

Figure S1 The cross-section schematic drawing of the detector.

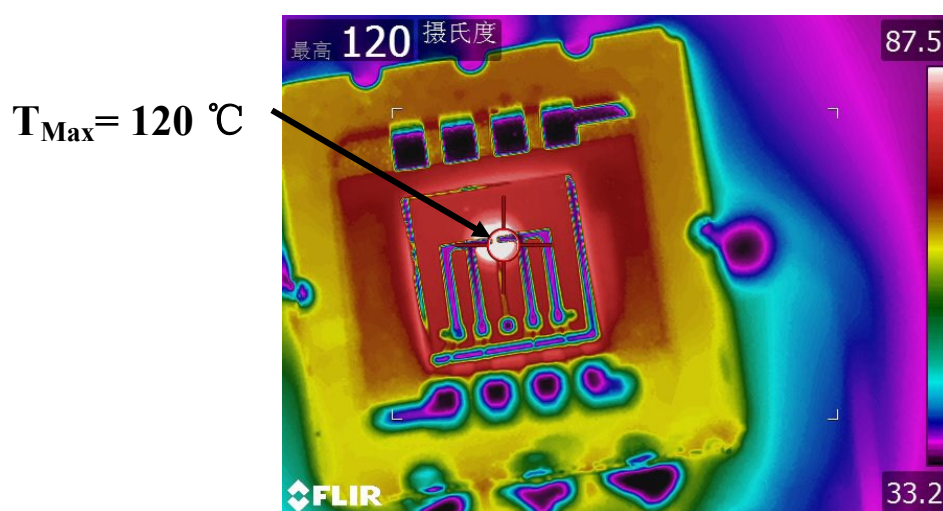


Figure S2 The thermal distribution of the detector surface when  $V_H = 3.7\text{ V}$ .

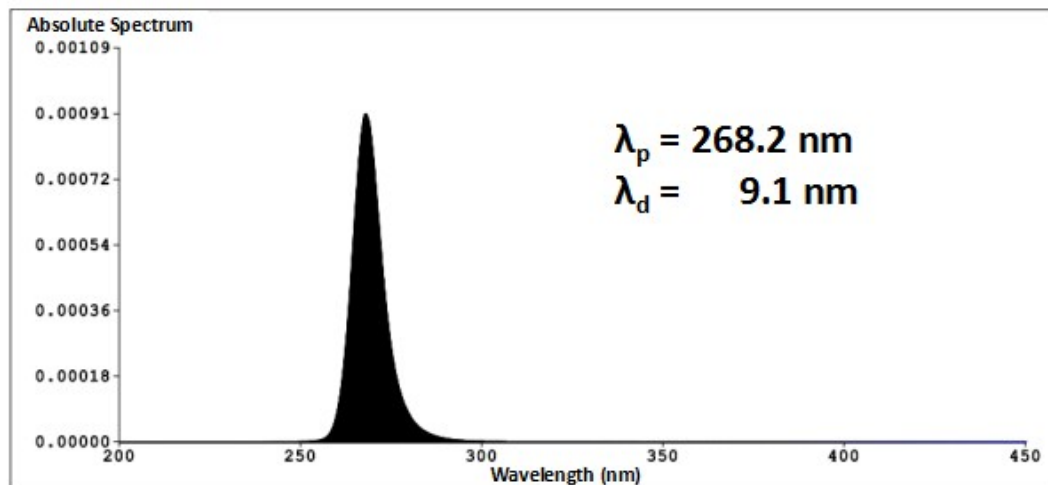
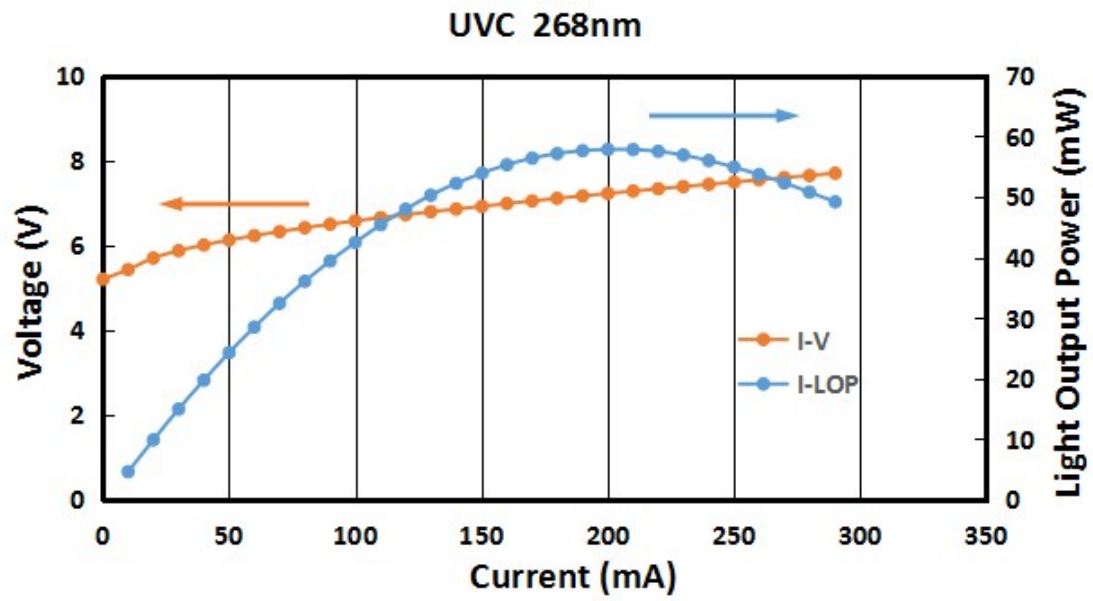


Figure S3 UVC light source: I-V, I-LOP curve and light spectrum.

