

The vote is carried out by clicking “Approve” or “Not approve”.

This can be carried out from the column far right. It can also be accomplished from the CMC form when reading the contents.

The conditions and progress of vote may be consulted in the dashboard “JCRB vote tracking”. By clicking on the CMC ID, the details of the voting process are displayed.

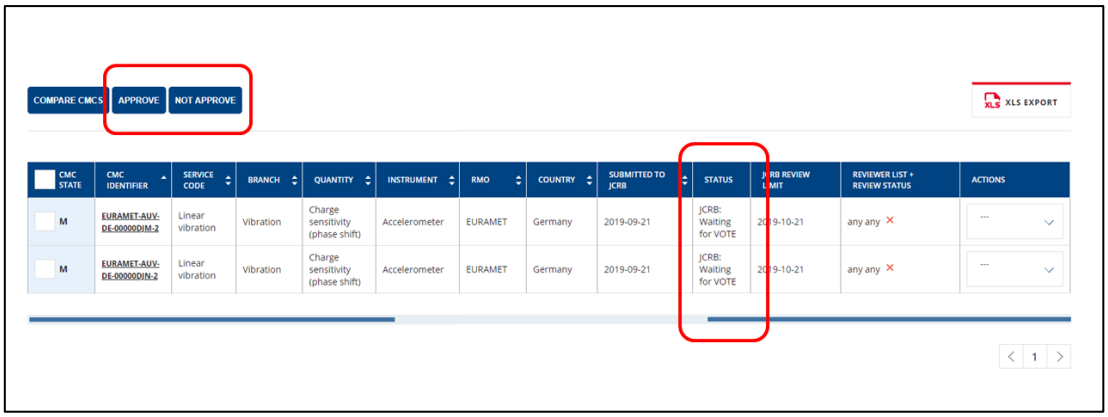


Figure 79 "CMCs from my RMO" dashboard where the CMCs that can be submitted for vote by the originating RMO are encircled in red.

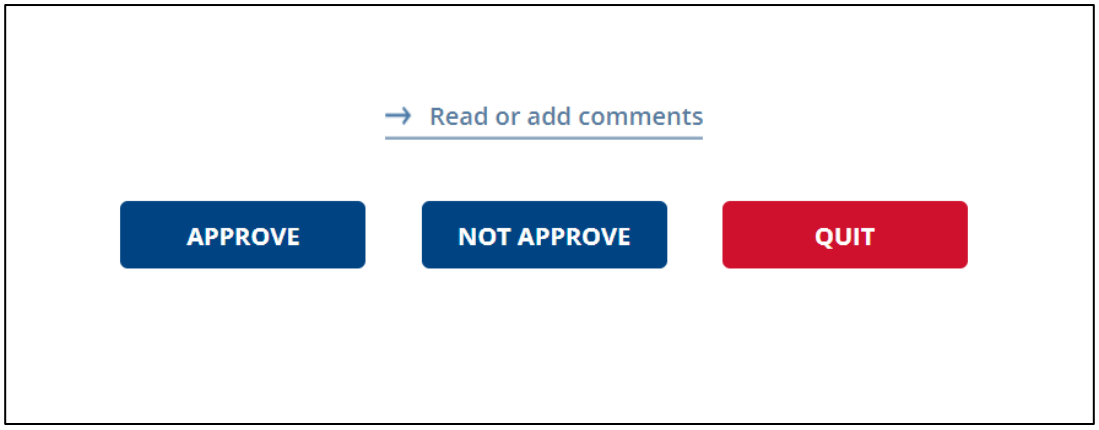
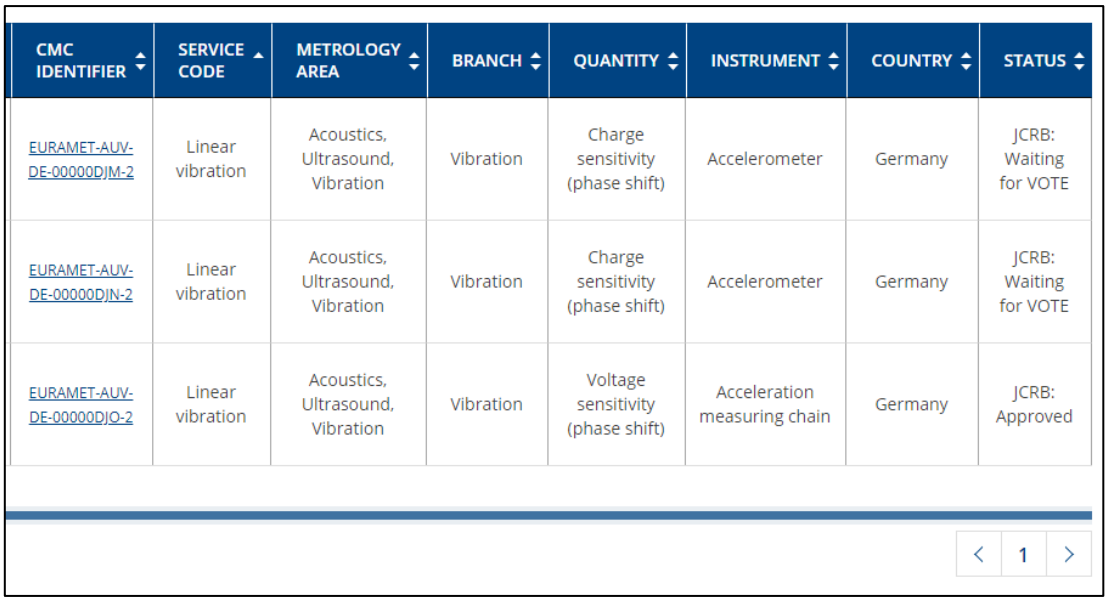


Figure 80 It is possible for the TC Chair to vote from the opened CMC form.

13.3 VOTE TRACKING

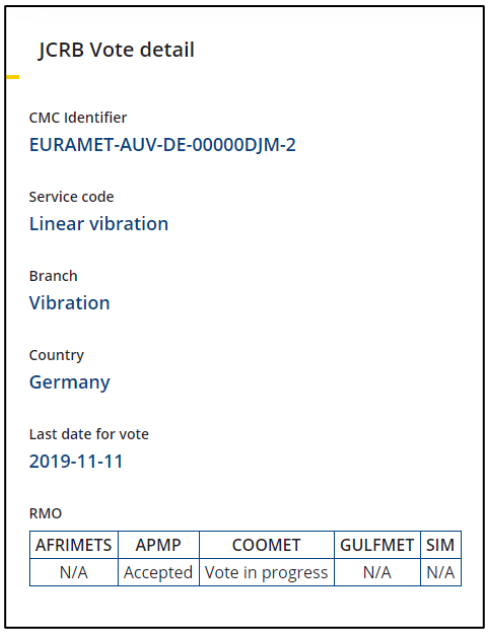
The results and status of the voting process may be consulted in the dashboard "**JCRB vote tracking**". By clicking on the CMC ID, the details of the voting process are displayed.



CMC IDENTIFIER	SERVICE CODE	METROLOGY AREA	BRANCH	QUANTITY	INSTRUMENT	COUNTRY	STATUS
EURAMET-AUV-DE-00000DJM-2	Linear vibration	Acoustics, Ultrasound, Vibration	Vibration	Charge sensitivity (phase shift)	Accelerometer	Germany	JCRB: Waiting for VOTE
EURAMET-AUV-DE-00000DJN-2	Linear vibration	Acoustics, Ultrasound, Vibration	Vibration	Charge sensitivity (phase shift)	Accelerometer	Germany	JCRB: Waiting for VOTE
EURAMET-AUV-DE-00000DJO-2	Linear vibration	Acoustics, Ultrasound, Vibration	Vibration	Voltage sensitivity (phase shift)	Acceleration measuring chain	Germany	JCRB: Approved

1

Figure 81 "Vote tracking" dashboard.



JCRB Vote detail

CMC Identifier
EURAMET-AUV-DE-00000DJM-2

Service code
Linear vibration

Branch
Vibration

Country
Germany

Last date for vote
2019-11-11

RMO

AFRIMETS	APMP	COOMET	GULFMET	SIM
N/A	Accepted	Vote in progress	N/A	N/A

Figure 82 "Vote tracking" details. The RMOs that are not authorized to vote are indicated with "N/A".

14 PENDING ACTIONS

The list of pending actions gives information on what the different RMOs are expected to do during the JCRB review.

