

## UK Proposal for the use of Energy Limiters

### in Naviga M Class Events.

#### Energy Limits

proposal –

We believe that if the rules allow limiters or Naviga weight limited packs to be used, then the limiter

energy limit should be set at a value which gives the same amount of energy as the best available

Naviga weight legal packs. In fact the limit should be slightly higher to allow for the additional weight

penalty of the heavier packs used with limiters.

If a fixed value were to be adopted for each energy band in the rule book, this would require a rule

change if/when the manufacturers release higher capacity packs. This could introduce a delay until

the next presidium or Technical Committee meeting. A better alternative would be to use a formula

as follows:-

$WHr = \text{ROUND}(\text{Number of cells in pack} * 3.7 * \text{AmpHr})$

where AmpHr is the capacity of the best Naviga legal pack commercially available at the time.

Due to time restraints we cannot put forward a capacity level. however We will be using in the UK next year a formula:

So for example currently the highest commercial 3S pack I know of is the Redzone 5050

$\text{ROUND}(3 * 3.7 * (5.05 - 0.2), 0) = 54 \text{ WattHr}$  (or  $54 * 60 = 3240 \text{ WattMins}$ )

This due to the thoughts that with no limiter you cannot use all the available milliamps without killing the pack.

Also we have a view that the batteries should have makers labels on.

#### Ramp-down Time

proposal -

In order to be compatible with all limiters, the ramp down time must be within 1-9 seconds

inclusive. We propose 3 seconds.

#### Limit Time

proposal -

In order to be compatible with all limiters, the limit time must be within 1-120 seconds inclusive. A

limit time of 60 seconds is proposed. No more line crossings must occur after the limit time.

### Limited Throttle Setting

proposal -

Only one limiter allows this to be changed. In order to be compatible with all limiters, we propose

that it must be set to zero.

### Calibration / Testing

proposal -

Not all limiters can display the voltage and current readings and so this method cannot be used to check accuracy. This would have to be done by testing them with an inline reference energy meter

over a period of time.

To save time this could be done only for the top three boats.

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