

High Definition (HD) Encoding Requirements – Gemini decoder cards

Failure to follow the encoding guidelines may result in issues such as uneven playback, blocky output, or frozen video.

1. The HD encoding format supports Transport Streams and Program Stream MPEG-2 files of audio/video or video-only files, or audio-only (Elementary Stream) files. All 18 of the standard ATSC digital television formats are supported.

2. Audio compression formats:

- Dolby Digital (AC3)
- MPEG 1 2-channel layers I and II
- MPEG 2 2-channel Layer II

3. Audio sampling rate of 48 kHz.

4. Frequency response is 20 Hz – 20 kHz +/- .5 db

5. Audio output level up to 4v p-p

6. Audio output impedance 620 Ohms

7. When creating a playlist of videos, all files to be played in a single playlist must have a common Program identification (PID) for the audio stream, as well as a common PID for the video stream. In addition to having the same PID, the files in the same playlist should also have the same audio format as well (example: either Dolby Surround, MPEG-2 or elementary video only with no audio data).

8. The video and audio data streams in each file should be as close to the same length as possible, exact length is preferred, and beginning and ending at the same time stamps.

HD Encoding Recommendations

1. The recommended encoding bit rate is a minimum of 10Mbps. The standard broadcast rate is 19.4Mbps. The maximum total bit rate is 40Mbps. The audio and video PES IDs (PIDS) can be set in software for multi-stream applications.

2. When encoding it is recommended to:

- Set Video PID: e0 (hex-decimal: 224)
- Set Audio PID: c0 (hex-decimal: 192)

Standardizing all PIDs ensures that all files may be played back to back with only minimal adjustments.

3. Audio/video streams cannot be mixed with video-only on the same channel during playback. It is recommended to encode an audio track with "tone" if there is no audio present on the source tape. This will standardize all MPEG files and provide easy future management of video content.

4. It is recommended that files be at least 30 seconds in length.