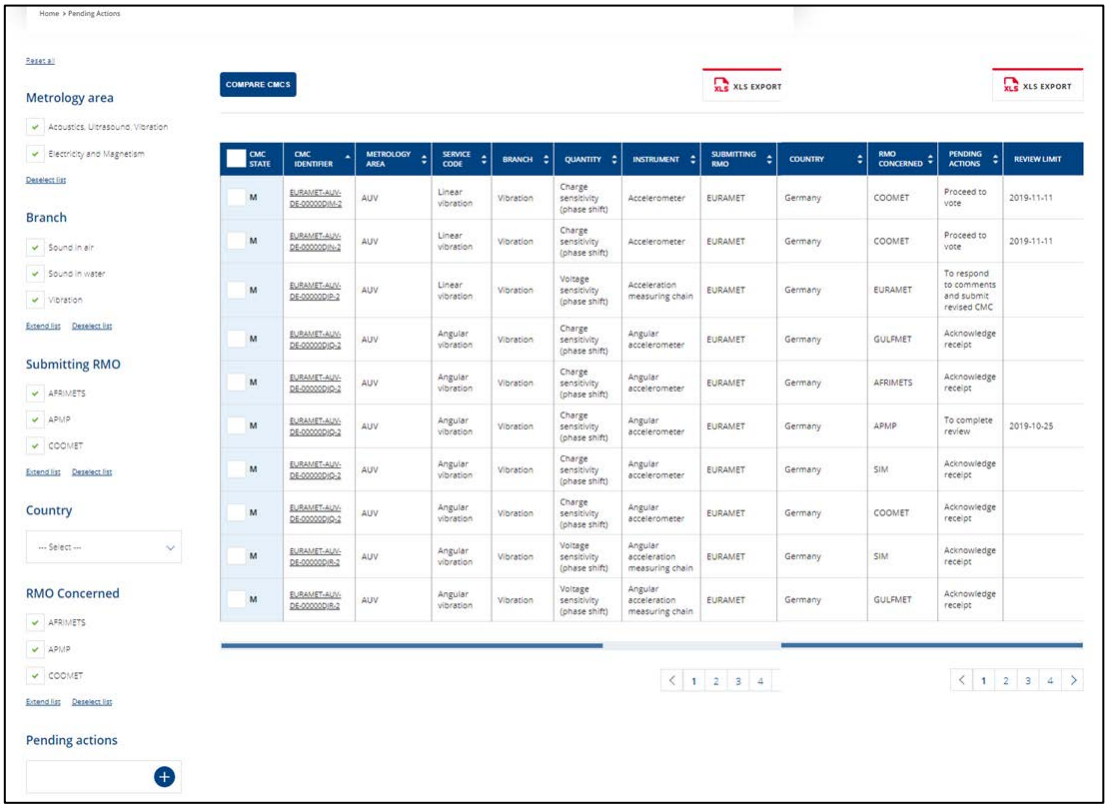


Figure 83 List of pending actions.

The pending actions indicated are:

- Acknowledge receipt of submitted CMC
- To complete review
- To respond to comments and submit revised CMC
- Proceed to vote

15 JCRB REQUEST FOR REVIEW

A TC Chair is requested to indicate the intention to review or not a CMC that has been submitted for JRCB review. When indicating the intention to review the TC Chair sets the deadline which allows access to the CMCs in "**JCRB space / CMCs without reviewer**", see also Section 12.6.

16 CMC WG CHAIR

The coordinator of a CMC WG[21], usually the CMC WG Chair, has access via his profile to a form where all CMCs that have been submitted to the JCRB space for JCRB review are listed.

The CMC WG Chair may here indicate his selection of which RMO(s) should review which CMCs by a check mark. RMOs for which the TC Chairs have accepted to review are indicated with a **green field** in the form.

The selected RMO TC Chair should indicate his wish to review in "JCRB request for review". RMOs that have or have not been selected are not notified.

All TC Chairs have access to the form in 'read-only' mode.

If the CMC WG Chair does not distribute the CMCs for review, it is still possible for the TC Chairs to identify which RMO has already registered to carry out the review.

The CMCs remain in the WG Chair dashboard until it has been approved or not approved. Withdrawn CMCs will not appear.

[21] The coordinator of the JCRB (inter-RMO) review, usually represented by the CMC WG Chair.

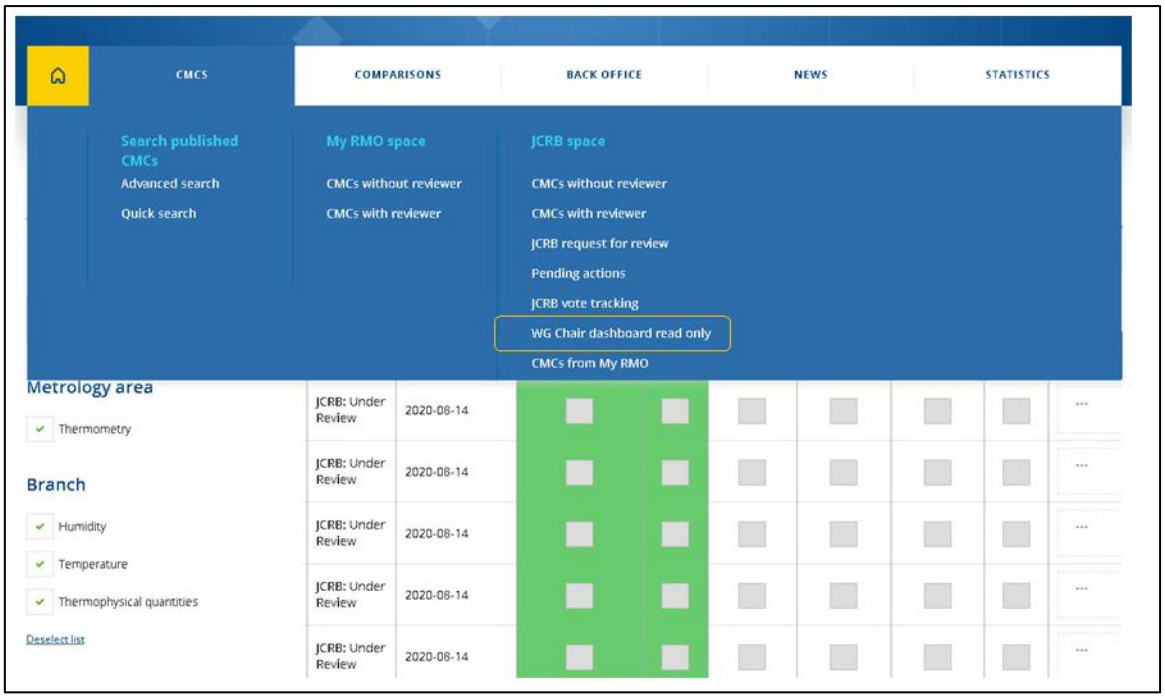


Figure 84 WG CMC Chair dashboard in read only.

16.1.1 CMC WG Chair and review

The CMC WG Chair may review the CMCs without involving the TC Chairs when appropriate. The CMC WG Chair may hence request revision of a CMC.

The WG Chair should indicate the reason for revision via the comment tool, see Comment a CMC, see Section 8.1.2 Add a review comment.

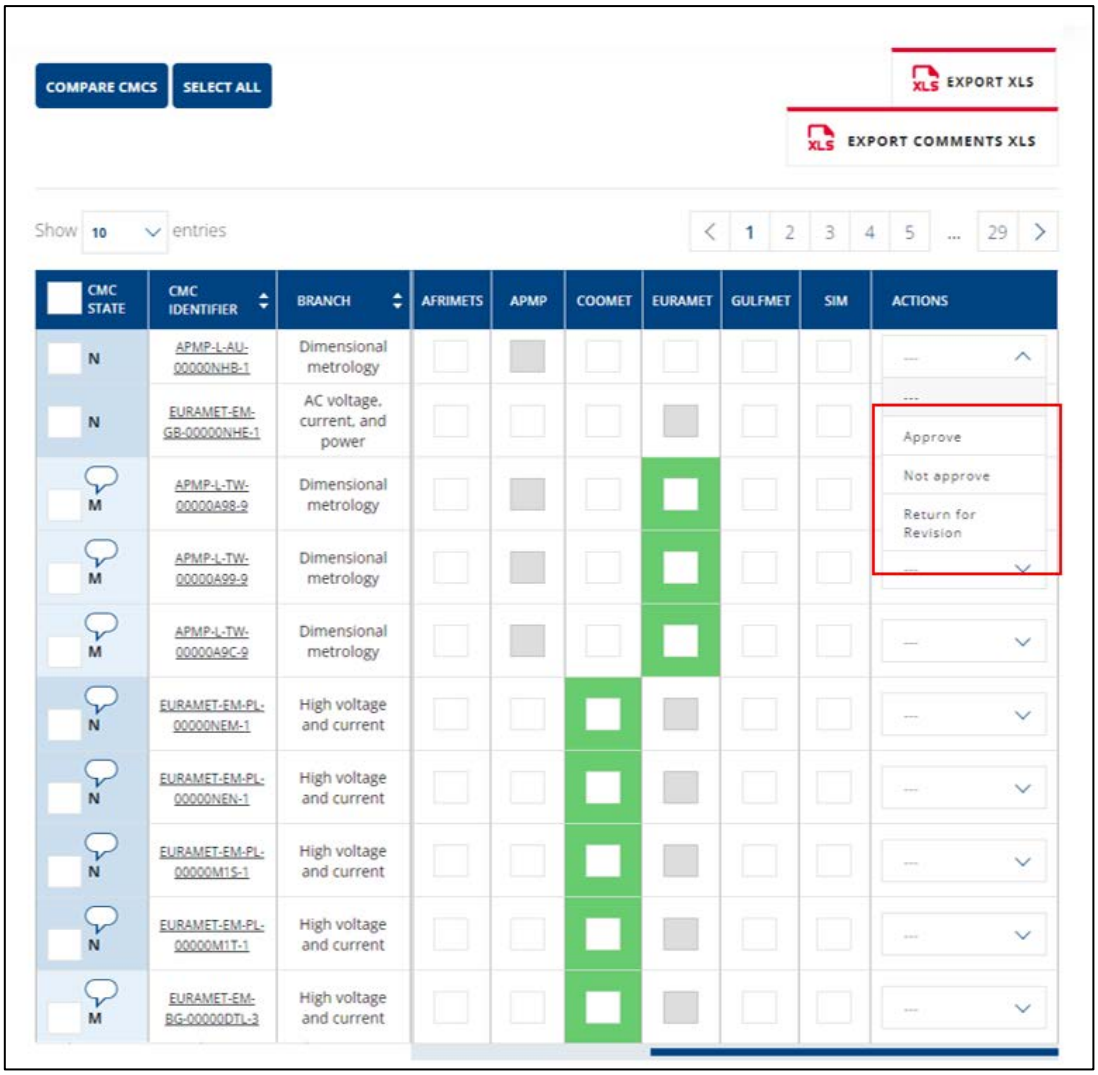


Figure 85 Review result can be indicated by the CMC WG Chair via the column far right.

