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Re:	
Abstract	Report on June-July 2008 meeting of ITU-R Working Party 5D
Purpose	
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# ***Report to IEEE 802.16 Working Group on ITU-R WP 5D Meeting #2***

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## **Introduction**

Working Party 5D (WP 5D) held a very busy Meeting #2 in Dubai on 28 June - 1 July 2008. For a report on the first meeting, see IEEE C802.16-08/008.

IEEE's delegates were Roger Marks of 802.16 and Bruce Kraemer of 802.11. Other 802.16 members participating in the meeting on other delegations included Sassan Ahmadi, Reza Arefi, José Costa, Ayman Naguib, Apostolos Papathanassiou, Adam Pollard, Qin Fei, Takashi Shono, Ting-Chen Song, and Shawn Taylor (and probably others, to whom I apologize for overlooking).

The Working Party continues in "temporary" mode until the full structure of Study Group 5 (for the study period until 2011) is concluded when SG 5 meets in November 2008. Prior to that date, WP 5D has planned its Meeting #3 for 8-15 Oct 2008 in Seoul, Korea, with an IMT-Advanced Workshop (more details below) now scheduled for 7 October.

## **IEEE Contributions**

IEEE had submitted seven contributions to this meeting. All were wholly or significantly developed within the 802.16 Working Group. Three contributions were related to IMT-2000 developments:

\* ITU-R 5D/113 [IEEE L802.16-08/014r1]: *Revision of M.1457 Administrative Procedures*

\* ITU-R 5D/114 [IEEE L802.16-08/013r1]: *Revision of M.1457 Introduction*

\* ITU-R 5D/122 [IEEE L802.16-08/012r1]: *Update of Subclause 5.6 of Rec. ITU-R M.1457*

Three more concerned IMT-Advanced:

- \* ITU-R 5D/109 [IEEE L802.16-08/015r1]: *Request for Clarification on Steps 2 and 3 of The Submission and Evaluation Process for IMT-Advanced*
- \* ITU-R 5D/112 [IEEE L802.16-08/010]: *Proposed Changes in Section 4 of ITU-R IMT-Advanced/IMT.TECH Document*
- \* ITU-R 5D/119 [IEEE L802.16-08/011]: *Proposed Changes in Sections 5 and 6 of ITU-R IMT-Advanced/IMT.TECH Document*

The seventh contribution responded to a liaison statement from WP 5D to IEEE and the WiMAX Forum:

- \* ITU-R 5D/108 [IEEE L802.16-08/017r1]: *Request for Clarification on the Formula in the WP 5D Liaison Statement on OFDMA TDD WMAN BS and MS ACS Values*

In addition, the following approved IEEE 802.16 documents were relevant to meeting topics (although they were not documents of the WP 5D meeting):

- \* IEEE L802.16-08/034: Liaison Statement to WiMAX Forum on update of Recommendation ITU-R M.1457
- \* IEEE L802.16-08/031: Liaison Statement to WiMAX Forum regarding correspondence with ITU-R WP 5D on ACS

## Spectrum

IEEE's contribution ITU-R 5D/108 ("Request for Clarification on the Formula in the WP 5D Liaison Statement on OFDMA TDD WMAN BS and MS ACS Values") was reviewed, as was the WiMAX Forum's response (ITU-R 5D/108) to the same liaison statement. WP 5D prepared a response back to both organizations (TEMP/75R1). It requests more time to address the IEEE's questions; in the meantime, it requests further information.

**RECOMMENDED ACTION: IEEE 802.16 should review TEMP/75R1 at Session #56 and prepare a response there, if necessary.**

Work continued on several sharing studies. Work is getting underway on several spectrum-related aspects of IMT spectrum identified by WRC07, including in the UHF bands. A liaison statement (TEMP/62R1) was prepared to invite external organizations to provide information regarding characteristics of IMT radio interfaces, and new standards they may be developing, in the new IMT bands identified at WRC07.

**RECOMMENDED ACTION: IEEE 802.16 should review TEMP/62R1 at Session #56 and prepare a response there, if necessary.**

## IMT-2000

At Meeting #1, WP 5D had issued a liaison statement outlining its plan to develop the next version (Rev. 9) of the IMT-2000 radio interface specification (ITU-R Rec. M. 1457) over the next three meetings. Accordingly, IEEE 802.16 developed contribution ITU-R 5D/122 proposing the update of the IMT-2000 OFDMA TDD WMAN radio interface. A parallel document (ITU-R 5D/126) was submitted by the WiMAX Forum, which supports the same radio interface. Additional update notifications were provided by other organizations regarding the other five IMT-2000 radio interfaces. These contributions were reviewed by the M.1457 Sub-Working Group (SWG), which concluded the following in its meeting report 5D/TEMP/84:

