

ICTS Report 2021

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ICTS

THE INFORMATION AND COMMUNICATION TECHNOLOGY COMMITTEE

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Drone Wind Measurement

- Regulation (EU) 2019/947 makes wind measurement legal
- Requires Drone pilot certification, Operation manual, Insurance
- Wind Drone is available in 2021 but will require individual approval from related national CAA.
- In 2021 used for interim wind checks at WGAC&WAGAC, Leszno
- Planned to be used at WAC 2021

Official Judging video

- Automated processing to MPEG and upload to Youtube
- Need some finetuning – individual Youtube API settings
- Available for download and use – from civa-news.com?
- Require good connectivity and processing power
 - WGAC&WAGAC 2021 processing and upload - 185 video files, 3 – 4 minute duration -> approx. 4*24 hours of continuous processing and upload
- Video availability
 - SC6 P1 – 4.5.5.1 – “...The recording shall not be available to competitors ... After the completion of the championships, the recording may be released by the Organiser for use in training.”
 - Why not? What is the actual reason not to publish
 - Immediately during the program?
 - or after the program have valid results (after protest period)?
 - it must be optional (for organizer) because of high Internet connectivity demands

Official Judging video

- Minimum equipment requirements
 - individual matter since the available hardware equipment is satisfactory
 - tripod with fluid head
 - HD camera (1080), $F > 2.7$, Focal length > 35 mm, no need for optical stabilizer (make it worse), hand cam works
 - **video quality depend mainly on operator skills**
 - high contrast monitor / shade cover at judge line

HMD

- HMD – used in Leszno 2021, available for Issodun 2022
- Upgraded to 25 boxes to allow high rate of flights
- New processing to publish output immediately
- Availability of HMD output?
 - Like judging video?
 - With score sheet?
 - **With web scores?** – this is easy and can be automated

Judges training and development

- Goal – improve interpretation of **basic figure parameters** by judges for training purposes and for actual judging as well.
- Improve training effectivity, replace judging test, evaluate judges better than just with RI only.
- Food for thoughts
 - Data collection – done already within advanced version of HMD (position + attitude sensors)
 - Data processing – need more time for higher level of automation
 - **Definition of “correct” shape – can start from already available data**
 - **Presentation of results – visual presentation? just numbers?**
 - **Evaluation – to set a proper precision coefficients**
- Data scientists are welcomed in early 2022

Event Results Comparison

- Goal – to compare different aerobatic events (not only FAI) worldwide by creating overall ladder
- Project steps:
 - Define sets of evaluation criteria
 - Number of competitors, number of judges
 - Judge's qualification and experience
 - Number and difficulty of flown programs
 - Weather conditions and other significant markers
 - Quantify above to setup intermediate coefficients and calculate overall coefficient
 - Collect results of events in suitable form for automation
 - Do some multiplication and present results

Temperature Limitations

- Analysis based on proposal NP2021-16 “Ambiant air temperature limitation”

“3.6.2.7. The lowest maximum ambient air temperature operational limit of participating airplanes type has to be set as an overall limit.”
- Values from common AFMs
 - XA-42 limit is -20°C / $+38^{\circ}\text{C}$, and the structure is qualified up to 72°C
 - Z-50L(S) limit is -18°C / $+85^{\circ}\text{C}$! It depends only on the used oil type.
 - E330LX limit is -20°C / $+44^{\circ}\text{C}$, no data for the wing structure.
 - SU-31M has 30° for engine.
 - The recommended maximum for XPD 100 is $+32^{\circ}\text{C}$, with XPD 120 is maximum around $+40^{\circ}\text{C}$.

Temperature Limitations

- Possible problems with accepting limitation within SC6
 - What temperature will be used?
 - How it will be measured for reference?
 - From forecast models?
 - OAT at the airfield? Shall we use TAT?
 - Temp at the closest airport where the certified meteo station is available?
 - Are we going to use as reference the temperature on the ground or at what altitude?
 - If set to 30°C limit (SU-31) -> how to deal with past? WAC2017 was over the limit for few days. Invalidate results? Safety issues?
 - AFM content can be (in some cases) modified (according EASA and FAA) by A/C operator!!! -> Operator can lower limits.

Temperature Limitations

- Temperature study proposal conclusion
 - Threat temperature limitations in same way as technical defect
 - We still have institute of technical commission within Championship OPS.
 - Let Int. Jury/Technical Commission decide based on actual situation on site.
 - Overall operations can be interrupted or concerned competitor shifted to later/earlier time.
 - Above is already possible with current wording -> **No change to S6 P1**



THANK YOU FOR ATTENTION AND SUPPORT