



COMPARATIVE TEST

BRANDS TESTED	RANK
Philips	1
Halonix	2
GE	3
Havell's	4
Orpat	5
Wipro	6
Osram	7
Cema	8
Anchor	9
Surya	10
Bajaj	11
Crompton Greaves	12
Angelo	13
Leuci	14

The future of Indian energy scene?

For a product category like the Compact Fluorescent Lamp that has leading multinational players in the market, performance findings are nothing that would place the multinational brands in the top league.

CFLs certainly have a much longer life than ordinary bulbs but do not always expect them to last the complete 6,000 hours of life that they should have. Many fizzle out just under 3,000 hours.

Philips is the overall winner, followed by Halonix, GE, Wipro and Havell's.

Many brands flout standards as the claimed wattage of their CFLs is either more or less than the requirements of the Indian standards.

One resounding finding of the tests is that brands that come dirt cheap are also the ones that consistently fail most tests.

Does an expensive CFL guarantee better performance?

Yes and no, is the answer that is found in Consumer VOICE test results of 14 brands of CFLs of the 15-Watt category. Cheaper brands perform poorly as these CFLs do

not last long. Even when a CFL is expected to last for at least 6,000 hours, many brands conk out before 3,000 hours of operation. Even the lumen test (the amount of light emitted by a CFL lamp) throws up interesting findings. Not all CFL brands are able to keep

up their lumens after 2,000 hours of operations.

Overall, Philips is the only brand that manages to get scores that would be considered giving very good value for money to consumers. Wipro's Maximum Retail Price is higher than that of

Philips but Wipro does not match up to the performance of brands like Philips, Halonix, GE or Havell's.

If you thought that an American brand would mean that the product was made in the USA or at least in India, a rethink is in place. Most CFLs have their components manufactured in China, and mere assembling is done in India to sell the product. So whether it is an Indian brand or a multi-national name, what a consumer essentially gets is a China-made product.

For how long does a CFL actually last?

On an average, a CFL costs ten times more than an incandescent bulb. But does it justify its high price in terms of the number of hours it lasts? One would hardly expect brands like Bajaj, Crompton Greaves or Surya to disappoint in this respect, but laboratory tests reveal that these brands do not complete even 3,000 hours of operation.

To ensure that the laboratory findings would be absolutely accurate, Consumer



VOICE repeated the test on ten samples of each brand.

Brands that got ten on ten on account of all their samples completing 3,000 hours were Philips, Orpat, Osram, GE and Halonix.

At the other end of the spectrum were Crompton Greaves, Bajaj, Surya and Cema that had 50% of their samples failing to clock in 3,000 hours of operations.

Are Indian brands inferior?

While in countries like the USA, a CFL can easily be expected to last upto 10,000 hours, in India, even multinational brands fail to operate for one half of the same time. Indian standards require a CFL to last 6,000 hours. Yet many brands fail to meet the benchmark set.

Lamp efficacy

The quality of a CFL is largely determined by its 'lamp efficacy'. The parameter 'lamp efficacy' essentially means the number of lumens of the lamp, per watt of energy. The higher the value, the better the performance.

Havell's, the Indian brand that otherwise stands fourth in the overall rating, tops the 'lamp efficacy' test, followed closely by Philips.

How much light?

A CFL certainly brings down the electricity bills because it emits more light in less watts of energy. However, how much light does a CFL lose as its hours of operations increase? In simple terms, the light emitted (in lumens) decreases as the CFL ages. National standards specify that after 2,000 hours of running, a CFL should maintain at least 85% of its initial lumens.

Out of the ten samples of Philips CFL that Consumer VOICE tested for this parameter, all gave sterling performance with none

Key findings

- Brands like Leuci (the cheapest) and Angelo that cost Rs 20 and Rs 115 respectively give very poor performance.
- No brand has the ISI mark.
- Philips gives the best overall performance, but as far as value for money is concerned, Halonix that is priced 65 rupees less than Philips, is an intelligent choice.
- Halonix is the only brand to carry the US 'Energy Star' ecolabel.
- Philips, Orpat, Osram, GE and Halonix are the only brands that manage to last for 3,000 hours

falling below the minimum specified levels.

Brands like Wipro, Crompton Greaves and Orpat disappointed with their performance.

The pits however, were the cheaper brands – Angelo and Leuci – that failed the tests.

How true are the wattage claims?

If a CFL, or even a tubelight or bulb for that matter, claim to be of a certain Wattage, it is natural for consumers to presume that the claim is indeed true. Yet, there are some brands that flout national standards in this respect. The Indian standards allow brands a leeway of 15% excess wattage, and 10% deficit, than what is claimed on the label.

Consumer VOICE found that

except for GE and Cema, all brands had their samples going beyond these limits.

