One of the main uncertainties in airfoil and rotor design is the determination of the position of transition on the blade as this can have considerable influence on the aerodynamic load and in particular rotor power. Even for simulations on a rotor in uniform, steady inflow the determination of the position of transition is challenging. The atmospheric inflow on a real MW rotor adds a new level of complexity and uncertainty to the transition modelling and prediction. What is the impact of the atmospheric turbulence on transition compared with transition on a blade section in wind tunnel flow? The present work is aiming at improving our insight into this subject by analysing transition data measured in the DanAero experiment in 2009 on an industrial 2MW turbine with an 80m rotor with LM38.8 m blades. Transition position is determined from analysing spectra of high frequency (50kHz) surface pressure fluctuations from 56 flush mounted microphones at a radius of 37 m. The position of transition is correlated with measured inflow angle close to the section with transition data. A comparison of the rotor transition with a similar set-up in the LM Glasfiber wind tunnel for transition detection on a 2D blade section copy of the rotor blade, shows a much earlier transition on the pressure side of the rotor blade. On the suction side the difference is much smaller due to an already early transition on the 2D blade section in the wind tunnel, probably caused by small surface irregularities or bumps. Analysing the pressure fluctuations in the laminar boundary layer close to the leading edge which are closely correlated with the turbulent inflow it can be seen that below 300 Hz the energy level on the rotor is much higher than in the tunnel. However, above 300 Hz they are comparable. It is finally shown that the transition on the rotor on the pressure side is moving forward when the spectral energy from 100-300 Hz in the laminar boundary layer increases.