SkkyFPV

4S Battery Test for sub 250g

August 3, 2025, www.skkyfpv.com

Together with AOS RC, we tested 47x 4S batteries for sub 250g builds

skkyFPV

32 batteries tested in 2025

AOS RC

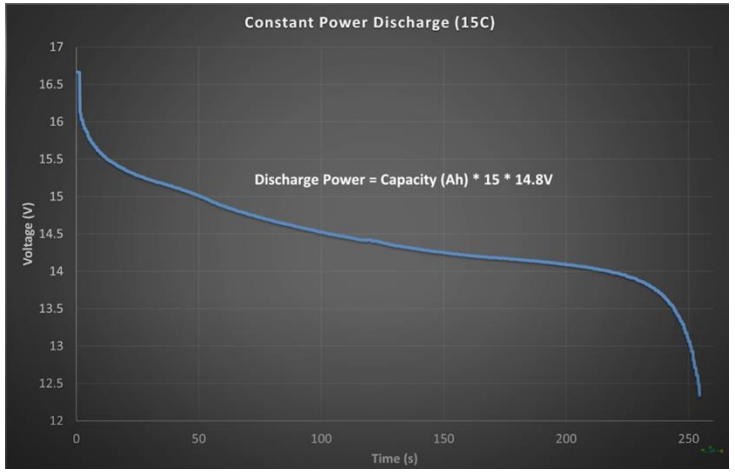
26 batteries tested in 2024

Note: 12 batteries have been tested by both - skkyFPV and AOS RC

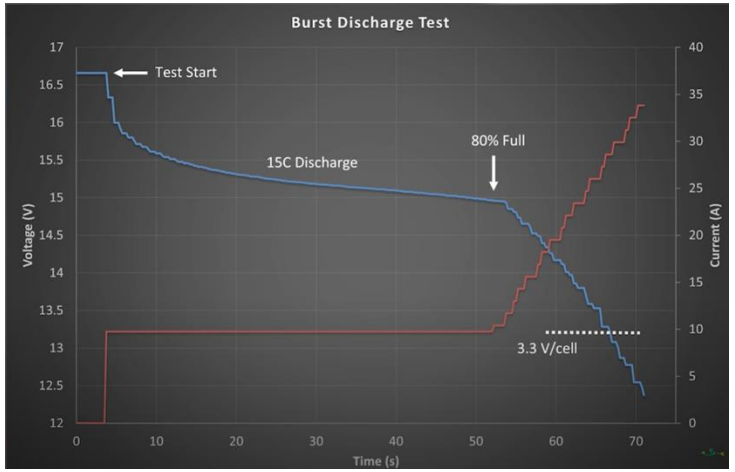
The AOS RC test results are available on Chris Rosser's YouTube channel & Patreon

www.youtube.com/watch?v=8Ns-XsVOA5c
www.patreon.com/c/chris_rosser/

Discharge Test

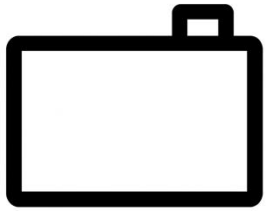


Burst Test



We've selected the batteries for our sub 250g battery test as follows

Battery specs.

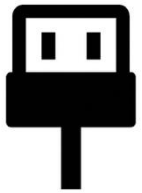


4S
Cells

~50-100g
LiPo Weight

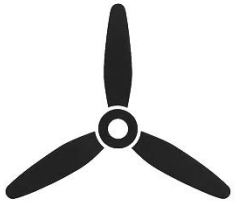
450-1100
mAh

LiPo &
LiHv

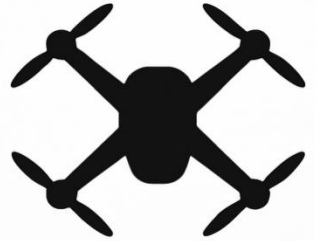


XT30
Connector

Sub 250g drone specs.



2-4''
props



~50-200g
Dry Weight

100-160
km/h speed

4-8 min
flight time

47 batteries tested across 12 major brands – majority from GNB and Tattu

GAONENG

Tattu

DOGCOM

Sub250

CNHL

KONKA

FLYSWOO

SLS
www.stefansliposhop.de

GEPRC

COCOAR

BETAFPV

TEAM BLACKSHEEP
SERIOUS TOYS

Note: RaceDayQuads (RDQ) is selling many of the GNB batteries under its own brand * Tested by AOS RC only

Some batteries turned out to be identical and will be grouped as GNB in the test results

- **GNB 720mAh 100C 4S LiHv**
- GepRC 720mAh 100C 4S LiHv
- Sub250g 720mAh 100C 4S LiHv
- Coddar 730mAh 100C 4S LiHv
- RDQ 720mAh 100C 4S LiHv

- **GNB 660mAh 90C 4S LiHv**
- GepRC 660mAh 90C 4S LiHv
- RDQ 660mAh 90C 4S LiHv

- **GNB 650mAh 120C 4S LiHv**
- Coddar 650mAh 120C 4S LiHv

Electronic 101: A battery is like a water tank with a certain capacity

Voltage (V)

Full (16.8V)

4S (14.8V)

Empty (12.8V)

3S (11.1V)

2S (7.4V)

1S (3.7V)

Capacity (Ah)
= Current (A) x Time (h)
= 750mAh

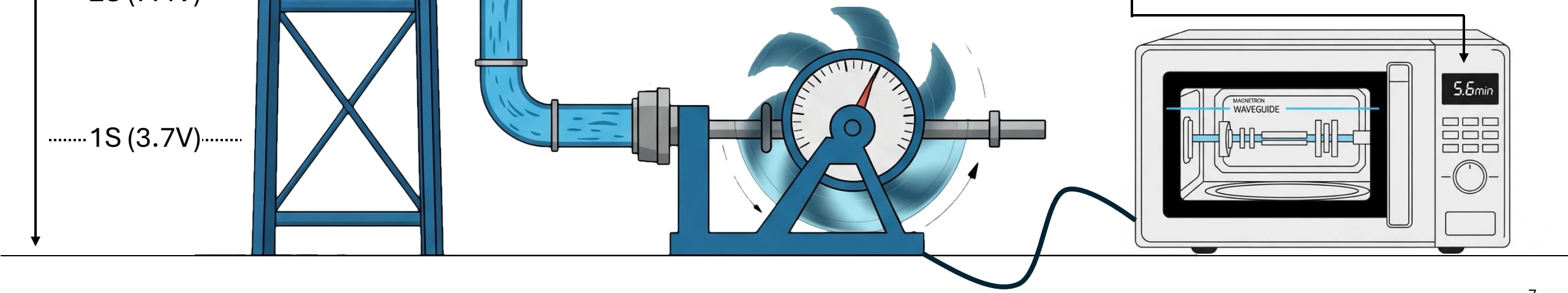
Current (A)
= 8A

Power (and hence current) can be controlled up to a limit, e.g., in Microwave

Power (W)
= Voltage (V) x Current (A)
= 120W

Time (h)
= 5.6min

Energy (Wh)
= Power (W) x Time (h)
= 11.2 Wh



So, what makes a great battery? – High Energy Density & High Power Density!

