

HDR Quick Reference

COLOR GRADING
COURSE
LEVEL 3 ·
EXPERT

PQ vs HLG, nit targets, MaxCLL/MaxFALL, Rec.2100, and deriving an SDR trim — honestly, even without an HDR display.

HDR is graded in **absolute** nits, not relative percentages. A nit is one candela per square metre. SDR peaks around 100 nits; HDR commonly targets 1000 (sometimes 4000) — middle grey stays ~18%, highlights get real room to breathe above it.

PQ (ST.2084)

Absolute — a code value maps to a fixed nit level on every correctly set-up display. Underpins HDR10 and Dolby Vision.

USE FOR

Cinematic streaming delivery.

HLG (Hybrid Log-Gamma)

Relative and backward-compatible — the lower range looks correct on an ordinary SDR display, so one signal serves both.

USE FOR

Live broadcast.

Rec.2100 / Rec.2020 / P3-D65-limited

Rec.2100 pairs the wide **Rec.2020** gamut with a PQ or HLG transfer function at 10- or 12-bit. Almost no display can actually fill Rec.2020, so masters are graded **P3-D65-limited** — colors kept inside the achievable P3 gamut, encoded in a Rec.2020 container. A typical spec line reads: "*P3-D65 limited, PQ, 1000 nits, Rec.2020 container.*"

MaxCLL / MaxFALL

MaxCLL — brightest single pixel anywhere in the program.

MaxFALL — brightest frame-average. Tells a consumer display how to tone-map your grade to its own peak.

WATCH FOR

Resolve measures both on export — wrong or missing values is a common HDR QC reject.

No HDR display? Be honest.

Grade in a PQ timeline anyway. Use Resolve's **tone-mapping preview** to approximate on your SDR monitor. Label the output **HDR-simulated** and write one sentence on what you could and couldn't judge.

NON-NEGOTIABLE

You cannot truly finish HDR without an HDR reference display.

Deriving the SDR trim

Re-target the output to **Rec.709 / Gamma 2.4** and do a light per-shot pass: pull speculars back under clipping, rescue any lost shadow. This is a **trim**, not a re-grade.

Dolby Vision in one paragraph

Dynamic, per-shot metadata over one HDR master (vs HDR10's single static number for the whole program).

L1 Automatic per-shot analysis — min / mid / max luminance.

L2 Colorist's manual trim for a target display (esp. 100-nit Rec.709 SDR) — guidance, not a re-grade.

CMU Content Mapping Unit — applies the mapping; historically hardware, now done inside Resolve.