Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>
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Source(s)	Roger Marks NextWave Wireless Inc.* E-mail: r.b.marks@ieee.org *<http://standards.ieee.org/faqs/affiliationFAQ.html>
Re:	
Abstract	Report on January 2008 meeting of ITU-R WP 5D
Purpose	
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Report to IEEE 802.16 Working Group on first meeting of ITU-R WP 5D

Roger B. Marks
NextWave Wireless Inc.

This report was prepared in early February 2008.

Working Party 5D (formerly WP 8F) held a very busy set of meetings in Geneva on 28 Jan - 1 Feb 2008.

IEEE's delegates were Mike Lynch and John Notor of 802.18, Bruce Kraemer of 802.11, and Roger Marks of 802.16. Other active 802 participants, including some who were active in the development of IEEE's three contributions the meeting, attended as part of other delegations.

Plans were made to hold Working Party 5D's Meeting #2 on 24 June - 1 Jul 2008 in the United Arab Emirates. The dates and venue are likely to hold, although the meeting will remain tentative pending the Study Group 5 meeting of 18-19 February, at which the Working Party structure and organization for the study period (until 2011) will be established.

A draft revision of the current IMT-2000 recommendation (M.1457 Rev 7) was forwarded to Study Group 5. Once adopted, this will become M.1457 Rev 8. No IEEE input was proposed for or included in the revision. A liaison statement was approved announcing tentative plans for the development of M.1457 Rev 9 over approximately the next year; this is compatible with submission of an update based on 802.16Rev2. Initial input from IEEE regarding update of the OFDMA TDD WMAN radio interface (based on IEEE 802.16) is due at the next WP 5D meeting. One important uncertainty in the completion date of Rev 9 is the schedule of the following SG5 meeting. There has been some indication that, following its Feb 2008 meeting, SG5 will shift to an annual meeting in November. This schedule could defer Rev 9 completion until Nov 2009. The 1457 Sub-Working Group registered a request that SG5 consider holding February meetings to better align with annual WP activities.

The Working Party approved issuing a Circular Letter announcing the development of IMT-Advanced. Many significant elements planned for the Circular Letter were not agreed, so the announcement is missing a number of critical elements. For instance, the Circular Letter includes:

(a) No technical requirements.
(b) No evaluation criteria.
(c) No clear definition of the contents required in technology proposals.
(d) No technology description template, compliance template, or evaluation template.
(e) No information on which or how many of the four "test environments" (Indoor, Microcellular, Base coverage urban, and High speed) a proposal will be required to meet (see below).

In recognition of the incompleteness of the material, the additional materials will be made available on a web site as “work-in-progress” documents. In recognition of the immature state of the documents, distribution will be under password protection.

The Working Party essentially declared that the remaining elements of the Circular Letter will be finalized at the following meeting. However, this prediction is based on the assumption that consensus will be reached.

Due to the incompleteness of the material, the development schedule specified in the Circular Letter was delayed by one meeting with respect to the prior draft. Under the current plan, the proposal deadline is approximately September 2009.

It was decided that IMT-Advanced proposals must include an initial self-evaluation or, alternatively, an initial evaluation by another entity that is endorsed by the proponent before the deadline.

The issue of test environments was discussed at great length. An IEEE contribution had suggested that a proposal satisfying a single test environment would be considered. Other members agreed. However, some members argued for a larger minimum, and some argued that a proposal should be considered only if it satisfied the requirements of all four test environments. No consensus was reached. One notable change at the meeting was an increased focus on "sets" of radio interface technologies (RITs). It was generally agreed that a proposal could satisfy multiple test environments by including a "set" of radio interfaces technologies (SRIT) even if the individual RITs do not address all the environments.

