
Project	IEEE 802.16 Broadband Wireless Access Working Group		
Title	Minutes of 802.16.1 Coexistence, Session #5 (Unapproved)		
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Re:	Minutes of coexistence meeting, Dallas, TX, 10-13 Jan 2000		
Abstract	Minutes		
Purpose	Formal documentation of meeting		
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Minutes of Coexistence Meeting, 10-13 Jan 2000

Leland Langston

Crossspan, A Raytheon Company

Session number 5, Dallas, 00/01/10

Opening plenary, 1:30 p.m.

Opening statements by Roger.

Reports from task groups and study group. Approval of the agendas.

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4:45

Joint coexistence and PHY session

Leland reviewed the document to familiarize everybody with the document. There has been only one set of comments in response to the call for comments. The goal is to have the document ready for 802.16 vote by the end of next meeting.

At the end of this session, Coexistence will take internal vote on the document.

Roger suggested that the comment resolution process that Brian Petry developed be used to facilitate the commenting process. Leland agreed to do it.

Comments:

Scott Marin: It is important to look at the document as something that affects the system deployment and something that is sometimes more than just the recommended practice, e.g. regulatory requirements.

Tuesday morning

- Recommended antenna spec, including subscriber antenna
- Recommended text for the antenna section
- Andy McGregor: Proposed changes to the BWA coexistence working document: covered the updates in the IC documents referred to in the coexistence document in sections regarding testing. Keith: the changes has been resubmitted.
- Joel Holyoak: BTS antenna RPEs: major changes are relaxing 3α point on class 1. Class 2, the number of points specified were reduced. Class 3, FBR is set to 35 dB.
- Ray Blasing: BTS antenna RPEs: Thinks that class 3 presented by Joel might be too aggressive. Presented alternative numbers. Also, the minimum gain is recommended to be independent of classes of antennas. Leland: use directivity as opposed to gain but do not mention classes for minimum gain. Ray and Joel will have a joint proposal for BTS antenna that includes all the sections. Leland set Jan. 30 for submission of the joint proposal.
- Jack Garrison: Uncorrelated rain fade: Using a grid, showed that in case of rain fade, 90 degree sector antennas with $N=2$ will have problems. The solution was offered as more complex reuse patterns and smaller sector angles. Keith: Will have a counter presentation next time.

Tuesday afternoon

- Keith Doucet: modifications to the document: The proposed maximum of 30 dBW/MHz for ICL was accepted. Frequency stability: +/-10 ppm (original proposal) was agreed to be kept. Keith will do the changes. Selectivity: with slight change in wording, the section was agreed upon. Unwanted emissions: Jack suggested to change the measurement reference from output of the PA stage to 'at the antenna flange'. Leland mentioned that this will not apply to phased arrays. Keith will reword the paragraph.
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- Deployment & coordination: rearranging the text since last time. 60-km coordination distance was accepted as a good number. Keith will add a table showing the frequency-dependence of pfd values. Jack questioned the definition of the occupied bandwidth and authorized bandwidth. Keith will add the exact definitions. Leland: It should also be included that the definition of multi-carrier does not mean OFDM.
- Keith Doucet: Proposed bandplans for LMDS: Slight change from previous submission (up and down of B-band are flipped). Keith explained the rationale behind the assignment of UL to the lower part of the A-band 850 MHz which comes from potential interference with some satellite services (currently being addressed by ITU 70/90). Leland will finalize the bandplan section of the document. Input needed on this subject.
- Phil Whitehead: Maximum EIRP spectral density for repeaters: Comments from Paul Thompson and Marianna that the limit facing the subscriber the requirement should be the same as the requirement facing the hub. It was decided upon to add, "if the repeater is used to extend the coverage, the hub limits should apply". Allen Evans brought up concerns about passive, non-generative repeaters. Phil will work with him to find the way of including this issue.
- Phil Whitehead: BWA system overview: The terminology will be made consistent to the one adopted by SysReq document. The general system diagram was decided to be named as reference system diagram for coexistence. Phil was requested to add inband intercel links.
- Wei Zhang: Recommendation for use of various rain drop size distribution for different geographical locations: Well received.
- Ray Blasing: presented his opposition to tying the below horizon minimum gain (elevation gain) to the class of antenna.

