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BUSINESS PLAN FOR JTC 1 /SC 23

PERIOD COVERED: October 2011 – September 2012

SUBMITTED BY: Kei Yamashita, Chair of JTC 1/SC 23

1. 0 MANAGEMENT SUMMARY

1. 1 CHAIRMAN'S REMARKS

1.1.1 16th SC 23 Plenary meeting

The 16th SC 23 Plenary Meeting was held on June 26th 2012 in Lisbon, Portugal. Total 26 peoples from four P-member countries and one O-member country attended. The major decisions made at the meeting are as follows:

(1) Revision of ISO/IEC 16963 (Recordable CD/DVDs life expectancy test method)

SC 23 resolved to revise ISO/IEC 16963 to include (Blu-ray) BD-R/RE. This revision work will be discussed in SC 23/JWG 1 (Joint Working Group with ISO TC 42 and ISO/TC 171/SC 1) using the normal development procedure. The actual work is expected to start early 2013. See 1.1.2 and 1.4.3.

(2) NPs on Four BD (Blu-ray Disc™)

NPs on four Blu-ray Disc Formats (BD-R SL/DL, BD-R TL/QL, BD-RE SL/DL, BD-RE TL) had been approved. At the plenary meeting, SC 23 reviewed Working Drafts and resolved to progress the projects to the CD stage. See 1.1.2

(3) Revision of ISO/IEC 29121 (Data Migration method for DVD)

NP on revision of ISO/IEC 29121: 2011 had been approved. At the plenary meeting, SC 23 resolved to progress the project to the CD stage. See 1.1.3

(4) Discussion on Resolutions of the JTC 1 San Diego Meeting

At the request of JTC 1 from the last JTC1 San Diego meeting, SC 23 discussed "Storage Class memory" and "Flash memory" for future possible work. The result of the discussions was the following:

- Storage Class memory

SC 23 is interested in Storage Class Memory; however, we think this technology is still under development, therefore, at this moment, SC 23 has no standardization plan yet. SC23 will continue to watch this technology for future activities.

- Flash memory

Since there is a possibility for future work item, SC 23 resolved to request JTC 1 to approve the modified scope of SC23 to include Flash memory technologies. See 1.2

(5) Future Meetings

According to the regular two-year intervals of SC23 plenary, the next 17th SC23

plenary will be held in 2014 in USA

1.1.2 Standardization of Physical Blu-ray Disc™ Format

During the development of ISO/IEC 16963 (Recordable CD/DVDs life expectancy test method), many optical disc users including SC 23/JWG 1 members requested the inclusion of Blu-ray Disc™ format to this standard. Therefore, after the completion of the development of ISO/IEC 16963 standard, the JWG 1 members (SC 23, ISO/TC 42, ISO/TC 171/SC 1, JIMA, and Ecma TC 31) jointly requested Blu-ray Disc Association (BDA) to make their de-facto Blu-ray disc format (BD-R/RE format) an international standard in January 2011. October 2011, BDA accepted this request. December 23, 2011, four recordable and rewritable BD standards were proposed as new work items via the Japanese National Body. The four NPs were approved as Project 30190(BD-R SL/DL), 30191(BD-R TL/QL), 30192 (BD-RE SL/DL) and 30193(BD-RE TL) in March, 2012. After reviewing their Working Drafts at the 16th SC23 Plenary meeting, CD ballots were started in July 2012. DIS ballots are expected to start in Oct. 2012.

1.1.3 Revision of ISO/IEC 29121

During the discussion of audio archive system at IEC/TC 100 TA 6 in Japan, they have found some issues to achieve in the standard of ISO/IEC 29121:2009 to their expected system. JNB members and IEC TC 100 TA 6 members discussed how to update this standard. Especially IEC/TC 100 members concerned test interval for the monitoring the data longer if the estimated lifetime of the disks in ISO/IEC 16963 is known. A new work item for the 2nd Edition of ISO/IEC 29121 was submitted by JNB and it was approved on May 27, 2012. At the 16th SC23 plenary meeting, SC 23 approved the progression of this project to CD. A two-month CD ballot was conducted in July 2012 and closed in September 2012.