Specification example of Flywoo 750mAh LiHv

Voltage: 4S (15.2V)

Capacity: 750mAh

Energy: 11.4Wh

Weight: 67g

C-Rating: 80C

Max Current: 60A[1]

Max Power: 768W[1]

Long Flight Time ***High Speed & Punch***

Energy Density (Wh/g) | **Power Density (W/g)**

Energy (Wh)

- **Energy (Wh)** as best metric as it takes into Voltage into account
- **Capacity (mAh)** more often used but doesn't take Volt. into account

Energy of a battery reduces with more current being pulled due to internal heating

Weight (g)

- **Weight (g)** of the battery

The lighter the battery, the less power needed to carry its weight – increasing agility

10g lighter battery reduces flight time by 1min overall[2]:

- 4% less power improves flight time by 0.4min
- However, 15% lower capacity reduces flight time by 1.4min

Hence, recommended to select highest energy & power density to get to 249g[3]

Power (W)

- **Power (W)** the battery can deliver
- **Burst Current (A)** the battery can deliver

The higher the power, the more voltage sag due to internal resistance

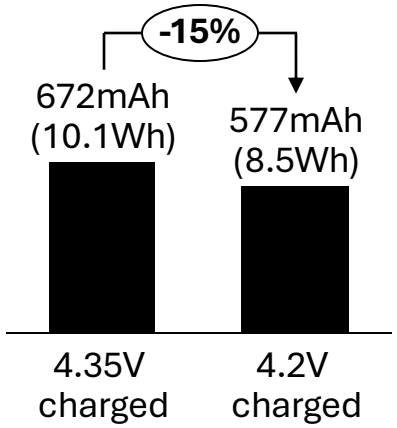
C-Ratings (Current / Capacity) difficult to compare

1 Theoretical value based on manufacturer C-Rating and assuming burst current at 12.8V cut-off voltage 2 Assuming the same energy density. 3 For a 3-3.5'' quad that can handle a larger battery

… and some other aspects to consider when choosing your battery

LiPo vs. LiHv

- LiPo: 4.2V per cell (14.8V) vs. LiHv: 4.35V per cell (15.2V)
- The myth that LiPo offer more power is not true in our test
- LiHv have a higher energy density – they are lighter
- However, LiHv may offer fewer charge cycles as the cells are more stressed with the higher voltage - all else equal, a LiPo is preferable over a LiHv
- Charging a LiHv only to 4.2V per cell likely increases lifetime but reduces its energy and capacity by 15-20%, e.g., for a Flywoo 750mAh



Mounting

Long Pack vs. Short Pack

- Shorter LiPo strap
- Lower centre of gravity

- Requires less space on top plate

Together vs. Opposite

- Easier to fix balance connector at XT30 on quad

- Easier to charge
- More difficult to mount esp. on short packs

What is the optimal battery for a sub 250g build? – skky35 example

skky35 with GoPro & O4 Pro

Voltage (Cells)	Less cells more efficient but less speed & punch: **4S is the sweet-spot –** choose motors accordingly, e.g. for 1404 ▪ 6S: 2900 kV ▪ **4S: 3800 kV** ▪ 3S: 4600 kV
Weight	**50-100g battery** for sub 250g build: 150-200g dry weight ▪ ~50g for skky35 BNF with GoPro, O4 Pro & prop guard ▪ **~67-70g for skky35 BNF with GoPro & O4 Pro (BNF)** ▪ ~100g for skky35 without GoPro
Energy (Capacity)	The more energy, the longer the flight time (at ~60 km/h) ▪ **550mAh** 4S for ~4 min cruising ▪ **650mAh** 4S for ~5 min cruising ▪ **750mAh** 4S for ~6 min cruising ▪ **850mAh** 4S for ~7 min cruising
Power (Burst Current)	**40+A burst current** required to fly max speed ▪ 4A hovering (0 km/h) ▪ 8A cruising (~60 km/h) ▪ 25A fast flying (~100 km/h) ▪ 40A full throttle (120-130 km/h)

Testing Methodology: We ran 3 tests for each battery – example of Flywoo 750mAh

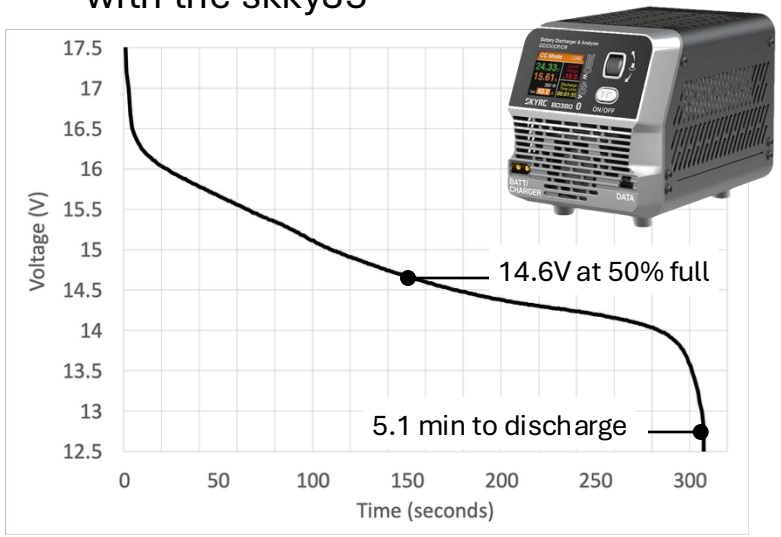
1. Weight

- Precision scale to measure weight
- Average weight of 2 packs where possible

Weight: 66g

2. Energy: 8A Discharge

- Constant current discharge at 8A to 3.2V per cell (12.8V)[1]
- 8A equals to cruising at ~60 km/h with the skky35

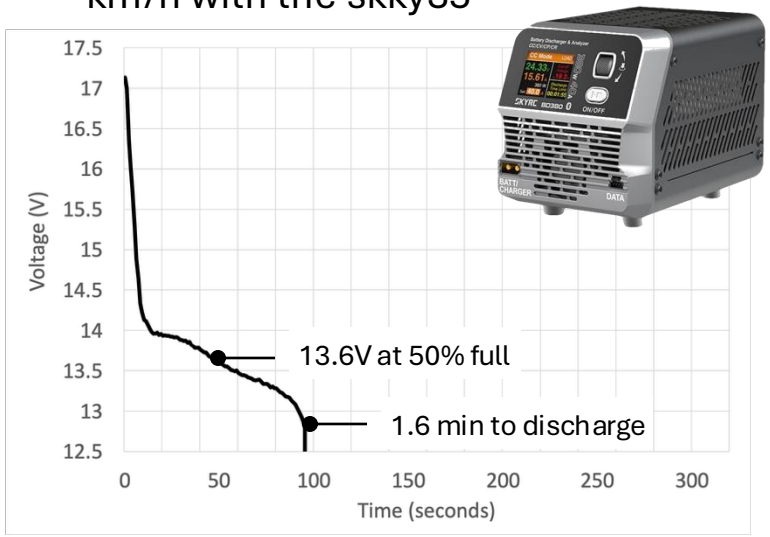


Energy: 10 Wh

Capacity: 670 mAh

3. Power: 25A Discharge

- Constant current discharge at 25A to 3.2V per cell (12.8V)[1]
- 25A equals to fast flying at ~100 km/h with the skky35



