SUPPORTING INFORMATION

## Understanding of aging pattern in quantum dot light-emitting diodes by low-frequency noise

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**Figure S1**. (a) Normalized current spectral density  $(S_I/I^2)$  of pristine QLED at 6 Hz, 10 Hz, 15 Hz, and 100 Hz. The variation in measured power spectral density  $(S_I)$  at various operating voltages over aging time with constant current source: (b) without aging, (c) 10 h, (d) 50 h, (e) 100 h, and (f) 200 h.



Figure S2. Power spectral density  $(S_I)$  of correlated noise model simulated by Python.



Figure S3. (a) Home-built low-frequency noise (LFN) measurement setup and mechanism. (b)

Aging measurement setup with constant current source.



**Figure S4**. Current density–voltage–luminance (J-V-L) characteristics of pristine QLED before and after exposure to the atmosphere for two weeks.



**Figure S5**. Current density–voltage (J-V) characteristics of QLED before and after 50 h current

stress.



Figure S6. Electroluminescence (EL) spectra of QLEDs over aging times.



**Figure S7.** (a) PL spectra and (b) the average peak value of PL intensity of the 5 devices with and without 50 h of current aging each.