

Companion to article 4.8 of Block 4. Print on A4.

1. QP anchor points (H.264 / HEVC / VVC scale)

QP	Qstep	Use it for	AV1 qindex equivalent
4	1.0	Lossless / mastering	~0 - 20
16	4.0	Archival, post-production proxies	~60 - 80
22	8.0	Transparent quality (premium VOD)	~88 - 100
28	16.0	Good quality (mid-tier OTT)	~110 - 130
33	26.9	Watchable on small screens	~140 - 160
38	50.8	Visibly soft / artefacts likely	~170 - 200
46	128.0	Last resort, severe bandwidth limit	~220 - 240

2. Quantization features by codec

Codec	Scale	Matrix	Dependent Q	Adaptive Q tooling
H.264 / AVC	0 - 51	Default + custom	No	x264 aq-mode, mb-tree
HEVC / H.265	0 - 51 / 63	Default + custom + Delta	No	x265 aq-mode, mb-tree
VP9	0 - 255 qindex	Flat only	No	libvpx aq-mode
AV1	0 - 255 qindex	Built-in set	No	Built-in segments, libaom/SVT-AV1
VVC / H.266	0 - 63 / 75	Default + custom + YUV (not default)	Yes	Encoder-side, tools-aware

3. Tuning recipes by workload

Workload	QP / CRF anchor	Quantization settings
VOD premium 4K	HEVC CRF 21	Custom matrix on intra; aq-mode=2; mb-tree on
Live OTT 1080p	HEVC CRF 25	Default matrix; aq-mode=1; mb-tree on; tune zerolatency
WebRTC SFU	H.264 QP 28 base	Flat matrix; aq-mode=1; psy-rd 0.6; low motion search
Surveillance VOD	HEVC CRF 27	Default matrix; aq-mode=2; reduce delta-QP range
Animation	x265 CRF 19	Custom matrix; psy-rd 0.4 - 0.6; mb-tree on
Screen content	AV1 q 32 base	Built-in matrix; large seg-aq; tune ssim

4. Pitfalls to avoid

- * Confusing CRF numbers across encoders: x264 CRF 23 != x265 CRF 23 != AV1 CRF 23. Always re-tune.
- * Disabling dependent quantization on VVC for 'simplicity'. The 3 - 5 % bitrate win pays for itself.
- * Shipping flat matrices on smooth content like sky or face. Banding will appear by QP 28.
- * Cranking aq-strength without testing - over-aggressive AQ wastes bits on low-saliency texture.
- * Treating banding as a quantization issue when the source is already 8-bit. Encode in 10-bit.
- * Ignoring per-plane qindex offsets in AV1. Chroma noise on faces is often a chroma-QP issue.