# Checking YouTube's Per-Title Encoding Algorithm

# Top Gun 2 - 480p

| Top Gun2 | | | |
|---|---|---|---|
| **Resolution** | **AV1** | **VP9** | **AVC** |
| 256x144 | 67,000 | 78,000 | 63,000 |
| 426x240 | 124,000 | 147,000 | 137,000 |
| 640x360 | 256,000 | 319,000 | 264,000 |
| 854x480 | 463,000 | 583,000 | 435,000 |

For this encode, YouTube used the lowest bitrate for the AVC codec. As the frames on the following pages seem to show, this wasn't a good choice as AVC was clearly the most degraded and retained the least detail.


AV1
Noise Estimation Y orig 0.034822
Noise Estimation Y 1-st proc 0.034553
Noise Estimation Y 2-nd proc 0.033285
00:01:40.21•3021
x: 337
y: 48
Y: 23
U: 126
V: 124


VP9
Noise Estimation Y orig 0.034822
Noise Estimation Y 1-st proc 0.034553
Noise Estimation Y 2-nd proc 0.033285
00:01:40.21•3021
x: 337
y: 44
Y: 22
U: 126
V: 124


AVC
Y
Noise Estimation Y orig 0.034822
Noise Estimation Y 1-st proc 0.034553
Noise Estimation Y 2-nd proc 0.033285
00:01:40.21+3021


AV1
Y
Noise Estimation Y orig 0.012602
Noise Estimation Y 1-st proc 0.012481
Noise Estimation Y 2-nd proc 0.011993
00:01:45.21+3171


VP9
Y
Noise Estimation Y orig 0.012602
Noise Estimation Y 1-st proc 0.012481
Noise Estimation Y 2-nd proc 0.011993
00:01:45.21-3171
x: 11
y: 83


Y
Noise Estimation Y orig 0.012602
Noise Estimation Y 1-st proc 0.012481
Noise Estimation Y 2-nd proc 0.011993
00:01:45.21+3171
x: 13
y: 86
U: 150
V: 92

