FÉDÉRATION INTERNATIONALE
DE MOTOCYCLISME

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MIES, 17/07/2019

Dear Mr Thomas,

Thank you for your letter dated May 24, 2019, in which you list an important number of technical precisions regarding FRHPhe#1 and FRHPhe#2 in relation to Snell M2015 and M2020R.

As you may already know, the ECE 22-06 standard will replace their current standard in the very near future and we already know it will be similar to the FRHPhe-01 standard; this shows that we are on the right track and provides the stepping stone to move forward with the FRHPhe-02 standard.

We would also like to express our option and technical considerations about these issues.

We are completely aware of the remarkable role played by Snell Memorial Foundation along the years, aiming to define better helmet testing methods and increase riders' safety. In that sense, we identify with your work, as our objective and main concern are obviously the same: the riders' safety.

The goal, however, is complex and comparing our two approaches requires deep technical precisions. Therefore, as a preliminary basis, I would like to emphasize the following facts:

1. Snell's testing principle: guided (1-D motion) free fall and rebound, and FIM's complete free fall and rebound (6-D motion) are intrinsically different.

2. FRHPhe#1 and FRHPhe#2 include an assessment of the helmet performance at low speed as a basis for the evaluation of the protection provided in low severity impacts.

3. According to the current state of the art in head injury biomechanics, the role of rotation in (specially) brain injuries cannot be neglected.

The evaluation of the helmet performance in completely restrained 1-D impacts limits the parameters to be analysed in order to define acceptable thresholds related to injury risk, namely peak linear acceleration, HIC and energy absorption. May we also point out that the HIC concept dates back to 1972.

However, in complete free fall tests (6-D motion), the full kinematics of the helmet during the impact (against flat and/or oblique surfaces) can be recorded and assessed, allowing the use of more complex injury risk metrics in accordance to modern biomechanics. May we again point out that most of the currently used injury risk metrics are based on 6-D kinematic assessments.

Moreover, with reference to your statement and having searched the helmets in the L and XL sizes, the FRHPhe-01 standard has not added any weight to the new helmets. Here we find lighter or equal weight compared to the previous generation helmets. For your info, the comparison of the weight values of XS-, S- and M- sized helmets will be compiled very soon.

In our opinion, the numerical results obtained in either of the two approaches are not directly comparable, i.e. the HIC obtained when testing the rear part of the helmet (R point) may differ quite significantly, as in free motion a substantial part of the input kinetic energy is transferred to rotation in the rebound. We could find and describe many more impact configurations where the helmet behaviour is so different that stating which helmet is safer is quite challenging. Accordingly, the use of words such as “danger of serious head injury” associated (or not) to FRHPhe#2 requires, as you mention in your letter, scientific support. To this effect, a period for the analysis and definition of the final terms of FRHPhe#2 is going to be opened in September 2019.

We thank you for raising these important technical precisions. Please rest assured that the safety of the riders is of paramount concern to FIM.

Sincerely,

Jorge VIEGAS, FIM President

Tony SKILLINGTON, FIM Chief Executive Officer

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