

SONY PICTURES NETWORKS INDIA PRIVATE LIMITED

Interface 7, Off Link Road, Malad (West), Mumbai



High Definition (HD) Live Feed Technical Specifications

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1. Overview

All live feeds programs for Sony Pictures Networks India Pvt. Ltd. ("SPN") High Definition ('HD') feeds are required to deliver to the specifications laid out in this document. It is essential that high definition feeds fully meets all the SPN's channel's broadcast specifications.

2. Video Standards for HD

The live feed Video should be of PAL 16:9 HD (1920 by 1080i) pixels and at a frame rate of 25 Frames interlaced with 50 fields.

a. Acceptable Recording Media Formats

Live HD / SDI Feed Video with Embedded Audio Tracks

b. Not Acceptable

- Standard Definition ('SD') to HD up converted content (Like HDV, 16mm, Super 16mm etc.).
- Any non-HD shooting format.

3. Guidelines for Live Feed

a. Video

All contents must be shot and produced in the HD delivery format. All HD framed content (16:9) must maintain safe action within the 4x3 center cutout safe action area. Any relevant action, which is outside the 4x3 center cutout safe action area, is not acceptable.

b. Video Safe Area

This consideration should be given for content produced in High Definition and/or being delivered for Standard Definition 4:3 transmissions. Such safe areas should be maintained as indicated below.

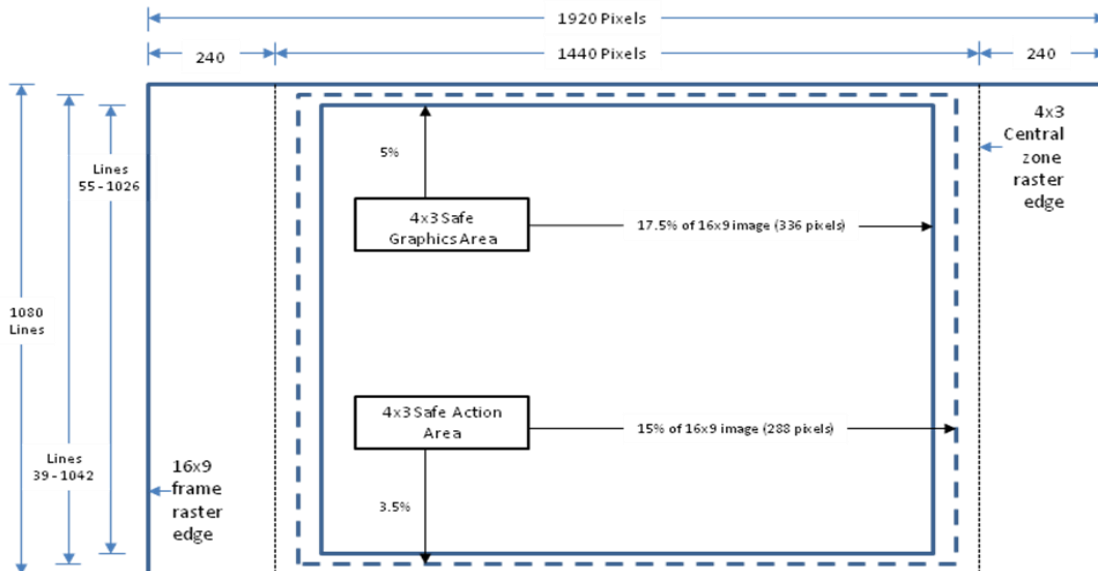


Diagram : Action area and Graphics safe area – Not to scale

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4. Live Feed HD Format Specifications

4.1 Live Feed Format for delivery at MSM.

Live Feed Format	HD 1080i/50 (16X9)
Frame Rate	25 frames
Video Chroma Sampling	4:2:2 or 4 :4 :4
Video Resolution (sampled width x height)	1920 x 1080 50i
Video Aspect Ratio	16:9
Audio Tracks	8
Bit Rate	24
Audio Sampling Rate	48 kHz
Audio Loudness	-23 +/- 1 LKFS
Audio Sync	+/-10ms
Audio Track Allocation	Audio track 1 Mix Stereo Left Audio track 2 Mix Stereo Right Audio track 3 Commentary Audio track 4 Commentary Audio track 5 International Stereo (or M& E) Left Audio track 6 International Stereo (or M& E) Right Audio track 7 Director Talk back Audio track 8 Extra

4.2 Audio Specifications

It is essential that audio recording equipment be of the highest standard. It is critical that the dialogue /commentary /Voice is clear & audible throughout the program.

4.3 Audio Phase

Where a Clean Effects or M&E mix is supplied, the elements, which are common to both mixes, must be in phase and at a similar level, so as to avoid difficulties with editing or mixing between these tracks.

4.4 Synchronization

The Synchronization must be achieved at the last point at which the content supplier or their facility provider, has control of the signal.

4.5 Compression

While some compression may be needed to contain the dynamics, excessive audio compression of the final mix should be avoided.

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