Pure Audio Blu-ray specification

according to AES-21 ID

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Pure Audio Blu-ray Disc combines the Blu-ray Disc format's vast storage capacity and bandwidth required for high resolution sound (up to 192 kHz/24Bit) in surround and stereo with the easy and straight-forward handling of a Compact Disc. Pure Audio Blu-rays play back on standard Blu-ray players.

Pure Audio Blu-ray Disc can be operated either with or without a screen: by on-screen menu navigation or by screen-less navigation. For users preferring navigation on a screen, Pure Audio Blu-ray Discs provides menus similar to a video Blu-ray. The pop-up screens provide information about the tracks, track lengths, audio streams or additional information e.g. production credits.

1. Audio formats

Pure Audio Blu-ray Discs can hold up to four audio streams. It is mandatory, that all audio in a Pure Audio Blu-ray will use either direct LPCM coding or at least one form of lossless compression. The main discriminating factor between streams will then be the channel format. One stereo stream is mandatory.

The audio resolution must be 96 kHz / 24 Bit and higher. In exceptional cases (like historical recordings) 48 kHz / 24 Bit might be utilized.

2. Screen-less navigation

2.1 Playback

All playback operations (play, pause, stop, skip-forward, skip-backwards, fast forward, fast backwards) must be operable.

2.2 Track numbers

Audio tracks must be numbered consecutively, starting at 1. The numbers should identify the same content for all streams. The numeric keys on the remote control must be assigned to the respective audio tracks.

2.3 Pause or Play on load

By convention, a Blu-ray Disc will automatically play as soon as possible after loading. The disc should be programmed to pause on load, or before playing the first audio track, so that the appropriate stream can be selected without interrupting the first track.

2.4 Audio stream selection

In general, Blu-ray Disc Player remote controls have four coloured buttons: Red, Green, Yellow, and Blue. These coloured buttons are used for switching between the audio streams on the disc. Each coloured button must be associated to an audio stream. Pressing a button of a certain colour must select its associated audio stream. It is possible to select the

preferred stream at any time. The on-screen display must confirm the current stream status at all times.

The authored disc should contain at least one, and up to a maximum of four audio streams. Where available, audio streams should be selected according to the following scheme:

Red: 5.0, 5.1
Yellow: 2.0
Green: might be used for higher channel numbers
Blue: might be used for higher channel numbers

In exceptional cases, green and blue might be used differently.

The function of each colored button should be clearly explained on the outer sleeve of the packaging.

3.   On-screen displays

If a screen is utilized, some visual content must be considered. This should include the following elements.

3.1   Track selector

A numerical key pad should be visible in order to select the available audio tracks on the disc. The numerical key pad should preferably contain numbers starting with 1 at the top-left cell, incrementing to the right.

These graphics should at all times confirm the number of the currently playing track as well as confirm the pre-selected track. In order to have efficient vertical and horizontal movement of the cursor, a preferred positioning of the track numbers would be similar to the numerical key pad shown below:

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1     2     3
4     5     6
7     8     9
10    11
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3.2   Track information

Additional graphics shall display the track name of the currently playing track. While playing the currently selected track, it is possible to pre-select the next track on screen. The pre-selected track information should also be visible on the screen.

3.3 Audio stream selector

The on-screen display shall display the available audio streams and allow simple selection. These graphics shall at all times confirm the currently selected audio stream, as well as the pre-selected audio stream.

The colour yellow shall select stereo, the colour red the 5.0 or 5.1 audio stream, allowing a level of commonality amongst releases. Colours green and blue are preferably assigned for higher channel numbers or recordings with height information.

3.4 Credits

Optionally, a graphic called "credits" may display credit information.

4. Options

Additional content may be included like subtitles or BD-live. Although Pure Audio is essentially a screenless format, in some cases video content may be added on the disc.

Additional data may be added on the disc as auxiliary files, such as MP3, WAV, FLAC, DSD, etc.
Files may be made available through mShuttle or downloadable through the internet.