

Table S1 Atomic coordinates and site occupancy fraction (SOF) for $\text{Si}_{1.92}\text{Al}_{0.08}\text{O}_{1.08}\text{N}_{1.92}$

Atom	x	y	z	SOF
Si/Al	0.17610	0.15331	0.25670	1
N1	0.21981	0.13011	0.65460	0.72
O1	0.20779	0.14550	0.55314	0.28
O2	0.00000	0.20897	0.23000	1

Table S2 Comparison of the CIE chromaticity coordinates for $\text{Si}_{1.92}\text{Al}_{0.08}\text{O}_{1.08}\text{N}_{1.92}$: x% Eu^{2+} , y% Tb^{3+} , z% Sm^{2+} .

Sample no.	x	y	z	CIE coordinates (x, y)
1	0.18	0	0	(0.1716, 0.1508)
2	0.18	0.1	0	(0.19, 0.1872)
3	0.18	0.55	0	(0.2142, 0.2492)
4	0.18	1	0	(0.2377, 0.2991)
5	0	1	0	(0.3607, 0.5631)
6	0	0	0.03	(0.7076, 0.2923)
7	0.18	1	0.0045	(0.2574, 0.2658)
8	0.18	1	0.018	(0.3165, 0.2348)
9	0.18	1	0.03	(0.3573, 0.2231)