HOW TO PICK THE ABSOLUTE BEST TACTICAL FLASHLIGHT
As one of the leading designers and engineers in the military and professional civilian illumination tool industry, my team is directly responsible for many of the designs and advancements within the high-end quality tactical illumination industry, commonly known as tactical lights and mil-spec lighting.

“Big Brands use Big Marketing ploys and highly deceptive marketing propaganda; Especially when it comes to the use of the Lumens rating. But a Quality Light will last a lifetime.”

Although today, most modern flashlights use LEDs, and the claims of high lumens are usually deceptive if not entirely fraudulent, great quality illumination tools are still out there and can be found if one is very careful.
Top Brands

A good brandname product is definitely one key factor, but as this report will show you, big brands use big marketing ploys and highly deceptive marketing propaganda; especially when it comes to the use of the lumens rating. Oftentimes with the major high-end tactical brands, a very simple addition of a higher output LED illuminator – costing an additional $0.75 cents – along with a slightly more robustly built circuit running the top lumen rating of the light for nearly 45 seconds before dropping to \( \frac{1}{2} \) the rating, will add an additional $100.00 to the cost of the light!

“Top brands back their lights with top warranties.”

What is the solution? Just be wise and do a good “side-by-side” test, running the light at its highest output for at least a minute and a half before comparing it to any other light you want to compare it to. Some of the top brands, like Colt, actually hold their top lumens very well and the overall build of their lights are designed to handle the tremendous heat loads that are produced by true high-lumen output.
Other top-rated brands have some models such as the 1000 lumen plastic bodies 3 cr123 Surefire, which only hit their top lumen output for less than 2 minutes before cutting it down as much as 40%.

Most top brands are pretty good, and the rule of thumb is simply this: Quality can be both seen and felt. Brands like ExtremeBeam are certainly heavy duty and made to handle their rated outputs as well as any other abuse they are given. Brands like Streamlight seem to perform as required, but are a bit light-duty on their build. 

In summary of the major brands, I would say, just get a couple and try them for yourself and see how long they can keep performing at their top level comparing them side-by-side. If you need to return the lesser of the two, no problem. Real brands have real customer service. Top brands also back their lights with top warranties. Never trust a “lifetime warranty” offered by a “As Seen On TV” flashlight who only sells one or 2 models in their pallet. Those fly-by-night companies have disposable domains and simply terminate or abandon their companies (along with any hope of customer service), nevermind a warranty. And beware of any flashlight that uses a brand found on numerous other products that have nothing to do with flashlights or industrial products. In the next segment of this report, I will discuss “brand-stamping” – where a known brand is simply stamped on a terrible product. See for yourself.

**AS SEEN ON TV!**

Products seen on TV, which focus on only one model, such as the G700 (also sold as the Bell&Howel, Skywolfeye, and the Atomic Light) should all be held suspect. Real designers don’t sell for cheap and don’t have only one model. In the G700/Bell & Howell/TACLight and Skywolfeye, you’ll notice they all look the same. It’s because they are! And they sold the G700 for $59 on Facebook. But this light, which currently is being sold everywhere online, sells for about $2 dollars retail on the streets of China.

Even $10 is a 500% markup from its real street price!
The quality of these lights is terrible. They are all the same and they are all a true waste of money. If you bought one, you got burned.

Note that they all look like the same light…it's because they are! And this is the same $2 light sold on the streets of China. “Never trust a “lifetime warranty” offered by a “As Seen On TV” flashlight”

While channel surfing, one may find a variety of flashlights that say “like those used by the military,” or “similar to military.” This almost always guarantees that the flashlight being sold is poor quality and nothing like the ones actually used by Veterans of any military or police field.

If it’s a true quality product, it the advertisement will always simply say, “designed for military and law-enforcement applications.” It’s a simple but a very powerful statement. If they do not make the statement, it’s because it’s not the truth. “like those” means NOT THOSE.

