Building upon the seminal work of Suzuki and Hirota, in our first application of stimulated emission pumping spectroscopy to a halocarbene we report the spectroscopy of the $X^1A'$ state of CHF, previously examined by our group using single vibronic level emission spectroscopy. By exciting selected rovibronic levels in the $A^1A''$ state belonging to the progressions $2^2_0$, $1^1_1=1^1_0$, and $2^2_0-3^2_1$, a variety of $X^1A'$ state levels have been observed, including several not previously observed in our emission study. The data provide precise ground state rotational constants and term energies, allowing a more complete modeling of the extensive anharmonic interactions in the $X^1A'$ state. The analysis of these interactions and the continuing search for triplet state levels will be emphasized.

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