

Supporting information

High-temperature giant dielectric switching in an organic-inorganic hybrid material

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Fig. S1. ¹H-NMR spectra of (Et₃NC₂H₄Br)FeCl₄.

Fig. S2. PXRD test and simulation comparison of (Et₃NC₂H₄Br)FeCl₄.

Fig. S3. TGA curves of (Et₃NC₂H₄Br)FeCl₄.

Fig. S4. The variation of tan δ with temperature for (Et₃NC₂H₄Br)FeCl₄ at different frequencies.

Table S1. Crystal data of (Et₃NC₂H₄Br)FeCl₄.

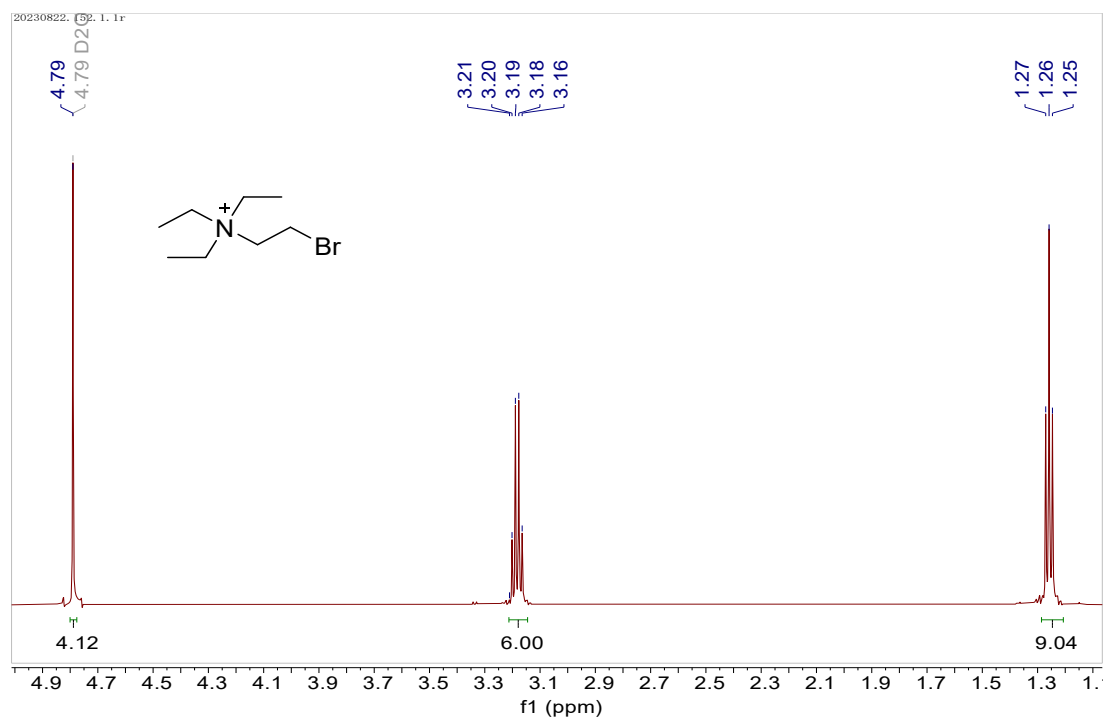


Fig. S1 ^1H -NMR spectra of $(\text{Et}_3\text{NC}_2\text{H}_4\text{Br})\text{FeCl}_4$. ^1H -NMR (600 MHz, Deuterium Oxide) δ 4.79 (s, 4H), 3.18 (q, $J = 7.3$ Hz, 6H), 1.26 (t, $J = 7.3$ Hz, 9H).