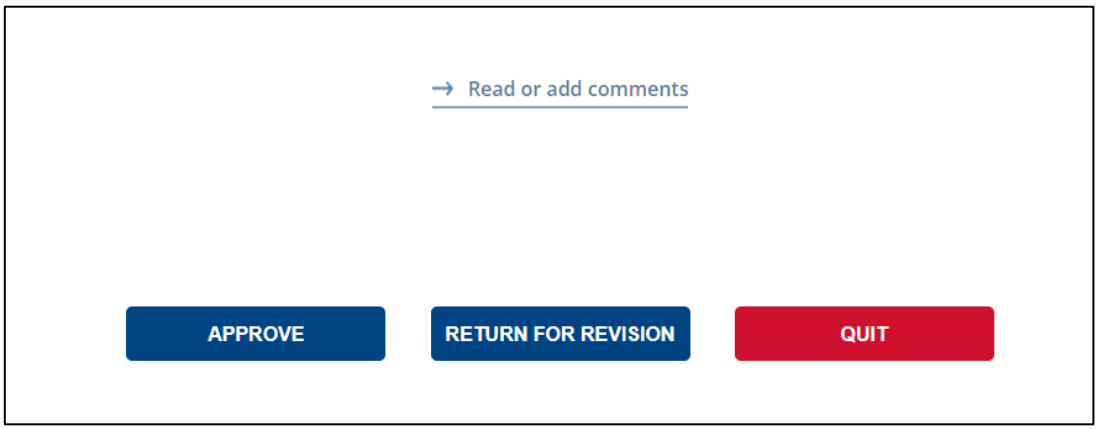


Figure 86 Review results can also be indicated by the CMC WG Chair in the bottom of the CMC form.

When a revision is requested, or a non-approval is justified, the reason for this should be indicated via the comment field accessible in the bottom of the CMC form, cf. Figure 86 and Figure 87.

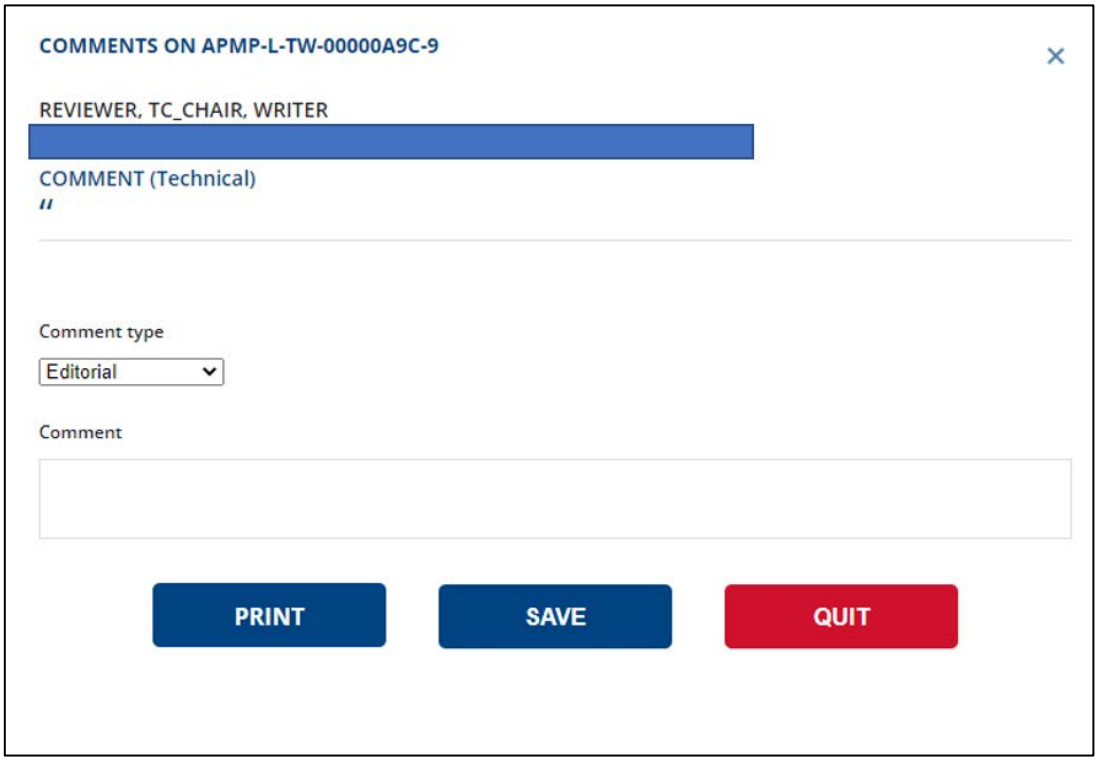


Figure 87 Comment form accessible from the bottom of the CMC form.

16.1.2 Read review comments

See Section 8.1.3 Read review comments.

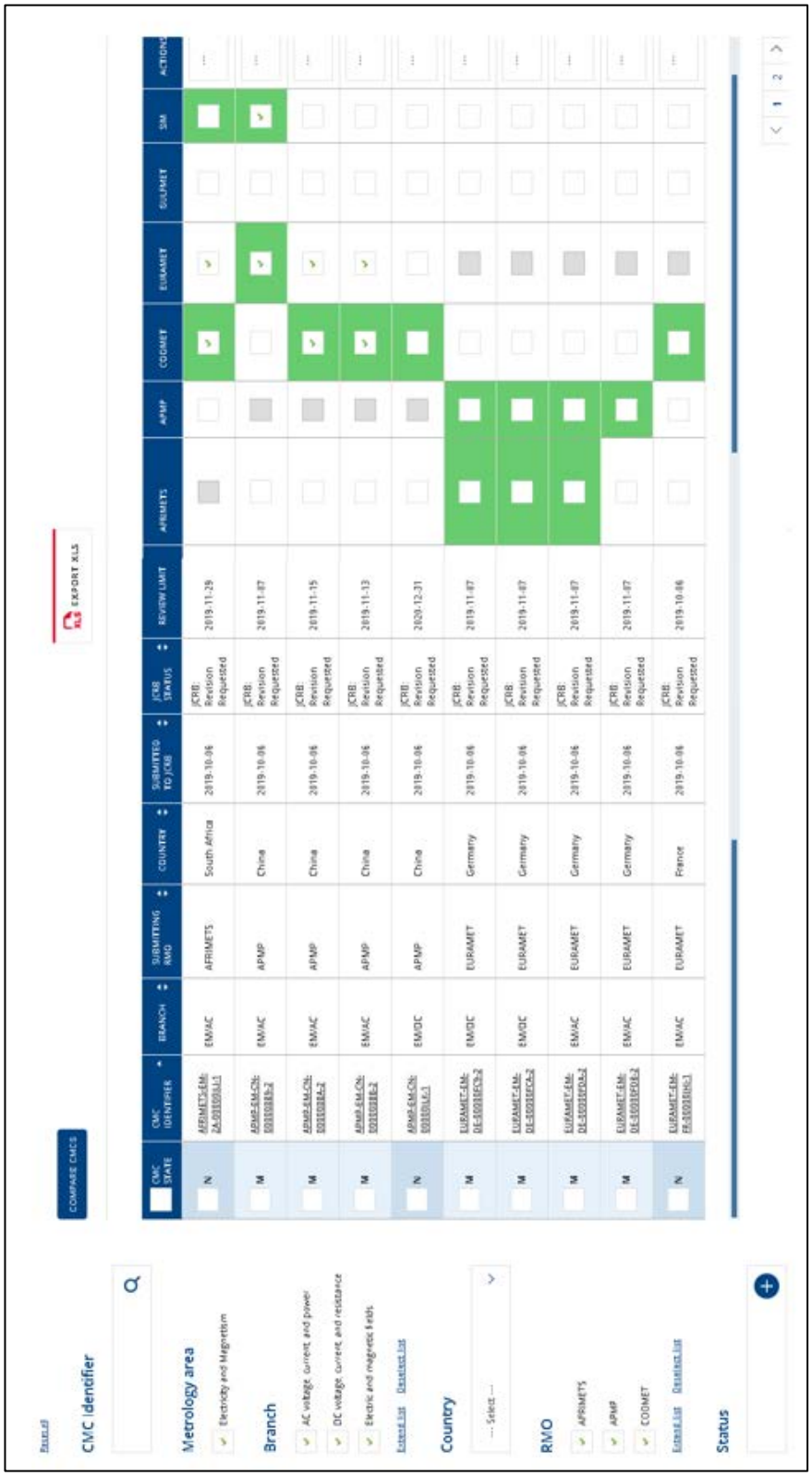


Figure 88 Example of WG CMC form.

