IEEE 802.16 Working Group on Broadband Wireless Access

http://WirelessMAN.org

Dr. Roger B. Marks
NIST
325 Broadway, MC 813.00
Boulder, CO 80305 USA
Tel: +1 303 497 3037
mailto:marks@nist.gov
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Asok Chatterjee
Chairman, T1P1
mailto:asok.chatterjee@ericsson.com

Dear Asok,

Since IEEE Working Group 802.16 won't be meeting until September, I cannot write to you on behalf of the Working Group, so consider this a personal followup to my visit to last week's T1P1 meeting.

I very much appreciated your invitation, made in your letter of 3 May 2002 (IEEE L802.16-02/11), to attend this meeting, especially because of the warm reception I received and the generous two-hour time slot, without parallel activity, that you arranged. I hope your members found my overview of the 802.16 Working Group and standards projects (IEEE C802.16-02/10) informative.

Thanks also for preparing informal meeting minutes, which I have attached below for reference. I agreed at the meeting to follow through with some action items and am doing so through this letter.

I would like to reiterate a key point made in my presentation concerning 802.16's mobility initiative. IEEE 802.16's vehicular mobility study group (the Mobile Broadband Wireless Access Study Group), which instigated your 3 May letter to us, was terminated as an 802.16 effort on 11 July. Instead, the IEEE 802 Executive Committee voted to continue that effort, through 15 November 2002, in an 802 Executive Committee Study Group. Meanwhile, IEEE 802.16 has established a new Mobile Wireless MAN Study Group to address mobility enhancements to the 802.16 Standard.

During our meeting, you asked if I could identify areas of mutual interest between IEEE 802.16 and T1P1. I mentioned three of these and would like to restate them here, particularly because they are not fully detailed in the meeting notes:

(1) One important application of systems based on the 802.16 **WirelessMAN™** standard is to provide wireless backhaul to other wireless networks. This includes 802.11 Wireless LANs and cellular base stations. It is possible that some enhancement to 802.16 would permit better support of cellular operations. I think this deserves further study.

(2) In your letter of 3 May (IEEE L802.16-02/11), you noted T1P1's partnership with the Third Generation Partnership Project (3GPP) and that "3GPP has always pursued higher data rate capabilities to satisfy applications in a mobile environment and, in fact, has started work on the use of OFDM technologies to meet those requirements." Since 802.16 has strong expertise in OFDM and OFDMA technology, this is certainly a topic of mutual interest that should be explored.

(3) The Mobile WirelessMAN Study Group is tasked to consider handoff capability. This is clearly an area in which 802.16 could make good use of the expertise already resident in T1P1.

I encourage further discussions to try and identify specific needs in these areas and possible mechanisms for cooperation. In particular, I would like to make a proposal to you about the handoff issue: Would T1P1, or some of its members, be interested in participating in a tutorial about handoff at the November IEEE 802 Plenary Meeting? This meeting, which includes all of the 802 Working Groups, is being held 11-15 November 2002 in Kauai, Hawaii, USA (see 802.16's Session #22 information). There has been some informal discussion in IEEE 802 about developing a common handoff methodology, so I believe that the other wireless Working Groups would also be interested in this topic. I propose that the tutorial also include speakers to describe the IEEE 802 architecture and how a handoff mechanism might fit within it. This suggests that the tutorial would be both a lecture and a discussion session. I anticipate great interest in this topic among the 802 participants.

I look forward to further discussions with you on these topics. I will bring them before 802.16 at our September meeting (Session #21 on 23-26 September in Cheju, Korea) and will let you know the Working Group views.