1.1.4 Two Volume and File structure standards' modifications

In 2011, SC 23 started the discussion of two old but still widely used volume and file structure standards. One is ISO 1001 Information processing – File structure and labeling of magnetic tapes for information interchange standard and the other one is ISO 9660 Information processing – Volume and file structure of CD-ROM for information interchange standard. Both standards were originally developed by SC 15, which was disbanded and were maintained by JTC 1 directly. After the default ballot by JTC 1, SC 23 took over the maintenance responsibilities of the two standards.

In the case of ISO 1001, recently it was recognized that ISO 1001 does not specify a major character code for information interchange with magnetic tapes. And in the case of ISO 9660, today's available CD-ROMs are manufactured in accordance with

extended specifications of CD-ROM rather than ISO 9660. The extended specifications are not strictly defined. Therefore, in order to avoid any confusion and or misunderstanding, the proposals to amend these two standards were proposed by the Japanese National Body. The revised ISO 1001 was published as ISO/IEC 1001 in August 2012. PDAM 1 to ISO 9660 has been approved and a DAM ballot has been initiated.

1. 2 JTC 1/ SC 23 STATEMENT OF SCOPE

The scope was updated to include "flash memory technologies" as follows:

Title: Digitally Recorded Media for Information Interchange and Storage

Scope:

Standardization in the field of removable digital storage media utilizing optical, holographic

and magnetic recording technologies, and flash memory technologies for digital information

interchange, including:

- algorithms for the lossless compression of data
- volume and file structure
- methods for determining the life expectancy of digital storage media
- methods for error monitoring of digital storage media.

1. 3 PROJECT REPORT

The following summarizes the progress of SC 23 projects since the last JTC 1 Plenary Meeting held in San Diego, USA in 2011.

Total number of projects: 137

a) Optical Media

Total number of projects:57

Total number of ongoing projects: 4

- CD 30190, Information technology -- Digitally recorded media for Information interchange and storage -- 120 mm Single Layer (25,0 Gbytes per disk) and Dual Layer (50,0 Gbytes per disk) disk (BD Recordable BD-R SL/DL)
- CD 30191, Information technology -- Digitally recorded media for Information interchange and storage -- 120 mm Triple Layer (100,0 Gbytes per disk) and Quadruple Layer (128,0 Gbytes per disk) disk (BD Recordable BD-R TL/QL)
- CD 30192, Information technology -- Digitally recorded media for Information interchange and storage -- 120 mm Single Layer (25,0 Gbytes per disk) and Dual Layer (50,0 Gbytes per disk) BD Rewritable disk (BD-RE SL/DL)
- CD 30193, Information technology -- Digitally recorded media for Information interchange and storage -- 120 mm Triple Layer (100,0 Gbytes per disk) BD Rewritable disk (BD-RE TL)

b) Reliability

Total number of ongoing projects: 2

- CD 29121 (Second Edition)
Information technology --- Digitally recorded media for information interchange and storage -- Data migration method for DVD-R, DVD-RW, DVD-RAM, +R, and +RW disks
- Revision of ISO/IEC 16963: 2011
Information technology -- Digitally recorded media for information interchange and storage -- Test method for the estimation of lifetime of optical media for long-term data storage

c) Magnetic Tape

Total number of projects: 82

Total number of ongoing projects: 0

d) Removable Hard Disks

Total number of projects: 1

Total number of ongoing projects: 0

e) Volume and File Structure

Total number of projects: 2

Total number of ongoing projects: 1

- ISO 9660:1988/DAM 1, Information processing-- -- Volume and File structure of CD-ROM for information interchange – Amendment 1

1. 4 CO-OPERATION AND COMPETITION

SC 23 has three internal liaisons within ISO and IEC (ISO/TC 42, ISO/TC 171 and IEC/TC 100/ TA 6), one Category A external liaison (Ecma International) and one Category B liaison (World Intellectual Property Organization) (WIPO).

1.4.1 Ecma International

SC 23 has a close relationship with Ecma International (TC 31). This relationship has been one of fruitful cooperation for many years. After the creation of ECMA-396, CD/DVD life estimation test method, no new projects have been initiated during this reporting period.