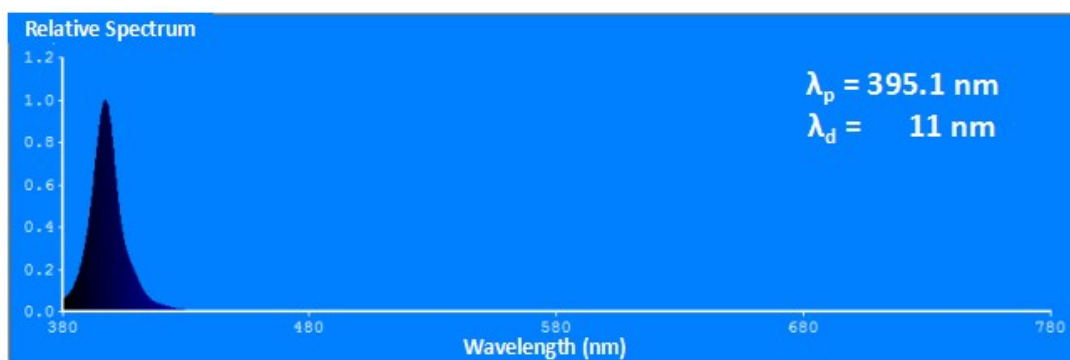
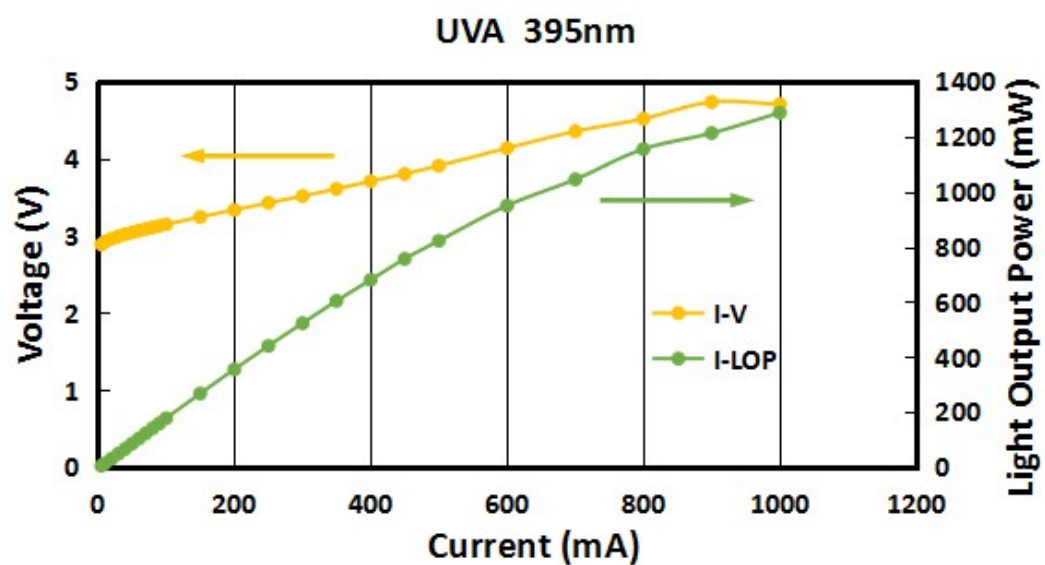


Figure S4 UVA light source: I-V, I-LOP curve and light spectrum.

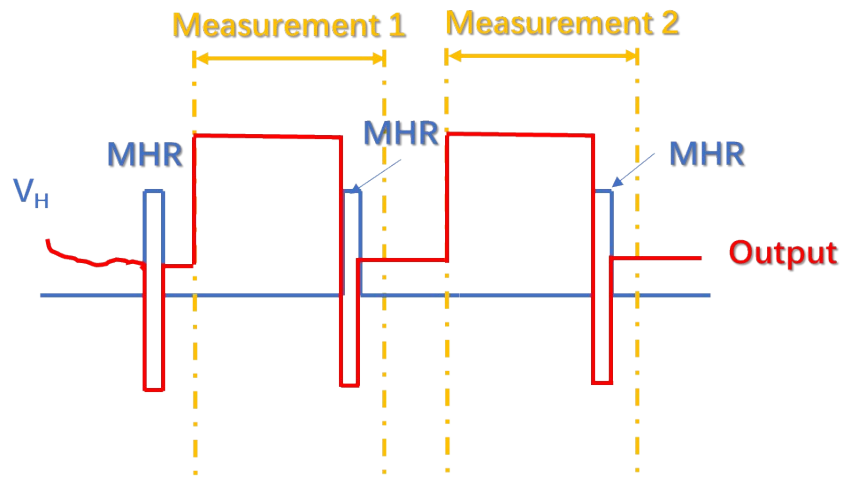


Figure S5 An example illuminates the MHR process before and in measurement.