Supporting Information

2-D perovskite activation with an organic luminophore

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• Nuclear Magnetic Resonance measurement of NAAB:

The structure and the purity of the fluorophore containing ammonium salt have been checked by NMR measurement. The ^{1}H (figure S1) and ^{13}C spectra (figure S2) were recorded at 20° C in a JOEL ESC-400MHz spectrometer with a JOEL autotune 5mm NMR broadband probe. Chemical shifts were given in ppm relative to chloroforme $CDCL_3$ 7,26ppm (H) and 77,16ppm(C):

^{1}H NMR(400MHz, $CDCL_3$,δ): 7.68 (dd , J=3.2Hz and 6.4Hz, 2H ; Ar H), 3.46(d, J=5.2 Hz,2H ; CH_2N), 3.897(t, J= 6.8 and 5.6, 2H; CH_2N), 1.32(s, 3H;CH_3),8.032(dd, J=3.2 and 6.2,2H; Ar H), 8.298(s, 2H, Ar H); ^{13}C NMR (100 MHz, $CDCl_3$, δ):168.26(C=O), 135.48, 127.79(C_{Ar}), 130.37, 129.27,124. 84(C_{Ar}–H), 77.43(C_4–$(CH_3)_3$), 39.71,38.34 (CH_2 N), 28.31(CH_3).

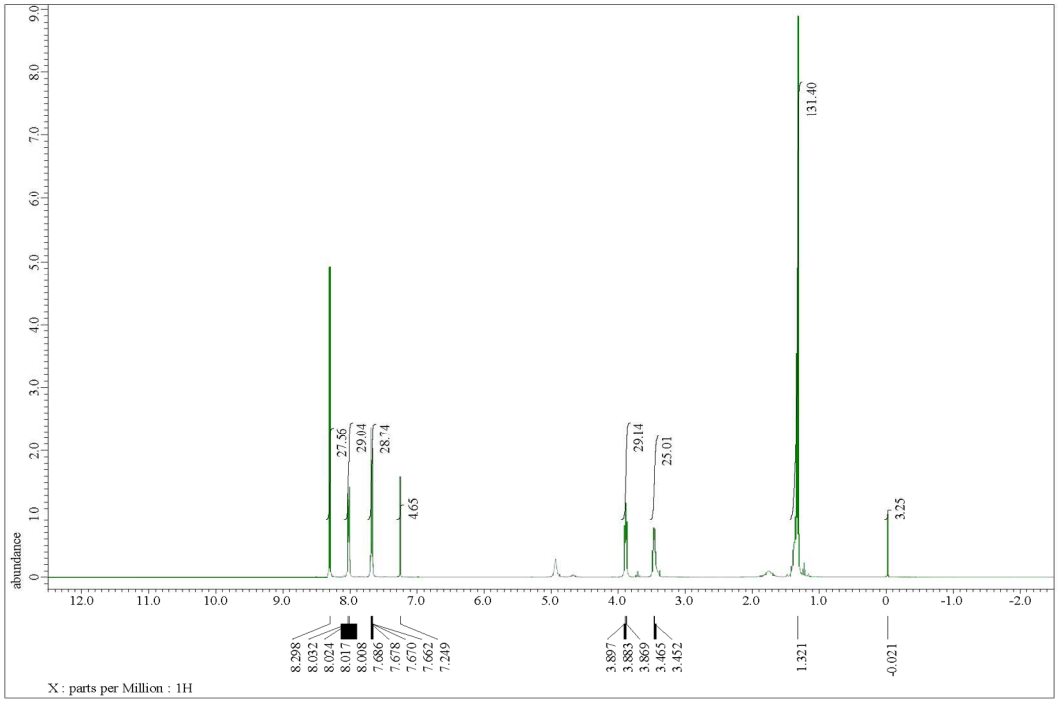

Figure S1: 1H NMR N-(2-ethyl-NH-Boc)-2,3 naphthalimide (CDCl3)

