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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

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**SCHEDULE 13G**

**Under the Securities Exchange Act of 1934**  
(Amendment No.    )\*

**Advanced Accelerator Applications S.A.**  
(Name of Issuer)

**Ordinary Shares, par value €0.10 per share**  
(Title of Class of Securities)

**00790T100\*\***  
(CUSIP Number)

(Date of Event which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- ☐ Rule 13d-1(b)
- ☐ Rule 13d-1(c)
- ☒ Rule 13d-1(d)

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

\*\* This CUSIP number is assigned to the Issuer's American Depositary Shares, each representing two (2) Ordinary Shares.

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1.	NAMES OF REPORTING PERSONS Stefano Buono		
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*  (a) <input type="checkbox"/> (b) <input type="checkbox"/>		
3.	SEC USE ONLY		
4.	CITIZENSHIP OR PLACE OF ORGANIZATION Italy		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5.	SOLE VOTING POWER 4,897,800(1)	
	6.	SHARED VOTING POWER 0	
	7.	SOLE DISPOSITIVE POWER 4,897,800(1)	
	8.	SHARED DISPOSITIVE POWER 0	
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,897,800		
10.	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES* <input type="checkbox"/>		
11.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 6.2%(2)		
12.	TYPE OF REPORTING PERSON* IN		

(1) Includes 47,000 Ordinary Shares held by Stefano Buono's spouse, which may be deemed to be beneficially owned by Stefano Buono.

(2) Based on 78,556,211 shares outstanding as of December 31, 2015.

**Item 1(a). Name of Issuer:**

Advanced Accelerator Applications S.A.

**Item 1(b). Address of Issuer's Principal Executive Offices:**

20 rue Diesel, 01630 Saint Genis Pouilly, France

**Item 2(a). Name of Person Filing:**

This Schedule 13G is filed with respect to the 4,897,800 Ordinary Shares, par value €0.10 per share, of the Issuer directly owned by Stefano Buono.

**Item 2(b). Address of Principal Business Office or, if None, Residence:**

The principal business address of Stefano Buono is: 20 rue Diesel, 01630 Saint Genis Pouilly, France.

**Item 2(c). Citizenship:**

Stefano Buono is an Italian citizen.

**Item 2(d). Title of Class of Securities:**

Ordinary Shares, par value €0.10 per share.

**Item 2(e). CUSIP Number:**

00790T100. This CUSIP number is assigned to the Issuer's American Depositary Shares, each representing two (2) Ordinary Shares.

**Item 3. If this Statement is Filed Pursuant to Rule 13d-1(b), or 13d-2(b) or (c), Check Whether the Person Filing is a:**

Not Applicable.

**Item 4. Ownership.**

Provide the following information regarding the aggregate number and percentage of the class of securities of issuer identified in Item 1.

- (a) Amount beneficially owned: 4,897,800 Ordinary Shares
- (b) Percent of class: 6.2%, based on the 78,556,211 Ordinary Shares outstanding as of December 31, 2015.
- (c) Number of shares as to which such person has:
  - (i) Sole power to vote or to direct the vote: 4,897,800 Ordinary Shares, which include 47,000 Ordinary Shares held by Stefano Buono's spouse, which may be deemed to be beneficially owned by Stefano Buono.
  - (ii) Shared power to vote or to direct the vote: 0
  - (iii) Sole power to dispose or to direct the disposition of: 4,897,800 Ordinary Shares, which include 47,000 Ordinary Shares held by Stefano Buono's spouse, which may be deemed to be beneficially owned by Stefano Buono.
  - (iv) Shared power to dispose or to direct the disposition of: 0

**Item 5. Ownership of Five Percent or Less of a Class.**

Not Applicable.

**Item 6. Ownership of More than Five Percent on Behalf of Another Person.**

None.

**Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company.**

Not Applicable.

**Item 8. Identification and Classification of Members of the Group.**

Not Applicable.

**Item 9. Notice of Dissolution of Group.**

Not Applicable.

**Item 10. Certifications.**

Not Applicable.

**SIGNATURE**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: February 9, 2016

By: /s/ Stefano Buono  
Name: Stefano Buono