17 UPDATE OF REFERENCE DATA

17.1.1 Unit not available when drafting a CMC

If a unit is needed that is not listed in the drop-down list of the CMC form, please contact the KCDB Office, bipm.kcdb@bipm.org.

17.1.2 Update of service categories

When a Consultative Committee updates service categories, the KCDB Office must be consulted on the technical aspects (numbering, validity…).

A former service can be removed completely, i.e. it is no longer available when drafting or updating a CMC, and no longer available via advanced search.

It can also be partially removed during a transition period. In this case no new CMCs can be drafted, but the service is still searchable.

18 COMPARISONS

The process concerning comparisons is carried out within the frame of document [CIPM-MRA-G-11]. However, **the review of the Final Report is not supported by the platform.**

The following steps are supported by the KCDB platform and should be employed by the comparison Pilot:

- New key and supplementary comparisons should be registered on the KCDB web platform by the person piloting the comparison.[22]
- The pilot should keep the information that is posted on the KCDB platform up to date during the comparison, including the progress status and the list of participants.
- The draft B report should be submitted for review by e-mail to the appropriate reviewing group, following the instructions of CIPM MRA-G-11.

When the comparison has been approved, the person in charge of the reviewing group[23] communicates the final version to the BIPM with a copy to the Pilot. The Pilot posts the associated documents onto the platform for publication by the KCDB office including:

- a form that can be downloaded and completed with the degrees of equivalence and result tables for key comparisons.
- the final comparison report file.

The Pilot will be requested to update the status of the comparison at regular intervals via an automatic e-mail notification.

E-mail notifications are automatically generated and distributed to TC Chairs, WG Chairs, the Executive Secretaries, the Pilot and the KCDB Office when

- the Pilot registers a comparison;
- the KCDB Office attributes a comparison code and makes the comparison available on the KCDB website;
- the Pilot updates the comparison status;
- the Pilot submits the comparison results and the Final report to the KCDB Office for publication;

[22] The pilot studies are not published in the KCDB.
[23] Usually, the Executive Secretary for the Consultative Committee, but in some cases represented by a working group chair or TC Chair.

- when the KCDB Office publishes the results on the KCDB website.

18.1 COMPARISON DASHBOARD

If the Pilot has previously piloted comparisons, these will be listed in “Dashboard” under the menu “Comparisons”.

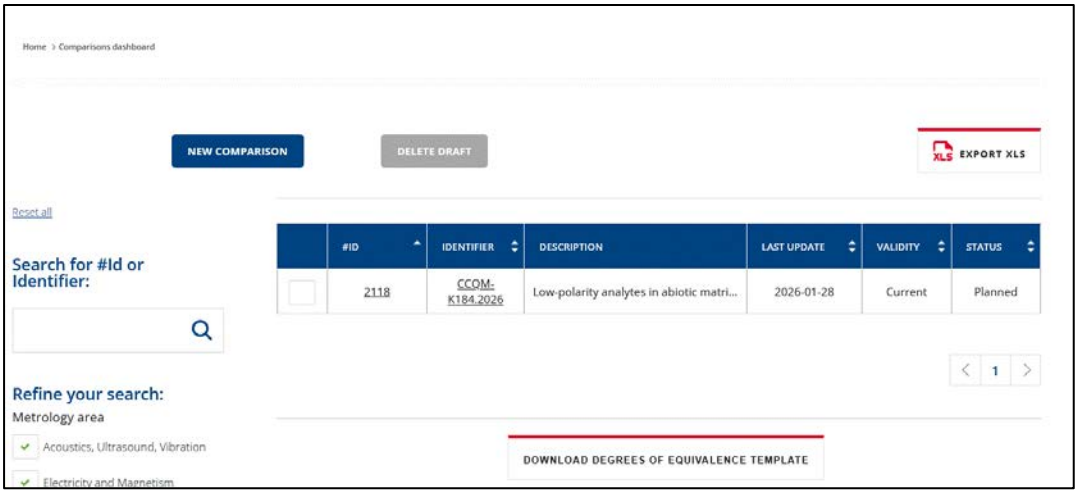


Figure 89 Comparison dashboard.

By clicking on the comparison identifier, the comparison information and contact form will open and can be updated where applicable.

It is also possible to download the template for providing the Degrees of Equivalence applicable to key comparisons.

18.2 REGISTER A COMPARISON

The comparison Pilot should log into the KCDB platform and will find the registration form in the menu “Comparisons” by clicking ‘New comparison’ under ‘My comparisons.

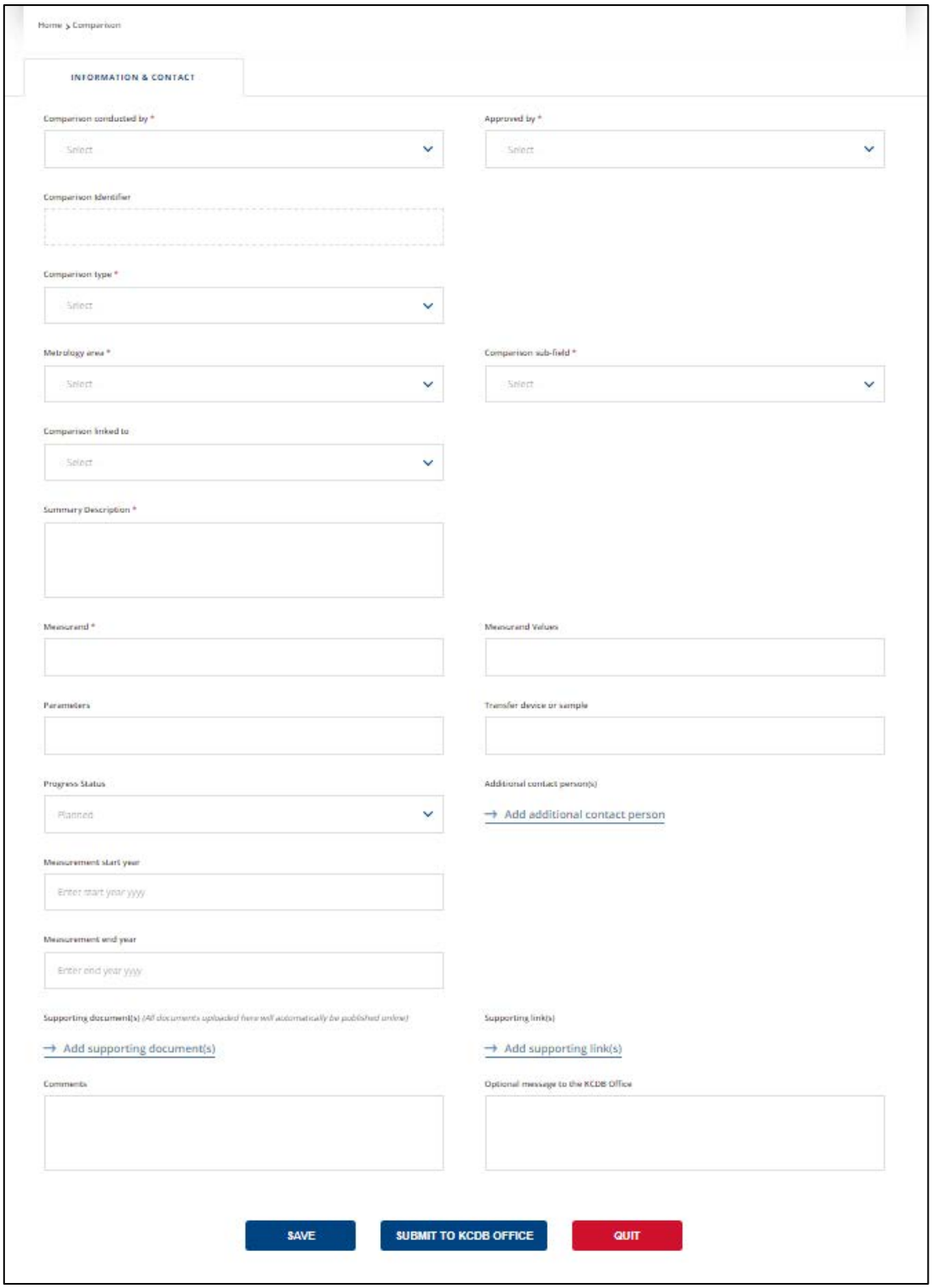


Figure 90 Comparison registration form.

18.2.1 Comparison conducted by

The Consultative Committee or organization conducting the comparison should be indicated.

18.2.2 Approved by

To indicate the Consultative Committee concerned.

18.2.3 Comparison identifier

The comparison identifier is given by the KCDB office after submitting the form. If the Pilot has a suggestion, this can be indicated in the bottom of the form under "Optional message to the KCDB Office".

18.2.4 Comparison type

"Key Comparison" or "Supplementary Comparison".

18.2.5 Metrology area

Indicate the metrology area concerned.

18.2.6 Comparison sub-field

Indicate the sub-field concerned.

18.2.7 Comparison linked to

If the comparison should be linked to a key comparison that is carried out by the Consultative Committee, the comparison code should be indicated here.

18.2.8 Summary description

Short description of the comparison.

