CIVL 2019 PLENARY – ANNEXE 27A

PG ACCURACY COMMITTEE PROPOSAL – WPRS PARAMETERS

Background:
Some Category 2 competitions have higher WPRS points than Category 1 competitions with higher number of pilots and rounds. Current WPRS doesn't push organisers to organise more than 6 round competitions because it doesn't get higher WPRS points.
This proposal prepare solution for this issue for approval and implementation at the 2019 plenary.

Issue and Discussion:
We find out strange WPRS result and we try to analyse how the it is calculated:

	Number of rounds	Number of competitors	Winner points
PGAEC Uroi	4	53	98.0
6th EC Slovenia	11	111	93.8

The winner points are without time devaluation.

This winner point difference creates big mess in the ranking.
We reviewed the Sporting Code Section 7 WPRS 2018 document to find why this problem appear.

The main equation is bellow and in the parameters description are marked by red colour parameters which affect the WPRS points of the competition. For the purpose of this analyse is not used the time devaluation of the points.

WPR = Pp*Pq*Pn*Ta*Td

Pp ... pilot points (the placing of the pilot in the competition)
Pq … participants quality (change of the parameter is subject of proposal)
Pn … number of participants
Ta … success of competition (change of the parameter is subject of proposal)
Td … time devaluation

Current state

Ta - success of competition

One last thing one may consider is the success of the competition (Ta), i.e. was it a fair competition. There are many ways to measure this, none is very objective or accurate. As competitions in hang gliding and paragliding mostly involve a number of tasks we tend to use this as a measure of success.

Ta values for Paragliding XC, Accuracy, Aerobatics:
1 task: 0.5
2 tasks: 0.8
3 tasks: 1.0

Pn – number of participants

Pn = square root ("number of participants" / "avg. number of participants in competitions last 12 months") if (Pn > Pn_max) Pn = Pn_max
Pn_max = 1.2, saying that a competition with slightly more than average number of participants is a good benchmark.

Looking at WPRS data on 01.01.2007 the average number of pilots in PG XC competitions is 69 pilots. In HG class 1 the average number of pilots in competitions at that date is 43 pilots.
This formula handles the issue of Pn on the average in competitions for each discipline. It will also take into account change of average number of participants in competitions, like increasing interest in Paragliding Accuracy and Paragliding Aerobatics. For aerobatics the number of pilots is based on the average number of pilots in syncro and solo as if it is separate competitions.

Pq – pilot quality

Presumption: A competition with maximum quality of participants would be a competition where all the top ranked pilots participated. To find Pq we use the last ranking prior to the competition and find the sum of ranking points for the top 1/2 ranked pilots that are entered in the competition. Then we find the sum of ranking points as if those pilots would have been the top ranked pilots of the world. This gives us 1.0 if the top ranked pilots had actually entered and 0.0 if no ranked pilots are entered.

To avoid Pq = 0 for comps with no ranked pilots set a lower limit of 0.2.

Pq = Pq_srp / Pq_srtp * (1 - Pq_min) + Pq_min

Pq_srp = "sum ranking points of the top 1/2 ranked participants"
Pq_srtp = "sum ranking points if they had been the top ranked pilots of the world"
Pq_min = "minimum Pq"
Virtually no competition will get Pq = 1.0. Top competitions may get between 0.7 and 0.8 and there will be a difference between these.

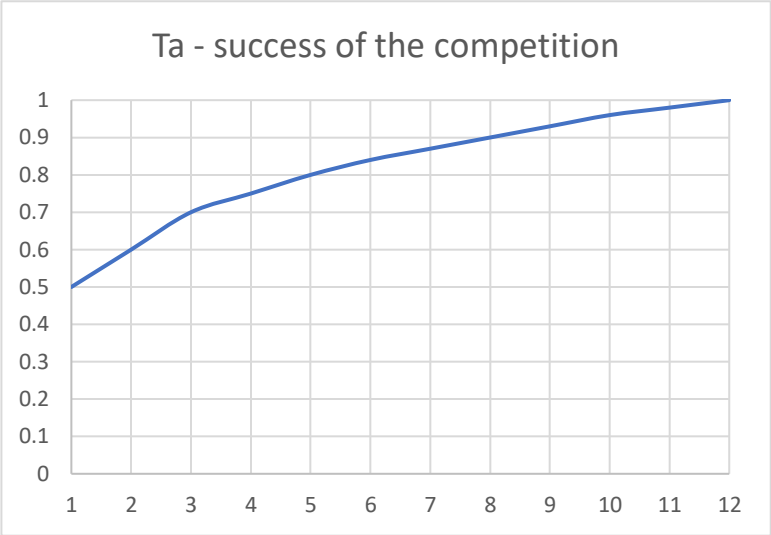
Proposed changes

Ta - success of competition

The success of paragliding accuracy competitions is measured generally by the number of finished rounds. With every additional round it raises the stress to the competitors and put the result more valuable. Till now the Ta is set to 1 when only 3 rounds are completed. It not make the sense for paragliding accuracy. Hang gliding have at the current code much better Ta table than any other discipline.