1.4.2 IEC/TC 100/TA 6

SC 23 has been concerned about the activity of IEC/TC 100/TA 6 for many years. Recently IEC TC 100/TA 6 started the discussion of audio archive system and found some issues for updating the optical disc data migration method in ISO/IEC 29121. Especially IEC TC 100 members requested SC 23 test interval for the monitoring the data longer when the estimated lifetime of the disks is known. Now SC 23 JNB together with IEC TC 100 members proposed the revision of ISO/IEC 29121 standard

and this revision of ISO/IEC 29121 is now on CD stage.

1.4.3 ISO/TC 42 & TC 171/SC 1

As a large number of optical disk cartridges are used in various fields, the life and preservation conditions of optical disks have become very important for users. ISO/TC 42 - Photography - has developed international standards on methods for estimating the life expectancy of CD-R (ISO 18927:2002) and MO (ISO 18926:2006). During the standardization process of ISO/IEC 10995 by JTC 1/SC 23, ISO/TC 42 proposed creation of a Joint Working Group (JWG 1). After the establishment of JWG 1, the liaison was completely handed to JWG 1. Experts from ISO/TC 42 joined the JWG 1 meetings either in person or via teleconference. ISO/TC 171 - Document Management - has also designated a liaison to JWG 1. The revision of ISO/IEC 16963: 2011 will be developed by JWG 1.

2. 0 PERIOD REVIEW

2. 1 MARKET REQUIREMENTS

(1) Optical media market

In Japan, BD players & recorders are influenced over 70% of consumer market and writable BD Drives for PC are covered over 40% even ODD without drive PC is expanding over 10% in PC drive market in late 2012 (data from GFK Japan). On the other hand, for the amount of digital data for storage explosion, from 0.8 ZB (ZB is 1000 times of Exabyte, and 1,000,000 times of Petabytes) in 2009 to 35 ZB in 2020, Even HDD drive market worldwide is expanding over 600 million units in 2012 from 500 million in 2007, writable optical disc drive (ODD) market condition, CD/DVD shrinking and BD expanding makes no change around 350million units in these 3-5 years and BD market become peak of 330 million unit on 2014 and is gradually decreasing year by year. Moreover, magnetic tape drives mainly used for data-base backup and archival systems in recent years is also gradually decreasing around 1.2 million in 2009. Under such condition the expansion of the amount of HDD and stable or shrinkage of optical disc drive and magnetic tape drive will not enough to cover the necessary storage capacity in near future.

It is noted that users are being encouraged to understand optical-disk water proof feature. These characteristics will help to recover the stored data from the disaster, such as Hurricane and/or Tsunami,

Furthermore, other characteristics of long life and its low system power consumption will help the system to use data archival application.

Therefore the higher capacity with higher data transfer rate new optical storage system, over 100GB BD announced in 2010 and/or more capacity with higher ODD is

expected. (data from Fijikimera)

(2) Magnetic media market

1) Magnetic tape

Magnetic tape has often been used in total and concentrated data-base backup and archival systems in recent years. The product category has the tape drive unit market and the tape automation market (tape library product). Shipment of drives in 2011 broke down as follows. At the low end (DAT/DDS. Etc), drive shipments decreased to around 80K units. The number of mid-range (LTO) drives decreased to around 280K units and that of tape automation (LTO) libraries decreased also to 90K units. The significant reduction tendency continues in the drive market. On the other hand, the tape automation market has been steady in recent years. As the reason, with regard to the tape drive in a primary backup and archival applications, HDD and SSD are beginning to be used instead of magnetic tape using the tape drive.

2) Removable Hard Disk Drive (R-HDD)

iVDR cartridge is an emerging R-HDD cartridge technology. The opportunity looks bright for R-HDD adoption, even though the iVDR market decreased in 2011 affected by Japan earthquake and decreased in 2012 affected by Japan TV market shrink. iVDR is categorized as cartridge type and built-in type. Worldwide shipments of iVDR in 2013 and 2014 are expected to increase at a 25% compound annual growth rate (CAGR) based on the expanding the external storage market for such as tablet PC, smart phone and Set Top Box. Ratio of cartridge type in iVDR is increasing from 16% in 2010 to 70% in 2012. It is reported that the iVDR media sales in 2012 were around 0.6M units, and the potential market in 2013 will be more than 1.2 M units. The storage capacity of iVDR has increased steadily from 250GB in 2008 to 500GB in 2010 and 1TB in 2012.