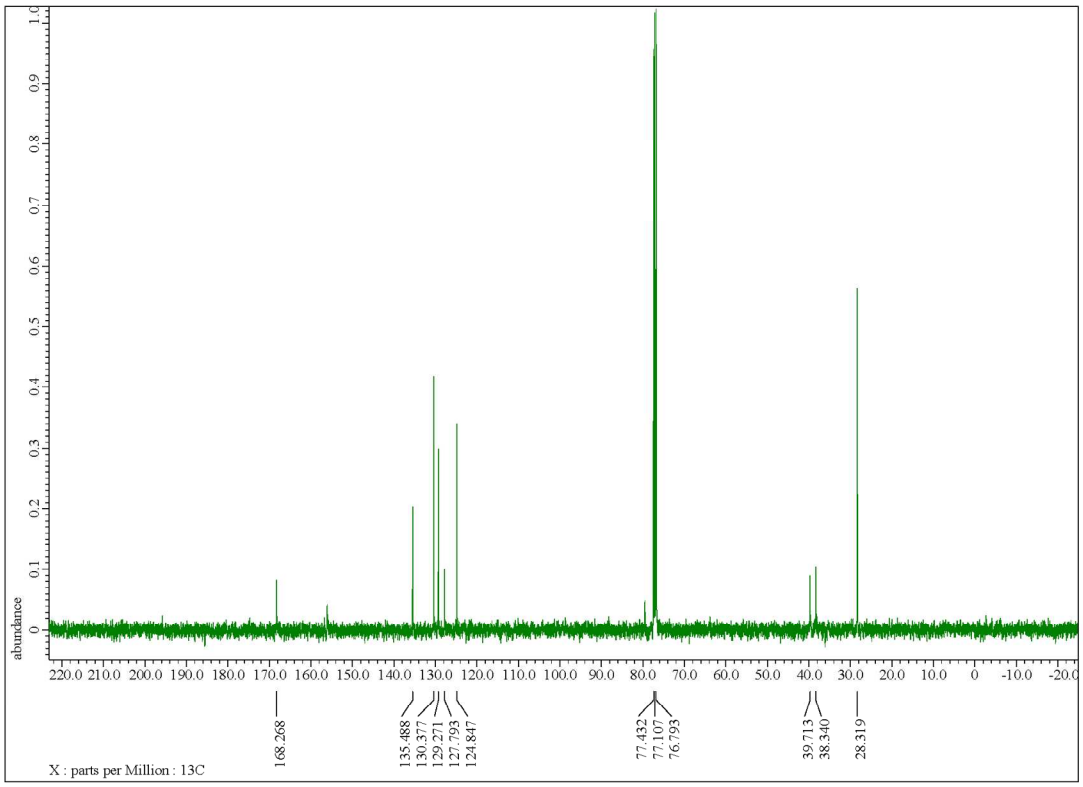

Figure S2: ^{13}C NMR N-(2-ethyl-NH-Boc)-2,3 naphthalimide ($CDCl_3$)

• Absorption spectrum of a solution of pure NAAB in DMF

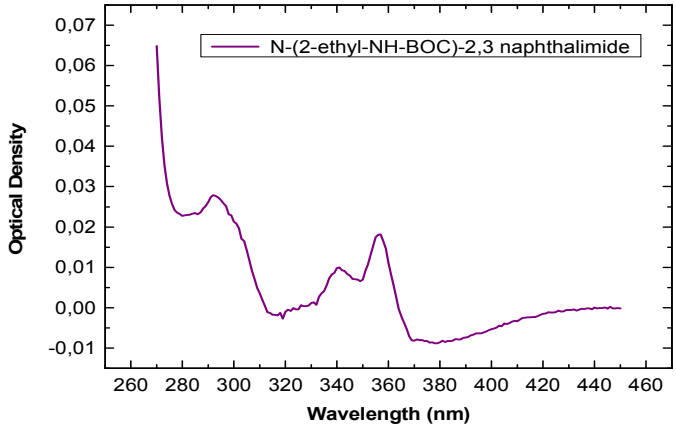

Figure S3: Absorption spectrum of a solution of pure NAAB in DMF

• Diffuse reflectance measurement of PEPB and PEPB-NAAB10%

Diffuse reflectance measurements are performed with a conventional Perkin Elmer 950 UV/Vis spectrometer, using a 100 mm integrating sphere.

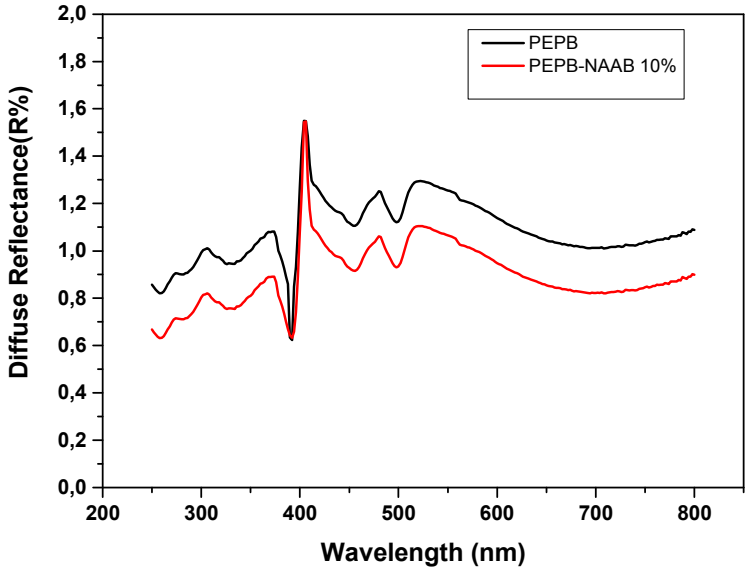

Figure S4: Diffuse reflectance measurement of the samples PEPB and PEPB-NAAB10%

• Calculated values of the brilliance improvement from measured values of the optical density enhancement

Table S1 reports the optical density of PEPB and PEPB-NAAB10%: respectively A_{PEPB} and $A_{PEPB\text{-}NAAB10\%}$, measured from figure 3 at three wavelengths: 250 nm, 340 nm, 360 nm

Table S1:

Wavelength (nm)	250 nm	340 nm	360 nm
A_{PEPB}	0,658 ± 0,005	0,237 ± 0,005	0,178 ± 0,005
$A_{PEPB\text{-}NAAB10\%}$	0,797 ± 0,005	0,386 ± 0,005	0,297 ± 0,005
$\frac{I_{abs}(PEPB-NAAB10\%)}{I_{abs}(PEPB)}$	1,08 ± 0,01	1,4 ± 0,01	1,47± 0,01

According to the definition of the optical density A, if I_0 is the intensity of the incident beam, the intensity of the transmitted beam is $I_t = I_0.10^{-A}$. Assuming that the reflectance diffusion is negligible (which is reasonable, see figure S4), the intensity which has been absorbed by the sample is $I_{abs} = I_0 - I_t = I_0.(1-10^{-A})$. Assuming a complete energy transfer, the calculated expected brilliance improvement is then:

$$\frac{I_{abs}(PEPB-NAAB10\%)}{I_{abs}(PEPB)} = \frac{1-10^{-A_{PEPB-NAAB10\%}}}{1-10^{-A_{PEPB}}} \qquad (1)$$