Best regards,

Roger B. Marks

cc: Paul Nikolich, Chair, IEEE 802 LAN/MAN Standards Committee

T1P1/2002-080
Report of T1P1 Meeting with Representatives of IEEE
July 24, 2002

T1P1 Chair Asok Chatterjee called the meeting to order at 4:00pm and thanked all the members of T1P1 for working this important meeting into their agendas. Dr. Chatterjee extended his personal thanks, and that of T1P1, to Roger Marks, Chair, IEEE 802.16 and Mark Klerer of IEEE for attending this meeting to discuss potentially overlapping areas of work. Dr. Chatterjee explained that T1P1 had sent a liaison to the Chair of IEEE 802.16 explaining the potential overlaps, and IEEE 802.16 responded by sending Mr. Marks and Mr. Klerer to open channels of communication between the groups.

Dr. Marks presented T1P1/2002-087, a detailed presentation on the activities in IEEE 802.16. The presentation detailed the current work areas and the other organizations that IEEE 802.16 works with. Roger explained that further information on IEEE 802.16 activities could be found on the IEEE web site, and he encouraged all members of T1P1 to explore and participate in IEEE activities. There was a comment from a participant regarding T1P1's understanding that IEEE 802.16's charter encompassed only 'fixed wireless'. Dr. Marks clarified that there is no wording in his Group's charter that would exclude IEEE 802.16 from addressing areas of "mobile" technologies. Dr. Marks explained that two new areas of work were being explored in IEEE 802. The first area of work focuses of expanding the current 802.16 standards to support mobility functions. The second potential area of work, outside of 802.16 would produce standards for Mobile Broadband Wireless at Vehicular Speeds.

Work in 802.16 to extend Standards to include Mobility

Dr. Marks noted that at this point this activity is at the study group level, and the actual direction of the work was still under discussion and is evolving. Dr. Marks noted that 802.16 groups lacked expertise in areas such as hand-off, layers higher than MAC, etc., and T1P1 with extensive knowledge in these technical areas could provide a helping hand. He suggested that, for example, a tutorial by T1P1 expert(s) to IEEE 802.16 on 'handoff issues' could be very helpful. Dr. Marks and Dr. Chatterjee agreed that the shared interests should be carefully considered and a working relationship for co-operation could be developed. Dr. Chatterjee requested that Dr. Marks put together a proposal to T1P1 suggesting his views on areas of shared interest and potential areas of cooperation. This proposal could be used as a first concrete vehicle of communication between the groups, and a cooperative relationship could be built on that.

New Work in Mobile Broadband Wireless Access

Mr. Klerer explained that an Executive Study Group had been formed under IEEE 802 to explore new work in the area of Mobile Broadband Wireless Access at vehicular speeds. Mr. Klerer noted that this work, which was being explored, was without relationship to any currently existing IEEE 802 standards, and the approach is to design an interface that is optimized for IP-based technology. He explained that the ultimate goal of this work would be to provide service optimized so that any application that works on the wired network will work seamlessly just as well on the wireless network. In response to a question of Mr. Mark Younge, Vice Chair of T1P1, Mr. Klerer noted that this type of technology could be used by different kinds of commuters—such as the passengers in cars as well as railway commuters. Dr. Chatterjee asked why Mr. Klerer had chosen to bring this work into IEEE, as opposed to say, T1P1. Mr. Klerer explained that he felt the best place for the work would be IEEE since it was to be based on a 'pure-IP' environment. He also noted that bringing it to IEEE would prevent any confusion about whether the technology had closer ties to 3GPP or to 3GPP2. He noted that ultimately the work would be brought to the groups such as T1P1 for their assistance and input. Dr. Chatterjee extended an invitation to Mr. Klerer to bring this work into T1P1. He noted that T1P1.4 WWINA is doing work on a data-centric technology intended for Internet access, and that it was working well. Mr. Klerer expressed his gratitude at the offer but noted that he could not make a decision on a split from IEEE at this time. Mr. Klerer did note that it would be crucial to work this issue with T1P1, and also noted that he will bring T1P1's offer forward to the rest of the members of the Executive Study Group for their consideration.

Dr. Chatterjee thanked Roger Marks and Mark Klerer for coming to this meeting, and the members of T1P1 for their active participation. He encouraged a continuation of dialog around promising potential areas of partnership between T1P1 and 802.16 and the Executive Group under 802.