Asymmetrically deuterated methoxy radicals were experimentally studied in a direct absorption experiment using the pulsed jet FASSST spectrometer in the range of 153-251 GHz. The radical species were produced in a gas discharge in a supersonic jet by a Stark-free coaxial electrode arrangement, mounted on a top of the nozzle. Observed transitions were attributed to methoxy only if they satisfied the following criteria:

i) originated from a transient species, observable only under discharge conditions;
ii) appeared in spectra recorded with both precursors used (methanol and methyl nitrite);
iii) matched no reported transitions in other molecules (e.g. formaldehyde) found in discharge;
iv) exhibited paramagnetic properties.

The spectra were assigned by comparison of the experimentally obtained pattern with ones produced by the SpecView program using the available Hamiltonian and molecular constants with a subsequent fit of the experimental data to the theoretical model.

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