

**PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA**  
**MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH**  
**UNIVERSITY SAAD DAHLEB BLIDA 1**  
**INSTITUTE OF AERONAUTICS AND SPACE STUDIES**



**DOCTORAL THESIS IN AERONAUTICS**

**Option: Avionics**

**Presented by**

**M. BENGHANEM Yahia**

**Titled**

**DESIGN AND DEVELOPMENT OF SOLUTIONS TO ENHANCE THE  
PERFORMANCE OF MULTI-ANTENNA DEVICES FOR ADVANCED  
WIRELESS COMMUNICATIONS**

**Defended before the jury**

President :	<b>M. LAGHA Mohand</b>	Professeur	University of Blida 1
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**The thesis defense will take place on Tuesday, October 15<sup>th</sup>, 2024, at 16:00 in the  
conference room of the Institute of Aeronautics and Space Studies (Pavilion 20).**