This form must be completed and submitted by **all teams no later than the date specified in the Action Deadlines on specific event website**. The FSAE Technical Committee will review all submissions which deviate from the FSAE® rulesand reply with a decision about the requested deviation. All requests will have a confirmation of receipt sent to the team.Impact Attenuator Data (IAD) and supporting calculations must be submitted electronically in Adobe Acrobat Format(\*.pdf). The submissions must be named as follows: schoolname\_IAD.pdf using the complete school name. **Submit the IAD report as instructed on the event website. For Michigan and Lincoln events submit through fsaeonline.com.**

\*In the event that the FSAE Technical Committee requests additional information or calculations, teams have **one week from the date of the request** to submit the requested information or ask for a deadline extension.

University Name: École Polytechnique de Montréal Car Number(s) & Event(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Team Contact: Renaud Pepin E-mail Address: renaud.pepin@polymtl.ca

Faculty Advisor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ E-mail Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Material(s) Used | Plascore® Aluminium Honeycomb Precrushed Core, 380PSI crush strenght |
| Description of form/shape | Rectangular (8”x8”x4”) |
| IA to Anti-Intrusion Plate mounting method | Loctite® E-05CL |
| Anti-Intrusion Plate to Front Bulkhead mounting method | Welded |
| Peak deceleration (<= 40 g's) |  |
| Average deceleration (<= 20 g's) |  |

Confirm that the attenuator contains the minimum volume 200mm wide x 100mm high x 200mm long

|  |
| --- |
|  |

Figure 1: Force-Displacement Curve (dynamic tests must show displacement during collision and after the point v=0 and until force becomes = 0)

**ATTACH PROOF OF EQUIVALENCY**

TECHNICAL COMMITTEE DECISION/COMMENTS

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Approved by\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_

**NOTE: THIS FORM AND THE APPROVED COPY OF THE SUBMISSION MUST BE PRESENTED**

**AT TECHNICAL INSPECTION AT EVERY FORMULA SAE EVENT ENTERED**

University Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Car Number(s) & Event(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |
| --- |
|  |

Figure 2: Energy-Displacement Curve (dynamic tests must show displacement during collision and after v=0)

|  |  |  |
| --- | --- | --- |
| Insert Picture of IA, Anti-Intrusion Plate which also shows the method of spacing it at least 50mm from any rigid structure |  | Insert Picture of IA, Anti-Intrusion Plate which shows the deflection was less than 25.4mm |

Figure 3: Attenuator as Constructed Figure 4: Attenuator after Impact

|  |  |  |  |
| --- | --- | --- | --- |
| Energy Absorbed (J):  Must be >= 7350 J | 7419 | Vehicle includes front wing in front of front bulkhead? | No |
| IA Max. Crushed Displacement (mm): | 156.2 | Wing structure included in test? | No |
| IA Post Crush Displacement - demonstrating any return (mm): | - | Test Type: (e.g. barrier test, drop test, quasi-static crush) | Quasi-static |
| Anti-Intrusion Plate Deformation (mm) | Supérieur à 25mm | Test Site: (must be from approved test site list on website for dynamic tests) | Lab de Structure Poly |

University Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Car Number(s) & Event(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Le test de l’impact attenuator (IA) Plascore avec le design de bulkhead et d’anti-intrusion plate (AI) sur le véhicule 2017 a été un échec.

L’an passé, la AI plate avait dévié de plus de 25.4mm. Elle était en aluminium et boulonnée au bulkhead avant. En 2017, afin d’éviter la déviation de la plaque, elle était plutôt en acier et soudée au bulkhead avant. Une analyse FEA sur Solidworks indiquait une deformation de moins de 25.4mm. Toutefois, lors de l’essai en compression au laboratoire de Structures, ce sont plutôt les tubes verticaux du bulkhead avant qui ont flambé. Le IA fournit par Plascore n’a pas été complètement écrasé.

Pour 2017, le IA standard sera utilisé. En 2018, il serait pertinent, dans l’éventualité où un IA autre que l’IA standard sera utilisé, de faire des analyses de RDM et d’éléments finis pour s’assurer avant de faire le test que l’assemblage est résistant et répond aux specifications des réglements.

University Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Car Number(s) & Event(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Insert Technical Drawings

Length (fore/aft direction): \_\_\_\_\_\_\_\_ mm (>=200mm)

Width (lateral direction): \_\_\_\_\_\_\_\_ mm (>=200mm)

Height (vertical direction): \_\_\_\_\_\_\_\_ mm (>=100mm)

Attenuator is at least 200mm wide by 100mm high for at least 200mm: Yes/No

***Attach additional information below this point and/or on additional sheets***

Test schematic, photos of test, design report including reasons for selection and advantages/disadvantages, etc. Additional information shall be kept concise and relevant.