Reference 2021-4-1

Broadband Mobile Wireless Access Systems Committee
Telecommunications Technology Subcommittee, Telecommunications Council
Provisional Summary of Minutes (3rd Meeting)

1. Date

Tuesday, November 14, 2006, 10 a.m. to 12:30 p.m.

2. Location

B2 Auditorium, MIC

3. Attendees (honorifics omitted)

Committee members:

Makoto Ando, Tokyo Institute of Technology

Tetsushi Ikegami, Meiji University, substitute for Kouhei Ohno

Shingo Omori, National Institute of Telecommunications Technology, substitute for Hiromitsu Wakana

Michiko Kuroda, Tokyo University of Technology

Iwao Sasase, Keio University

Yoshiyuki Sukemune, Communications and Information Network Association of Japan, substitute for Takashi Nakasawa（Satoshi Nakazawa）

Junichi Takada, Tokyo Institute of Technology

Nobuhiro Horisaki, Telecommunication Technology Committee

Ryouichi Miyauchi, Telecom Engineering Center

Kiyotaka Yuguchi, Sagami Women's University

Susumu Yoshida, Kyoto University

Masayoshi Wakao, Association of Radio Industries and Businesses

Secretariat:

Hanoi (Director-General of the Radio Department), Oki (Director, Land Mobile Communications Division), Takemura (Senior Planning Officer, Land Mobile Communications Division), Arata (Deputy-Director, Land Mobile Communications

Division), Nishigata (Deputy-Director, Land Mobile Communications Division), Kudo (Chief Clerk, Second Technical Unit, Land Mobile Communications Division), Imai (Deputy-Director, Fixed Radio Communications Division)

4. Outline of proceedings

(1) Review of the minutes from the previous meeting

Chair Ando explained that the detailed review of the minutes would be omitted because the Secretariat had already forwarded the provisional minutes to the members previously and requested that any comments or opinions on the minutes should be sent to the Secretariat.

(2) Draft of the Broadband Mobile Wireless Access Systems Committee Report

Mr. Wakao gave an explanation of the overall organization of the draft of the Broadband Mobile Wireless Access Systems Committee Report as well as an explanation of Chapter 1 and Chapter 2. The main exchanges after this explanation were as follows.

Chair Ando — At the end of Chapter 2, it states that IEEE 802.20 was not proposed at ITU-R. Is there any reason for that?

Secretariat — After two letter ballots on the standardization of IEEE 802.20, the IEEE-SA decided to suspend the activities of the working group temporarily. The reason for this move was problems seen in the non-transparent proceedings and the monopolistic deliberations. Deliberations resumed after replacing the members and the presiding organization of the working group. I understand that IEEE 802.20 was not proposed at ITU-R because of the state of its standardization at the IEEE.

Takada — Related to this, since discussions on IEEE 802.20 are continuing, is there a possibility of differences emerging between the technical standards proposed now and the technical standards that will eventually be finalized as IEEE 802.20? If so, which technical standards will be employed?

Secretariat — Most details of the standards in IEEE 802.20 are fixed, so this Committee has pursued its examinations based on these standards. Should there be any differences in the eventual technical standards finalized as IEEE 802.20, there will probably be a study to revise the technical standards proposed now.

Yoshida — South Korea has already launched WiMAX services. Is there any data we can refer to on whether guardbands are appropriate or what the coverage is like?

Secretariat — South Korea has started WiBro services, but they will not go into full operation until the end of this year or next year, so the services have yet to expand in area. Consequently, it is difficult to confirm technical aspects of these services until after full services have been deployed.

Chair Ando — Under our initial timetable, we were planning to make our report in November, but in view of the progress of our examinations, we are a little behind. And as Chapter 7 is stated as an issue for future study, I think we will be making a partial report this time. I'd like you to keep this point in mind as we move ahead with our discussions.

Next, Mr. Wakao gave an explanation of Chapter 3 and Chapter 4. The main exchanges after this explanation were as follows.

Takada — About the simulation conditions on page 14, the condition set for MBTDD (Mobile Broadband Time Division Duplex)-Wideband base stations is 19 cells, but conditions are not given for other systems. What are the conditions on simulations?

Wakao — The simulations for other systems are performed not with a single cell but in a state where an actual operating terminal is located as defined in Table 3.1 on page 14.

Sasase — The calculation for finding transmission speeds in Chapter 3 does not seem to consider antenna technologies like MIMO [multiple-input

multiple-output] and STC [space-time coding]. When examining interference, will calculations be made taking into account antenna technologies like MIMO and STC?

Wakao — The conditions you pointed out are not considered because this is a worst-case calculation that is calculated after determining the physical antenna pattern of the base station. Furthermore, in Monte Carlo simulations, the transmission speed is calculated with the terminal positioned randomly, after which the interference probability is found.

Sasase — For example, if you use two antennas with MIMO, then does doubling the transmission speed mean the amount of interference also doubles?

Wakao — I think the problem is how great the necessary received power becomes in that case.

Takada — With MIMO, both the transmission rate and the interference amount simply double, right? Because, for example, you can avoid interference by lowering the transmission rate, then you can't conclude this for sure without setting conditions and calculating.

Yoshida — Under what assumptions were the user numbers and distributions for N-Star calculated when you simulated examinations of interference between BWA and N-Star? Furthermore, it says coexistence is possible if at 3 percent or less, but is coexistence possible in practice at this figure?

Wakao — We obtained data from N-Star for the parameters used in the simulation we ran. The figure 3 percent is one benchmark figure that came out of the deliberations by the interfering side and the interfered side at the Working Group.

