

Supplementary Data File

Table S1. The vibrational frequency of the selected bonds in [BTAD][A1-8]₂, (BTAD= [C₆H₄N₆O₂]²⁺ and A1-8 = [CH₃CO₂]⁻, [CF₃CO₂]⁻, [N(CN)₂]⁻, [CF₃SO₃]⁻, [ClO₄]⁻, [BF₄]⁻, [NTf₂]⁻ and [PF₆]⁻) DCILs and corresponding isolated dication at M06-2X/6-31++G(d,p) level of theory.

ν/cm^{-1}	[BTAD] ²⁺	[BTAD][A1] ₂	[BTAD][A2] ₂	[BTAD][A3] ₂	[BTAD][A4] ₂
N2-H5	3494.4	3441.1	3529.90	3484.3	3548.6
N2'-H5'	3494.4	3441.1	3529.90	3484.3	3548.6
ν/cm^{-1}		[BTAD][A5] ₂	[BTAD][A6] ₂	[BTAD][A7] ₂	[BTAD][A8] ₂
N1-H4	3509.9	-	-	-	3377.9
N1'-H4'	3509.9	-	-	-	3377.9
N2-H5		3571.2	3526.4	3484.9	2013.9
N2'-H5'		3571.2	3526.4	3484.9	2013.9