G.N.Z CONTEST MARKING SYSTEM - 2007-2008

This Marking System is prescribed by the Sailplane Racing Committee to govern G.N.Z National and Regional Championships. The system is revised from year to year, with changes coming into effect on 1 October.

1. DEFINITIONS

1.1 Contest Day:	A day on which all competitors in the class have been offered the opportunity of at least one launch and the day factor for the class is greater than zero.
1.2 Start Point:	See Contest Rule 4.3.1.
1.3 Start Time:	See Contest Rule 4.7.6.
1.4 Finish Time:	See Contest Rule 4.11.2.
1.5 Controlled:	Controlled means that the Organisers have established the competitor's compliance with Contest Rule: 4.2 for the task 4.7.6 for the start 4.8 for turn points and assigned areas 4.11 for the finish.
1.6 Designated Time:	The time given by the competitor's start time plus the designated duration of a distance task.
1.7 Time-out Position	The last GNSS position before the designated time where the sailplane was above the minimum time-out altitude (ref Contest Rule 4.2.3).

2. SCORING - GENERAL

2.1 Points:	Points shall be awarded to each competitor on each contest day only for the competitor's best flight.
2.2 Accumulation of Points:	Points shall be accumulated for successive contest days and the competitor with the greatest number of points accumulated at the end of the contest shall be the winner.
2.3 Units of Measurement:	Units of measurement for scoring are: <u>weight</u> in kilograms (kg) <u>distance</u> in kilometres (km) <u>speed</u> in kilometres per hour (km/h) <u>time</u> in hours, decimalised.
2.4 Accuracy of Distance:	Distances shall be computed from co-ordinates to an accuracy of at least 0.1 km.
2.5 Accuracy of Time Measurement:	The time of starting and finishing will be measured to an accuracy of at least two seconds. The time of takeoff will be measured to the nearest half minute.

3. MARKING DISTANCE (D) & MARKING SPEED (V)

3.1 Racing Task

(i) The competitor's marking distance is the sum of the legs correctly completed, commencing from the start point, in the proper order and the distance achieved on the next leg attempted but not completed, if any.

(ii) The achieved distance of the uncompleted leg is the length of that leg less the distance between the outlanding position and the next turn point, or finish line or finish ring in the case of the last leg, with the proviso that if the achieved distance of the uncompleted leg is less than zero it shall be taken as zero.

(iii) The competitor's marking speed is the marking distance divided by the time elapsed between the recorded start and finish times.

3.2 Distance Task – Assigned Areas

(i) If the competitor correctly crosses the finish line or finish ring before the designated time, after having visited all the assigned areas in the correct order, the marking distance is the distance from the competitor's start point, round all assigned areas, to the centre of the finish line or finish ring.

(ii) If the time-out position is on the last leg, the marking distance is the distance from the competitor's start point, round all assigned areas, to the centre of the finish line or finish ring, minus the distance from the time-out position to the finish line or finish ring, with the proviso that if the achieved distance of the uncompleted leg is less than zero it shall be taken as zero.

(iii) If the time-out position is on any other leg, the marking distance is the distance from the competitor's start point, round all assigned areas, to the point of the next assigned area which is nearest to the time-out position, minus the distance from the time-out position to this nearest point, with the proviso that if the achieved distance of the uncompleted leg is less than zero, it shall be taken as zero.

(iv) In all cases the marking distance is assessed by taking into account for each assigned area the valid fix recorded in the GNSS FR that yields the best overall marking distance.

3.3 Speed Task – Assigned Areas

(i) If the competitor correctly crosses the finish line or finish ring after having visited all the assigned areas in the correct order, the marking distance is the distance from the competitor's start point, round all assigned areas, to the centre of the finish line or finish ring.

(ii) If the competitor has landed on the last leg, the marking distance is the distance from the competitor's start point, round all assigned areas, to the centre of the finish line or finish ring, minus the distance from the outlanding position to the finish line or finish ring, with the proviso that if the achieved distance of the uncompleted leg is less than zero it shall be taken as zero.

(iii) If the competitor has landed on any other leg, the marking distance is the distance from the competitor's start point, round all

assigned areas, to the point of the next assigned area which is nearest to the landing position, minus the distance from the landing position to this nearest point, with the proviso that if the achieved distance of the uncompleted leg is less than zero, it shall be taken as zero.

(iv) In all cases the marking distance is assessed by taking into account for each assigned area the valid fix recorded in the GNSS FR that yields the best overall marking distance.

