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Solid state amplifier for a 2,45 GHz high intensity proton source

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The ALISES3 Ion source has demonstrated very good reliability for 30mA extracted current on a long term opreration at 50kV extraction energy with a single magnetic coil at ground potential. ALISES3 source is originally equipped with a 2.45GHz magnetron. Several RF measurements of the magnetron, installed on a stand alone test bench showed a frequency modulation which can lead to detune the ECR heating process. In order to increase even more the reliability, we removed of the whole RF chain (Magnetron + ATU) and installed at its place a solid amplifier that can deliver with up to 1kW µwave power between 2.4 and 2.5 GHz. The measurement of the ALISES ion source with this new µwave generator is presented in this paper.

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