Review of manuscript “Laboratory characterisations and intercomparison sounding test of dual thermistor radiosondes for radiation correction” by Sang-Wook Lee, et al., AMT-2021-343

Synopsis: The authors describe a detailed metrological characterization of a dual thermistor radiosonde and how the difference between thermistors can be used for the radiation error affecting both. The result is a quite simple multilinear model for correction, based just on the differences between thermistors. The characterization methods appear quite solid. Only the comparison with the de facto standard (RS41) has been performed using too small samples.

Major comments:

- I was a bit surprised to learn that the temperature was varied only between -70 and -20 deg, since in the tropics and over Antarctica temperatures below -90 degrees are not uncommon. This seems important since in Fig. 4, there are substantial variations of resistance reading at -70 deg. Does the instrument fail at even lower temperatures? Perhaps this is a wrong impression because of the y axis being linear, not logarithmic.
- The comparison with the current de fact standard RS41 should be more comprehensive. In Fig. 9 it is not clear how many radiosondes were launched in parallel. This is very important to have a robust estimate of differences. Somewhere in the text it is written N=12 for daytime and N=6 for nighttime. That should be also in the caption. The same applies to the sounding test described in section 8. It appears it was only one ascent?
- There is a lot of redundancy in the formulae. Why do you specify S_0=960 W/m^2 all the time in formulae 2-19. It is given in the text and does never change. The same is true for v_0. Personally I would also recommend writing fractions as with – as divisor, not / in numbered formulae.
- Formula (25) holds only if errors are independent

Minor comments:

L69: different emissivities

Fig. 6, 7: A logarithmic y axis would be very helpful, and is also more suitable to the parameterization you give in Formula (2), which consists of exponential functions.