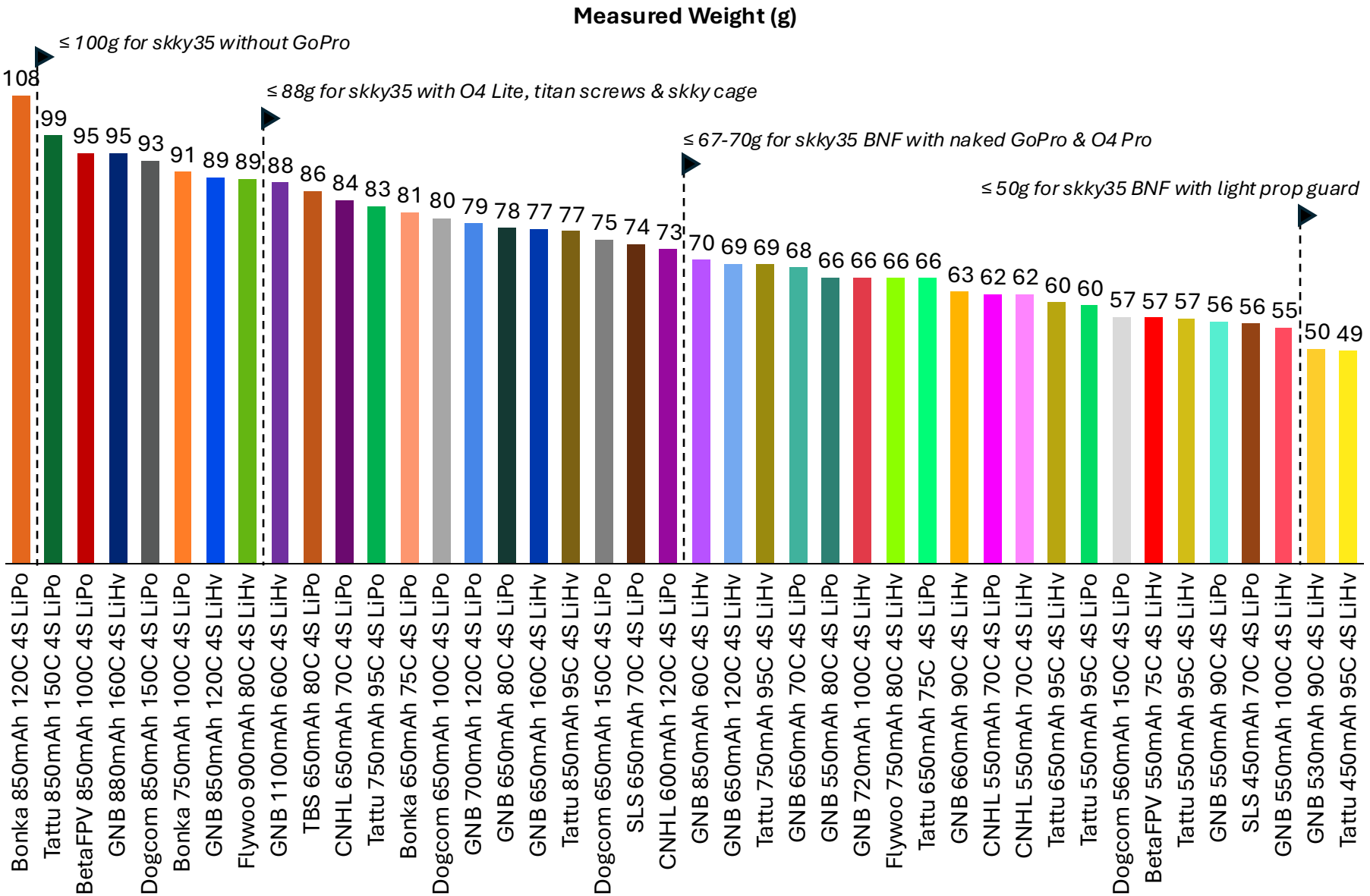
Burst Power[2]: 522 W

Burst Current[2]: 40 A

calculated by correlating voltage at 50% full with AOS Burst Test and confirmed results during test flights

1 Ran discharge tests with SkyRC BD380 that can discharge up to 380W 2 Burst Power and Current measured at 3.3V per cell (13.2V)

1. Weight: Tattu 450 is the lightest battery tested with 49g only



Significant differences between rated weight and actual weight, e.g., GNB 720mAh is only 66g vs. rated 72g

Select battery based on dry weight of build to stay sub250g

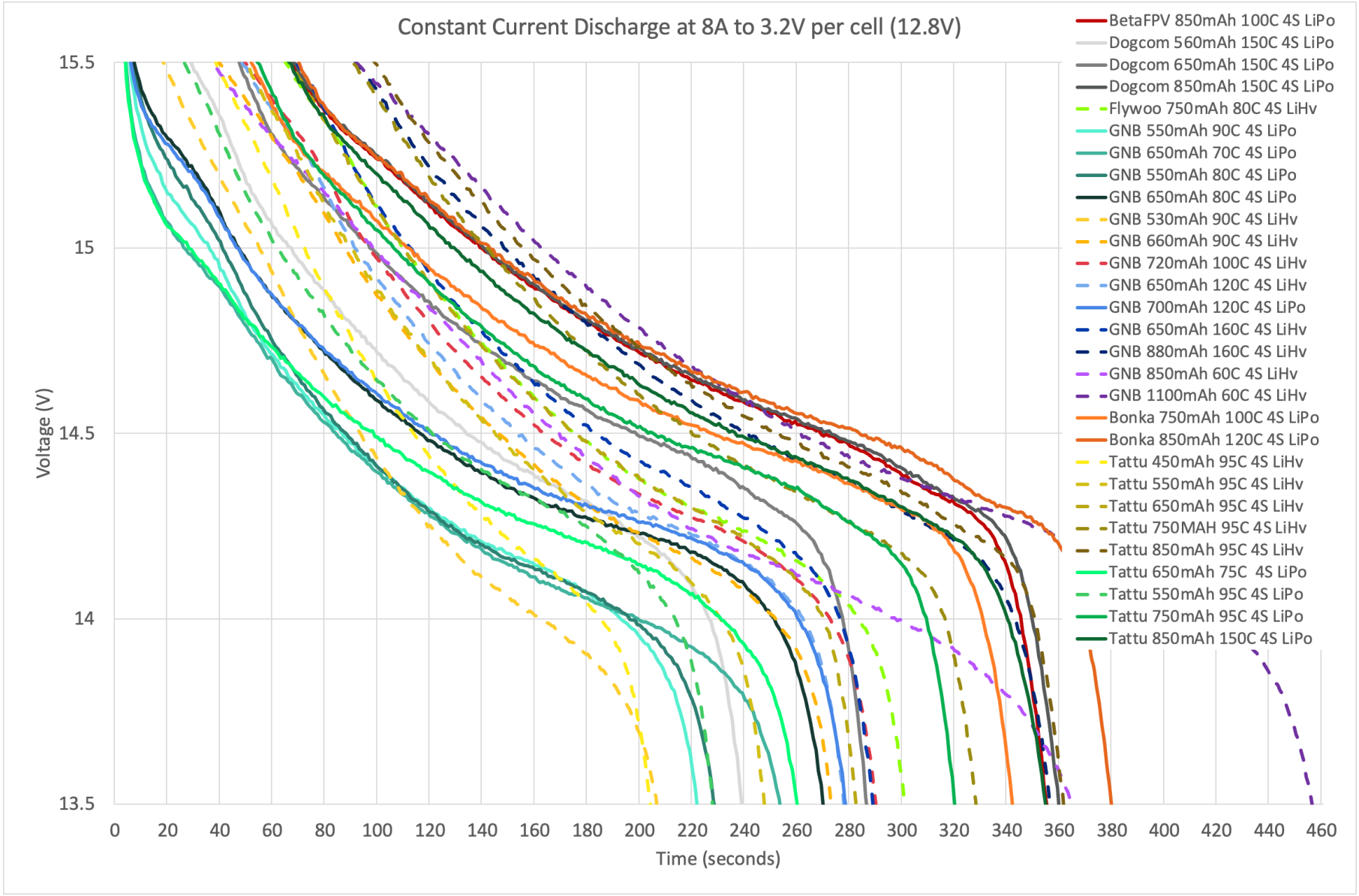
Tattu 450 & **GNB 530**: 50g are the lightest batteries – the perfect fit for a skky35 with prop guard

