Authors’ response to Reviewer 2

The authors would like to thank the precious advices from the reviewer. This paper has been carefully modified according to the reviewer’s advices.

1. When seeing the descriptions in Materials and Methods section alone, it is difficult to understand the testing conditions precisely. For example, it seems to me that four-points of the square specimen may be supported using the apparatuses listed in Table 2, but the details are entirely missing.

Response: In Section 2.3 the test conditions was given as: These four scale size samples were simply supported by four scaled steel circular support rings, with inner diameter of 200mm (50, 100, 150 and 200mm), as listed in Table 2.

If the test method is determined in some major standard, the authors should quote the standard in the manuscript. Otherwise, a photograph and/or diagram for the experiment should be demonstrated.

Response: A diagram of the test rig is provided as shown in Figure 1.

2. The descriptions on the experimental methods are too terse. For example, there are no descriptions how to measure the displacement. The authors must elaborate the descriptions on the experimental methods more in details.

Response: The descriptions on the experimental methods are given in the revised paper: Impact force data were acquired as voltage output and then transferred into a module 64K DAS (Data Acquisition Station) at a frequency of 100 kHz. Impact velocity was acquired by a photoelectric sensor. During the impact test, the impactor was released and dropped vertically passing through the photoelectric sensor beam, and the impact velocity was detected when the tip of impactor just touch the surface of the specimen. The error of the measured velocity is within 0.01 m/s. The displacement was calculated by Pro Analyst software, basically considered from load–time relation.

3. If the scale factor is represented using “n”, the number of the ply of the GFRP laminates should be represented using the other character.
**Response**: The number of the ply of the GFRP laminates is represented using "λ" in the revised paper.

4. The impact energy should not be represented using "E" in Table 3 because there is a concern that "E" is regarded wrongly as the specimen modulus listed in Table 1.

**Response**: The impact energy is represented with "W" to avoid confusion with Young’s modulus.

5. It is very difficult to understand what Table 3 represents immediately. For example, the value of impact energy of 12n^3 J is not 12 J but 11.93 J. Such a discrepancy confuses the readers. To enhance the precise understandings of the readers, the authors must elaborate the presentation.

**Response**: The rounded value used in the paper is indeed not accurate. Therefore, the actual value of six series of impact energies are used in the paper now, including 11.93 n^3, 50.26 n^3, 69.68 n^3, 99.32n^3, 120.78 n^3 and 150.04 n^3 Joules.

6. It seems to me that the results shown in Figs. 1 and 2 are similar with each other. I think that the results in Fig. 1 are not the force-time traces but the normalized force-normalized time traces. The authors must check it.

**Response**: Authors are apologized for the careless, the force-time traces are given in the revised paper now.

7. The definitions of the dashed lines in Figs. 3 and 5 should be demonstrated in the captions or in the figures themselves.

**Response**: The dashed lines represent the values of full scale size sample, and it was indicated in the revised paper.

8. It is questionable why Table 2 does not contain the Ks values.

**Response**: The Ks and Kb values are given in Table 2 now.
9. There are no descriptions how to derive the relations shown in Fig. 6. Additionally, the definitions of $E_m$, $E_{b/s}$, and $E_c$ are entirely missing.

**Response:** It was mentioned in line 217 to 219 that, the contribution of energy absorbed by these three deformations are calculated through an energy balance model as mentioned in the previous work [27]. In order to avoid reiteration with our last paper, the method was not detailed in this paper. The definition of $W_m$, $W_{b/s}$, and $W_c$ is given as: Where, $W_m$, $W_{b/s}$ and $W_c$ represent the energy absorbed by membrane, bending/shear and contact deformation, respectively.

10 The label of the vertical axis of Fig. 8b is mistyped as “Normalized damage are”.

**Response:** Authors are apologized for the careless. The vertical axis was modified to “Normalized damage area”. 