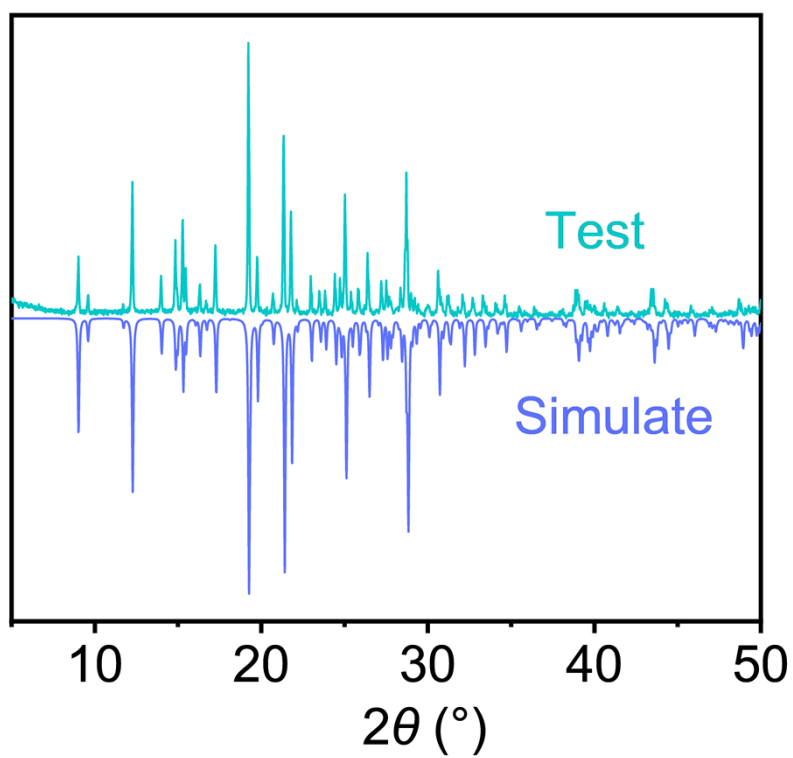


Fig. S2 PXRD test and simulation comparison of $(\text{Et}_3\text{NC}_2\text{H}_4\text{Br})\text{FeCl}_4$.

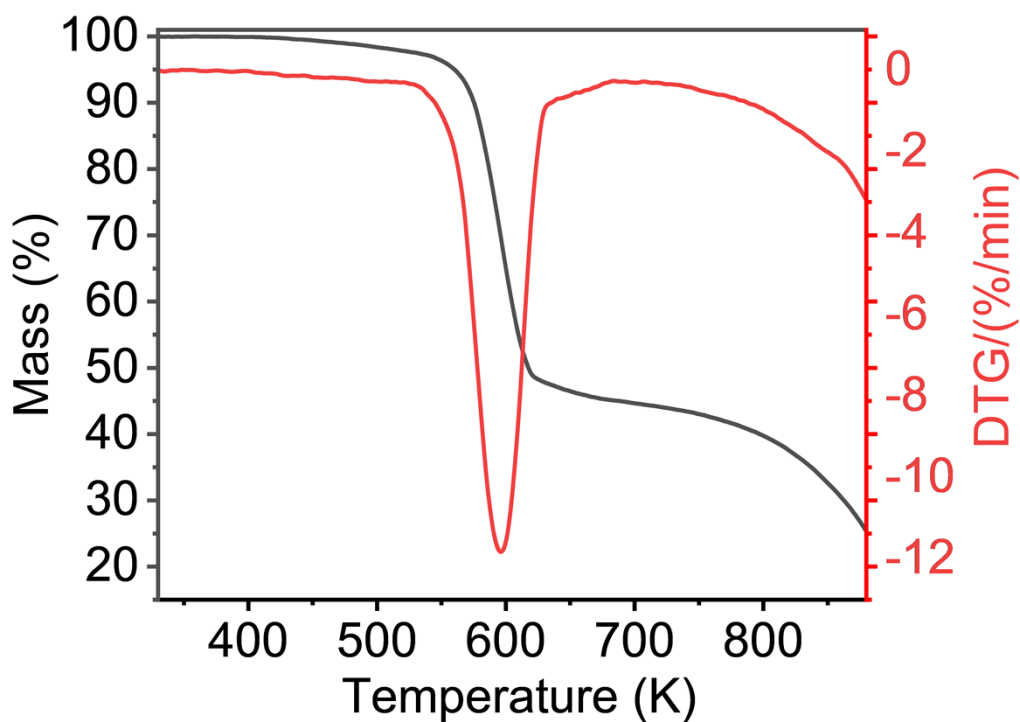


Fig. S3. TGA curves of $(\text{Et}_3\text{NC}_2\text{H}_4\text{Br})\text{FeCl}_4$.