Tattu 650 95C LiHv: 60g is the lightest 650mAh

Flywoo 750: 66g is the lightest 750mAh

GNB 850 60C: 70g is the lightest 850mAh

2. Energy: Rated capacity is a good indicator for the actual capacity



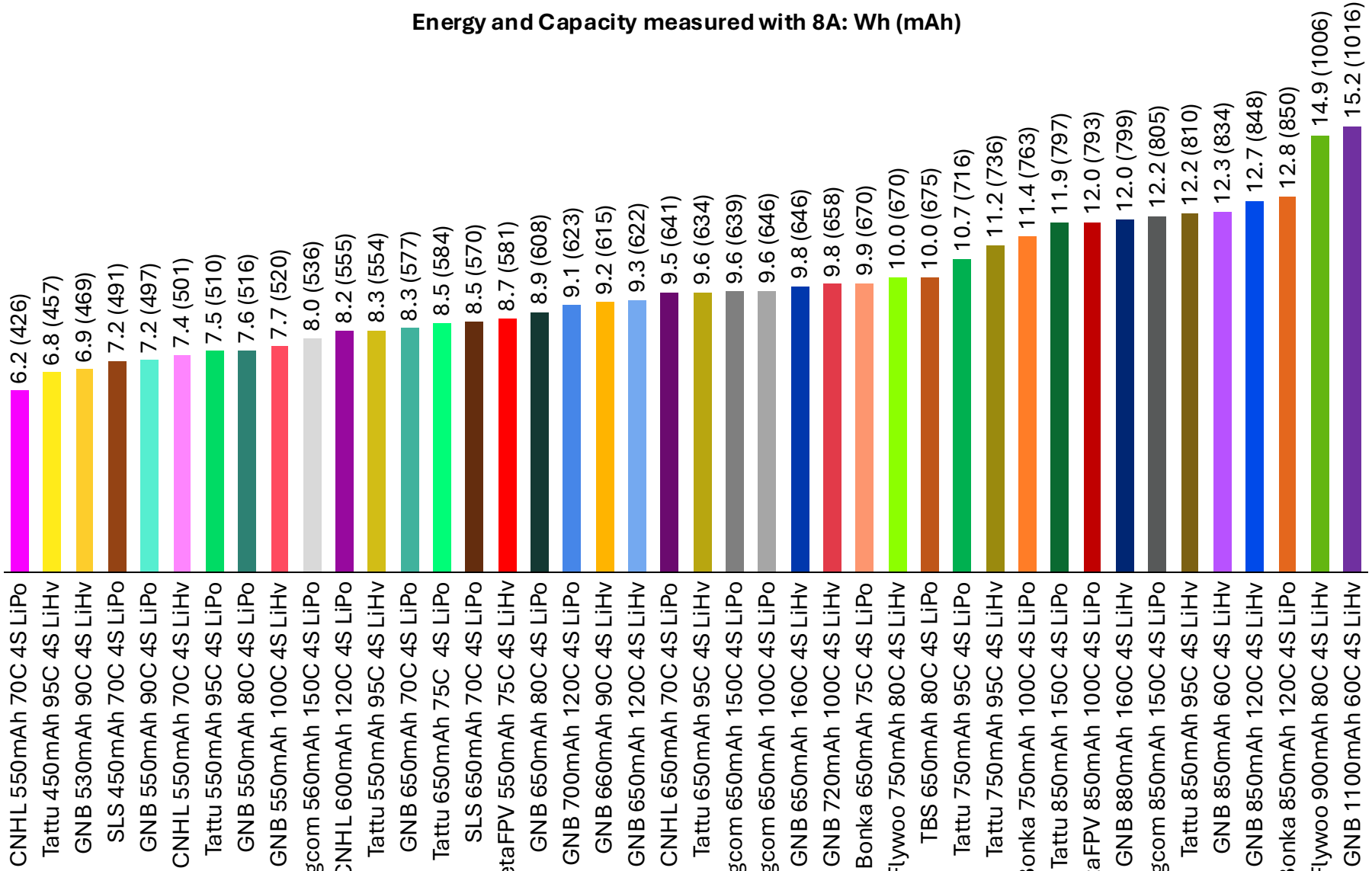
LiHv (dotted lines) with higher initial voltage but faster drop-off than LiPo

GNB 1100 60C with the most energy based on highest voltage & longest discharge time (capacity)

GNB 850 60C with long discharge time (capacity) but relative low voltage

Bonka 750 and 850 LiPo with less voltage sag than comparable batteries

2. Energy: GNB 1100 and Flywoo 900 with the most energy



Measured capacity on average 5% below rated capacity with some outliers (<-15% or >5%):

- **Flywoo 900**: 1026mAh
- **BetaFPV 550**: 581mAh
- **SLS 450**: 491mAh
- **CNHL 550**: 426mAh

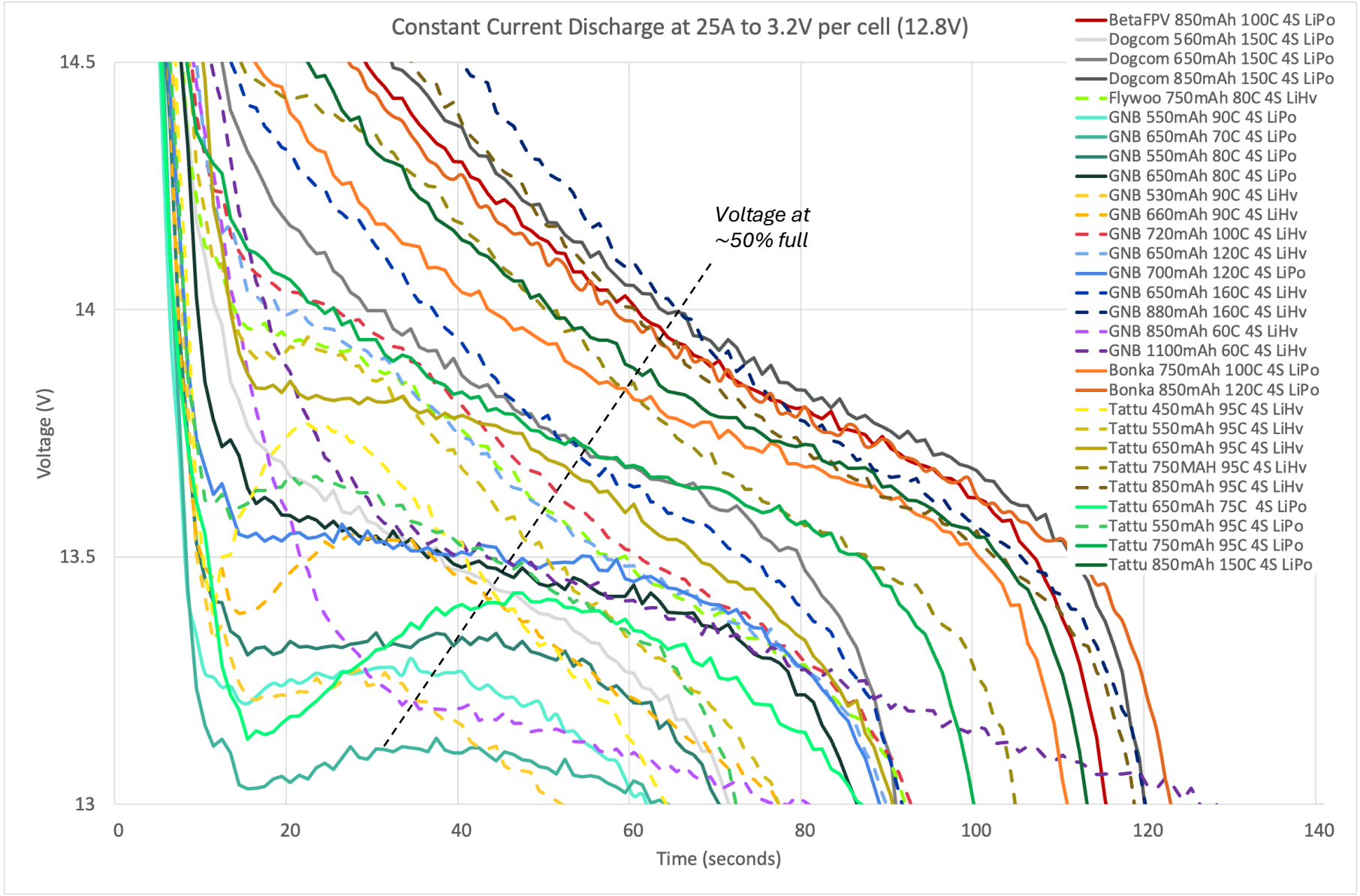
GNB 1100 and **Flywoo 900** with most energy overall