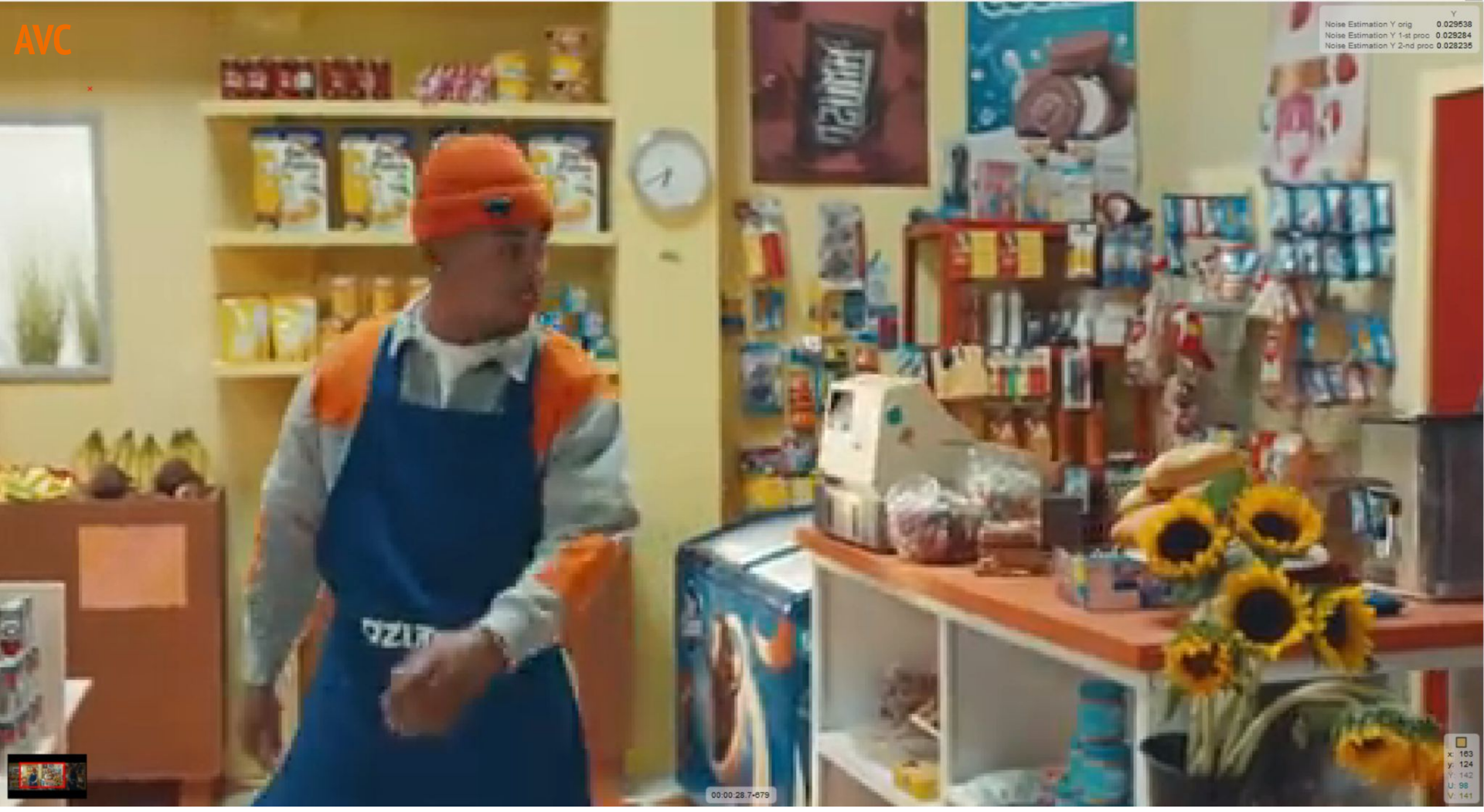
# Ozuna - La Funka

| Ozuna - La Funka | | | |
|---|---|---|---|
| **Resolution** | **AV1** | **VP9** | **AVC** |
| 256x144 | 73,000 | 84,000 | 83,000 |
| 426x240 | 147,000 | 175,000 | 179,000 |
| 640x360 | 299,000 | 372,000 | 348,000 |
| 854x480 | 529,000 | 670,000 | 591,000 |

For this encode, YouTube encoded AVC more aggressively than VP9. As the frames show, AVC clearly exhibited lower quality than VP9 and AV1.


AV1.
Y
Noise Estimation Y orig 0.029638
Noise Estimation Y 1-st proc 0.029284
Noise Estimation Y 2-nd proc 0.028235
00:00:28.7-679
x: 159
y: 113
Y: 124
U: 95
V: 145


VP9
Y
Noise Estimation Y orig 0.029538
Noise Estimation Y 1-st proc 0.029284
Noise Estimation Y 2-nd proc 0.028235
00:00:28.7-679


AVC
Y
Noise Estimation Y orig 0.029538
Noise Estimation Y 1-st proc 0.029284
Noise Estimation Y 2-nd proc 0.028235
00:00:28.7+679
x: 163
y: 124
Y: 142
U: 98
V: 141


AV1
Noise Estimation Y orig 0.023531
Noise Estimation Y 1-st proc 0.022941
Noise Estimation Y 2-nd proc 0.023039
00:02:48.16+4044


VP9
Y
Noise Estimation Y orig 0.023531
Noise Estimation Y 1-st proc 0.022941
Noise Estimation Y 2-nd proc 0.023039
00:02:48.16-4044


Y
Noise Estimation Y orig 0.023531
Noise Estimation Y 1-st proc 0.022941
Noise Estimation Y 2-nd proc 0.023039
00:02:48.16+4044
x: 190
y: 121
Y: 194
U: 120
V: 127