

**Remarks Delivered
at the
Celebration of the IEEE Milestone Recognizing the
International Standardization of the G3 Facsimile
(As Prepared)**

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Thank you Prof. Aoyama. It's a pleasure to be here today. Dr. Miura and Dr. Tanaka, my congratulations.

I also bring you greetings and congratulations from the IEEE Board of Directors, our Professional Staff, and our more than 415,000 individual members around the world.

We're here today to celebrate and commemorate a major event, a major milestone in the technology of transmitting images over long distances, electronically.

I remember the first time I used a facsimile machine, in the late 1970s. What I remember most about the experience was the need to call the receiving party to find out what kind of a machine they had, to find out if our machines were compatible, and if they could be configured to work with each other.

That, of course, was a problem of standards. And as many have noted, standards are most noticed when either none exist or too many exist.

I have worked in the development of standards and I know that it's not an easy task. Standards often favor one technology over another, or one organization over another, so those who work to develop standards often have competing interests. The best standards are therefore often those created by large and diverse groups, people and organizations with different interests and perspectives, who ultimately find ways to accommodate those competing interests. Unfortunately, this is also a situation where developing standards is the most difficult, and we have all seen efforts to create a standard turn into competing efforts and the creation of multiple, competing standards.

But today we celebrate an occasion when competition did not destroy cooperation, when competitors understood that successful cooperation to develop a single standard enabled a much larger market to develop, a market within which competitors could then compete on the merits of their technology, and on their ability to provide products and product features that were attractive to customers.

The story of the development of the G3 Facsimile Standard has been well documented.

Many years ago, I worked on the development of standards that supported the specifications of optical fiber, and I see several important parallels between these two stories of success in standardization.

In both cases, work on standards began at just the right point in the development of the technology, not too soon, before the technology was well understood, and not too late, when too much investment in product development had already been made.

In both cases, participation in the process of developing the standard was broad, broad enough to assure both quality and acceptance, but not so broad as to make agreement impossible. The processes were open, and the results were not pre-ordained. Broad participation is important because standardization affects competition, and it is thus, by its nature, an intense process.

In both cases, a neutral party participated. In both cases, the role of the neutral party was to encourage the development of the standards, and to enable and provide testing and validation. It was a role that I believe was critical, and in general, is critical in standardization.

In both cases, parties elected not to pursue certain intellectual property rights, in the interest of seeing standards more widely accepted, and thereby in the interest of seeing the technology be more widely developed, and thereby, ultimately, in their own long term commercial interests.

For more than 125 years, IEEE and its predecessor organizations have been recognizing the importance of great achievements in technology, and that includes major achievements in standardization

The IEEE Milestones program was designed many years ago to highlight the achievements of individuals and groups in electrical, electronic, and computer engineering, and the associated sciences. Each milestone recognizes a significant achievement that occurred at least twenty-five years ago in an area of technology represented in IEEE.

To date, 117 achievements in our fields of interest have been recognized as IEEE Milestones. Given the great contributions of Japanese scientists and engineers to technology, it should not be surprising that quite a few of the IEEE Milestones are located in Japan. The earliest is the development of the Yagi antenna at Tohoku University in 1924. Others include the Shinkansen, the quartz wristwatch, electronic calculators, the commercialization of photovoltaics, and the first transmission of a television signal across the Pacific Ocean. And they also include the development of the VHS standard for video tape which, as we all know, is another interesting story in the field of standardization.

To put these achievements in context, the first IEEE Milestones honor the work of Benjamin Franklin and Alessandra Volta in the 18th century. Others recognize the birth of telecommunications with the invention of the telegraph in the 1830s, Maxwell's equations in the 1860s, and many developments related electric power. Marconi's work on wireless and others developments related to communications are honored, as are several developments related to computing, the liquid crystal display, the cardiac pacemaker, and the compact disc. Today's event marks one more step the continuation of centuries of technological innovation. But there are clearly many more achievements that need to be recognized, and I invite you to visit the IEEE Milestones website and propose your own candidates.

I believe that, over the past century or so, engineers have truly changed the world. Our profession essentially created a world that had never before existed, a world in which quality of life for much of the world was dramatically advanced. IEEE Milestones help IEEE members tell this story; they help us explain the accomplishments of our profession to the broader world. It's a story that we must tell. We must tell it to policy makers, to the public at large, and to the young people who are the potential engineers of the future.

Thank you for the opportunity to be with you today on this important occasion. And, again, my congratulations.

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Citation

International Standardization of G3 Facsimile, 1980

At this site, the two-dimensional coding Modified READ method for G3 facsimile was developed through the careful collaboration of NTT and KDDI. It was the most innovative, efficient method, and was key to the success of international standardization. Strong Japanese leadership with intense international discussions and examinations yielded the G3 facsimile recommendation in 1980 to conclude international standardization efforts for redundancy suppressing digital facsimile.