Document 3-1

Broadcasting System Committee (2nd Meeting) Summary of Minutes Telecommunications Technology Subcouncil, Telecommunications Council

1. Date and time

Friday, November 17, 2006 16:00 -

2. Location

Second Meeting Room on the First Basement Level of MIC (Minister of Internal Affairs and Communications)

3. Agenda

(1) Confirmation of the summary of minutes of the previous meeting
(2) Hearing comments from stakeholders
(3) Interim report from the Working Group for Terrestrial Digital Broadcasting Relay Stations
(4) Others

4. Attendees (Honorifics omitted, in random order)

Ito (Committee Chairperson, Tokyo University of Science), Aizawa (National Institute of Informatics), Ikegami (Meiji University), Ogawa (National Institute of Information and Communications Technology), Katto (Waseda University), Kobayashi (Association of Radio Industries and Businesses), Tsuzuku (Meijo University), Noda (Japan Cable Laboratories), Yamada (Post-graduate school of the University of Electro-Communications). Ota (Observer, Working Group for Terrestrial Digital Broadcasting Relay Stations), and Moriyama (Observer, Working Group for Terrestrial Digital Broadcasting Relay Stations)

[Secretariat] Okubo, Fukushima, Usui, Endo, and Takemura (Broadcasting Technology Division, MIC)

5. Documents Distributed

Document 2-1: Broadcasting System Committee (1st Meeting) Summary of Minutes (draft)

Document 2-2: About the technical conditions on the terrestrial digital broadcasting relay stations <Interim Report>

Document 2-3: Broadcasting System Committee Report (draft), Telecommunications Technology Subcouncil, Telecommunications Council

6. Summary of the Meeting

The secretariat explained that member Ota and member Moriyama were attending the meeting as observers from the Working Group for Terrestrial Digital Broadcasting Relay Stations, and the agenda items were discussed as follows after ensuring that every participant received the documents to be distributed.

(1) Confirmation of the summary of minutes of the previous meeting

The Broadcasting System Committee (1st Meeting) Summary of Minutes (draft) was approved.

(2) Hearing comments from stakeholders

The secretariat reported that MIC provided an opportunity for a public hearing to stakeholders and sought those who wished to offer their opinions through the MIC Web site, but nobody took up this opportunity.

(3) Interim report from the Working Group for Terrestrial Digital Broadcasting Relay Stations

Member Kobayashi, head of the Working Group of Terrestrial Digital Broadcasting Relay Stations, explained the technical conditions on the terrestrial digital broadcasting relay stations that had been deliberated in the Working Group, by using Document 2-2 and Document 2-3 and the questions-and-answers session was provided as follows:

a. Classification of relay stations

○ Member Tsuzuku: Have gap fillers with more than 50 mW not been approved?

→ Member Kobayashi: The term, gap filler, is ambiguous. For this reason, the Working Group classifies relay stations into the categories as shown in Reference 2 of Document 2-2. Some of the categories may be divided further into sub-categories in future, but currently, the Group classifies relay stations

with “0.5 W or less” and “0.05 W or less” as shown in the reference.

○ Member Tsuzuku: While the provisions for antenna power, etc. are established by using demarcation points such as 0.5 W and 0.05 W, the demarcation points for the spectral mask are 0.25 W and 0.025 W. I think it hard to understand these classifications. Can’t these demarcations be on the same scale? For example, if the categories are classified based on the demarcation point of 0.05 W, the corresponding value of spectral mask will be approximately 33 dB. Can we adopt such a notation?

→ Member Kobayashi: The Working Group has not studied the demarcation values, so I would like to bring them back as a consideration to the group. Also, the working group once argued that the spectral mask should be specified not with the current relative attenuation but with the absolute value of out-of-band power density (or in a way that they should be consistent with the value of “4.55E-08” in “Figure 4: Relations between Average Power and Out-of-Band Power Density” of “4. Spectral Mask” in Document 2-3. We would like to review member Tsuzuku’s comment.

b. Notation for spectral mask

○ Member Tsuzuku: The vertical axis is “attenuation” in “Figure 3: Spectral Mask Considering Low-power Transmission Systems” of “4. Spectral Mask” in Document 2-3. If this is correct, then, why does “attenuation” take negative values?

→ Member Kobayashi: Figure 3 was quoted from the provision on out-of-band domain emissions by other digital broadcasting systems that was included in ITU-R Recommendation SM. 1541-1, and the tolerances in the provision stipulating “the tolerances for the modulated wave spectrum for the carrier shall be within the values shown in Figure 4.8.8” in the current Ordinance Regulating Radio Equipment (Article 37-27-10 (4)) have been similarly defined.