Bonka 850 and **Bonka 750** with the highest capacity 850 and 750mAh batteries but heavy

TBS 650 with the highest capacity 650mAh

BetaFPV 550 with the highest capacity 550mAh

3. Power: The burst power correlates with the voltage at 50% full capacity



The higher the voltage, the better the burst power

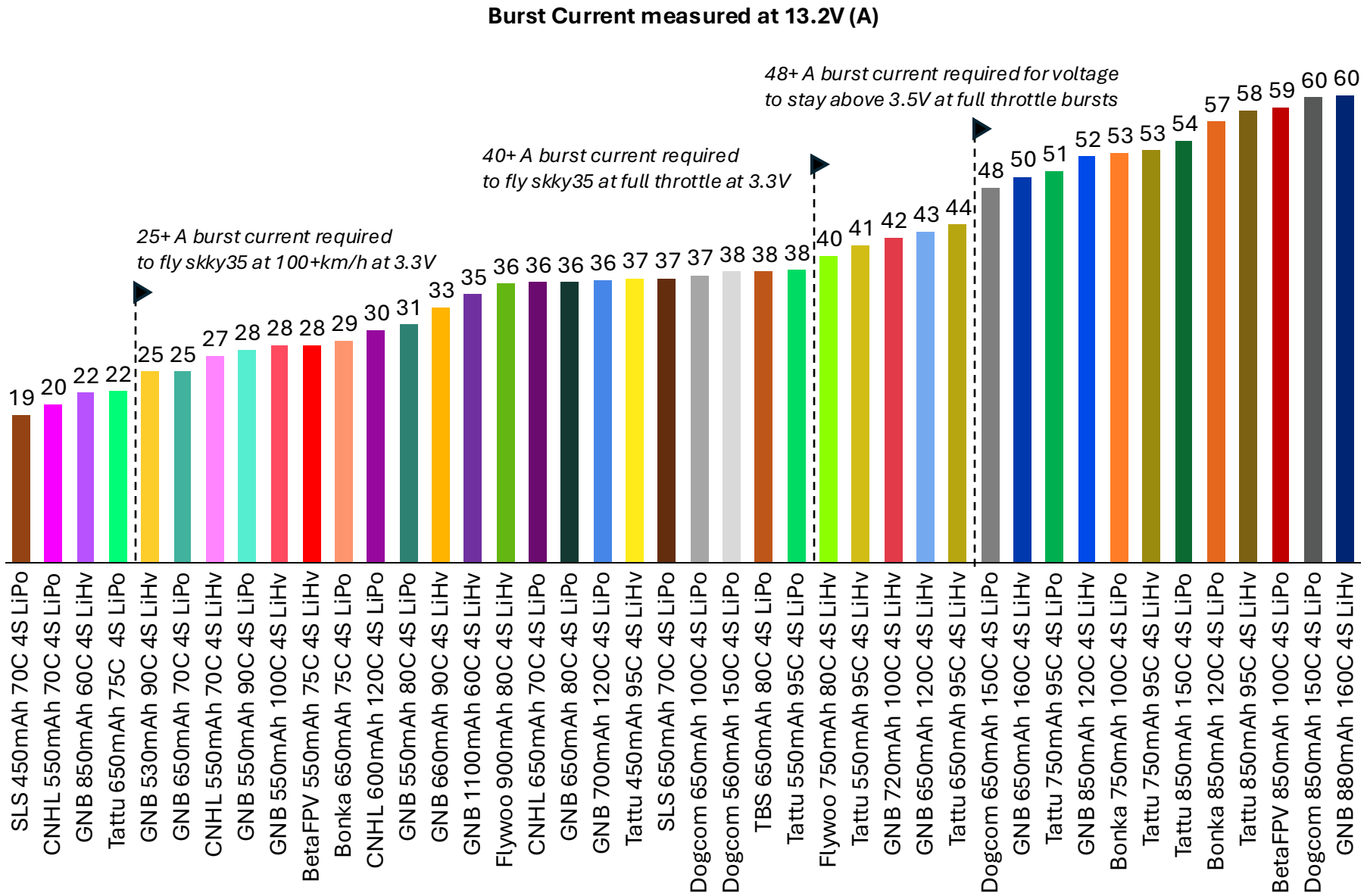
For the same C-ratings, higher capacity generally translates into a higher voltage and hence power

C-Rating a proxy for the relative power inside a specific brand but not across brands

GNB 880 160C and **Dogcom 850** and **Dogcom 650** (48A) with the least voltage sag and hence most power

Note: GNB 850mAh LiHv and Tattu 650mAh LiPo discharged at 22A as they cannot deliver 25A continuously – their actual voltage would be lower than shown

3. Power: 850mAh batteries with the highest burst current of 52-60A



Burst current measured at 3.3V per cell (13.2V)

40+A burst current needed to fly skky35 at full throttle (120-130 km/h) – 48+A to stay above 3.5V per cell

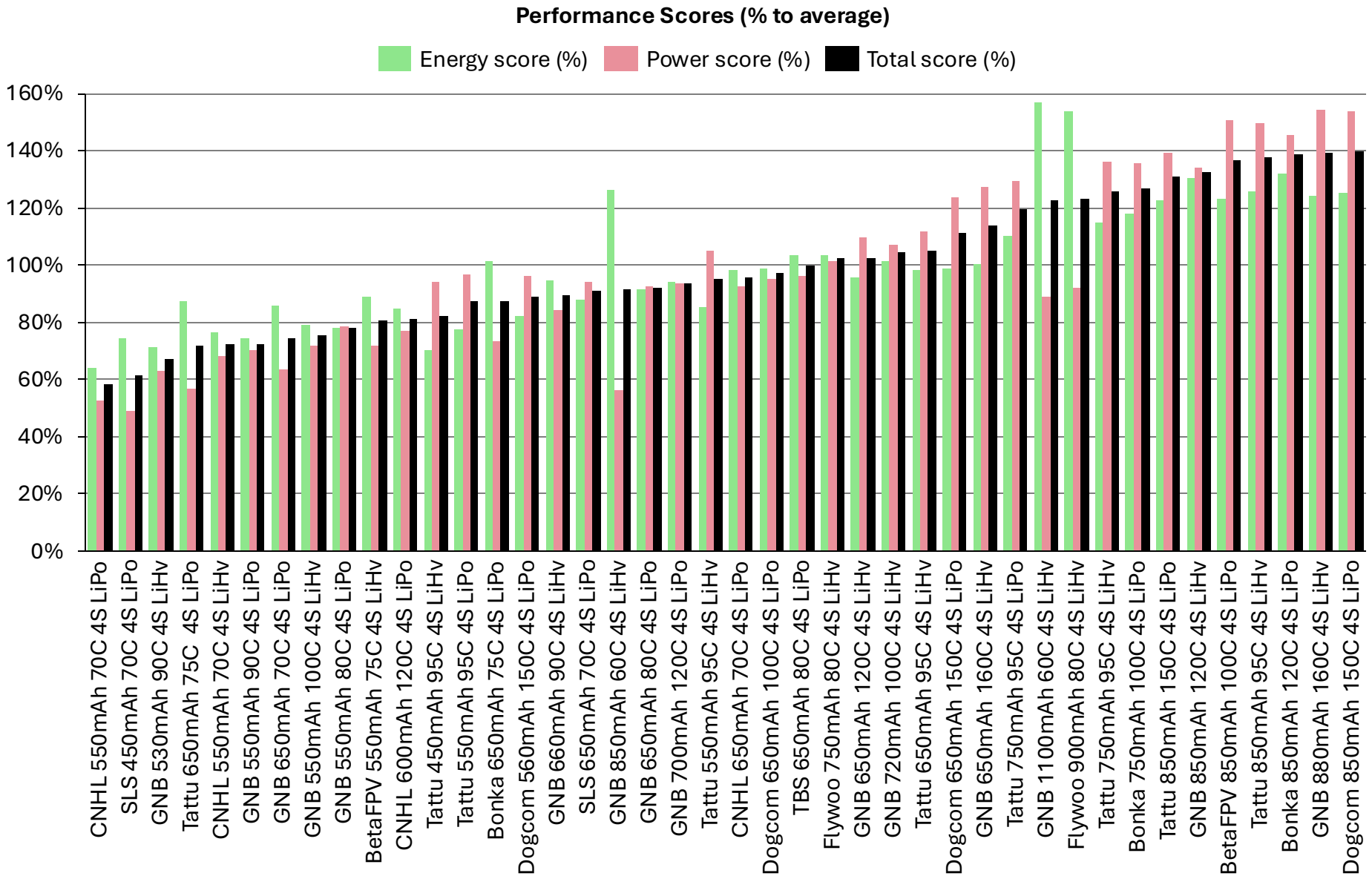
GNB 880 160C (60A) and **GNB 650 160C** (50A) as the most powerful 650/850 LiHv

