MIDDAY ROUND-TABLE DISCUSSION OF OCTOBER 5, 2011

The context for decoupling civil timekeeping from Earth rotation includes the long history of international regulation of time signals in radio broadcasts. This discussion filled in the background for many of the legal and technical aspects of the national processes which contribute to the decisions made by the ITU-R.

John Seago recalled that Steve Malys had asked about, and Dennis McCarthy had commented on, how governments might be arriving at their positions. Seago therefore asked Malys if his organization was aware of a US DoD-wide survey conducted by the US Naval Observatory in 2008 and whether his organization participated as a DoD entity.[*] Malys said that his organization participated in the survey and, in preparation for this colloquium, became more aware of an existing DoD memorandum on leap seconds.[†] However, Malys' questions have been mainly with the ITU-R process. He was particularly curious as to how the voting delegation operated, how many votes each nation had within the Radiocommunications Assembly, and the required percentage to approve the Recommendation. Ken Seidelmann said that he had been told that a 70% supermajority was needed, but it was unclear to him whether this was 70% of voting delegates within the assembly or 70% of the member administrations. George Kaplan asked who gets to vote and how many votes are there. Paul Gabor suggested that voting is by nation and Seidelmann added that there are approximately 190 nations. Kaplan asked if that meant every nation gets one vote equally, to which several attendees seemed to respond affirmatively.

Malys wanted confirmation that a vote was scheduled to take place in January 2012, to which several attendees responded affirmatively. Steve Allen added that the agenda of the 2012 Radiocommuncation Assembly has not been published publicly, but all the preparations appeared to have taken place for that vote to happen. Malys was surprised that the vote was happening so quickly, as coordination thus far appeared inadequate. Specifically, there seemed to be a number of varied opinions on this topic, some of which were being discussed in this colloquium, yet many other viewpoints were not being represented at the colloquium. Malys thought that the figures from Paper AAS 11-664 indicated many stakeholder communities, and it may be an outstanding issue as to whether those communities have had any voice in the process.

Seidelmann said that ITU-R Study Group 7 had three votes against the proposed Recommendation to redefine UTC (with about eight to ten votes in favor), but it was ruled that the Recommendation should advance to the Radiocommunication Assembly because the three dissenting votes were not addressing a technical issue relevant to telecommunications. Seidelmann said this may be evidence that other communities or issues were not considered, including national legal issues. Allen suggested this may have been the case when leap seconds were first established.

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[*] http://tycho.usno.navy.mil/leap_second_poll.html
[†] http://tycho.usno.navy.mil/Discontinuance_of_Leap_Second_Adjustments.pdf

Specifically, the International Radio Consultative Committee (CCIR) [*] first decided to have leap seconds, leaving various other communities to sort out the consequences of that decision, and make technical suggestions back to the CCIR. Those suggestions became the implementation details appended to Recommendation 460.[1] As evidence, Allen noted that the first version of Recommendation 460 simply said that there would be leap seconds and implementation details would follow.[2] Seidelmann added that was a different era, back when the distribution of time signals was the primary issue and there was a pressing need to transmit both atomic time interval and astronomical time of day; also, time services needed to coordinate time signals over long distances by radio.

McCarthy offered that the "process of the ITU is byzantine at best." The recommendation process starts with the creation of an acceptable Study Question. Once the "question is out there, they expect technical responses" from whoever wants to respond. These responses may be papers, publications, opinions, *etc*. As McCarthy understands it, this information is "stuck away in a file drawer somewhere in Geneva until somebody looks at it." They try to establish a drop-dead date after which the responses will be considered, and then the collected information is handed over to the appropriate Study Group. The Study Group in turn passes the information to a Working Party which reports back to the Study Group. Each country can have its own component national Working Party; McCarthy is a member of US Working Party 7A. International Working Parties assembled from national Working Parties are thereby assigned these study questions. Some questions have language which grows so old "that they eventually just fall off the table." Others questions are deemed important enough to push through to the International Working Party. At this stage a Recommendation can either be advanced up to the Study Group or dropped by the Working Party. Thus, the national Working Parties funnel into an international Working Party, and each international Working Party reports to a Study Group which advances Recommendations to the ITU.

Regarding the vote in January, McCarthy said there is a huge bureaucracy involved with the ITU headquarters. This bureaucracy decides whether issues and concerns are technical versus non-technical, not so much whether the issues are relevant to telecommunications. For example, if we'd like to keep GMT because we like the name *Greenwich*, that is not considered a technical argument. Consequently, if that type of argument is put before the ITU it will not be accepted as technically relevant. Eventually, the Recommendation is voted upon at the Radiocommunication Assembly where the final decision is made. That vote is at a very high political level with delegates sent from departments of State and foreign ministries.