18.2.9 Measurand

Indicate the measurand.

18.2.10 Measurand values

Indicate the nominal measurand value(s) or range and unit.

18.2.11 Parameters

Any parameters applied for the measurements (optional).

18.2.12 Transfer device or sample

Indicate the transfer device or the type of sample that is circulated or distributed to the comparison participants.

18.2.13 Progress status

Indicate the present status of the comparison.

18.2.14 Additional contact person

Only one person can be identified as the Pilot. If there are co-pilots, these persons should be listed as “Additional contact person”.

18.2.15 Measurement start year

Indicates the year when measurements started (or are planned to start).

18.2.16 Measurement end year

Indicates the year when measurements ended (or are planned to end).

18.2.17 Supporting document(s)

Documents linked to the organisation of the comparison, such as the Technical Protocol. When uploaded, these documents will appear automatically on the KCDB web.

18.2.18 Supporting link(s)

Indicates one or more URLs, each associated with a title.

18.2.19 Comments

Comments to be published on the KCDB web.

18.2.20 Optional message to the KCDB Office

Messages to the KCDB Office. This message will not be published on the KCDB web.

18.2.21 Save and register

The contents can be saved at any time by pressing **SAVE**.

18.2.22 Participants

After having saved the initial data, a second tab becomes available to indicate the participants. Press **SAVE**.

18.2.23 Submit registration

To submit the information for publication on the KCDB web, press **SUBMIT TO KCDB OFFICE**. The Pilot, as well as the associated TC Chair, WG Chair, Executive Secretary covering the metrology area and the KCDB Office, will receive a notification.

After having submitted the information to the KCDB Office, only the information on **Progress status, Measurement start and end year, Supporting document(s), Comments, additional contact person(s) and Optional message to the KCDB Office** can be edited by the Pilot.

The contents of the fields listed above might be edited by the KCDB Office so that the text harmonizes with other similar comparisons.

18.3 Review and approval of the comparison report

The review process is not supported by the platform. The comparison report should be submitted to the appropriate reviewing group for approval [CIPM MRA-G-11].

18.4 Submit the final report of a comparison

When the comparison has been approved, the person in charge of the reviewing group will confirm approval and communicate the final version to the BIPM/KCDB Office[24] with a copy to the Pilot[25].

The Pilot posts the associated documents onto the platform via the tab "FINAL REPORT" for publication by the KCDB office.

The final report should be submitted by the Pilot in **a non- protected pdf** format. It is also recommended to provide the source document (e.g. the Word document) of the report.

For key comparisons, the form "**table-doe.xlsx**" for submitting the degrees of equivalence and result tables can be downloaded. It should be submitted un-protected.

[24] Procedure depending on the Consultative Committee.

[25] Protected files cannot be uploaded via the KCDB web platform.

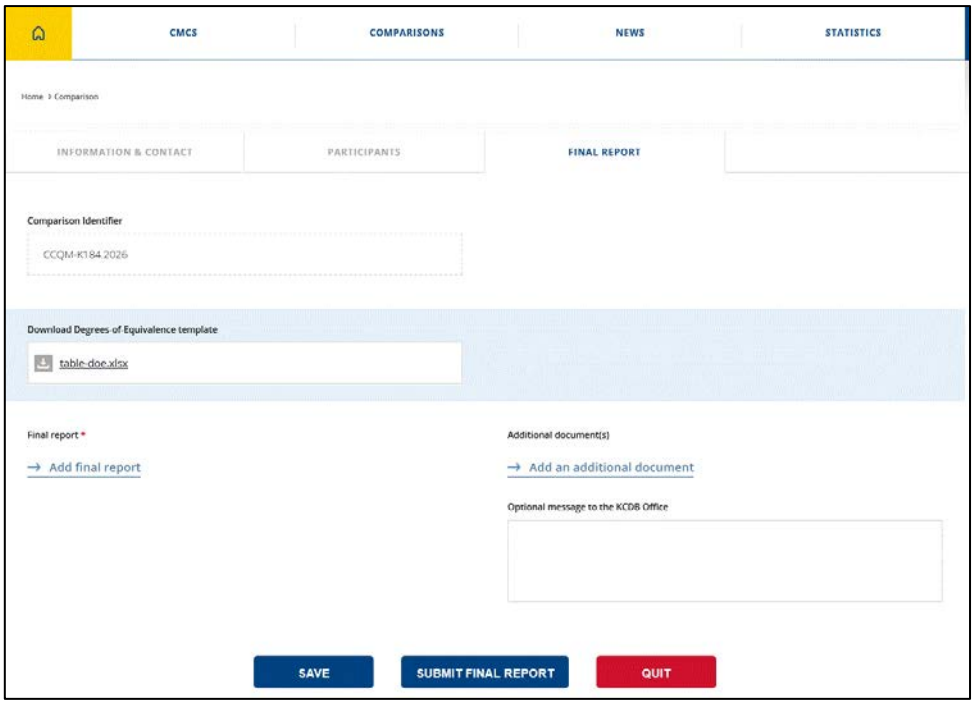


Figure 91 Form for posting associated documents for the final comparison report.

By clicking on the link 'Add final report', a form will open for the Pilot to upload the final report and complete the required information for attribution of a DOI[26] (see Fig. 92 and Fig 93).

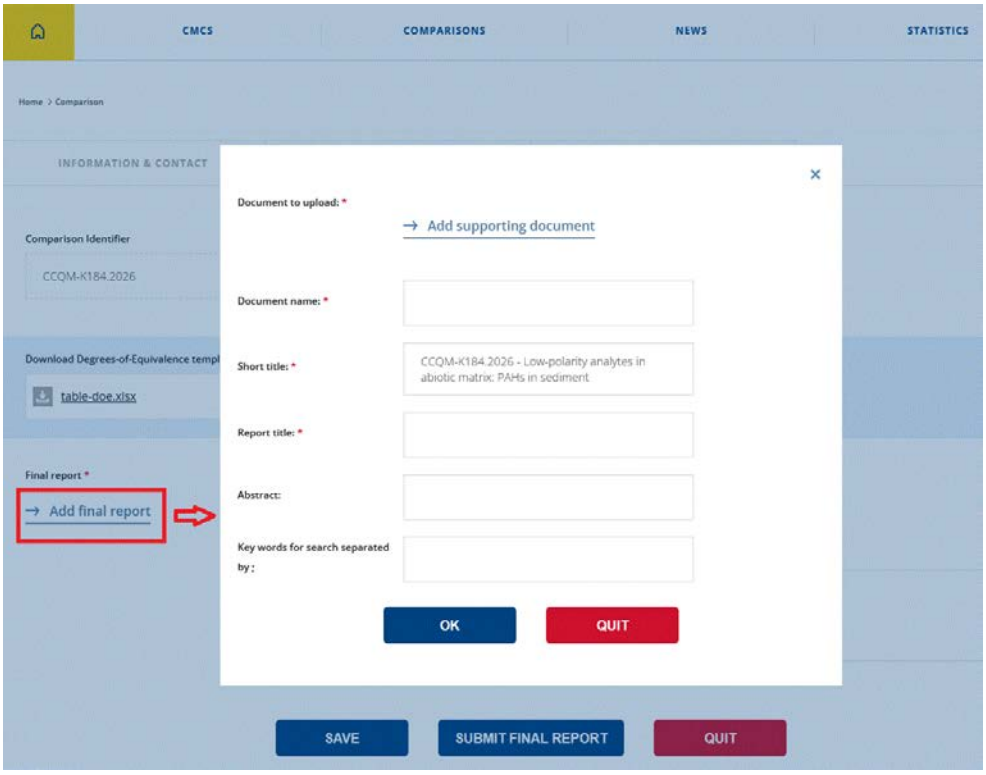


Figure 922 Form for posting the final comparison report and required information for DOI attribution.

After addition of the final report, clicking on SAVE in the tab “FINAL REPORT” will open a new tab “FINAL REPORT AUTHORS” for completion by the Pilot.

The list of comparison participants is displayed by default, and the Pilot must add the authors affiliated with the institutes.

Authors affiliated with institutes that are not signatories of the CIPM MRA can also be added. However, these are intended solely for the submission of comparison information relevant for the publication of the report in the CIPM MRA Final reports webpage.