Wednesday morning

- Jack Garrison: Presented paper on the advantages of sector sizes smaller than 90 degrees in regards to interference during uncorrelated rain fade. TDD frequency reuse. Jack also provided analytical support to show that TDD/FDD systems can coexist, and that TDD systems do not require synchronization between sectors.
- Wei Zhang: Presented paper on channel models which was well received. The paper summarized the advantages of using highly directional antennas as well as having antennas located at relatively high altitude.
- Joel Holyoak: BTS antenna discussion: Joel agrees that minimum gain base station antennas can be used, he maintains that higher gain will help the interference situation. He'll have a contribution regarding this in two weeks. Several people brought up the issue that we don't need the minimum gain at all and maximum EIRP specified is enough for coexistence purposes. This position was agreeable to the group.
- Jay Klein: Jay proposed (based on a CEPT draft proposal) that we consider band plans based on slot/block assignments. In the proposal, the full frequency band is divided into frequency slots of equal bandwidth. However, each frequency slot can be further subdivided into smaller bandwidths, or they can be combined into larger slots. The frequency slots are defined only for the purposes of managing the licensed band. The slots may be assigned to FDD uplink or downlink, or to TDD at the discretion of the licensee. The group agreed to take his proposal under consideration.

- Leland Langston: Going over the Coexistence Practices document: Leland went over the document section by section to identify the sections that need to be written up and assign people to do that.
 - Assumptions (section 1.2): Leland.
 - Reference standards (section 1.6): Philip Whitehead.
 - Emissions (section 3.1.2): replace the section with “unwanted emissions” and delete the subsections. There will be no subsections to this section. Assigned to Andy McGregor. Multi carrier tests: comments by Jay Klein: will be implemented by Andy. Check the formulas. Move the testing part into Appendix A.
 - Frequency stability (Section 3.1.3): Assigned to Keith for revision. Include Jay’s comment.
 - Upstream power control (section 3.1.4): Keith will redo this section. No rain attenuation vs. frequency is needed.
 - Downstream power control (section 3.1.5): considered as a future feature. Stating that this document does not assume any downstream power control. Subsections to this section are deleted.
 - Selectivity (section 3.2.1): Keith will redo this section. Subsections will be removed.
 - Linearity (section 3.2.2): removed. Rational was that threshold degradation included effects of non-linearity.
 - Antenna (section xxx): Reza and Leland will refine the text.
 - EMI/EMC (section 3.4.1): Leland will do.
 - System design (Section 4): intro text by Leland.
 - Receiver threshold (section 4.1): Reza will fill in.
 - TX lock (Section 4.2): Erol
 - Fail-safe (Section 4.3): Leland
 - Propagation model (section 5): combine sections 5 and 6 into one and have subsections.
 - Interference scenarios will be section 5.1. Remi will do. Section 5.2 and 5.3 TBD.
 - Interference scenarios (section 6): See above.
 - Bandplans (section 6.1): postponed till Jay’s presentation.
 - Maximum TX/RX frequency separation (Section 6.2): deleted because the group decided it was unnecessary to meet co-existence requirements.
 - IFL links (section 6.3): Leland will attempt to fill out this section.
 - Coordination distance (section 7.1): Keith will update.
 - Mitigation techniques (section 7.2): Leland will fill out using contributions from Keith and Rebecca.
 - Spatial separation (section 7.3): remove.
 - [Cover page: The cover page is not clear about copyright issues. Bring it up in the closing plenary on Friday.](#)

Thursday

Working meeting . Task group members developed new text or, updated existing text according to the decisions on Wednesday. Leland updated the working draft of the practice to incorporate these changes and additions.

[The afternoon was devoted to updating the timeline for completion of the practice; this revised timeline will be presented at the Plenary on Friday.](#)

Minutes were revised, and then unanimously approved.

Motion to adjourn made by Remi. Motion seconded by Erol. Motion carried.