



Hitachi, Ltd.
LG Electronics Inc.
Matsushita Electric Industrial Co., Ltd.
Pioneer Corporation
Royal Philips Electronics
Samsung Electronics Co., Ltd.
Sharp Corporation
Sony Corporation
Thomson Multimedia

Large Capacity Optical Disc Video Recording Format “Blu-ray Disc” Established
The Blu-ray Disc using blue-violet laser achieves over 2-hour digital high definition video recording
on a 12cm diameter CD/DVD size phase change optical disc

Tokyo Japan, February 19, 2002: Nine leading companies today announced that they have jointly established the basic specifications for a next generation large capacity optical disc video recording format called “Blu-ray Disc”. The Blu-ray Disc enables the recording, rewriting and play back of up to 27 gigabytes (GB) of data on a single sided single layer 12cm CD/DVD size disc using a 405nm blue-violet laser. The companies that established the basic specifications for the Blu-ray Disc are: Hitachi Ltd., LG Electronics Inc., Matsushita Electric Industrial Co., Ltd., Pioneer Corporation, Royal Philips Electronics, Samsung Electronics Co. Ltd., Sharp Corporation, Sony Corporation, and Thomson Multimedia.

In addition to actively promoting the new format throughout the Industry, the nine companies listed above plan to begin licensing the new format as soon as specifications are completed. Licensing is expected to start around spring 2002.

By employing a short wavelength blue violet laser, the Blu-ray Disc successfully minimizes its beam spot size by making the numerical aperture (NA) on a field lens that converges the laser 0.85. In addition, by using a disc structure with a 0.1mm optical transmittance protection layer, the Blu-ray Disc diminishes aberration caused by disc tilt. This also allows for disc better readout and an increased recording density. The Blu-ray Disc’s tracking pitch is reduced to 0.32um, almost half of that of a regular DVD, achieving up to 27 GB high-density recording on a single sided disc.

Because the Blu-ray Disc utilizes global standard “MPEG-2 Transport Stream” compression technology highly compatible with digital broadcasting for video recording, a wide range of content can be recorded. It is possible for the Blu-ray Disc to record digital high definition broadcasting while maintaining high quality and other data simultaneously with video data if they are received together. In addition, the adoption of a unique ID written on a Blu-ray Disc realizes high quality copyright protection functions.

The Blu-ray Disc is a technology platform that can store sound and video while maintaining high quality and also access the stored content in an easy-to-use way. This will be important in the coming broadband era as content distribution becomes increasingly diversified. The nine companies involved in the announcement will respectively develop products that take full advantage of Blu-ray Disc’s large capacity and high-speed data

transfer rate. They are also aiming to further enhance the appeal of the new format through developing a larger capacity, such as over 30GB on a single sided single layer disc and over 50GB on a single sided double layer disc. Adoption of the Blu-ray Disc in a variety of applications including PC data storage and high definition video software is being considered.

“Blu-ray Disc” Key Characteristics

1) Large recording capacity up to 27GB:

By adopting a 405nm blue-violet semiconductor laser, with a 0.85NA field lens and a 0.1mm optical transmittance protection disc layer structure, it can record up to 27GB video data on a single sided 12cm phase change disc. It can record over 2 hours of digital high definition video and more than 13 hours of standard TV broadcasting (VHS/standard definition picture quality, 3.8Mbps)

2) High-speed data transfer rate 36Mbps:

It is possible for the Blu-ray Disc to record digital high definition broadcasts or high definition images from a digital video camera while maintaining the original picture quality. In addition, by fully utilizing an optical disc's random accessing functions, it is possible to easily edit video data captured on a video camera or play back pre-recorded video on the disc while simultaneously recording images being broadcast on TV.

3) Easy to use disc cartridge:

An easy to use optical disc cartridge protects the optical disc's recording and playback phase from dust and fingerprints.

Main Specifications

Recording capacity:	23.3GB/25GB/27GB
Laser wavelength:	405nm (blue-violet laser)
Lens numerical aperture (NA):	0.85
Data transfer rate:	36Mbps
Disc diameter:	120mm
Disc thickness:	1.2mm (optical transmittance protection layer: 0.1mm)
Recording format:	Phase change recording
Tracking format:	Groove recording
Tracking pitch:	0.32um
Shortest pit length:	0.160/0.149/0.138um
Recording phase density:	16.8/18.0/19.5Gbit/inch ²
Video recording format:	MPEG2 video
Audio recording format:	AC3, MPEG1, Layer2, etc.
Video and audio multiplexing format:	MPEG2 transport stream
Cartridge dimension:	Approximately 129 x 131 x 7mm

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