We are presently conducting a cm-wave molecular line census in Arp 220, the nearest Ultraluminous Infrared Galaxy (ULIRG) and prototype OH-megamaser source, using the Arecibo 305-m telescope. The main ground-state lines of the OH radical have long been known to show strong maser emission. Our observations confirm that the satellite ground-state lines show a mixture of emission and absorption. Among the initial detections are also λ6-, 5- and 4-cm lines of excited-OH. All appear in absorption, and have brightness ratios within a given multiplet that are close to those expected in local thermodynamic equilibrium. An unidentified absorption appearing near 1611 MHz could either be due to the pre-biotic molecule, formic acid, or the ¹⁸OH equivalent of the 1667-MHz OH main line. In view of a possible adjacent absorption that could be the ¹⁸OH equivalent of the 1665-MHz OH line, and greater consistency in velocity with other Arp-220 molecular lines, identification of the 1611-MHz line with ¹⁸OH is more likely. Also, a possible detection of the 6668-MHz methanol molecule in absorption has been made. The implied total column density of methanol is derived assuming the reality of the feature.

**ABSTRACT**

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