→ Chairperson Ito: If the current notation must be kept intact from the viewpoint of ensuring consistency with the provision in ITU-R Recommendation SM. 1541-1, I would like to propose that both a more understandable notation and another notation that represents the provision of ITU-R Recommendation SM. 1541-1 should be included in any reports from this committee.

c. Input levels in measuring “tolerances for frequency departure” and “tolerances

for frequency departure in SFN”

○ Member Tsuzuku: If an input level range of -75 dBm to -10 dBm was validated in the measurement of the input level tolerance described in Reference 1 of Document 2-3, should the input level in measuring the tolerances for frequency departure not be around -75 dBm rather than -47 dBm as the most rigid condition? Or is this caused by a difference between antenna terminals and receiver terminals?

→ Observer Moriyama: Both have the same specified performance point. As the reference values for the input level are said to fall between 70 to 85 dBμV when measuring the characteristics of normal analog receivers, a value of -47 dBm is used for digital receivers, the value of which is derived from reducing the range by 10 dB and converting 60 dBμV to dBm. On the other hand, -75 dBm is a value for the lowest input level that is a desirable characteristic in ARIB STD B-21. Due to this difference, a value of -47 dBm means not “the lowest level” among the input levels but “the lowest input level for the measurement reference.” To avoid any misunderstandings, we would like to modify the relevant wording.

○ Member Noda: Does an input level of -47 dBm not prove that “receivers will not be affected with the tolerance of frequencies” and “SFN operation will not be affected?” If the input level was in the neighborhood of -75 dBm, we can feel assured of the results. But, a value of -47 dBm makes me feel anxious about them. I wish the measurement had been conducted for the worst case.

→ Observer Moriyama: Member Noda has a point. The change of a value is determined by certain major factors among various combined conditions in measurements such as this. It is difficult to determine which condition is such a major factor in a production environment. For this reason, we are considering a standard by adding some margin to the derived result.

→ Chairperson Ito: Can we regard －47 dBm not as “the lowest level” but as “an appropriate input level?” What I am a little concerned about is whether or not the tolerances for frequency departure in Figure 5 of Reference 1 in Document 2-3 will substantially shrink if they are measured with a value of -75 dBm.

→ Observer Moriyama: I think the fluctuation of input level for a receiver affects the tolerances for frequency departure. What is measured in this measurement, however, is the frequency departure for a receiver per se. I don’t think a slight

change in the input level will affect the characteristics of receivers.

d. Handling data with code rate 7/8

○ Member Noda: I don't think the change of input level will greatly affect the measurement of the tolerances for frequency departure, either. What I am rather concerned about is how much the change will affect SFN operations. The results of measurement with code rate 7/8 are included in the document, so it makes me more concerned.

→ Chairperson Ito: The current broadcasting services are being offered with code rate 3/4. I presume that broadcasters wish to send their services up to the very edges of broadcasting areas, even sacrificing a little reduced payload. Assuming that, I think it possible to remove the results of code rate 7/8 from reports of this committee. What do you think of it?

→ Observer Ota: Even in actual broadcasting, code rate 7/8 will disrupt SFN, so in fact, broadcasters are compelled to adopt code rate 3/4. I would like to conclude that how to handle data with code rate 7/8 will be reconsidered.

e. Considerations on receivers

○ Member Noda: Does subsection 2) in section 3 on page 1 in Document 2-2 intend to say that "digital broadcasting cannot reach ..."?

→ Observer Ota: Stations for digital broadcasting have already started to be installed. The subsection means that it is possible that utility poles may be used for digital services in future.

→ Chairperson Ito: It means that fivefold antenna power have been allowed for.

○ Member Noda: I understand that these are intended to produce transmitters at low cost. On the other hand, are they against the price reduction of receivers? For the receivers to be manufactured in future, why don't we ask, for example, JEITA whether such looser transmission requirements will not affect the production of less expensive receivers before making the report public. The draft report will be subjected to a public comment procedure. Then, I think it will be too late to correct the point.

→ Observer Moriyama: Receiver manufacturers took part in the Working Group

for Terrestrial Digital Broadcasting Low-Power Transmitting Systems in the ARIB Digital Broadcasting System Development Task as members. In the case of receivers, receiver manufactures don't produce, for example, demodulating LSIs, on an individual basis, and often purchase them from leading part manufacturers. Consequently, I don't think receivers with performances substantially worse than the ones available in the current market will emerge in future.