*It was acknowledged that all radio interfaces are expected to be updated in Rev 9, following established procedures as per CL/95, IMT/1, and IMT/2(Rev. 1). In particular, it was noted that the update proposed for IMT-2000 CDMA MC may include a TDD component, and the update proposed for IMT-2000 OFDM TDD WMAN will include an FDD component. The meeting determined that this is “meeting x” for all proposed updates as per CL/95. It was noted that the proponents would provide more detailed material in line with CL/95 at subsequent meetings.*

**RECOMMENDED ACTION: The 802.16 should prepare a “Meeting X+1” contribution for consideration at the October WP 5D meeting. Ideally, this would be concluded at the July 802 Plenary.**

The M.1457 considered IEEE’s contribution ITU-R 5D/113 on “Revision of M.1457 Administrative Procedures,” along with an alternative view expressed in ITU-R 5D/183. IEEE’s concerns were discussed. Its specific proposal was not agreed. The meeting report stated the following about the discussion:

*Some views were expressed that the text in Doc. IMT/2(Rev.1) could benefit from some clarifications. Due to the nature of the Document IMT/2(Rev.1) and the issues raised, it was suggested that this matter should be discussed with the BR by the concerned parties.*

**RECOMMENDED ACTION: IEEE’s ITU Liaison should communicate concerns on this issue and make specific recommendations to the BR.**

IEEE’s ITU-R 5D/114 (“Revision of M.1457 Introduction”) was considered. Most of IEEE’s proposed edits were agreed for inclusion in M.1457-9, with the results recorded in ITU TEMP/73. However, one aspect of IEEE’s proposal – to delete the characterization of IMT-2000 as “third generation” – lacked consensus, with an alternative view expressed in ITU-R 5D/182. The suggestion led to formation of a

drafting group, which agreed on an alternative to the first paragraph of M.1457. However, no decision could be agreed within the SWG. As a result, TEMP/73 carries forward to the next meeting both the original version of the first paragraph and the alternative version agreed in the drafting group.

**RECOMMENDED ACTION: IEEE 802.16 could prepare a contribution to Meeting #3 recommending one of the two paragraphs, or an alternative way forward. Ideally, this would be concluded at the July 802 Plenary.**

The M.1457 SWG reviewed a question from an Administration that was raised at the February SG 5 meeting concerning support for global roaming by OFDMA TDD WMAN. The result was a liaison statement (TEMP/70v2) to IEEE and the WiMAX Forum notifying each of them of a note that WP 5D intends to send to SG 5 following the October meeting,

**IEEE 802.16 should review TEMP/70v2 at Session #56. If it has concerns with the information in the note to SG 5, it should prepare a response; otherwise, it need not respond.**

## **M.1580/M.1581**

Discussions took place regarding the update of ITU-R Rec. M.1580 and M.1581, addressing unwanted emissions. Views of administrations are being sought regarding the proper scope of these two documents and the purpose of ACLR specifications.

## IMT-Advanced Circular Letter and Procedures

Several contributions (including IEEE's 5D/109 and the WiMAX Forum's 5D/137) addressed the procedures, released in February, for the development of IMT-Advanced. As a result, a number of changes and clarifications were agreed, as recorded in TEMP/86R1. This will apparently lead to the posting of IMT-ADV/2Rev1 on the IMT-Advanced web site <<http://www.itu.int/ITU-R/go/rsg5-imt-advanced>>. The required deliverables have been significantly clarified, but the timeline has not changed. WP 5D did not address IEEE's concern regarding the ambiguity of the three-meeting submission process and the purpose of the first two meetings in the process.

A decision was reached to revise the format of the Circular Letter support materials, including a bundle of them into a Report with the working name IMT.REST. Many of the materials for IMT.REST were concluded, and the draft report as a whole was stabilized (TEMP/78R1v2), though elements were missing.

An addendum (TEMP/80R1v2) to the Circular Letter was approved to call attention to the changes.

**RECOMMENDED ACTION: IEEE 802.16's TGM should review IMT-ADV/2Rev1 to ensure that the required deliverables are properly reflected on its work plan and that plans to deliver those items are well understood.**

## IMT-Advanced: Required Test Environments

The critical decisions were made regarding the four "test environments":

- Indoor
- Microcellular
- Base coverage urban
- High speed

A radio interface technology (RIT) is required to satisfy the minimum performance requirements of a least one test environment, as specified by the proponent. A set of RITs (SRIT) needs to meet the requirements in at least two test environments. Later in the process, after evaluation of the proposals, only RITs or SRITs that meet the requirements in at least three test environments may proceed to be included in IMT-Advanced. It's possible, for example, for a candidate RIT that meets only one test environment to proceed through the process and be evaluated. However, during the "consensus building" process, it would need to join with other RIT partners to form a

SRIT covering at least three test environments in order to be included in the IMT-Advanced recommendation.

**RECOMMENDED ACTION: TGM should review the requirements in the four test environments. A candidate RIT or SRIT based on 802.16m should ensure that it addresses the requirements in at least three test environments so that it need not worry about being forced to find a partner later.**

## **IMT-Advanced Technical Requirements**

The IMT-Advanced Technical Requirements were concluded as TEMP/89R1v2. Many changes were made to the previous draft. In many cases, the resulting requirements are more stringent than those recommended by IEEE in ITU-R 5D/112. Sections 5 and 6 of the document were deleted, which is substantially in accordance with IEEE's document ITU-R 5D/119.