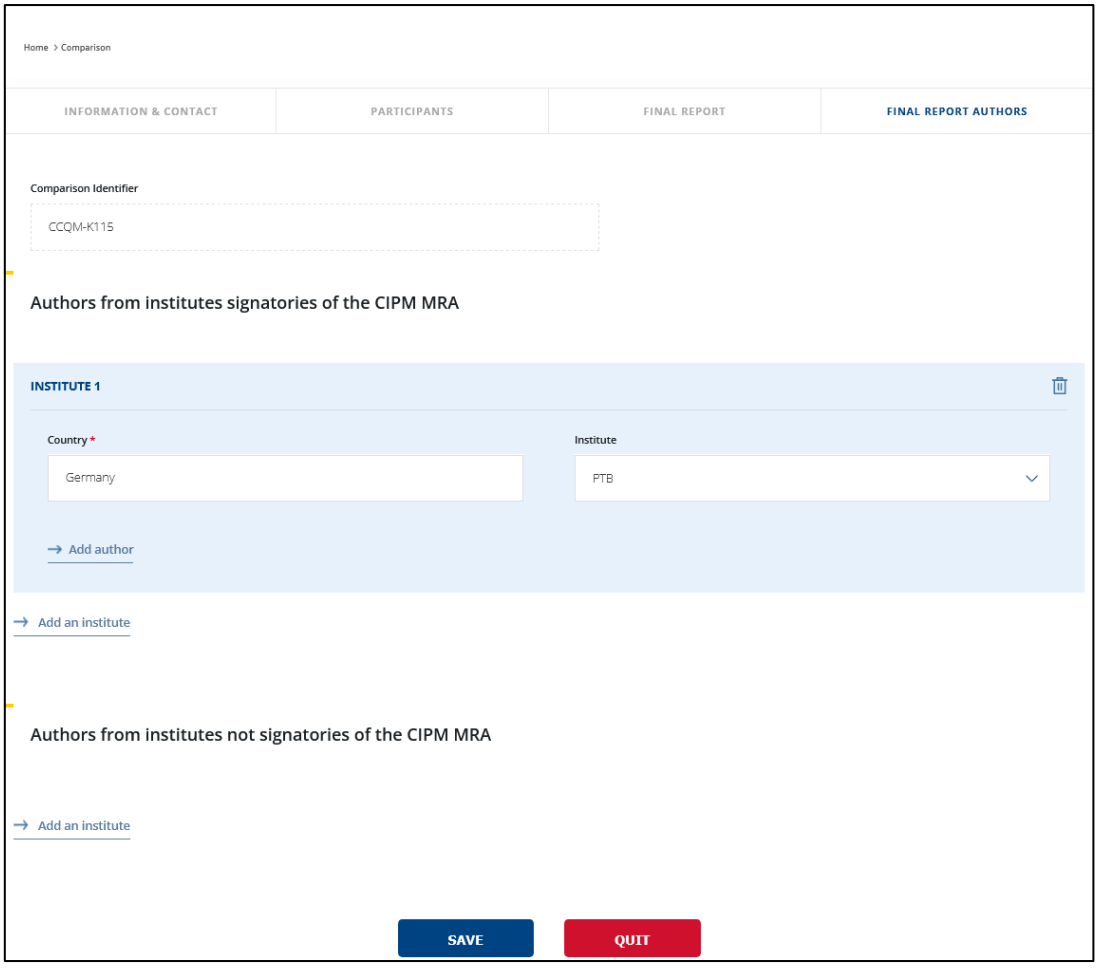


Figure 933 Form for posting the authors of the final comparison report for DOI attribution.

18.5 Update Status

The Pilot will receive an automatic notification at regular intervals (twice each year) with the request to update the status of the comparison. If the status has not changed, the Pilot is still invited to consult the comparison status and indicate “save” to confirm that the comparison is still active.

19 PILOT STUDY REPORT

Pilot Studies are not published in the KCDB. However, the KCDB web platform provides support to the PILOT for submitting Pilot Study information and the final report for publication on the CIPM MRA Final Reports webpage, following confirmation that the appropriate entity and all participants have approved the publication of the results.

19.1 SUBMIT A PILOT STUDY REPORT

The Pilot, once logged into the KCDB platform, will find the registration form by clicking "Submit a Pilot Study Report" under "Comparisons".

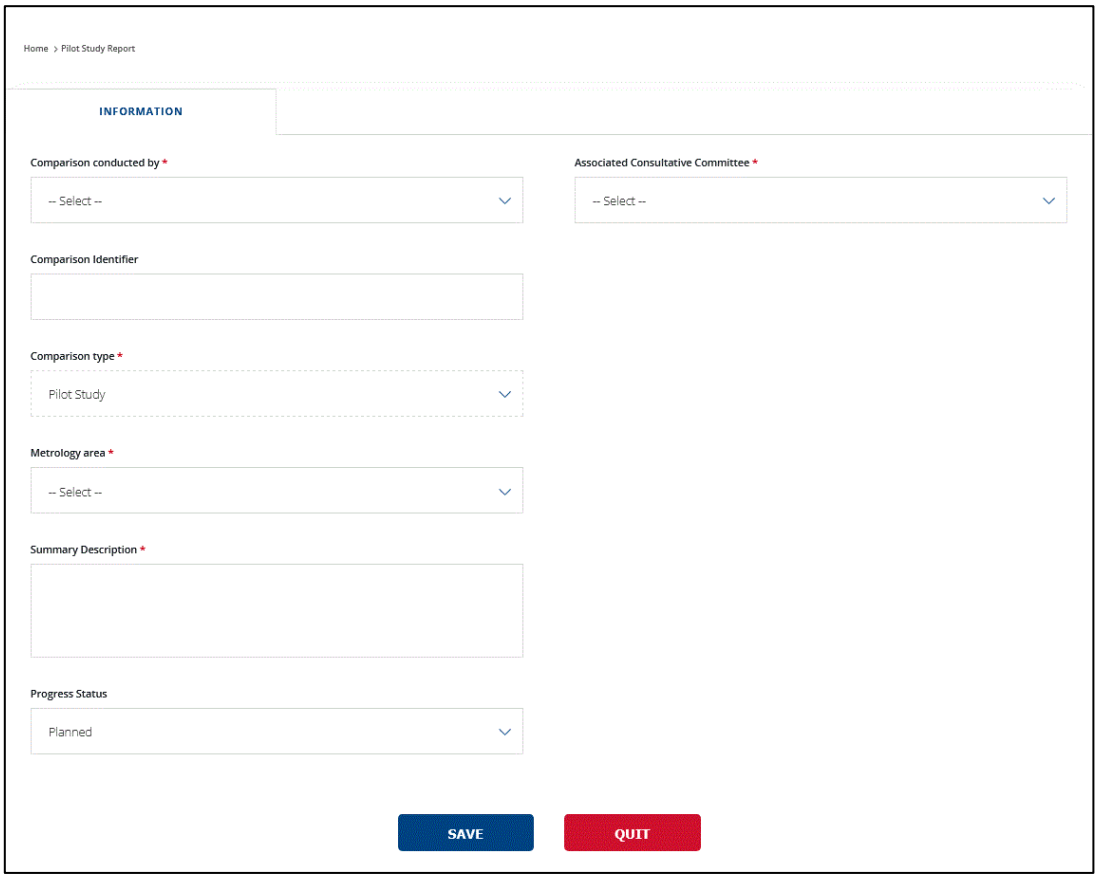


Figure 944 Pilot Study registration form.

19.1.1 Comparison conducted by

The Consultative Committee or organization conducting the comparison should be indicated.

19.1.2 Associated Consultative Committee

To indicate the Consultative Committee approving the Pilot Study.

19.1.3 Comparison identifier

The Pilot Study identifier should be indicated.

19.1.4 Comparison type

"Pilot Study" is indicated by default.

19.1.5 Metrology area

Indicate the metrology area concerned.

19.1.6 Summary description

Short description of the Pilot Study.

19.1.7 Progress status

Indicate the present status of the Pilot Study.

19.1.8 Save and register

The contents can be saved at any time by pressing **SAVE**.

19.1.9 Final report

After having saved the initial data, a second tab becomes available to post the information and file the final report (See Fig. 92). Press **SAVE**.

19.1.10 Final report authors

After having saved the final report information, a third tab becomes available to indicate the authors of the final report (See Fig. 93). Press **SAVE**.

19.1.11 Submit final report

To submit the final report for publication on the CIPM MRA Comparison Report, press **SUBMIT FINAL REPORT**.

The contents of the fields listed above might be edited by the KCDB Office so that the text harmonizes with other similar comparisons.

19.2 Pilot Study Report Dashboard

If the Pilot has previously submitted Pilot Study Reports these will be listed in "Dashboard for Pilot Study Report" under the menu "Comparisons".

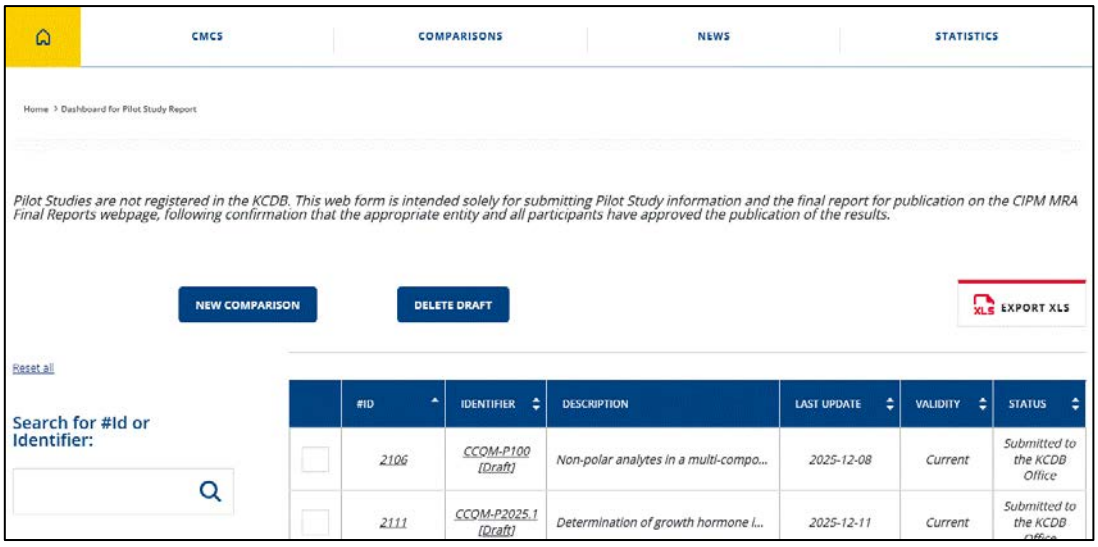


Figure 955 Dashboard for Pilot Study Reprotdashboard.