(v) The competitor's marking speed is the marking distance divided by the time elapsed between the recorded start and finish times or by the designated minimum task duration whichever is longer.

4. PARAMETERS USED IN SCORING FORMULAE

n_1	=	Number of competitors who achieve a handicapped marking distance (Dh) of at least 30 km in Sports or PW5 classes, or 50 km in Club class, or 80 km in other classes.
n_2	=	Number of finishers exceeding 2/3 of the best handicapped speed (Vh).
N	=	Number of competitors in the class having had a competition launch that day.
Ho	=	Highest handicap of all competitors in the class.
Do	=	Highest value of Dh for the day.
Vo	=	Highest value of Vh for the day.
To	=	Marking time of the finisher whose Vh = Vo.
Pm	=	Maximum available score for the day, subject to correction by the day factor (F).
Pdm	=	Maximum available distance points for the day.
Pvm	=	Maximum available speed points for the day.
F	=	Day factor.
D	=	Competitor's marking distance.
H	=	Sailplane handicap from the current G.N.Z Handicap Register (ref Contest Rule 1.2.2).
Dh	=	Competitor's handicap marking distance = D x Ho/H
T	=	Finisher's marking time = the time elapsed between the start time and the finish time or the designated minimum task duration whichever is longer.
Pd	=	Competitor's distance points.
Vh	=	Finisher's handicapped speed = Dh/T
Pv	=	Finisher's speed points.
S	=	Competitor's score for the day, expressed in points.

5. SCORE FOR RACING TASKS

5.1 Day Parameters

Pm = the least of either:
1000, or
(13 x Do) – 40 for the Sports and PW5 classes,or
(6 x Do) –200 for all other classes, or
(600 x To)- 200

F = 2 x n_1/N – 0.5 except that 0 ≤ F ≤ 1.

Pvm = 2/3 x (n_2/N) x Pm

Pdm = Pm - Pvm

Thus when Do is less than 80 km for the Sports and PW5 classes or 200 km for all other classes or if the fastest time is less than 2 hours, Pm is devalued below 1000 points.

Also if n_1 is less than 75% of N, the day will be factored to less than 1000 points. And to constitute a contest day, n_1 must be greater than 25% of N.

5.2 Competitor's Score

(i) For any finisher:

Pv = Pvm x (Vh – 2/3 Vo)/(1/3 Vo) and **Pd** = Pdm

Except: if Vh < 2/3 Vo then Pv = 0

(ii) For any non-finisher:

Pv = 0 and **Pd** = Pdm x Dh/Do

(iii) **S** = F x (Pv + Pd)

6. SCORE FOR SPEED TASKS

6.1 Day Parameters

Pm = the least of either:
1000, or
(13 x Do) – 40 for the Sports and PW5 classes,or
(6 x Do) –200 for all other classes, or
(600 x To)- 200

F = 2 x n_1/N – 0.5 except that 0 ≤ F ≤ 1.

Pvm = 2/3 x (n_2/N) x Pm

Pdm = Pm - Pvm

Thus when Do is less than 80 km for the Sports and PW5 classes or 200 km for all other classes or if the fastest time is less than 2 hours, Pm is devalued below 1000 points.

Also if n_1 is less than 75% of N, the day will be factored to less than 1000 points. And to constitute a contest day, n_1 must be greater than 25% of N.

6.2 Competitor's Score (i) For any finisher:

Pv =Pvm x (Vh – 2/3 Vo)/(1/3 Vo) and **Pd** = Pdm

Except: if Vh < 2/3 Vo then Pv = 0
if Dh < 2/3 Do then Pd = Pdm x Dh / (2/3 Do)

(ii) For any non-finisher:

Pv = 0 and **Pd** = Pdm x Dh/Do

(iii) **S** = F x (Pv + Pd)

7. SCORE FOR DISTANCE TASKS

7.1 Day Parameters **Pm** = the least of either:
1000, or
(13 x Do) – 40 for the Sports and PW5 classes,or
(6 x Do) –200 for all other classes, or

F = 2 x n_1/N – 0.5 except that 0 ≤ F ≤ 1.

Thus when Do is less than 80 km for the Sports and PW5 classes or 200 km for all other classes, Pm is devalued below 1000 points.

Also if n_1 is less than 75% of N, the day will be factored to less than 1000 points. And to constitute a contest day, n_1 must be greater than 25% of N.

7.2 Competitor's Score **S** = F x Pm x Dh/Do

8. COMPETITOR'S POINTS FOR THE DAY

A competitor's points for the day shall be his or her score minus any penalties.