Leuci and Angelo once again bottomed with all their samples flouting the standards. To ensure accuracy, Consumer VOICE had tested 13 to 15 samples of each brand and then derived a mean of their performances

Manufacturers ask for mandatory labelling

Perhaps for the first time in fifteen years of independent comparative testing of products, Consumer VOICE has come across a product category that actually wants the ISI label made mandatory. The magazine is in receipt of a letter from the Federation of Industries of India, to the Department of Consumer Affairs, urging them to make ISI mark mandatory for CFLs. This comes as a pleasant development, as almost in all cases, Consumer VOICE has found the industry skirting conforming to mandatory labelling or standards.

The industry has also urged the government to counter the entry of cheap Chinese CFLs and remove CFLs from zero-duty list under the Indo-Srilankan Free Trade Agreement.

When Consumer VOICE had purchased samples of CFLs for testing in 2005, we had covered all leading brands with a sizable market share in the Indian market. Since that time, now the market has swelled to around 30 brands - with many more manufacturers coming to the fore to manufacture CFLs.

According to market data, the total production capacity of eight leading manufacturers is ten million CFLs per month. Havell's leads the way with production capacity of 3 million units per month.

The 15 W category is the most commonly-sold CFL, the other wattage ranges being 5, 7, 11, 14, 18, 20, 25 and 26 W.

How we test

It was for the first time in India that Indian CFL brands have been tested by an independent organisation in the country. Consumer VOICE referred not just to Indian standards, but also co-ordinated with United States Environment Protection Agency to understand the certification processes for CFLs in the United States and product performances.

The comparative testing of the 14 most popular brands of CFLs was a challenge for Consumer VOICE as against the usual practice of testing one sample per brand, we tested upto 25 samples of each brand to ensure that the test findings were accurate to the last dot. In the crucial 'life test', Consumer VOICE tested 10 samples of each brand for a period of upto 3,000 hours to ascertain how long the CFLs actually last.

The tests were carried out at an independent NABL-accredited laboratory as per IS 15111 (part 1&2): 2000 and references were made to International Electrotechnical Commission (IEC) 60969.

Halonix: Seal of approval from the US Energy Star

Halonix - a CFL manufactured in Dehradun is the only brand among the 14 brands tested that carry an Energy Star label. In India where even an ISI label is hard to come by in CFLs, it comes as a pleasant surprise to see a brand that conforms to the popular Energy Star standards. The Indian

Bureau of Energy Efficiency is expected to notify the BEE label for CFLs by December 2006 and in the next two years, the BEE label for CFLs is supposed to become mandatory. This essentially means that no CFL brand will be able to enter the market without first acquiring an energy efficiency label from the Bureau of Energy Efficiency.

Consumer VOICE has shared the data of the CFL test findings with the Bureau of Energy Efficiency (BEE), and BEE has pointed out that the labelling standards should include parameters like 'power factor', 'life efficacy', and 9,000 hours of successful running of the lamp. Consumer VOICE has supported this stand.

The US Energy Star label is an example of a successful energy efficiency label. A joint programme of the U.S. Environmental Protection Agency and the U.S. Department of Energy that started in 1992- the label claims to have helped American consumers save \$12 billion on their electricity utility bills. Energy Star products are available in more than 40 product categories.



According to the Energy Star, if every household in the U.S. replaced one light bulb with an ENERGY STAR qualified compact fluorescent light bulb (CFL), it would prevent enough pollution to equal removing one million cars from the road .

The best buys!

If you are looking for the best of the best in the Indian CFL market, and if price is not a consideration for you, go for Philips by all means. This CFL’s MRP is Rs 235 and with a little persuasion and bargaining, the price can be brought down to Rs 160.

The main parameter in which Philips scores over all other brands is that it consistently lasts for at least 3,000 hours. Another advantage with Philips is that even after 2,000 hours of operations, it maintains its lumens (amount of light emitted), above 90 percent.

For a price-conscious consumer, Halonix (MRP: Rs 150, competitive price: Rs 100) can be considered an intelligent buy as each Halonix CFL means a straightforward saving of sixty rupees on the cost, as compared to Philips. Philips comes out top in performance, but Halonix makes up for it by positioning itself as a very cost-effective lamp.

Why CFLs are a better option than incandescent bulbs

- Compact fluorescent lamps (CFLs) combine the energy efficiency of fluorescent lighting with the convenience and popularity of incandescent fixtures.
- CFLs can replace incandescents that are roughly 3–4 times their wattage, saving up to 75% of the initial lighting energy.
- CFLs are most cost effective and efficient in areas where lights are on for long periods of time. Because CFLs do not need to be changed often, they are ideal for hard-to-reach areas.