Regarding the development of technical requirements, the output of a correspondence group was accepted as a baseline draft of the IMT.TECH document. IEEE’s contribution on the topic was slightly hindered by the fact that it was based on an earlier text, since the correspondence group concluded its work after the prior 802 Plenary. Many hours of meetings regarding IMT.TECH were held during the week, with approximately 150 attendees. Virtually all of the focus was on Chapter 4 (Minimum Requirements). Progress was made on refining the list and definitions of the requirements. Extensive efforts, over hours of meetings, were made at reaching agreement on the numerical values, based on input recommended by several sources,

including IEEE. However, little progress was made toward agreement on numbers. In general, IEEE's proposed requirements were less stringent than some other suggestions. The only numbers agreed were for downlink spectral efficiency. These were very close to those proposed by IEEE, though direct comparison is difficult due to varying test environments. The agreed numbers for the various test environments were:

Indoor DL: 3 (bit/s)/Hz
Microcellular DL: 2.6 (bit/s)/Hz
Base coverage urban DL: 2.1 (bit/s)/Hz
High speed DL: 1 (bit/s)/Hz

While it was agreed that the antenna configuration is not to be specified as part of the requirements, discussions did refer to the assumptions of antenna parameters. In the DL, delegates agreed on a 4x2 configuration. In the uplink case, both 2x4 and 1x4 were suggested by delegates based on the assumptions of the contributions.

Discussions regarding the development of evaluation criteria (IMT.EVAL), including around 20 delegates, were not held continuously, as progress was dependent on the outcome from other activities. Following initial disagreement, a significant conclusion involved the agreement to require use of only a single evaluation "scenario" per test environment. These scenarios selected from those in the IMT.EVAL draft were:

Indoor: Indoor hotspot (with revisions to scenario)
Microcellular: Urban micro-cell (Suburban macro-cell optional; not required or to be included in Circular Letter)
Base coverage urban: Urban macro-cell
High speed: Rural macro-cell

A channel modeling drafting group met separately to consider input contributions.

There was a clear understanding that the work on evaluation criteria will be under significant deadline pressure. Administrations have argued that the current IMT-Advanced development plan requires the availability of the complete Circular Letter package at the end of the June/July meeting. However, development of the evaluation criteria is dependent on technical requirements content that is not currently available.

Although it was not explicitly discussed, the dependency between IMT.EVAL and IMT.TECH is not unidirectional. In particular, while the evaluation criteria depend on the technical requirements, some members expressed the point that the technical requirements remain ambiguous until the evaluation criteria are defined. This dependency loop may result in additional deadline pressure at the next meeting.

In order to progress work prior to the next meeting, three correspondence groups were authorized, addressing IMT.TECH, IMT.EVAL, and channel modeling. It

appears that initiation of these groups will be delayed due to some IT issues and to the need to wait until SG5 determines the assignment of its work to Working Parties. The groups are to conclude their work by specified deadlines, which are around the middle to end of April (16 April for IMT.TECH) in order to allow members to develop contributions in response to the group output documents. Any IEEE 802 contributions developed at the March 802 Plenary will not be able to reference the correspondence group outputs, but IEEE's contributions could be directed to the attention of the correspondence groups.

Work on the development of a revision to M.1580 and 1581, which address unwanted emissions from IMT-2000 BS and MS radios, progressed with the consideration of several input contributions. In response to a request of the Radiocommunications Assembly, many of these regarded the OFDMA TDD WMAN radio interface. No conclusions were reached.

Meetings were held to continue the development of studies on sharing between IMT-2000 and broadband wireless access systems, both fixed and mobile, in particular those based on IEEE 802.16. As a result of issues raised in a contribution, a liaison statement was approved for submission to IEEE and the WiMAX Forum that addressed the adjacent channel rejection specifications in IEEE Std 802.16.

Recommendations

With all these results in mind, I believe is in order for the 802.16 Working Group to consider the development of contributions on several topics for WP 5D, for approval at the March 802 Plenary. These should be contributed for review of 802.16's ITU-R Liaison Group at Session #54 and then submitted through the IEEE 802 procedures.

I suggest the following specific contributions:

Primarily related to Maintenance Task Group:
- IMT-2000: Proposed updates to revision process
- IMT-2000 Rev 9: Notice of intended update based on 802.16Rev2
- Response to liaison statement on adjacent channel rejection

Primarily related to TGm:
- IMT.TECH: Comments to be submitted to 802.18 for a harmonized 802 input to the correspondence group and to WP 5D
- IMT.EVAL: Comments to be submitted to 802.18 for a harmonized 802 input to the correspondence group and to WP 5D
- Circular Letter text and other annexes: Comments to be submitted to 802.18 for a harmonized 802 input to WP 5D