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Journal Name:	<u>British Journal of Applied Science & Technology</u>
Manuscript Number:	2014_BJAST_9641
Title of the Manuscript:	Comparative study of replacing Fluorescent lamps by CFL and LED lamps in schools and universities and its impact on the environment and the economy of the country
Type of the Article	Original Research Article

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	60; 61 Modern CFL contain 1-2mg mercury, Modern linear fluorescent lamp contains 2-3mg mercury. Fluorescent bulb correct linear fluorescent lamp 175 CFL emit UV light too. 298 Data sheet of J4993 Arcluce luminaire give us the next information: „Suitable for 18W, 36W and 58W T8 linear fluorescent lamps.”. The question is how can use CFL in this luminarie? The data sheet of J4939 Arcluce give us the possibility to use „55W 2G11 compact fluorescent lamps”, but these Sylvania lamps have only 12000 hrs average life 474 The electronic driver of LED is sensitive to temperature, humidity and to switching too. 527 In conformity with „FINAL REPORT ON THE 4TH JOINT CROSS-BORDER EMC MARKET SURVEILLANCE CAMPAIGN (2011) LED LIGHTING PRODUCTS” 46,6% of tested LED lamps exceeded the limits of harmonic emission prescribed by EN61000-3-2 standard 572 LEDs lighting emission decrease during the life time	Comments are added in the paper Comments are added in the paper Every manufacturer has a large range of light sources, I have chosen the Light source that can replace the used linear fluorescent lamp 2x36W, the selection of lamps is made using a specific software called “DIALUX4.10”. The information that I have gives me the lifetime equal to 19000 hours as indicated in the paper, maybe you have found another reference, but it is not a problem, I will change it. The paper presents the effect on the lamp only, but I have added the effect on the ballast and electronic driver as per your recommendation The harmonic distortion depends on the used technology, but as I know that its impact on the network is lesser than the impact of the CFL, there is a published paper talks about the harmonic impact of the CFL on the network. I have received data from the manufacturer of the indicated LED type that the efficiency of their LED



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		lamps doesn't vary significantly during the lifetime. Anyway I have corrected the statement in the paper.
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<u>Minor</u> REVISION comments	143 The fluorescent lamps do not emit mercury, except when it is broken. The CFL are fluorescent lamp too Please specify if the Fluorescent lamps have electromagnetic or electronic ballast. 174. The life time of linear fluorescent lamps is higher than of CFL. The CFL could have 15000 hrs compare to T5 linear fluorescent which could have 24000hrs life. 238 Philips-Rotaris TCS740 lamps is not a CFL lamp it is a circular lamp. There are differences between CFL lamps and Circular lamps. The life is higher in case of Circular lamps. In case of Philips-Rotaris TCS740 we have the same problem like Fluorescent linear lamps in upper side we have light loss. 414 Cost of Astra lamp , not CFL bulb 522 The LED drivers have a high temperature when are working. The 80% of energy consumed by LED chip is transformed in heat.	Yes, I have considered the case in Lebanon where there is no recycling, therefore the lamps are broken because they are thrown in the sea on in the soil and of course they are damaged. Done it is added in the line 77, the actual installation uses electromagnetic ballast I have collected the data from the manufacturer where the fluorescent lamp lifetime is 9000hour (from Philips manufacturer), I have indicated the source in the paper in the line 125 The manufacturer Philips, classified this lamp as CFL in the software "DIALUX 4.10", Anyway if you want to change its name, no problem, it is done. Done The used technology for the LED driver of type Astra emits very low temperature as it is indicated in the catalogue.
<u>Optional/General</u> comments	Lifetime of LED chip could be 100,000, but LED lamp contains an electronic driver too, and the life of driver is much lower than LED chip life. The life of LED chip is only an extrapolation, supposition. Nobody measured this life.	The temperature of the driver is lower than the CFL and the Fluo, thus the lifetime should be higher, unfortunately I don't have the exact lifetime of the driver from the manufacturer, but they claim that the overall lifetime of the whole light source is 100,000 hours. And moreover they have been working for more than 10 years in my country and they didn't face any problem in the drivers during these years.



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	161, 162 What is the loss of the ASM 30W Cool XL LED lamp? What is the color temperature of the ASM 30W Cool XL LED lamp? Have this lamp CE marking? If we suppose that the school works from 8:00 to 14:00 How many hours will work the lamps?	2% after 50000 hours as indicated in the catalogue of ASTRA Cool white Color 5000-6000K. indicated in added in the paper. This LED lamp is CE marked, produced according to European norm EN 60598-2-2:1996/A1:1997 The lamps are considered always working between 8 and 14:00pm
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