

Report on APMP-MEDEA Workshop on Participating in UTC

Beijing, China 5-6 November, 2014

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Aims of the Workshop

The Workshop was targeted at NMIs which already participate in Co-ordinated Universal Time (UTC), the key comparison in Time and Frequency (CCTF-KC.001UTC), or are about to join it. Its principal aims were to provide participants with the knowledge to establish a UTC laboratory and to maximise the effectiveness of their contribution. A subsidiary aim was to determine what future development of Time and Frequency capabilities was needed by the participants.

Workshop program

Topics covered by the Workshop included: the requirements to be satisfied for participating in UTC and practical details of submitting data and using the key comparison results ; atomic clocks; time-transfer methods; applications of time-transfer infrastructure; CMCs; and timescales. Participants were asked to make a short presentation on their laboratory, covering the following topics: staff and their background; current infrastructure; measurement capabilities; activities; future plans and training needs.

The formal presentations were a mixture of basic knowledge and case studies, drawn from both personal experience and published research. The emphasis was on practical guidance that could be applied in the laboratory. The practical session for the workshop was conducted on the main NIM campus at Changping and consisted of an informal tour of NIM's time dissemination facilities, where participants asked questions.

At the conclusion of the Workshop, participants completed a short questionnaire.

The detailed program can be obtained from
http://www.apmpweb.org/fms/workshop3.php?tc_id=TF

Participants



Participants in the Workshop were:

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|--------------------------------|---|
| Mr R.G.S.A. Perera† | MUSSD, Sri Lanka |
| Mr Sabino Paulo B. Leones, Jr† | NML-ITDI, Philippines |
| Md Rafiq Bin Abdul Kamal† | SIRIM, Malaysia |
| Mrs Ratnaningsih† | KIM-LIPI, Indonesia |
| Mrs Thu Hang Nguyen† | VMI, Vietnam |
| Dr Piyaphat Phoonthong† | NIMT, Thailand |
| Md Jaydul Islam† | NML-BSTI, Bangladesh |
| Md Rakibul Alam† | NML-BSTI, Bangladesh |
| Jun Yang | Beijing Institute of Radio Measurement (BIRM) |
| Fan Yang | BIRM |
| Shuhong Zhao | National Time Service Centre (NTSC) |
| Lian Dong | Shanghai Institute of Measurement and Testing Technology (SIMT) |
| Liang Xu | SIMT |
| Lizhi Hu | SIMT |
| Koh Nai Lip | GWXM Technology |
| Depei Wang | Beijing Oriental Science and Technology |
| Bryan Owings | Microsemi |
| Ramakrishnan Ramki | Microsemi |
| Hua Wang | Microsemi |
| Linhua Li | Beijing Satellite Navigation Centre (BSNC) |
| Bin Yang | BSNC |
| Zhanjun Fang | NIM |
| Aimin Zhang | NIM |
| Kun Liang | NIM |
| Yuan Gao | NIM |
| Zhiqiang Yang | NIM |
| Qinghua Xu | NIM |
| Yue Zhang | NIM |

† participation funded by the APMP-MEEDA program

Three of the NMIs are not yet contributing to UTC. Six of the funded participants have never been to a meeting of the APMP Technical Committee for Time and Frequency (TCTF).

The Workshop speakers were:

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|---------------------|-----------------|
| Dr Huang-Tien Lin† | TL, Taiwan |
| Dr Aimin Zhang | NIM, China |
| Dr Michael Wouters† | NMIA, Australia |
| Dr Kun Liang | NIM, China |
| Dr Yuan Gao | NIM, China |
| Ramki Ramakrishnan | Microsemi |
| Bryan Owings | Microsemi |

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General observations

It would have been good if the participants had asked more questions during the Workshop, particularly to get discussions going. However, we observed that the participants talked more freely during informal situations and this was supported by some of the comments that were made in the survey such as “the best thing about the course was ... discussion with another NMI and also expert”. Generally, the opportunity to interact with one’s professional colleagues was seen as a very positive aspect of the Workshop.

In one session of the Workshop, participants presented a short report on their laboratory, as outlined above. From this it was evident that there was a strong interest in public time dissemination, in some cases driven by a legislative obligation to disseminate time broadly; and the establishment of remote calibration services. Calibration services were somewhat surprisingly dominated by stopwatch calibrations, suggesting that there is not yet significant demand for high-level calibration services in these laboratories.

Results of the survey

Gauging the effectiveness of a series of lectures is difficult so participants were surveyed to provide some structured feedback. The survey asked six questions:

1. What was the best thing about the course?
2. Was there anything you did not understand during the course?
3. What did you learn during the course that you will be able to apply immediately in your workplace?
4. What was the most valuable thing you learned during the course?
5. Do you have any suggestions to improve the course?
6. How will this training benefit your organisation?
7. Are there any other specific comments you’d like to make?

Comments received were uniformly positive.

From the response to Q2, the level of the presentation was about right: few respondents reported difficulties understanding the material and where difficulties were noted, these were only with a handful of topics.

Most respondents highlighted a particular topic or general insight that could be immediately applied in their laboratory (Q3), so the Workshop evidently had high immediate value.

Several comments were received that it would have been useful to be given the training materials prior to the course (Q5). It had been our intention to do this, but due to time and logistical constraints it proved to be impractical.

Most respondents commented that they would like very much to receive further training (Q7).

Follow-up actions

Materials produced for the Workshop are being placed on the APMP website as a resource for participants. Some of the presentations are annotated and so can be read independently.

We will contact the participants again in six months, and in particular, seek comments from those about to join UTC about how the Workshop has informed their planning and laboratory operations. This report will then be updated in the light of those comments.

The presentations and comments received from participants indicate that there is demand for at least one more Workshop in the near future. One NMI has volunteered to host such a Workshop. Given the topics suggested by participants, the program will need to be developed in consultation with them but constrained by existing training materials.