SUBMILLIMETER WAVE SPECTROSCOPY OF ACETYL ISOCYANATE : CH$_3$C(O)NCO

L. MARGULÈS, R. A. MOTIYENKO, Laboratoire PhLAM, UMR 8523 CNRS - Université Lille 1, Villeneuve d’Ascq, France; J.-C. GUILLEMIN, Institut des Sciences Chimiques de Rennes, UMR 6226 CNRS - Université de Rennes 1, Rennes, France; BELÉN TERCERO, JOSE CERNICHARO, Departamento de Astrofísica, Centro de Astrobiología CAB, CSIC-INTA, Madrid, Spain; ATEF JABRI, ISABELLE KLEINER, Laboratoire Interuniversitaire des Systèmes Atmosphériques (LISA), CNRS et Universités Paris Est et Paris Diderot, Créteil, France; V. ILYUSHIN, Radiospectrometry Department, Institute of Radio Astronomy of NASU, Kharkov, Ukraine.

Except isocyanic acid detected in the ISM since 1972$^a$, the organo isocyanate derivatives are poorly studied in the millimeter wave domain. This lack of data could be the reason of their non detection in the ISM up to now. We decided to investigate the C$_3$H$_3$NO$_2$ isomer: acetyl isocyanate. Previously measured up to 40 GHz$^b$, the cis-conformer exhibits internal rotation motion with a medium barrier value of 360 cm$^{-1}$. The trans conformer conformer is calculated to have an energy of 12.55 kJ.mol$^{-1}$ (1060 cm$^{-1}$) higher than the cis one$^c$ and is not studied here. The measurements were performed in Lille with our solid state devices spectrometer up to 500 GHz. The sample was found to have a poor stability and reacts fastly with metal parts. We should repeat measurements using a flow and a pyrex cell in order to have satisfactory signal to noise ratio. The analysis was performed with RAM36 code$^d$ which used the Rho Axis Method. The first results and its searche in ORION will be presented.

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$^a$Snyder, L. E.; and Buhl, D. Astrophys. J. 177, (1972) 619

$^b$Landsberg, B.M.; and Iqbal, K. J.C.S. Faraday II 76, (1980) 1208
