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**suppression of harmonics in a high frequency standing-wave**  
**thermoacoustic engine**

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A thermoacoustic engine converts heat into acoustic power and could be used to driven a cooler for refrigeration purposes or to drive a piston for electric power generation. Due to non-linear effects inside the system, higher order harmonics could be generated which may deteriorate the thermal performance of the whole system. In this report, a 500Hz standing wave thermoacoustic engine has been built. The occurrence of higher order acoustic oscillations has been closely observed. A series of experiments has been done to investigate the influence of resonance tube configuration on this phenomenon. The influence on the related thermal performance is also reported.