→ Chairperson Ito: I don't think it is desirable that receivers with worse performance than that of the current ones will be manufactured. I do think it is a manufacturers' job to produce receivers with less cost while keeping the same performance level, or to try to produce ones with enhanced functionality if they keep the prices the same. This amendment to the technical conditions must not affect existing receivers adversely, but we don't have to consider receivers to be manufactured in future.

○ Member Noda: Although I understand what you say, I presume that the terrestrial broadcast digitization is urgent for receiver manufacturers, too. Do you mean that receiver manufactures must accept the consequences?

→ Chairperson Ito: I understand that this way of thinking is common in other industries and matters in the real world. What you are questioning now is whether we are taking into consideration the receiver side? This draft report is essentially intended to deliberate on the given agenda from the viewpoint of broadcast providers.

→ Secretariat: What MIC is asking the committee to deliberate is the broadcast providers' theory or the fast streamlining of infrastructures for digital broadcasting. MIC has the stance that it will be good if receivers will become less expensive in the process of streamlining.

f. Lowering prices

○ Member Ogawa: Can we assume that the utilization of TCXO will greatly contribute to lowering the prices of receivers?

→ Member Kobayashi: The working group regards the two items, namely, the utilization of TCXO and the promotion of MCPA utilization as major reasons.

g. Reason why the tolerance for frequency departure is 10 kHz

○ Chairperson Ito: One thing that makes me worried is the reason why the tolerance for frequency departure for the relay stations with "0.5 W or less" is 10 kHz. I presume that the value is calculated for the number of stages in which the relay stations are installed based on the presupposition of using TCXO. Even if this is emphasized as a decisive factor, it is hard to regard it as a cogent reason. I think it is normal that the logical reasoning may take the following structure: Based on the results derived from comparing the performance of the current oscillator with a given requirement or requirements (plus various margins), the number of stages in which TCXOs are configured will be deduced to meet the requirement or requirements.

→ Member Tsuzuku: Why don't we take what I am saying as a reason for a frequency departure tolerance of 10 kHz? The relay stations with a power greater than 0.1 W for analog broadcasting have a frequency departure tolerance of 3 kHz. Analog broadcasting has an offset frequency and a fine offset frequency, each of which is 10 kHz or 10.01 kHz. That means that even in analog broadcasting, receivers deal with an offset of 10 kHz.

→ Observer Moriyama: When the frequency is shifted by setting an offset frequency, the shifted frequency is regarded as the normal frequency and different from a frequency departure tolerance. Having said that, your explanation is a hint that leads me to finding a reason from a different viewpoint. I think that while an offset frequency is set to a little less than 20% of all relay stations in analog broadcasting, we are compelled to set up looser provisions for digital broadcasting, considering that offset frequencies are not set up for it.

h. How to describe the performance of oscillators

○ Member Ikegami: I would like to share with you what I have noticed. The performance of oscillators is described in the 4th paragraph of "2.2.1. Frequency Departure by the Classification of Antenna Power for Relay Stations" in Document 2-3. I think that the accuracy of each oscillator should be first described in units of ppm using a notation of 10^{-x} and then in units of Hz after it is converted into carrier frequencies.

i. Conditions under which technical standards for extremely low-power stations are applicable

○ Member Noda: Can we quantify “an area that is narrow and closed from the viewpoint of characteristics of radiowave propagation”?

→ Member Kobayashi: The working group’s study does not go that far. For example, we are about to change the terms enclosed in parentheses in items 1) to 5) listed at the end of “1.3. Applicable Conditions for Extremely Low-Power Stations” in Document 2-3 to more detailed wording.

→ Secretariat: The provisions for extremely low-power stations in analog broadcasting use the same wording. If we quantify license requirements, the time when applying for a license will become meaningful and consequently the requirements will not be impartial because license requirements will be changed as the radio spectrum environment changes. This is why it is somewhat awkward to quantify the provision. If the committee proposes the description as good as the current draft report, MIC seems to be able to develop a provision based on the description.

→ Member Kobayashi: As far as the process of licenses is concerned, it is possible to control real harm because not only the conformity in technical regulations for radio equipment but also real operational conditions are taken into consideration when granting them.

After the questions-and-answers session above, Chairperson Ito informed participants that: 1) Everyone was welcome to inform the secretariat when further finding or noticing anything by Tuesday, November 21; 2) Based on the comments and what has been discussed today, the working group would study the updated draft report and report it to the next meeting; and 3) The next meeting is supposed to finalize the draft report. Then, MIC would promptly subject it to a public hearing procedure.

(4) Others

The next meeting is scheduled to be held at 15:00 on Thursday, December 7, 2006.

End of Summary