Point 1: It appears that the data reported is for two, and only two, device samples: one sample with “eptaxial graphene” and one sample with “quasi-free-standing graphene”. The authors need to explain why only one sample of the two types was studied. Further, the authors need to consider if their “abnormal results” (lower laser power giving higher photocurrent) may be unique to this sample. Given that this anomalous result is observed from only one sample, the authors need to give reasons why their results in general are to be considered reliable.

Response 1:

1) In this research I_{ph} of the EG sample was smaller than I_{dark} that was shown in Figure 5(b). According to formula 2) we can know that I (Net current) is negative and there is no photocurrent generation when I_{ph} is less than I_{dark}, which means that the detector can’t perform photodetection. Therefore, it does not make sense to continue to perform performance tests on this type of detector.

2) We assume that their “abnormal results” are unique and can be related to the heat capacity of graphene and Seebeck effect. These assumptions need to be proven by data and temperature related performance tests are waiting to be carried out in another experiment.

3) These curves of the QFSG samples are plotted as averages of the data from three repeated tests and all repeated test data for each sample can be found in our Supplementary Materials. The data in these different experiments has good repeatability and from this we believe that these results are considered reliable.

Point 2: Figure 5d is shown below. For 0.018mW laser power, it is clear that the maximum responsivity is 5.11 A/W, but the corresponding EQE seems to be around 17%, not the 9.74% reported in the text. Is the graph being interpreted incorrectly? Or is EQE axis numbered incorrectly? Or have the authors reported the incorrect number in the text? This should be made clear.

Response 2:

Thank you for your careful read, we are sorry that the EQE axis in figure 5d is numbered incorrectly due to our negligence. And we have corrected the wrong number on the axis.