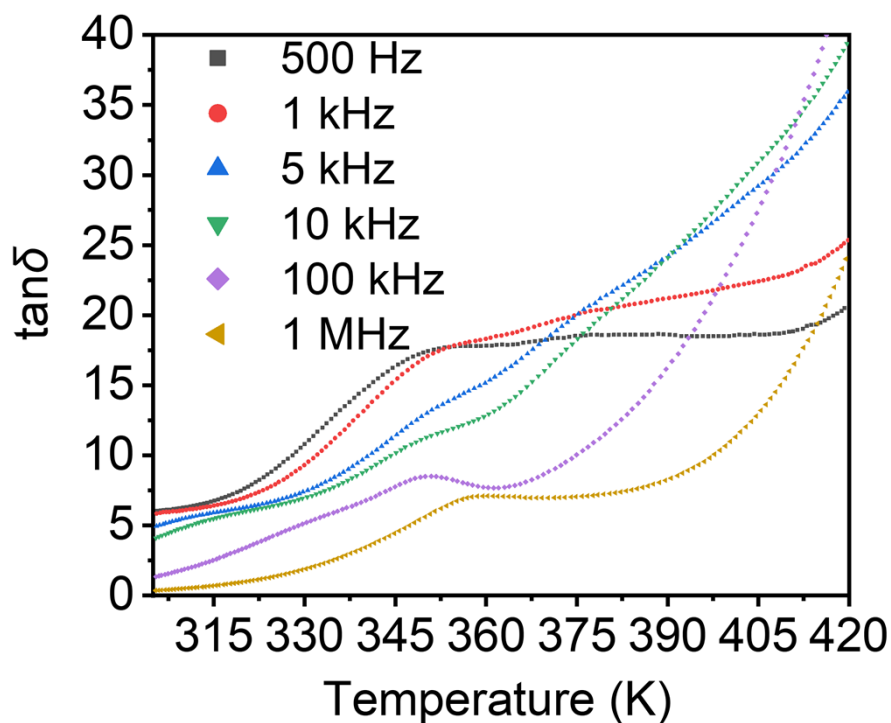


Fig. S4. The variation of $\tan \delta$ with temperature for $(\text{Et}_3\text{NC}_2\text{H}_4\text{Br})\text{FeCl}_4$ at different frequencies.

Table S1. Crystal data of compound (Et₃NC₂H₄Br)FeCl₄.

CCDC number	2370447
Empirical formula	C ₈ H ₁₉ BrCl ₄ FeN
Formula weight	406.80
Temperature [K]	223.15
Crystal system	monoclinic
Space group (number)	<i>P</i> 2 ₁ / <i>c</i> (14)
<i>a</i> [Å]	7.5437(4)
<i>b</i> [Å]	11.5570(5)
<i>c</i> [Å]	18.4337(9)
α [°]	90
β [°]	92.388(2)
γ [°]	90
Volume [Å ³]	1605.70(14)
<i>Z</i>	4
ρ_{calc} [gcm ⁻³]	1.683
μ [mm ⁻¹]	4.067
<i>F</i> (000)	812
Crystal size [mm ³]	0.08×0.05×0.03
Crystal colour	clear reddish red
Crystal shape	block
Radiation	MoK α (λ =0.71073 Å)
2 θ range [°]	4.16 to 52.78 (0.80 Å)
	−9 ≤ <i>h</i> ≤ 8
Index ranges	−14 ≤ <i>k</i> ≤ 14
	−22 ≤ <i>l</i> ≤ 22
Reflections collected	12360
	3280
Independent reflections	<i>R</i> _{int} = 0.0792
	<i>R</i> _{sigma} = 0.0692
Completeness to $\theta = 25.242^\circ$	99.5 %
Data / Restraints / Parameters	3280/0/140
Absorption correction	0.3167/0.7454
T _{min} /T _{max} (method)	(none)
Goodness-of-fit on <i>F</i> ²	1.019
Final <i>R</i> indexes	<i>R</i> ₁ = 0.0560
[<i>I</i> ≥ 2σ(<i>I</i>)]	w <i>R</i> ₂ = 0.1458
Final <i>R</i> indexes	<i>R</i> ₁ = 0.0964
[all data]	w <i>R</i> ₂ = 0.1732