Study Group on Next-Generation Broadcasting Technology
Summary of Minutes (4th Meeting)

1. Date and Time: Tuesday, March 13, 2007, 14:00 to 16:00

2. Location: Special Conference Room 3, 9th Floor, Ministry of Internal Affairs and Communications

3. Attendees

(1) Members (honorifics omitted)

Akiko Aizawa, Susumu Ito, Jiro Katto, Satoshi Kobayashi, Kazuhiko Sato, Ryoichi Maki, Yoichi Suzuki, Kenkichi Tanioka, Aiichiro Tsuzuku, Hiroshi Harashima, Harue Maeno, Masaaki Mitani, Ryosuke Yokoi, Satoshi Ishibashi (proxy), Kenkichi Isobe (proxy), Shuichi Matsumoto (proxy)

(2) Presenters (honorifics omitted)

Chiharu Kamise, Shunichi Sato, Hideki Suganami, Tomoki Takahashi, Hiroshi Takizuka

(3) MIC

Nakata, Deputy Director-General of Minister's Secretariat; Okubo, Director of the Broadcasting Technology Division; Takeda, Director of the Satellite and International Broadcasting Division; Fuseda, Senior Technology Planning Officer of the Broadcasting Technology Division; Honma, Senior Technology Planning Officer of the Regional Broadcasting Division; Kondo, Deputy Director of the Broadcasting Technology Division

4. Proceedings

(1) Minutes of the 3rd Study Group Meeting

(2) Direction for Formulating System Visions for Next-Generation Broadcasting Technology

(3) Free Discussion

(4) Public Questionnaire Survey

(5) Others

5. Key Discussions

The secretariat outlined the direction for formulating the system visions for next-generation broadcasting technology. In the subsequent question and answer session, the following key

opinions were raised:

- In connection to electronic watermark technology, we should include content provision technology with ensured credibility in the figure for expected visions.
- Although there have been discussions on receivers and broadcasting systems, discussions relating to the technology of content creation have not been conducted in an integrated fashion. Broadcasters play the important role of program production as well as the role of transmitting programs using radio waves—this needs to be further emphasized.
- Although this discussion focuses on the perspective of general viewers, the development of future systems is difficult if the broadcasting business on the producer side is unprofitable. Therefore, in addition to the viewer perspective, we should consider the perspective of business operators (the perspective of business and the perspective of production).

Action: We will conduct a survey among the broadcasters participating in this meeting so that the technologies to be considered from the producers' perspective are incorporated when creating new broadcasting systems.

- Although one of the assumptions of our discussion is that viewers hold a passive position, we need to consider interactivity, including viewer-initiated actions, for next-generation broadcasting.
- In regard to copyright protection technology, the technology for preventing illegal copies is to be established by 2012. As it is widely believed that server-based broadcasting or content distribution via the Internet will not be available until 2012, it may be better to establish content-related technologies ahead of schedule.

Action: We do not yet know when the above technologies will become feasible, but it may be possible to work on priority technologies ahead of schedule.

Free Discussion: R&D Priorities

- One of the priorities is the development of a highly functional and easy-to-use power supply, namely longer life, lightweight batteries; batteries with a shorter charging time; and safe batteries. The second priority is the development of a wide range of display technologies, possibly involving the use of semiconductor lasers. I have heard that one of the challenges facing semiconductor laser development is the creation of green light emitters. Third is the development of systems and specifications for the development of new media through the integration of communications and broadcasting. Such measures will also serve to enhance Japan's international competitiveness.

- One of the key words in current use is “user-sensitive TV.” It is important to create products and services with a focus on user sensitivity with a view to high added value and differentiation. A second popular key word is “on demand.” Initiatives geared toward developing future broadcasting systems, such as server-based broadcasting, at as early a stage as possible are required to keep pace with global trends. A third important point is the efficient use of the spectrum. The development of highly efficient band compression technology with limited spectrum resources is a top priority.
- Ultra-realistic communication makes use of a wide variety of video data and networks to seamlessly transcend the limitations of space and time. The technologies required in the related R&D include the following: technologies for creating, in real-time, video information sent from numerous cameras as well as 3-D information of the subjects; technology for seamlessly connecting live video data and stored video data; technology for interactively expressing such data; and technology for presenting the data to people over the network in an effective, natural and optimized manner.
- The requirements from the consumers’ perspective are convenience, economy and security. Consumers want media that is easy to operate, environment-friendly and relaxing, as well as safety and security information, as indicated in the report.
- Information transmission capacity is determined by the bandwidth and transmitting power. It appears that high transmission capacity is assumed in the document for this meeting. I believe it would be beneficial to provide a more specific technical picture of the transmission capacity involved.
- The government should provide support to fields where Japan lags behind other countries, or to boost fields that are ahead of other countries with an eye to overwhelming international competitiveness. In terms of broadcasting, the high vision field falls under this category. We can maintain overwhelming competitiveness in such fields if we can develop the key devices for ultra-high vision, such as devices for shooting or display images and image sensors, as fast as possible. If super-high vision is the key focus of next-generation broadcasting technology, the government should provide support to achieve the required breakthrough.
- In regard to technological development, high sound quality to match the high image quality is crucial. Also needed is technology for providing people-friendly broadcasting. Furthermore, as a device technology for improving reception functionality, reconfigurable chips are indispensable. Software technology for such chips is also required.

Japan needs to develop a society where adequate consideration is paid to new technologies, so

that young people are motivated to work on ICT.

- The handling of the transition period from the present to next-generation technology is critical. Developers should provide information on the transition period to both consumers and producers. In other words, information provision must be systematized.
- The standardization of HDTV technology was triggered by studio specifications. The technological direction for the use of 1920x1080 pixels was first established, and subsequently technologies from various fields were accumulated to realize it. I believe such a process to be crucial. I hope there will be a move toward the development of studio specifications for ultra-realistic broadcasting.
- If broadcasting specifications that have been in use for long periods are modularized, it will be possible to change specific parts as and when necessary, just like PC parts. However, careful decision-making is needed as this may lead to price-slashing. In addition, while the speed of system breakthrough is likely to be gradual, breakthroughs in terms of semiconductors, lasers and devices may lead to the development of destructive technologies, changing our world. Therefore, the development of related device hardware and middleware is critical.
- In regard to technological development from the perspective of the integration of broadcasting and communications, broadcasting must ensure that transmission is completed without fail, in contrast to the best effort transmission of the Internet. One example of the required technologies is a technology for switching the means of program provision, so that programs likely to attract at least one million people viewers are shown via broadcasting, while providing programs attracting smaller numbers are shown via communications. Also, from the viewpoint of effective resource utilization, not only spectrums but also communication means are limited in terms of bandwidth. The technology to share spectrums and cables between broadcasting and communications is also required. Furthermore, from the perspective of broadcasting, community-specific services must have safe content, so technology for confirming content is indispensable.
- The key to next-generation TV sets is the ultra-realistic experience. To transmit 8k of data to homes, current compression efficiency rates must be improved tenfold. “Seamlessness” is another key to future TV sets, and there must be great technological innovation of display devices to enable their use in a wide variety of situations.
- Highly specialized software targeting small numbers of users tends to be rather user-unfriendly. User-friendly software of this type is still some way in the future, because the software development technology in the specialized field remains immature. This is another issue to be

addressed in technological development.

- Broadcasting is currently less free than communications. Therefore, when we take the next step, it is crucial that that the government demonstrate its determination to work on broadcasting. We need a means to clearly identify the next direction we should take.