By clicking on the pilot study identifier, the pilot study information form will open and can be updated where applicable.

20 STATISTICS

20.1.1 CMC statistics

The menu on Statistics allows the user to:

- Get information on the number of CMCs for each state economy, branch or category.
- Generate customized statistics on the number of CMCs according to RMO, state economy, metrology area or approval year.

A logged-in user can also consult the list of greyed-out CMCs and obtain statistics on CMC review performance.

20.1.2 Comparison statistics

The menu on Statistics allows the user to:

- Get information on the number of Key Comparisons for each state economy participating in the CIPM MRA, comparison branch or category, with statistics on piloting.

- Get information on the number of Supplementary Comparisons for each state economy participating in the CIPM MRA, comparison branch or category, with statistics on piloting.

- Generate customized statistics on the number of Key and Supplementary comparisons according to organization, selected state economies, metrology area or registration year on the platform.

A logged-in user can also consult the number of not yet completed comparisons for which the measurement start year is dated 5 years or more ago.

Figure 96 Menu on statistics for all users.

Figure 97 Menu on statistics for logged-in users.

21 REFERENCES

Report CIPM 2018: International Committee for Weights and Measures, Report of the 107th meeting (2018) p. 91
https://www.bipm.org/utils/en/pdf/CIPM/CIPM2018-EN.pdf

[CIPM-MRA-G-11] Measurement comparisons in the CIPM MRA, Guidelines for organizing, participating and reporting
https://www.bipm.org/documents/20126/43742162/CIPM-MRA-G-11.pdf/9fe6fb9a-500c-9995-2911-342f8126226c

[CIPM-MRA-G-13] Calibration and measurement capabilities in the context of the CIPM MRA, Guidelines for their review, acceptance and maintenance
https://www.bipm.org/documents/20126/43742162/CIPM-MRA-G-13.pdf/f8b8c429-42e0-4cf1-dc6c-bc60ab7f371a

Guidance on quantity-based equations, see Question 1.2 in the Frequently Asked questions on the KCDB
https://www.bipm.org/documents/20126/43908835/Frequently%20Asked%20Questions%20on%20the%20KCDB.pdf/3855231c-c360-5538-7b89-f3a80d9b3d8b?version=1.4&t=1663069388875&download=true

22 BROWSER INTEGRATION

The versions listed below are guaranteed. More recent version function but are not guaranteed.

22.1 DESKTOP

Windows		**Mac OS**
Mozilla Firefox	Google Chrome	Safari
53 to 60	58 to 67	up to 8

22.2 MOBILE AND TABLET

IOS	**Android**		Mac OS
Safari	Google Chrome	Android Browser	IE Mobile
IOS 9 to 10.6.8	Android 7 to 9		10

23 APPENDIX

Notifications are issued automatically, triggered by certain actions.

The sender address is new_kcdb_message@bipm.org

This address does not accept any e-mails.

If you expect but do not receive any notifications, first check your SPAM, and make sure that the security settings of your IT system do not filter out these notifications.

23.1 USER ACCOUNT NOTIFICATIONS

When a new user registers for an account, the following notification is issued to the user:

Hello. Your request for a user account has been transferred to your TC Chair and the KCDB/JCRB office.

The TC Chair concerned receives

One or several requests for a user account is waiting for your approval. https://www.bipm.org/kcdb/

After that the TC Chair has approved the account, the user receives:

Hello. Your account was approved and now you can access to BIPM KCDB

23.2 CMC NOTIFICATIONS

Examples of notifications are listed in the following pages. In the bottom of notifications concerning CMCs with time constraints, a reminder on the date limits is available:

Applied time limits:

Limit for indicated intention for review: 3 weeks.

Limit for review: the date you indicate is a hard deadline.

Detailed information on the CMC review process is described in the guidance document CIPM MRA-G-13, available on the BIPM website: https://www.bipm.org/utils/common/documents/CIPM-MRA/CIPM-MRA-G-13.pdf.

Most of the notifications are issued in a regrouped e-mail within 24 h but some are sent immediately.

ISSUE	NOTIFICATION	RECEPIENT OF NOTIFICATION							
		Writer	TC Chair RMO	TC Chairs concerned	Reviewer	WG Chair	RMO secretary concerned	NMI secretary concerned	KCDB Office
USER ACCOUNT									
Register for a user account	Your request for a user account has been transferred to your TC Chair and the KCDB/JCRB office.	X							
Register for a user account	One or several requests for a user account is waiting for your approval.		X						X
Approve a user account	Your account was approved and now you can access to BIPM KCDB.	X							
Delete a user account	Your account was deleted from BIPM KCDB	X							
CMC SUBMISSION ISSUES									
Writer submits a new or revised CMC to TC Chair for intra-RMO review	YYYY-MM-DD (date of submission, my comment) CMC KCDB CODE (BRANCH or GROUP) was submitted to the TC Chair today by WRITER (NMI)	X	X		X				
CMC has been returned to the Writer for revision (both intra- and JCRB review)	YYYY-MM-DD CMC KCDB CODE (BRANCH or GROUP) is now available for the Writer for revision	X	X						
Writer submits a revised CMC to TC during the JCRB review	YYYY-MM-DD (date of submission, my comment) CMC KCDB CODE (BRANCH or GROUP) is available in "CMCs from my RMO" to be submitted for JCRB vote	X	X						
CMC DELETION									
Writer deletes a CMC	YYYY-MM-DD (date of submission, my comment) CMC KCDB CODE (BRANCH or GROUP) was deleted by NMI.	X	X						X

ISSUE	NOTIFICATION	RECEPIENT OF NOTIFICATION							
		Writer	TC Chair RMO	TC Chairs concerned	Reviewer	WG Chair	RMO secretary concerned	NMI secretary concerned	KCDB Office
INVITED CMC REVIEWERS									
Reviewer is invited by TC Chair (both intra- and JCRB review)	You are invited for CMC review on CMC KCDB CODE (BRANCH or GROUP).				X				
Reviewer is invited by TC Chair: REMINDER (both intra- and JCRB review)	YYYY-MM-DD Only 1 week remaining for JCRB review of CMC KCDB CODE (BRANCH or GROUP)..				X				
Reviewer submits review comments (both intra- and JCRB review)	Reviewed CMC KCDB CODE (BRANCH or GROUP) was returned to TC Chair.		X						
JCRB REVIEW									
CMCs have been submitted for JCRB Review	YYYY-MM-DD You have received a CMC for JCRB review for CMC KCDB CODE (BRANCH or GROUP).					X			
CMCs have been submitted for JCRB Review	YYYY-MM-DD Your are invited for JCRB review on CMC KCDB CODE (BRANCH or GROUP).			X					
CMCs have been submitted for JCRB Review: REMINDER	YYYY-MM-DD Only 1 week remaining to reply to the JCRB review invitation for CMC KCDB CODE (BRANCH or GROUP).			X					
No RMO has registered to review	YYYY-MM-DD You are invited for JCRB review on CMC KCDB CODE (BRANCH or GROUP). This is a repeated invitation to that made 3 weeks ago. Please notice that, if none of the RMOs register to review again, this CMC will be considered as approved.			X					

ISSUE	NOTIFICATION	RECEPIENT OF NOTIFICATION							
		Writer	TC Chair RMO	TC Chairs concerned	Reviewer	WG Chair	RMO secretary concerned	NMI secretary concerned	KCDB Office
JCRB REVIEW (continued)									
No RMO has registered to review: REMINDER one week before the extended date limit	YYYY-MM-DD You are invited for JCRB review on CMC KCDB CODE (BRANCH or GROUP). This is a repeated invitation to that made 3 weeks ago. Please notice that, if none of the RMOs register to review again, this CMC will be considered as approved.			X					
CMCs have been selected to be reviewed	YYYY-MM-DD You have received a CMC for JCRB review for CMC KCDB CODE (BRANCH or GROUP).			X					
CMCs have been selected to be reviewed: REMINDER	YYYY-MM-DD You have received a CMC for JCRB review - 3 weeks remaining to JCRB review limit for CMC KCDB CODE (BRANCH or GROUP).	X	X			X	X		
CMCs have been selected to be reviewed: REMINDER	YYYY-MM-DD Only 1 week remaining for JCRB review of CMC KCDB CODE (BRANCH or GROUP).	X	X			X	X		
CMC has been sumitted for vote	YYYY-MM-DD CMC available for vote - 3 weeks remaining to vote on CMC KCDB CODE (BRANCH or GROUP).			X					
CMC has been sumitted for vote: REMINDER	YYYY-MM-DD Only 1 week remaining for JCRB vote of CMC KCDB CODE (BRANCH or GROUP)..			X			X		X

ISSUE	NOTIFICATION	RECEPIENT OF NOTIFICATION							
		Writer	TC Chair RMO	TC Chairs concerned	Reviewer	WG Chair	RMO secretary concerned	NMI secretary concerned	KCDB Office
JCRB REVIEW (continued)									
KKCDB Office publishes a CMC	CMC KCDB CODE (BRANCH or GROUP) is now published in the KCDB.	X		X					X
GREYING OUT			X				X		X
Writer greys out a CMC	YYYY-MM-DD CMC KCDB CODE (BRANCH or GROUP) was greyed out by NMI.	X	X						X
The greyed out CMC har reached the 4-y limit	YYYY-MM-DD The 4-year limit of the greyed out CMC KCDB CODE (BRANCH or GROUP) has now passed. Please i) consult CIPM MRA-G-13 (available via the BIPM website), and ii) get in touch with the JCRB Executive Secretary.	X	X				X	X	X
The greyed out CMC har reached the 4-y limit	YYYY-MM-DD The 5-year limit of the greyed out CMC KCDB CODE (BRANCH or GROUP) has now passed. Please i) consult CIPM MRA-G-13 (available via the BIPM website), and ii) get in touch with the JCRB Executive Secretary.	X	X				X	X	X
KCDB Office publishes a CMC to be reinstated.	YYYY-MM-DD (date of submission, my comment) CMC KCDB CODE (BRANCH or GROUP), previously greyed out, has now been reinstated in the KCDB.	X		X		X	X	X	

23.3 Comparison Notifications

Each step on comparisons supported by the platform is followed by a notification.

