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Interactive comment on "The Eulerian urban dispersion model EPISODE. Part II: Extensions to the source dispersion and photochemistry for EPISODE-CityChem v1.2 and its application to the city of Hamburg" *by* Matthias Karl et al.

Anonymous Referee #2

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EPISODE is a dispersion model for application in urban settings, including chemical reactions. The manuscript describes the architecture of the EPISODE model very carefully and in detail. Tests on modules (e.g., photochemistry) are performed, and described to very successful in terms of producing reasonable results in agreement with previous model and literature data, and referenced to sample data. The model is applied to the domain Hamburg. It is quite impressive how various sources of data sets are utilized in order to achieve the best possible model output. Eventually, the model fulfills performance objectives for the most important air pollutants and can thus

be used for regulatory applications. The authors also propose how the model can be further improved in the future. It is a fine contribution that should be published. There are only a few minor issues this reviewer want to raise:

page 1, line 27: replace "nitrogen oxide" by "nitric oxide"

page 7, R8a is not balanced. Do you you want to say: $HCHO + 2O_2 + hv => CO + 2HO_2$?

page 7, R10 is not balanced: Do you want to say: $OH + CO + O_2 => HO_2 + CO_2$?

page 18, line 21: What is meant with "urban albedo and conductivity"? Do you mean heat conductivity of surface material?

Interactive comment on Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2018-325, 2019.