## **Electronic Supplementary Information**

Comment on "Unprecedented 30 K hysteresis across switchable dielectric and magnetic properties in a bright luminescent organic-inorganic halide  $(CH_6N_3)_2MnCl_4$ " by A. Sen, D. Swain, T. N. Guru Row, and A. Sundaresan, *J. Mater. Chem. C*, 2019, 7, 4838

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## Experimental

The crystals of  $(CH_6N_3)_2MnCl_4$  were crystallized at room temperature from the saturated aqueous solution containing stoichiometric amount of guanidinium hydrochloride and manganese dichloride.

Thermal properties of the compound were studied by differential scanning calorimetry (DSC) on a Q2000 (TA Instruments) instrument. The DSC runs were recorded on heating and on cooling the single-crystal or polycrystalline samples at a rate of 10 K/min. Indium standard was used for temperature and enthalpy calibration.

Dielectric experiments were performed on the oriented crystal plates with silver electrodes deposited on the large surfaces of the samples. Measurements of complex electric permittivity as a function of temperature were carried out in the frequency range from 1 kHz to 5 MHz with a Hewlett-Packard 4192A impedance analyzer. The amplitude of the ac measuring electric field was of 3 V/cm. The temperature of the samples was changed at a rate 0.5 K/min.

Dilatometric measurements were performed on a single-crystal KM-4 diffractometer operating with graphite-monochromated MoK $\alpha$  radiation. The unit-cell dimensions were refined as a function of temperature by the least-squares fits to 33-38 automatically centered reflections. The crystal was cooled with a nitrogen stream using an Oxford Cryosystem attachment. The temperature of the stream was stabilized within 0.1 K.



**Fig. S1** Real part of electric permittivity of  $(CH_6N_3)_2MnCl_4$  measured along [100] at 2.2 MHz frequency of electric field, in the two successive cooling/heating runs. The temperature was changed with the rate 0.5 K min<sup>-1</sup>.



**Fig. S2** Real part of electric permittivity of  $(CH_6N_3)_2MnCl_4$  measured along [011] at 1 MHz frequency of electric field, in the two successive cooling/heating runs. The temperature was changed with the rate 0.5 K min<sup>-1</sup>.