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Interactive comment on "Rainfall estimation from a German-wide commercial microwave link network: Optimized processing and validation for one year of data" *by* Maximilian Graf et al.

Anonymous Referee #2

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The authors present an analysis of rainfall estimation using minutely transmitted-minus-received signal level (TRSL) measurements from almost 4000 commercial microwave links (CMLs), located country-wide in Germany.

The fact that the authors have access to a very large database of minutely TSL/RSL measurements is unique, as, previous studies that presented a country-wide CMLs-based rainfall monitoring used a lower 15-minute sampling rate (and on top of that, some had access to the minimal and the maximal TSL/RSL values rather than the instantaneous values).

The presented rainfall estimation process follows the general steps established pre-

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Discussion paper

viously, including preparation of the data, baseline estimation, rain event detection, wet-antenna attenuation compensation, and rain-retrieval.

The authors compared the CML rain estimation outcome with the radar-based RADOLAN-RW data set, which shows, in general, good agreement.

Even though the presented study is very interesting, and can potentially contribute to this field of research, there are two main concerns that I feel the authors should address:

1. There are many different steps that the are being done in processing the data that include setting up different thresholds and margins (e.g., assuming that 5% of the time is classified as "rain", different moving-average window durations, different thresholds and percentile values from which the data is omitted, and so on). The problem here, is that there is no discussion regarding the logic behind selecting these specific parameters. It is very easy to "find the best parameters and thresholds" once you have a data-set used as ground-truth (in this case, the RADOLAN - which is later used for comparison). However, it is imperative to understand the actual process behind selecting these specific values, in order for the proposed methodology to be successfully deployed in different locations.

2. I find it lacking that no comparison with other established approaches of CML-based rain retrieval is being performed or discussed. Furthermore, the authors did not consider newer approaches for the different steps they perform (e.g., the wet-antenna or the baseline retrieval algorithms that are selected are based on algorithms published in 2008, 2010, and 2013, while there are many updated published newer studies. I am not saying that the decision to use the specific selected algorithms is incorrect, but, it should be explained why these specific algorithms are selected, with respect to other approaches that have been presented since.