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Supporting information for article:

**(H₃O)₃Sb₂Br₉: the first member of the *M₃E₂X₉* structure family
with oxonium cations**

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S1. Degree of distortion

The degree of distortion (dd) was defined from the dispersion of $d(M\cdots M')$ (Eq. S1-S3). $d(M\cdots M')$ are the distances of the M atom centering the hexagonal star to the six neighboring M' atoms. (Chang, *et al.* 2016).

$$\bar{d} = \sum d(M\cdots M') / 6 \quad (\text{S1})$$

$$\Delta d = [d(M\cdots M')_{\max} - d(M\cdots M')_{\min}] \quad (\text{S2})$$

$$dd \text{ (degree of distortion)} \equiv \Delta d / 2\bar{d} \quad (\text{S3})$$

Factor 2 in Eq. (S3) is used for normalization.

Figure S1

EDX spectrum of the single crystal recorded after the XRD experiment. The crystal was mounted on a carbon pad of an Al sample holder. Signals of Cs atoms were not detected (expected energies of Cs signals are marked in red).

