

Red Epic Record Times by Frame Size and Max Frame Rate - Epic Firmware 3.2.13

Format	WIDTH	HEIGHT	max fps	max fps at 6:1	size x fps	MB/sec 1:1	MB/sec 6:1	GB/min 6:1	minutes per 128 GB SSD
					Factor	0.00000143	0.1666	0.0586	128
1K WS	1280	480	400 at 4:1	400	245760000	351.56	58.57	3.43	37.29
1K HD	1280	720	359 at 5:1	359	330854400	473.29	78.85	4.62	27.70
2K HD	1920	1080	240	240	497664000	711.91	118.60	6.95	18.42
2K WS 2.4:1	2048	854	303 at 7:1	299	522948608	748.08	124.63	7.30	17.53
2K 1.9:1	2048	1080	240	240	530841600	759.38	126.51	7.41	17.27
3K HD	2880	1620	160 at 8:1	125	583200000	834.27	138.99	8.14	15.72
3K	3072	1620	160 at 8:1	125	622080000	889.89	148.26	8.69	14.73
4K HD	3840	2160	121 at 10:1	75	622080000	889.89	148.26	8.69	14.73
4K	4096	2160	121 at 10:1	72	637009920	911.25	151.81	8.90	14.39
5K HD	4800	2700	96 at 12:1	50	648000000	926.97	154.43	9.05	14.14
5K WS 2.37:1	5120	2160	121 at 13:1	60	663552000	949.22	158.14	9.27	13.81
5K 2:1	5120	2560	101 at 12:1	50	655360000	937.50	156.19	9.15	13.99
5K	5120	2700	96 at 12:1	48	663552000	949.22	158.14	9.27	13.81

Formula from Evan Luzzi <http://www.theblackandblue.com/2011/03/12/how-to-calculate-red-camera-data-rates/>

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The Formula : from Evan Luzi <http://www.theblackandblue.com/2011/03/12/how-to-calculate-red-camera-data-rates/>

these are approximate estimates since REDCODE is a variable codec.

Step 1 – Calculate data for one second of footage

Formula: $(\text{pixel width} \times \text{pixel height} \times \text{framerate per second} \times 12) / 8 / 1024 / 1024 = \text{uncompressed data for one second of footage in megabytes (MB)}$

Step 2 – Divide by compression ratio

Formula: $(\text{Step 1 result}) / (\text{compression number}) = \text{data rate at determined REDCODE setting}$

Once you have completed step 1, you end up with the amount of uncompressed data for one second of footage. Find out which REDCODE you will be shooting at and divide the number by that. For the new RED Epics, these will already be ratios from 1:3 to 1:18

for the RED One here are the comparable ratios:

- 1 REDCODE 28 ~ 10:1
- 2 REDCODE 36 ~ 9:1
- 3 REDCODE 42 ~ 7.5:1

Once you have done that, you now have a compressed data rate in MB/second.

x 60 = MB / Minute
/1024 = GB / Minute

Divide that by the size of your SSD card will give you the real time in minutes you can record per card

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For my example, I will calculate the amount of storage on an 128 gigabyte SSD card shooting 2K resolution, 6:1 aspect ratio, 299 frames-per-second, at 6:1 compression.

Format	X (WIDTH)	Y (HEIGHT)	max fps	max fps at 6:1	size x fps	MB/sec uncompressed	MB/sec 6:1	GB/min 6:1	min /128 GB SSD
2K WS 2.4:1	2048	854	303 at 7:1	299	522948608	748.08	124.63	7.30	17.53

Actual recorded values on Epic at 2K WS 299 fps at 6:1 with a black image for comparison:

duration 3 33 45 08
frames 320633

/ 25 fps = 12825 .32 seconds
/ 60 sec = 213.75 min
/ 60 min = 3.56 hours playback time at 25 fps

/ 299 fps = 1072.35 sec
/ 60 sec = 17.87 min real time / 128 GB SSD = slightly more than calculated

3K 125 fps at 6:1 Black image

frames 114141
duration 1 std 16 min at 25 fps

= 15.21 min real time