Dogcom 850 (60A) and **Dogcom 650** (48A) as the most powerful 650/850 LiPos

Tattu 750 LiHv: 54A the most powerful 750mAh

GNB 720: 42A slightly better burst than **Flywoo 750**: 40A but not enough to stay above 3.5V

Performance: Dogcom 850 and GNB 880 with the highest score - not accounting for weight



Scores are relative to average performance of batteries tested, e.g., 120% energy score means the battery has 20% more energy than the average

Total score is the average of power and energy score

These scores do not take into account the weight

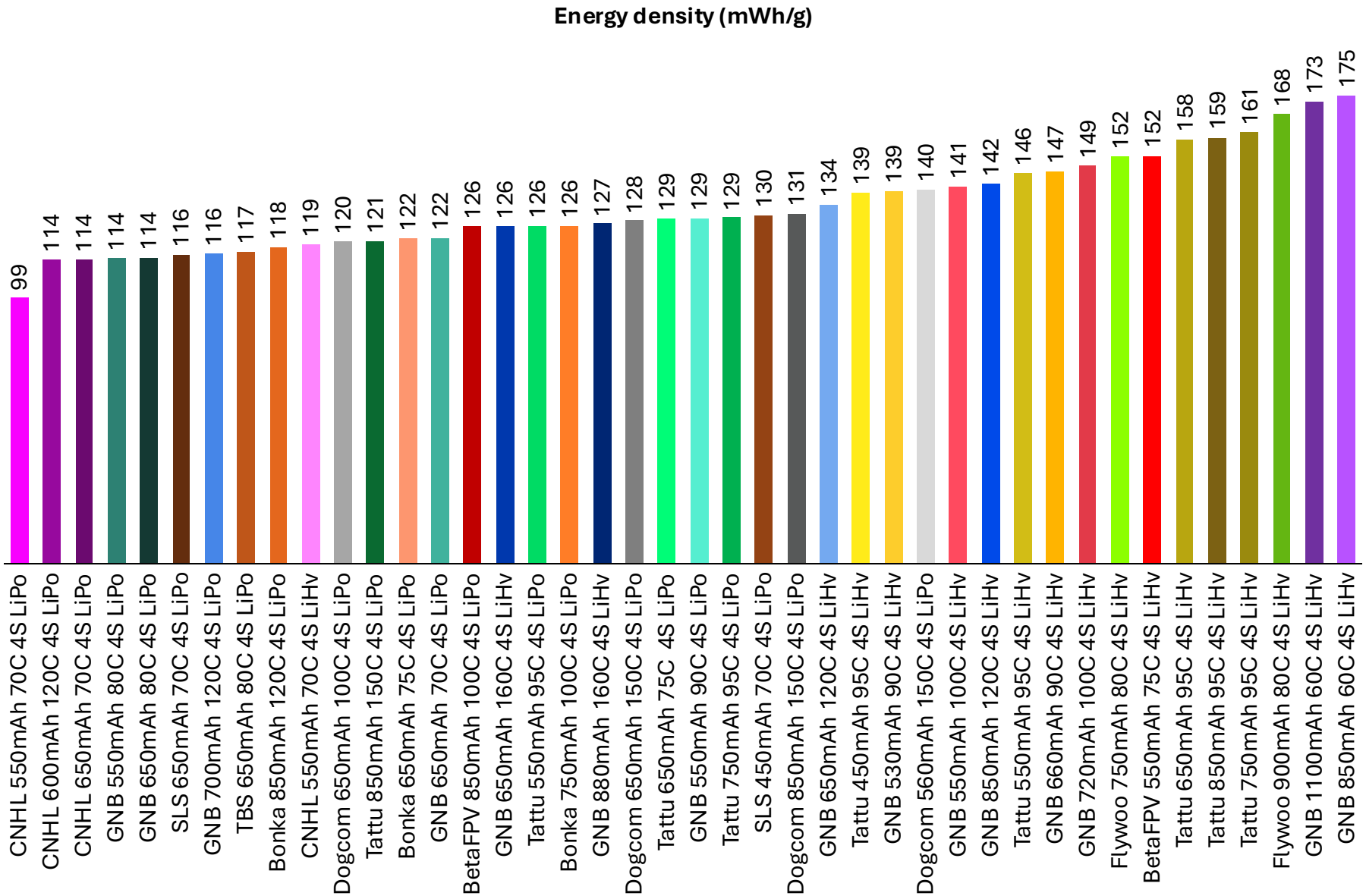
Dogcom 850, GNB 880 160C and **Bonka 850** with the highest total score overall

Bonka 750 with the higher total score for a 750mAh

Tattu 650/750/850 LiHv with high power scores

Flywoo 900, GNB 1100 and **GNB 850 60C** with high energy scores but low power scores

Energy Density: GNB 850mAh 60C offering the longest flight time at 70g only



Energy density is the energy divided by the weight

The higher the energy density, the longer the flight time for the same weight of a battery

