Colour Space Audit Checklist

Camera, encoder, transcoder, packager, player — every place colour metadata can get lost.

Fora Soft Learn

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1 - CHOOSE THE RIGHT COLOUR SPACE

- [ ] HD content for general streaming: BT.709 default — *universal device support*
- [ ] Premium 4K VOD: BT.2020 + PQ (HDR10 / Dolby Vision) — *future-proof for new displays*
- [ ] Live 4K broadcast: BT.2020 + HLG transfer — *backward-compatible with SDR sets*
- [ ] Cinema and Apple-first products: DCI-P3 / Display P3 — *richer reds and greens than BT.709*

2 - CAPTURE STAGE

- [ ] Camera output colour space is known and documented — *check camera manual or settings*
- [ ] Camera writes colour metadata into the file — *some pro cameras default to OFF*
- [ ] Test footage inspected with ffprobe and tags confirmed — *trust nothing, verify everything*

3 - ENCODE / TRANSCODE STAGE

- [ ] FFmpeg encode uses -color_primaries -color_trc -colorspace flags — *tag writes are not default*
- [ ] Colour range tag matches content (tv for limited, pc for full) — *8-235 vs 0-255*
- [ ] No nearest-neighbour downscale between colour spaces — *always Lanczos or bicubic*
- [ ] Encoder output verified with ffprobe - tags survived — *transcoding silently drops them*

4 - PACKAGE & DELIVER

- [ ] Container metadata (MP4 / fMP4 / CMAF) carries colour tags — *atoms colr, mdcv, clli for HDR*
- [ ] HLS / DASH manifests do not strip colour metadata — *rare but happens on legacy packagers*
- [ ] CDN configured to preserve metadata headers — *edge transforms can drop atoms*

5 - PLAY & VERIFY

- [ ] Test on a BT.709-only device (laptop, older Android) — *ensures fallback is correct*
- [ ] Test on a P3 device (modern iPhone / MacBook / OLED TV) — *ensures wide-gamut content shows wide*
- [ ] Test on an HDR-capable TV with HDR content — *tone mapping kicks in correctly*
- [ ] Compare with reference master on calibrated monitor — *the only objective test*

MOST COMMON COLOUR-SPACE BUGS IN PRODUCTION

* Skin tones look pale or bluish on one device but not another - almost always missing or wrong colour tag.
* Brand red does not match the print reference - file authored wide gamut, served as narrow without conversion.
* 4K HDR file looks washed out on premium display - pipeline stripped the colour tag during a transcode step.