Seago commented that he was not sure of the degree to which Study Question 236/7 mentioned *technicality*, but the Study Question explicitly mentioned *legality* when it noted "…considering that UTC is legal basis of timekeeping… what are the requirements…?" Seago was unsure how McCarthy's description and GMT example correlated with the language within the Study Question. McCarthy replied that "technicality is the basis for accepting someone's negative or positive vote." McCarthy added that it also comes down to what the chairs of the Working Parties and Study Groups decide; there are decisions made at that level and there are decisions made at ITU headquarters, and "some of these may just be tough calls." David Terrett suspected that interpretation of the word "technical" might be rather broad, and perhaps a legal argument could very much be interpreted as a "technical" argument.

Malys asked if the ITU was involved in the original decision to introduce leap seconds back in 1972. Seidelmann said at that point it was the CCIR, but that organization is now under the

[*] The CCIR is the predecessor of the ITU-R.

ITU-R. Malys asked if anyone had any visibility into the decision process within the United States, as it was Malys' impression that various departments of the executive branch (Defense Department, Commerce Department, *etc*.) had contributed to the position decided by the Department of State. Allen replied that the US State Department has a number of committees which receive documents and those committee meeting notices are all part of the public record. Tracing down the committee structures is not an easy task from the outside, but information may have been available about those meetings by those who knew about them via notices in the Federal Register. Seidelmann understood that only the US Department of Defense and NASA issued position statements favoring the proposed revision, and that the Departments of Transportation and Commerce offered "no position" on the proposed revisions.[*] McCarthy responded that the group within the US State Department under Cecily Holiday makes the decision. David Simpson asked if the US State Department had made its decision yet, and McCarthy replied that the US decided it would support a redefinition of UTC.

McCarthy added it must be understood that within the US State Department "this has got to be one of the things that they almost don't even care about." This would not be true within the US only, but also within other nations. A much bigger ITU-R issue is spectrum allocation. Seidelmann added that this issue doesn't have its own lobbying group representing an activity where lot of money is being spent. Seago wondered if the US State Department was treating the issue as a telecommunication issue primarily, where the advisory committees primarily represented telecommunication interests and broader considerations outside telecommunications were lacking. Malys suggested that if some graphical information similar to the contents of Paper AAS 11-664 were presented to the responsible person at the US DoS, then perhaps that person could gain a greater appreciation of the fact that there is more at stake than just telecommunications. Allen noted that the colloquium proceedings would be made available, but that doesn't mean that decision-makers would necessarily care about them. Seidelmann said that the US State Department seemed to pay attention to this issue after an article appeared on the front page of the *Wall Street Journal*.[3] Malys said that the colloquium attendees had gathered because they knew very well that the decision would certainly impact various communities, and we should therefore try to make the responsible person(s) at our departments of State aware that there is more than telecommunications at stake.

Seago noted that the US Department of Defense and NASA apparently commissioned data calls and surveys before issuing their position statements supporting (or at least not opposing) the proposed revision. Yet, it was unclear how agencies and departments handled the collected responses from these surveys and data calls. The USNO survey responses were not publicly reported and it was not clear how the information received from survey responses affected the DoD position statement. Seago clarified that the DoD statement essentially consisted of language drafted by the USNO before its survey; the final DoD statement simply changed the date of leap-second cessation one year later from the original USNO language.[†] Seago also reported hearing anecdotal complaints from NASA employees who responded to an agency-wide data call but never received any acknowledgement or feedback from NASA headquarters, and were therefore surprised to learn that NASA had issued its statement supporting UTC redefinition. Seago acknowledged that the issue was an international one and it was even more unclear to him how

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[*] According to US Code Title 15, Chapter 6, Subchapter IX, § 260, the Secretary of Transportation is responsible for time-zones (§ 260) and the Secretary of Commerce is responsible for Coordinated Universal Time.

[†] The US DoS still recommends adoption of a draft revision to Recommendation 460-6 which calls for leap-second cessation one year earlier than the US DoD requested.

other nations are arriving at their positions. Allen reminded the attendees that we would be hearing the results of at least one international survey later in the day (Paper AAS 11-668).

REFERENCES

[1] CCIR, "Detailed instructions by Study Group 7 for the implementation of Recommendation 460 concerning the improved coordinated universal time (UTC) system, valid from 1 January 1972" in *Xllth Plenary Assembly CCIR,* (New Dehli, India, 1970) III, p. 258 a-d (ITU, Geneva, Switzerland, 1970).

[2] CCIR, "Standard-frequency and time-signal emissions." (Recommendation 460), in *Xllth Plenary Assembly CCIR*, (New Dehli, India, 1970), III, p. 227 (ITU, Geneva. Switzerland. l970).

[3] Winstein, K.J., "Why the U.S. Wants To End the Link Between Time and Sun," *Wall Street Journal*, 29 July, 2005, p. 1 (URL http://www.post-gazette.com/pg/05210/545823.stm)