Types of Compact Fluorescent Lamps

CFLs are available in a variety of styles or shapes. Some have two, four, or six tubes. Others have circular or spiral-shaped tubes. The size or total surface area of the tube(s) determines how much light it produces.

Most of the CFLs have the tubes and ballast permanently interconnected into one piece. Other CFLs have separate tubes and ballasts. This allows you to change the tubes without changing the ballast. There are also types enclosed in a glass globe. These look somewhat similar to conventional incandescent light bulbs, except they're larger.

Sub-CFLs fit most fixtures designed for incandescent lamps.

In 1994, Philips had launched “Earthlight”—a super energy-efficient CFL designed to be an environmentally-preferable substitute for the energy-guzzling bulb. The CFL’s clumsy shape however was incompatible with most conventional lamps then, and sales languished. After studying consumer response, Philips reintroduced the product in 2000 under the name “Marathon” to emphasise the bulb’s five year life.

The US Environment Protection Agency also repositioned CFL’s advantages as that of convenience, ease of use, and credible cost savings.

From consumers who had asked “What is in it for me if the product is environment-friendly”, to the same consumers who reacted “I want this product because it saves me money!”, the transformation provided crucial insight into consumer behaviour and the future of eco-friendly products. If US consumers look for convenience and cost-efficacy over the environmental profile of products and services, it can be safely assumed that consumer behaviour would not be so varied in other parts of the world.

The Bureau of Energy Efficiency (Ministry of Power, Govt of India) has now started energy labelling for products like tubelights, refrigerators, CFLs and air conditioners. What is needed is that such labelling should become mandatory.

Are Indian consumers ready for ‘green’ products?

Cost Comparison Between CFLs & incandescent

	15-Watt Compact Fluorescent	75-Watt Incandescent Lamp
Cost of Lamps (Avg retail price)	Rs 115	Rs 10
Lamp Life (6 hrs /day use)	1000 days (2.7 years)	167 days
Annual operating Cost	Rs 162	Rs 810
Lamps Replaced in 2.7 years	0	6
Total operating ost	Rs 552.4	Rs 2187
Savings Over Lamp Life	Rs 1634.6	0
Light (colour) quality	Cool day light	yellowish
Environment friendliness	Most	Least

COMPARATIVE PERFORMANCE OF CFLS

B R A N D S	Test Parameters													Total Score	MRP/Competitive Price in Rs.
	Packing & Marking	Insulation Resistance	Cap Temp- rature Rise	Starting Test	Run-up Time Test	Power Factor	Lamp Wattage	Luminous Flux	Efficacy	Colour	Lumen Maintenance	Life			
WEIGHTAGE >	5	5	5	5	5	7	10	10	15	8	10	15	100		
PHILIPS	4.2	5	4.85	4.75	5	4.68	7.2	9.18	14.94	8.0	10	15.0	92.8	235/180	
HALONIX	4.0	5	4.81	5	5	4.16	5.18	7.63	12.81	8.0	9.64	15.0	86.23	150/100	
GE	3.1	5	5.0	5	5	7.0	8.64	8.78	13.7	1.6	8.38	15.0	86.20	170/150	
HAVELLS	4.0	5	4.84	5	5	4.34	7.73	9.34	15	3.73	6.91	13.8	84.69	140/115	
ORPAT	4.0	5	4.68	5	5	4.71	5.57	7.69	12.07	8.0	7.13	15.0	83.85	145/135	
WIPRO	3.8	5	4.75	5	5	4.72	8.31	7.99	11.92	8.0	6.62	12.6	83.71	250/130	
OSRAM	4.0	5	4.8	5	5	4.27	9.18	8.44	12.09	1.6	8.35	15.0	82.73	140/130	
CEMA	3.1	5	4.97	5	5	4.42	9.57	9.41	14.09	8.0	7.31	6.6	82.47	220/135	
ANCHOR	3.6	5	4.7	5	5	4.51	6.84	10	12.5	1.6	8.4	13.8	80.95	155/130	
SURYA	3.5	5	4.91	5	5	4.38	7.28	8.08	12.49	8.0	5.41	6.6	75.65	150/115	
BAJAJ	3.1	5	4.8	5	5	4.24	6.66	7.97	12.75	3.73	8.08	9.0	75.33	165/	
CROMPTON GREAVES	4.2	5	4.78	5	5	4.46	6.47	7.86	12.26	8.0	4.69	5.4	73.12	150/115	
ANGELO	4.2	5	4.85	5	5	4.88	3.64	6.7	10.89	8.0	3.65	3.0	64.81	115/100	
LEUCI	1.5	5	4.54	3.75	5	5.15	2.0	2.0	3.0	1.6	2.00	3.0	38.54	20/20	

LEGENDS: <30 – Very Poor *
 31-50- Poor **
 51-70- Average ***
 71-90- Good ****
 > 90 – Very good *****