Kuroda — It states that a guardband of 10 MHz is to be made by taking measures, such as applying a filter, on the N-Star side. But shouldn't the period over which this can be realized be determined beforehand?

Secretariat — As it stands today, a guardband of 20 MHz is needed between N-Star and BWA, but narrowing this to 10 MHz by seeking improvements on the N-Star side is under study. In the meantime, we have decided to use

various operational restrictions. When these operational restrictions can be removed is being discussed at a different venue from the Telecommunications Council.

Sasase — The explanation talked about applying filters to N-Star terminals but applying filters to BWA terminals was not considered. Is this a question of the size of the terminals?

Secretariat — It is considered difficult to insert more stringent conditions on BWA terminals from the standpoint of international consistency.

Yuguchi — What kind of services BWA is used for is important. Won't the technical conditions change depending on whether the precondition is use in underpopulated areas or use in urban areas?

Wakao — Since the system allows high-speed communications while moving, I imagine, of the two scenarios you gave, the system being used in urban areas.

Takada — I have two corrections. In the second line from the bottom on page 32, Reference 5 is mistaken for Reference 8. And I'd like the notation SEAMCAT on page 33 to be changed to ITU-R Report. It also states that the NLOS model is applied, but I'd like to see the source of this clearly indicated. Finally, is it possible to create technical standards for N-Star so that a filter can be added in the future?

Secretariat — In general, it is the N-Star side that suffers from interference. Therefore, operations will be restricted for a certain period to protect receiving terminals. After this period, the receiving terminals will start to experience interference unless some measures are taken on the N-Star side.

Takada — There is an assertion that RR 4.4 will have to be guaranteed and parties that first operate services must be protected. How is this interpreted?

Secretariat — This holds for the entire draft report. There is common recognition that parties that start services later have the responsibility to take steps, such as site engineering, to avoid interference.

Yoshida — There are several ratios given for upstream and downstream where the frequency usage efficiencies are calculated for WiMAX in Chapter 3. In the end, what ratio applies?

Wakao — The ratios that appear here are used as one example when making calculations.

Next, Mr. Wakao gave an explanation of Chapter 5, Chapter 6, and Chapter 7. The main exchanges after this explanation were as follows.

Takada — I'd like the references on page 47 organized a little better. Also, it's impossible to look up the references later without extracting the necessary portions from the references.

Yoshida — In the examination of mutual WiMAX interference on page 50, the interference amount between mobile stations is given as the large value of 53.3 dB, and if a Monte Carlo simulation is run, it becomes less than 3 percent. Although it depends on the conditions that are set, in places where there are a lot of people, for example around a train station in a city, no matter if it is less than 3 percent, any interference will result in a problem, right?

Wakao — The 3 percent figure appears as one common condition yardstick. Although calculations under unique conditions lead to conclusions that coexistence is not possible, the Working Group concluded that the probability of interference was sufficiently low to permit coexistence when 3 percent or less was used in Monte Carlo simulations.

Takada — What was the reasoning behind the values chosen for the levels and masks, which appear to be different for each method?

Wakao — The draft gives standard mask values or else masks with more stringent conditions.

Chair Ando — Regarding Chapter 7, because this chapter will be skipped at this meeting and examined later, this draft report will be a partial replay and we will move on to the public comment stage.

Sasase — It talks about introducing a 20 MHz system in Chapter 7, but unless there are frequencies that can be assigned, this system cannot be realized. How will this be considered in the upcoming examinations?

Secretariat — The allotment of frequencies will be considered separately at an open hearing about which telecoms want to use how many frequencies.

Takada — A description of high-output FWA (fixed wireless access) is given in Chapter 7. I'd like to know if there is any policy considering the future use of FWA in this frequency band or whether is this just sounding out the possibility.

Secretariat — At the time of the inquiry, we were to examine wireless mobile broadband as an alternative to wired access in disadvantaged regions. Furthermore, the Wireless Broadband Promotion Study Group at that initial stage reported much the same thing. On the other hand, there are comments that frequency sharing becomes difficult if high-gain antennas are used. Thus, the draft states to the effect that we should study further the technical probability of realizing FWA.

Chair Ando — Is the introduction of 20 MHz systems to be studied in continuation after the examinations of technical standards of 10 MHz systems are complete? Or will we take time to view how the situation develops after the frequencies for 10 MHz systems are assigned?

Secretariat — We expect further international standards development and advances in filter technologies. Therefore, we will proceed with discussions at the stage when users demands have risen in conjunction with these developments.

Chair Ando — The Working Group has yet to examine Reference 2021-3-3, so I plan on getting the Working Group to check this reference posthaste.

After revising the draft to reflect the Working Group's comments and sending it to the members, I hope to have the members reconfirm the draft. If there are no specific comments on this, then I will revise the combined draft of Reference 2021-3-2 and Reference 2021-3-3 to reflect the comments made at today's Committee meeting and send it out to the members. Once this is confirmed, I would like to move to the public comment stage. I'd like the Secretariat to describe the upcoming schedule.

Secretariat — After today's Committee meeting is adjourned, we will confirm the details of Reference 2021-3-3 at the drafting meeting and we hope to send the compiled version by Thursday the 16th to the members. We hope the members will confirm the details by Friday the 17th and send any comments by 5 p.m. on the 17th. Based on this, we are planning to hold a public comment hearing on Monday the 20th. At the next Committee meeting, we will discuss the Committee's thoughts on the opinions given at the public forum and conclude the final Committee report. We are planning to reach this in the middle of December.