IEEE's proposed footnote to eliminate VoIP capacity requirements from the indoor and microcellular test environments for devices operating at less than 20 dBm was not incorporated.

The agreed document will be a Draft Report. The working name remains IMT.TECH, but, following approval by SG 5 (presumably in November 2008), a report will be issued with an assigned ITU-R document number.

Many changes were discussed and made to this document on the last day, including above the SWG (in the Technology WG and in the WP 5D Plenary). Therefore, it will be important to work with the final approved draft report.

**RECOMMENDED ACTION: IEEE 802.16 should obtain the WP-agreed version of IMT.TECH draft report in TEMP/89R1v2. TGM should carefully review the content at Session #56 for consistency with the 802.16m SRD and plan action accordingly.**

## **IMT-Advanced Submission Templates**

Significant discussions took place regarding submission templates that will be the basis of proposal submissions.

The WP approved a compliance template for Services (TEMP/87v2). Significant discussion arose regarding the contents of the compliance template for technical performance. Eventually, this was agreed as (TEMP/88R2). Critical issues regarding

this template concerned the debate regarding a column in which to state the actual performance numbers (in addition to simply marking the requirement as met or not. The final agreement was to make this field mandatory only when the requirement is not met. An additional column entitled “Comments” is provided.

Strong debate arose regarding the format, and even the purpose, of the Technology Description Template. A working document was developed that included a number of requests for information items that were highly contentious. In order to clarify the situation, the following introduction was agreed:

*The purpose of this technology description template is that the proponents can describe their proposal for a radio interface for IMT-Advanced to a level of detail that will enable independent third-party assessment of compliance with the minimum technical requirements as specified in Draft New Report [IMT.TECH]. This template defines the set of requested information. The inclusion of an item in this template shall not imply that is a minimum requirement of IMT-Advanced (e.g. positioning or broadcasting). Furthermore, where an item is not relevant to or for a proposal, its should be answered N/A. It is not mandatory to provide information for each item, recognising that evaluation groups may need to make independent assumptions during their evaluation, or may request additional information from the proponent.*

Nevertheless, disagreement about inclusion of many of the proposed elements was strong, particularly when the information was not required to evaluate the proposal against the minimum requirements or when the information regarding technology above the radio access network layers. As a result, the document was not presented for agreement at the WP Closing Plenary. Instead, the working document (TEMP/93R1) will be carried forward. A Correspondence Group, under the Chairmanship of Germany, was identified to progress the work toward the October meeting,

**RECOMMENDED ACTION: It may not be appropriate for IEEE or IEEE 802.16 to participate formally in the Correspondence Group. However, the membership should be aware of the expected activities in case some wish to participate on behalf of another member.**

## **IMT-Advanced Evaluation Criteria and Methodology**

Major effort was put into finalizing the draft report, temporarily designated as IMT.EVAL, on evaluation criteria and methodology. However, the document (TEMP/90R1v2) could not be concluded. Further work will proceed at the October meeting.



One serious issue at the meeting regarded language on requirements to “support of a wide range of services,” along with a specific list of detailed services. Some participants were concerned that such evaluations could not be concluded based on the radio interface alone. A late agreement introduced some complex compromise language allowing a radio interface to be evaluated on its “ability to support” services, rather than its direct support for services.

It appears that many of the remaining issues should be resolvable without great difficulty, provided that decisions are not significantly revisited.

A decision was taken to agree on the channel models in the IMT.EVAL working document. These differ from those in the 802.16m EMD.

**RECOMMENDED ACTION: TGm should review the agreed channel models and consider updating its Evaluation Methodology Document (EMD) accordingly in order to take advantage of the opportunity to reuse its internal evaluations for IMT-Advanced purposes.**

## Upcoming Meeting and IMT-Advanced Workshop; Future Meetings

WP 5D's Meeting #3 is planned for 8-15 Oct 2008 in Seoul, Korea. It seems that no meetings will be held on Saturday or Sunday due to the unavailability of meeting rooms.

An IMT-Advanced Standardization Workshop was scheduled for 7 October in Seoul. The agenda remains unsettled and will be refined in a correspondence group. The main objective is "to start the consensus building process for potential proponents" for IMT-Advanced. A solicitation for speakers will be circulated.

**RECOMMENDED ACTION: IEEE 802.16 should delegate a member to present a view on IEEE 802.16 perspectives on IMT-Advanced.**

## Future Meetings

The meeting plan beyond 2008 is far from definitive at this time. The tentative schedule is:

WP 5D Meeting # 4	11-18 Feb-09	India
WP 5D Meeting # 5	10-17 Jun-09	Germany
WP 5D Meeting # 6	14-21 Oct-09	China