23.3.1 Comparison Pilot Presents a comparison

Notification on a newly organized comparison that should be assigned a comparison code and placed online.

This information is sent to the Pilot, TC Chairs, Working Group Chair, Executive Secretary and KCDB Office.

A new Supplementary comparison in Metrology Area, Branch has been presented by First and Last name (e-mail address), Full name of institute for registration in the KCDB.

Please note that this comparison will be registered in the KCDB as soon as possible, unless the KCDB Office (BIPM.KCDB@bipm.org) receives an immediate response to the present email, giving instructions to the contrary.

INFORMATION:

Comparison conducted by: Consultative Committee or RMO in question

Summary Description: short description

Measurand: information

Measurand values: information

Parameters: Frequency: information

Transfer device or sample: Measuring system for field strength transfer TFS 11, Schaffner

Additional contact persons: information

Registered participants: name if institutes

Measurement dates: information

Progress status: information

RMO internal identifier (when applicable): information

23.3.2 Confirmation of registration from the KCDB Office

This information is sent to the Pilot, TC Chairs, Working Group Chair, Executive Secretary and KCDB Office.

The comparison COMPARISON CODE (database ID) was registered in the KCDB today.

23.3.3 Request to Pilot to update an already registered comparison

This information is sent to the Pilot and KCDB Office.

Dear Colleague,

You are presently registered as Pilot for the comparison COMPARISON CODE.

Please update its status and participants on the KCDB web portal as per the procedure below for a 6 month comparison progress review.

With our best regards,

The BIPM KCDB Office

bipm.kcdb@bipm.org

Log in using https://www.bipm.org/kcdb/.

Choose "Dashboard" under the header Comparisons.

Choose the comparison in question and open the "Information & Contact" form.

Update the "STATUS" and select "SAVE".

If the participation has changed, please update and save.

N.B. In case the status has not changed, please select "SAVE".

23.3.4 The Pilot submits the Final Report and data on degrees of equivalence

This information is sent to the Pilot, TC Chairs, Working Group Chair, Executive Secretary and KCDB Office.

The Final report of COMPARISON CODE was submitted for publication in the KCDB today.

23.3.5 The KCDB Office completes the publication of comparison results (for Key Comparisons)

This information is sent to the Pilot, TC Chairs, Working Group Chair, Executive Secretary and KCDB Office.

The Final report and results of COMPARISON CODE were published in the KCDB today.

23.4 BROWSER INTEGRATION

The versions listed below are guaranteed. More recent versions function but are not guaranteed.

23.4.1 Desktop

Windows		**Mac OS**
Mozilla Firefox	Google Chrome	Safari
53 to 60	58 to 67	up to 8

23.4.2 Mobile and tablet

IOS	**Android**		Mac OS
Safari	Google Chrome	Android Browser	IE Mobile
IOS 9 to 10.6.8	Android 7 to 9		10

23.5 BRANCH CODES USED FOR IMPORTATION

The following branch codes should be used for importation of CMCs:

name	Metrology area	Branch code
Sound in air	AUV	AUV/A
Vibration	AUV	AUV/V
Sound in water	AUV	AUV/W
AC voltage, current, and power	EM	EM/AC
DC voltage, current, and resistance	EM	EM/DC
Electric and magnetic fields	EM	EM/Field
High voltage and current	EM	EM/HV
Impedance up to the MHz range	EM	EM/Imped
Materials	EM	EM/Mater
Other DC and low frequency measurements	EM	EM/OtherDC
Radio frequency measurements	EM	EM/RF
Dimensional metrology	L	L/DimMet
Laser frequencies	L	L/Laser
Density	M	M/Dens
Fluid flow	M	M/FF
Force	M	M/Force
Mass, mass standards	M	M/Mass
Pressure	M	M/Pres
Torque	M	M/Tor
Viscosity	M	M/Vis
Hardness	M	M/Har
Gravity	M	M/Gra
Properties of detectors and sources	PR	PR/Detector
Fibre optics	PR	PR/Fibre
Properties of materials	PR	PR/Mater
Photometry	PR	PR/Photo
Humidity	T	T/H
Temperature	T	T/T
Thermophysical quantities	T	T/TQ
Frequency	TF	TF/F
Time interval	TF	TF/TI
Time scale difference	TF	TF/TSD
Dosimetry	RI	DOS
Radioactivity	RI	RAD
Neutron Measurements	RI	NEU

23.6 FIELD SIZE

23.6.1 Accessible field size of CMC interactive forms

CMC FIELD	SIZE / CHAR
Institute service identifier	160
Web link to individual service	512
Quantity	255 (*)
Source of traceability	255 (*)
Comments for publication	512
Other support	255
Instrument or artifact (PH, RI)	255 (*)
Instrument type or method (PH, RI)	255 (*)
International standard (PH, RI)	255 (*)
Parameter (PH, RI)	255
Information on parameter (PH, RI)	255
Reference standard used… (PH, RI))	255 (*)
Nuclide (RI)	255 (*)
Specification of nuclide or source (RI)	255 (*)
Matrix (QM)	255 (*)
Analyte or component (QM)	1000 (*)
Mechanism for service delivery (QM)	255 (*)
Measurement technique(s) used (QM)	255 (*)
Clear description of supp… (QM)	255
Details of calibrants used… (QM)	255
Exact nature of service delivered (QM)	255

(*) Using less characters is recommended

23.6.2 Accessible field size of Comparison interactive forms

COMPARISON FIELD	SIZE / CHAR
Uploaded document name	255
Summary decription	255 (*)
Measurand	255 (*)
Measurand value	400 (*)
Parameters	255 (*)
Transfer device or sample	255 (*)
Comments	255
Optional message to the KCDB Office	255

(*) Using less characters is recommended

24 REVISION HISTORY

Version	Modification
2020-03-24	Complete version
2020-06-16	Editorial modifications. WG CMC Chair dashboard now available for TC Chairs in mode "read-only". Guide for quantity-based uncertainty equations made available. Revision history added.
2020-06-29	Added information on KCDB training platform (4.1), on user accounts (4.2) and updated flow chart schemes (6.1) and (6.2).
2020-08-17	Added sections 8.8.1 "Grey out a CRM", 8.9.1 "Reinstate a greyed out CRM", 10.1.5 "CMCs not needing review".
2020-12-07	Added information on writers comments and restructured Section 9.
2021-05-31	Updated CMC review illustrations. Modified Figure indices. Updated references and links. Added description of new facilities to change review deadlines.
2021-10-04	New link to KCDB training platform. Made instructions more detailed based on questions received. Added new features (e.g. possibility for TC Chair and Reviewer to act from the CMC form, TC Chair can vote from the form). Added paragraph 16 and Appendix describing the issued notifications.
2022-01-07	Updated notifications. Added "8.15.1 Some general hints before importing CMCs". New password criteria. CMCs remain from now on in the Reviewer and TC Chair until submission to the JCRB for intra-RMO review, and until 2 months after approval/non approval for JCRB screens.
2022-02-02	Added information for TC Chair (11.1 and 11.3) on tasks, date limits and user account management, and user account notifications (21.1).
2022-04-05	Added information to 17.2, updated password in 4.1 and special characters in 4.2.

2022-07-18	Enlarged information on User account Back Office for TC Chairs. Facilities to ask for revision and include comments have been added for the CMC WG Chair. Improved access to comments for all users.
2025-01-07	Correction of a broken link in section 10.1.20 and addition of reference to 3-point CMC submission Checklist in section 9
2025-05-12	Corrected reference text in Clause 6.2, 6.4 and Section 9 on generated e-mail notifications. Corrected typos within the document.
2026-01-28	Update of PILOT Back-office for submitting Final report in section 18 and supporting the collection of Pilot Study Report in section 19. Update of the text in section 20 on statistics.
2026-07-08	Editorial modification in section 7.1.2
2026-08-31	Update of page numbering

Bureau
International des
Poids et
Mesures

Bureau International des Poids et Mesures
BIPM - Pavillon de Breteuil F-92312 Sèvres Cedex FRANCE