

similar to Fig. 2 for all of these different JPL and HITRAN calculations scans are quite similar, only vertically displaced by their corresponding value of $(n(0) - 1)$.

Summary

In summary, we have shown that the complete van-Vleck Weisskopf theory removes the previous physical inconsistency for low frequency, MHz, microwave, mm-waves and THz propagation of electromagnetic waves through the water vapor of the atmosphere. We have shown that the slowly varying component of the water vapor refractivity, previously explained by Debye theory, extends from zero-frequency up to more than 900 GHz, together with the more rapid response of the water vapor resonance lines and is well explained by v-VW theory, and with excellent agreement with experimental results.

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