2.2 ACHIEVEMENTS

In this period, as outlined below, one standard was published.

ISO/IEC 1001: 2012, Information technology -- File structure and labeling of magnetic tapes for information interchange [2012-08-01]

Project Editor [Mr. Kanichi OHISHI, and Mr. Toshihiko FUJII]

2. 3 RESOURCES

Adequate resources are available for all current and anticipated projects However, current JTC1 proposed area such as, Flash memory, Storage class memory, digital preservation, Big Data storage need more expert engineers.

2. 4 ENVIRONMENTAL ISSUES

Within SC 23, there are no direct environmental issues.

2. 5 PARTICIPATION METRICS

Among eight P-members, eight NBs responded to the recent letter ballots conducted within SC 23, and five NBs (US/ Japan/The Netherlands/Bulgaria) participated in the 16th plenary meeting, held in Lisbon Portugal in June of 2012.

3. 0 FOCUS NEXT WORK PERIOD

3. 1 DELIVERABLES

The standardization of four BD-R/RE formats is expected to be completed in March 2013. A discussion of a revision of ISO/IEC 16963, a test method for the estimation of the lifetime of data stored on writable CDs ,DVDs and BDs under JWG 1 joint work with ISO/TC 42, ISO/TC 171/SC 1 with assistance of Ecma TC 31 will be started on early next year. The discussion on the 2nd edition of ISO/IEC 16963, BD format included standard, will be started in early next year. ISO 9660 Amendment is now on DAM stage and is expected to be published by the end of 2012.

3. 2 STRATEGIES

(1) Optical Media

For the past few years, manufacturers have been using a fast-track procedure through Ecma International and the National Body of Japan for standardization of optical disks based on established and well-recognized technologies. SC 23 will carry forward international standardization in collaboration with Ecma International and the National Body of Japan. SC 23 will continue to monitor the activities of disk-format creation parties, such as the Blu-ray Disc Association and others, and encourage them to propose their specifications for adoption as International Standards.

Other new optical-memory technologies, such as Holographic memory are being developed throughout the world. New standards are anticipated for optical memories that will be developed based on such new technologies.

The vital application of optical media in the future will be archival storage. We have started to develop standards for archival life-testing and migration methods, and will investigate further related issues.

(2) Magnetic Media

Standardization proposals for upgrading the capacity of tape systems have not been submitted in recent years. Users seem to be satisfied with de facto appliances, even

though the initial format specifications were published as IS's. New Standards proposals to JTC 1 in the magnetic-tape field seem unlikely because only a few countries still have either magnetic-tape or drive industries.

SC 23 will cooperate with the iVDR consortium on further standardization of iVDR. The industry is also considering standardization of an extended-type cartridge and the upper-layer specifications.

(3) Terminology

SC 23 understands that terminology is important

3.2.1 RISKS

There is a risk that other standardization groups will take leading roles in standardization issues within the Title and Scope of JTC 1/SC 23. SC 23 should therefore continue to watch standardization groups outside JTC 1

3.2.2 OPPORTUNITIES

There are many advanced storage media within scope, and their standardization is expected in the near future.

Magnetic media are used for practical archival-storage and life-expectancy methods, also monitoring of stored data may be proposed in the near future just as for optical archive storage media.

3. 3 WORK PROGRAMME PRIORITIES

Industrial consensus mainly determines priorities.

3.3.1 ARCHIVAL POLICY

SC 23 will follow the JTC 1 policy for maintenance of archives.

The SC 23 Secretariat retains all of the SC 23 N numbered documents, either in hard copy or electronically. From N 551 to N 1014 all are available in hard copy, and some are also digitally available on the SC 23 website. For N 1015 or later (the latest is N 1773), all are available digitally on the SC 23 website.