GNB 850 and **1100 60C** with the highest energy density

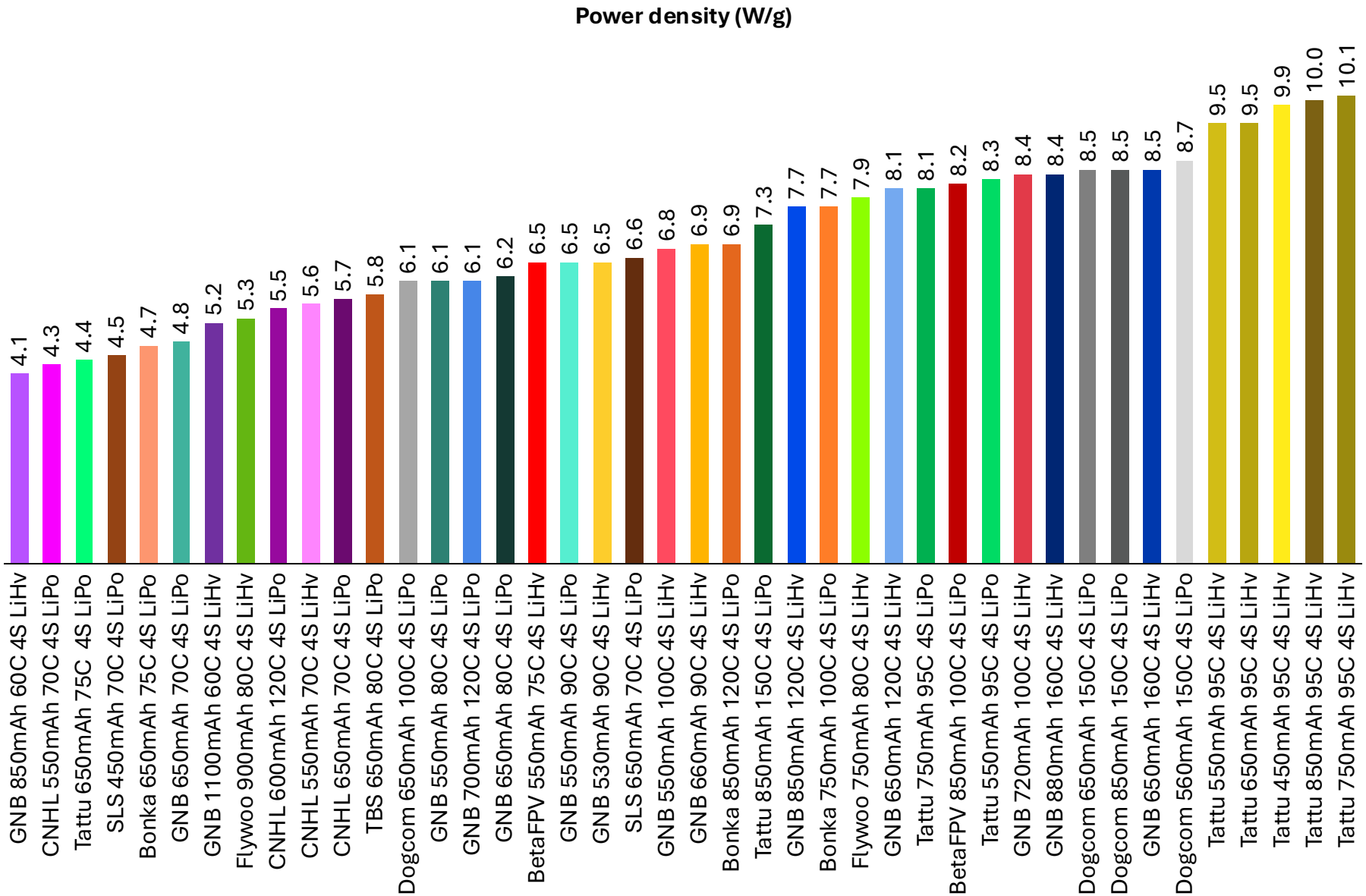
Flywoo 900 with the 3rd highest energy density

Tattu 650/750/850 taking places 4-6 with high energy densities of around 160 mWh/g

Flywoo 750 with similar energy density than **GNB 720**

BetaFPV 550 with the highest energy density for <650mAh batteries

Power Density: Tattu LiHv series with very impressive power density



Power density is the burst power divided by the weight

The higher the power density, the higher the speed & punch for the same battery weight

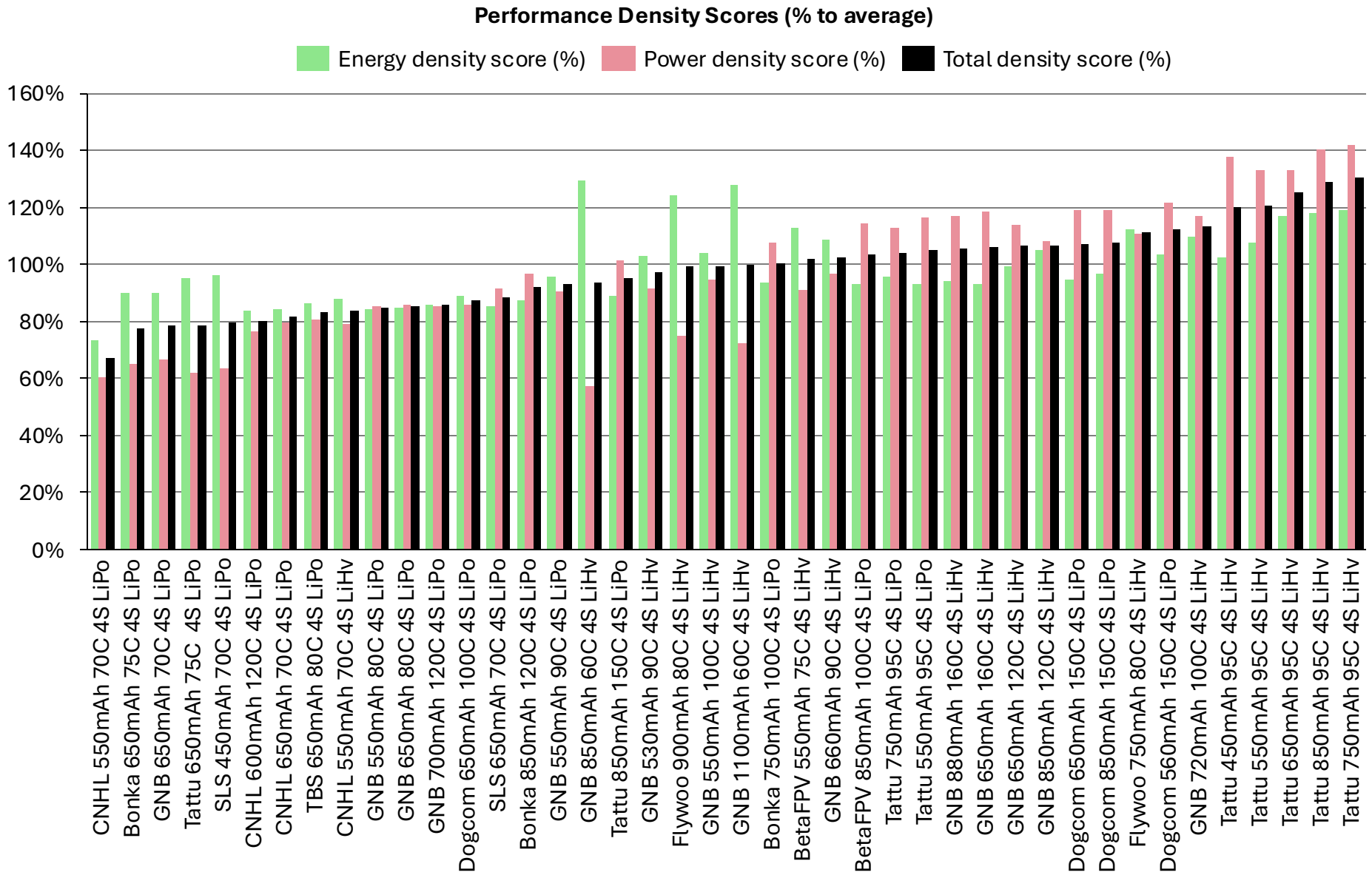
Tattu 450/550/650/750/850 LiHv playing in a league on their own with ~10 W/g power

Dogcom 560/650/850 LiPo are the most power-dense LiPos - not HV batteries

GNB 650/880 160C LiHv with similar high power density than Dogcom

GNB 720 100C with higher power density than **Flywoo 750**

Performance per weight: Tattu LiHv series clearly winning overall



The ultimate score: Total density score is the average of power & energy density score

Tattu 450/550/650/750/850 LiHv clearly winning with 120+% total scores thanks to great energy density and crazy power density

GNB 720 100C making 6th thanks to higher power density and similar energy density than **Flywoo 750**

Dogcom 560/650/850 LiPo are the best LiPos - not HV batteries

Winners: Tattu LiHv series with the best overall performance

Tattu LiHv series with highest density scores – select based on weight

Tattu 750 LiHv recommended for skky35 with the skky cage and **Tattu 450 LiHv** with prop guards