For paragliding accuracy is the highest level 12 rounds competition. This is mostly organised only on a category 1 events. We propose new table of Ta coefficient:

Number of rounds	Ta value
1	0.50
2	0.60
3	0.70
4	0.75
5	0.80
6	0.84
7	0.87
8	0.90
9	0.93
10	0.96
11	0.98
12	1.00



The Ta value grow fast till 3 rounds are finished and then it grown slower and slower.

This coefficient could attract organisers to have goal organise more rounds as current standard of 6.

Effect of Ta change on real competitions data

name	discipline	Ta	Pn	Pq	Td	tasks	no of pilots	Wp	Proposed Ta rule effect		
									Ta	Wp	Difference
2016 Paragliding Accuracy World Cup Super Final China	PGA	1,00	0,892	0,978	0,126	8	30	87,2	0,90	78,5	-8,7
2015 FAI World Air Games - PG Accuracy	PGA	1,00	0,738	0,933	0,002	12	19	68,9	1,00	68,9	0,0
2015 PGAWC Sopot	PGA	1,00	1,200	0,886	0,002	6	56	106,3	0,84	89,3	-17,0
2017 PGAWC Serbia	PGA	0,50	1,200	0,866	0,525	1	111	52,0	0,50	52,0	0,0
9th FAI World Paragliding Accuracy Championship	PGA	1,00	1,200	0,859	0,633	9	147	103,1	0,93	95,9	-7,2
5th FAI European Paragliding Accuracy Championship	PGA	1,00	1,200	0,856	0,037	12	65	102,7	1,00	102,7	0,0
2017 Pre-Europeans & PGAWC Slovenia	PGA	1,00	1,200	0,854	0,903	6	88	102,5	0,84	86,1	-16,4
2016 "Nis Open", 4.round Serbian ACC league	PGA	1,00	0,619	0,833	0,092	6	15	51,6	0,84	43,3	-8,3
IX Romanian Accuracy League Cup and Festivalul de zbor	PGA	1,00	1,195	0,820	0,996	4	53	98,0	0,75	73,5	-24,5
2016 PGAWC (Paragliding Accuracy World Cup) 3rd Series	PGA	1,00	1,200	0,809	0,048	5	123	97,1	0,80	77,7	-19,4
2017 Paragliding Accuracy World Cup – PGAWC Canada	PGA	0,50	0,972	0,802	0,807	1	37	39,0	0,50	39,0	0,0
2016 Paragliding Accuracy World Cup Taiwan 2016 and Na	PGA	1,00	1,200	0,800	0,052	5	71	96,0	0,80	76,8	-19,2
2016 PGAWC Montenegro 1st series	PGA	1,00	1,200	0,798	0,016	4	73	95,8	0,75	71,8	-23,9
Paragliding Accuracy World Cup 2018	PGA	1,00	1,200	0,785	0,994	5	85	94,2	0,80	75,4	-18,8
6th FAI European Paragliding Accuracy Championship	PGA	1,00	1,200	0,782	0,999	11	111	93,8	0,98	92,0	-1,9
2016 Albania Open, PG Accuracy Pre-Worlds & World Cup	PGA	1,00	1,200	0,762	0,017	3	113	91,4	0,70	64,0	-27,4

	Number of rounds	Number of competitors	Winner points	New Wp
PGAEC Uroi	4	53	98.0	73.5
6th EC Slovenia	11	111	93.8	92.0

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Pq – pilot quality

Presumption: A competition with maximum quality of participants would be a competition where all the top ranked pilots participated. To find Pq we use the last ranking prior to the competition and find the sum of ranking points for the top 1/2, max 30, ranked pilots that are entered in the competition. Then we find the sum of ranking points as if those pilots would have been the top ranked pilots of the world. This gives us 1.0 if the top ranked pilots had actually entered and 0.0 if no ranked pilots are entered.

To avoid Pq = 0 for comps with no ranked pilots set a lower limit of 0.2.

Pq = Pq_srp / Pq_srtp * (1 - Pq_min) + Pq_min

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Pq_srtp = "sum ranking points if they had been the top ranked pilots of the world"
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Virtually no competition will get Pq = 1.0. Top competitions may get between 0.7 and 0.8 and there will be a difference between these.

Note: This change could remove negative effect of the current rule when on the Cat. 1 competitions (or over 100 pilots comps) is too many low WPRS ranked pilots between first 1/2 (it means between more than first 50 pilots) of competition ranking that will decrease the Pq parameter. If we will calculate this parameter within the same number of pilots (first ½ but limited to 30) it will show more comparable score.