BIMA ARRAY DETECTIONS OF HCN IN COMETS LINEAR (C/2002 T7) AND NEAT (C/2001 Q4)

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We present interferometric detections of HCN in comets LINEAR (C/2002 T7) and NEAT (C/2001 Q4) with the Berkeley-Illinois-Maryland Association (BIMA) Array in D-configuration. We detected the HCN $J = 1 - 0$ emission line in both comets. With a $25''.4 \times 20''.3$ synthesized beam around Comet LINEAR, we found a total beam averaged HCN column density of $< N_T >= 8.5 \pm 2.8 \times 10^{12}$ cm^{-2}, and a HCN production rate of Q(HCN)=$8.4 \pm 2.8 \times 10^{26}$ s^{-1}, giving a production rate ratio of HCN relative to H_2O of $\sim 1.6 \pm 0.5 \times 10^{-3}$ and relative to CN of $\sim 1.1 \pm 0.4$. With a $21''.3 \times 17''.5$ synthesized beam around Comet NEAT, we found a total beam averaged HCN column density of $< N_T >= 1.0 \pm 0.5 \times 10^{12}$ cm^{-2}, and a HCN production rate of Q(HCN)=$9.2 \pm 5.1 \times 10^{25}$ s^{-1} giving a production rate ratio of HCN relative to H_2O of $\sim 0.8 \pm 0.4 \times 10^{-3}$ and relative to CN of $\sim 0.3 \pm 0.2$. For both comets, the production rates relative to H_2O are similar to previous comet observations. For Comet LINEAR the production rate relative to CN is consistent with HCN being the primary parent species of CN, while for Comet NEAT it is too low for this to be the case.