Only potential downside is that these are LiHv that may age more quickly than LiPo – charging to 4.2V extends the lifetime

Battery	Tattu 450mAh 95C 4S LiHv	Tattu 550mAh 95C 4S LiHv	Tattu 650mAh 95C 4S LiHv	Tattu 750mAh 95C 4S LiHv	Tattu 850mAh 95C 4S LiHv
Total density score (%)	120%	120%	125%	130%	129%
Weight measured (g)	49	57	60	69	77
Capacity measured (mAh)	457	554	634	736	810
Energy measured (Wh)	6.8	7.2	8.6	9.9	11.4
Burst Current (A)	37	41	44	53	58

Other notable batteries behind Tattu LiHv series – select depending on your flight preference

Every battery only shown once in the category it performs the best – prioritizing best energy & power density

(Total density score, weight, capacity, energy, burst current)

	Best Energy & Power Density	Best Energy Density	Best Power Density	Lightest[1]
6th	 same as GepRC, RDQ Coddar, sub250g **GNB 720mAh 100C 4S LiHv** (**113%**, 66g, 658mAh, 10Wh, 42A)	 skky35 long-range recommendation **GNB 850mAh 60C 4S LiHv** (93%, 70g, **834mAh**, 12Wh, 22A)	 **GNB 650mAh 160C 4S LiHv** (106%, 77g, 646mAh, 10Wh, **50A**)	 skky35 prop guard alternative to Tattu 450 LiHv **GNB 530mAh 90C 4S LiHv** (97%, **50g**, 469mAh, 7Wh, 25A)
7th	 Dogcom with the best LiPos (not HV) **Dogcom 560mAh 150C 4S LiPo** (**112%**, 57g, 536mAh, 8Wh, 38A)	 **GNB 1100mAh 60C 4S LiHv** (100%, 88g, **1016mAh**, 15Wh, 35A)	 **GNB 880mAh 160C 4S LiHv** (105%, 95g, 799mAh, 12Wh, **60A**)	 **GNB 550mAh 100C 4S LiHv** (99%, **55g**, 520mAh, 8Wh, 28A)
8th	 similar score to GNB 720mAh **Flywoo 750mAh 80C 4S LiHv** (**111%**, 66g, 670mAh, 10Wh, 40A)	 **Flywoo 900mAh 80C 4S LiHv** (99%, 89g, **1006mAh**, 15Wh, 36A)	 **BetaFPV 850mAh 100C 4S LiPo** (104%, 95g, 793mAh, 12Wh, **59A**)	 Also available as 450mAh (49g) **BetaFPV 550mAh 75C 4S LiHv** (102%, **57g**, 581mAh, 9Wh, 28A)
9th	 **Dogcom 850mAh 150C 4S LiPo** (**108%**, 93g, 805mAh, 12Wh, 60A)		 same as Coddar **GNB 650mAh 120C 4S LiHv** (106%, 69g, 622mAh, 9Wh, **43A**)	 great power & low weight LiPo **Tattu 550mAh 95C 4S LiPo** (105%, **60g**, 510mAh, 8Wh, 38A)
10th	 **Dogcom 650mAh 150C 4S LiPo** (**107%**, 75g, 639mAh, 10Wh, 48A)	Bonka LiPos are powerful but heavy  **Bonka 750mAh 120C 4S LiPo** (101%, 91g, 763mAh, 11Wh, **53A**)	 Tattu 750 R-Line V1 with higher power density than 850 V5 **Tattu 750mAh 95C 4S LiPo** (104%, 83g, 716mAh, 11Wh, **51A**)	 **GNB 660mAh 90C 4S LiHv** (103%, **63g**, 615mAh, 9Wh, 33A)

1 SLS 450mAh, GNB 550mAh 90C LiPo, CNHL 550mAh are also among the lightest but show weak performance otherwise – hence not recommended

Battery recommendations for the skky35 with GoPro & O4 Pro to stay sub 250g

(Total density score, weight, capacity, energy, burst current)

Skky35 for Cinematic/Freestyle

~180g dry weight

Tattu 750mAh 95C 4S LiHv
(130%, **69g,** 736mAh, 9.9Wh, 53A)

GNB 720mAh 100C 4S LiHv
(113%, **66g,** 658mAh, 10Wh, 42A)

Flywoo 750mAh 80C 4S LiHv
(111%, **66g,** 670mAh, 10Wh, 40A)

Skky35 for Long-Range

~180g dry weight

GNB 850mAh 60C 4S LiHv
(93%, **70g,** 834mAh, 12Wh, 22A)

If sub 250g is not required, select
Li-Ion 3000mAh 4S or
GNB 1100mAh 60C 4S LiHv

Skky35 with Light Prop Guard

~197g dry weight

Tattu 450mAh 95C 4S LiHv
(120%, **49g**, 457mAh, 6.8Wh, 37A)

GNB 530mAh 90C 4S LiHv
(97%, **50g**, 469mAh, 7Wh, 25A)

skkyFPV

skkyFPV offers a Naked GoPro Kit for the AOS 3.5 V5 (skky35)

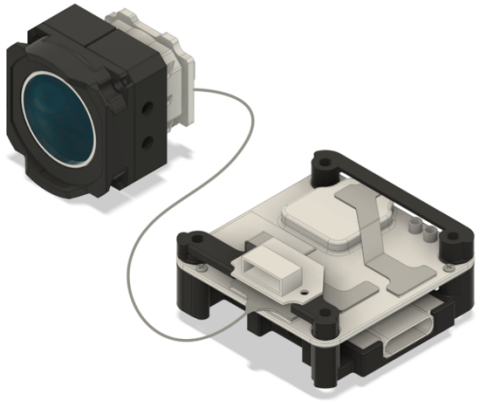
skky35 – a sub 250g FPV drone incl. GoPro and O4 Pro

Highlights

- Sub 250g freedom
- GoPro & O4 Pro integrated
- 3.5'' beast
- Snap-on prop guards

www.skkyfpv.com

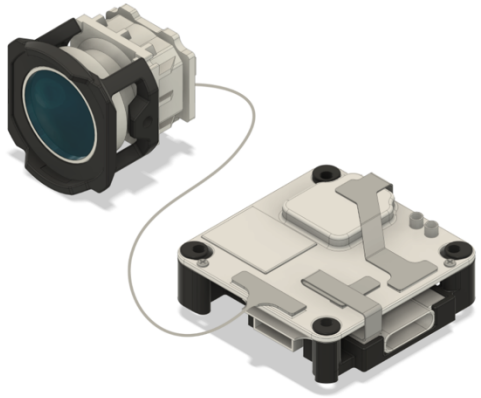
skkyFPV offers a Naked O4 Pro Kit in 3 configurations



V1 Light

26g (-9g)

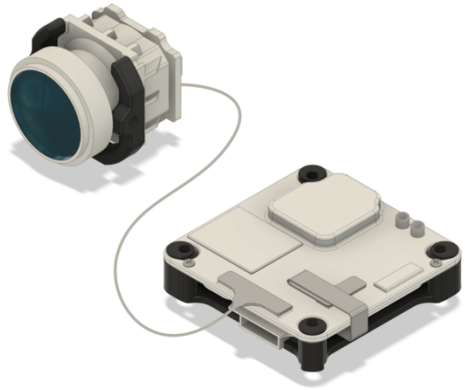
4 Screws Cam Mount,
Antenna Locker



V2 Light

24g (-11g)

Lighter and
more compact



V2 Ultra Light

17g (-18g)

Without ND,
SD and USB

Make your O4 Pro naked and save 11-18g weight with the skky Naked O4 Pro Kit

Highlights
- Save 11-18g weight
- Print at home
- Compatible with O3 frames
- Compact design
- ND Filter support

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