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Atmospheric Measurement Techniques Discussions

Interactive comment on "G-band atmospheric radars: new frontiers in cloud physics" *by* A. Battaglia et al.

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All the retrieval techniques described in this paper are applicable only in presence of a Rayleigh reference. A stand-alone G-band system can have its own merit, like most of the single wavelength radars, but in order to help in solving the scientific gaps we have identified we firmly believe that the system has to be operated in synergy with another wavelength radar which provides the Rayleigh radar. Here attached a figure with the computation of the MDT at 1 km distance for a 100W G-band system with different antenna sizes and for different pulse lengths. The MDT scales linearly with the transmitted power. The diamonds correspond to the two configurations discussed in Tab.1. Klystron is the transmitter. Of course a FMCW system solution could also

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be pursued. Concerning attenuation, Fig.1 shows that the 2-way gas attenuation for a winter atmosphere remains below 8 dB. This makes the G-band sensitivities of the systems proposed in Tab.1 certainly competitive with those of the corresponding K_a systems. We will clarify these points in the revised version.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 321, 2014.

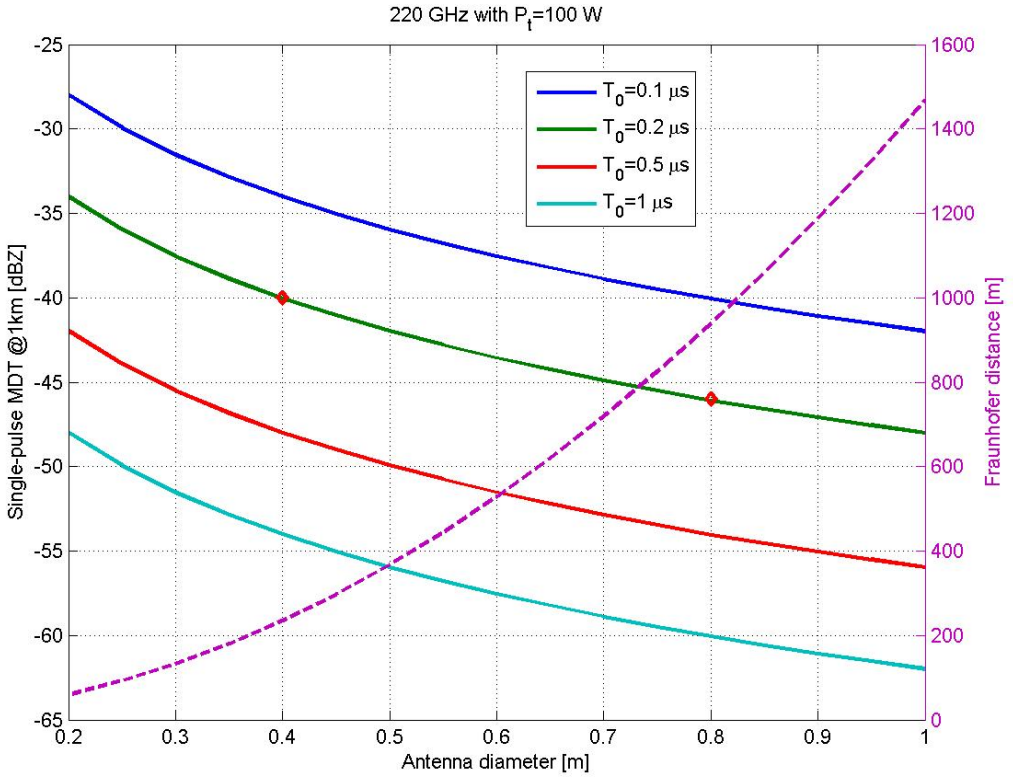

Fig. 1. MDT (left y-scale) and Fraunhofer distance (right y-scale) as a function of the antenna diameter and for different pulse lengths T0. The assumed transmitted power is 100 W. A noise figure of 6.5 dB

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