It’s simple math. Even with mass production, a high quality light may cost between $20 to $100 to manufacture. Add to that marketing costs and the distribution and a dealers base profit and you have a light that will cost the consumer about $75 to $200. The margins are honest with quality brands and the product is usually pretty good; some ok and some terrific.

But with the “as seen on tv” flashlights that come from no-name brands or are simply copies with a brand stamped on them, the price is way above their value and only dishonest people will sell such garbage. Many people are simply dishonest these days and use “the cost of marketing” as an excuse to sell garbage. Quality brands do not practice false advertising. Quality people do not justify selling garbage. Knowledge of what to look for is key.
WHAT ABOUT LUMENS?

Lumens is the biggest fraud in the flashlight industry. First and foremost, because “lumens” is actually a measurement of light volume more than light brightness. That being said, it does have its place in the specifications section of any flashlight.

A quality light producing 250 lumens can easily outperform a “Costco” light producing 1000. Great reflective optics (and I don’t mean a cheep magnifying glass), can throw a beam exceptionally efficiently.

Lights like ExtremeBeam brand military lights, for example, are preferred by SWAT teams and soldiers because they are very efficient “light throwers.”

They may cost half the price of a $300 competitor with twice the lumens, but their focus on efficient quality optics gives them a key advantage above their lesser quality top brand competitors.

Compare any of those top brands with “Costco” quality 1000 lumen flashlights, and you will know why the “Costco” type lights are considered cheap toys. They have plenty of “lumens” but absolutely terrible optics. And the overall quality of the builds are not worth owning even at $29 for 3. Buying a $150 quality light will give you years of reliable satisfaction.

So what is the lux (brightness) vs lumens (light volume) issue??? Pure marketing!

Let’s look at a well written expose of the difference of lux and lumens.

What is a lumens rating? The answer is a bit long and deep, but with a little time come some of the most useful lighting information you need to know as an officer or a soldier…or just an average joe who hates being ignorant.

Well, here is the basic, yet expanded version of the explanation. Once you get it… you get it. No one will ever be able to pull the wool over your eyes. You’ll know what a flashlight really should do and what you should expect from its performance.

So let’s start with the “lumen”…

A lumen is a unit of standard measurement used to describe how much light is contained in a
certain area. The lumen is part of a group of standard measurements known as the photometry group, which measure different aspects of light. This group also includes such units as the candela, which measures luminance, and the lux, which measures luminance.

Strictly speaking, a lumen is defined as one candela multiplied by one steradian, which can be expressed as: $1 \text{ (lm)} = 1 \text{ (cd)} \times 1 \text{ (sr)}$. A related unit of measurement – although not part of the standard units – is the foot-candle, which is often used in photography and film. To really understand what a lumen is, it is important to understand these units: the candela, the foot-candle, the steradian, and the lux… ok… way too complex??

Let’s simplify it just a bit.…

**DIFFERENCES BETWEEN LUMINA AND LUX**

*(FAIRLY SIMPLIFIED)*

The difference between the units lumina (lumens) and lux is that the lux takes into account the area over which the luminous flux is spread. A flux of 1000 lumina, concentrated into an area of one square meter, lights up that square meter with an luminance of 1000 lux. The same 1000 lumina, spread out over ten square meters, produces a dimmer luminance of only 100 LUX. Mathematically, $1 \text{ lx} = 1 \text{ lm/m}^2$.

Many people have thought to use this mathematical calculation in order to calculate the lumina of a projected beam device such as a flashlight or torch. Some have distanced themselves from a surface sufficient to spread a flashlight beam 1 meter and have made lumen calculations based upon the lux reading taken. This however is scientifically impossible as such devices always have a factor of “wasted” or “cascaded” light, making such calculations erroneous. Such calculations will generally be inaccurate by as many as several hundred percent. Therefore there is no scientific field calculation which can even remotely convert lux to lumina (lumens) when discussing flashlight which utilize polished or coated reflectors.

Why is lumens an acceptable rating for a theatre projector, but not a flashlight?

The reason lumens is an acceptable rating for theatre projection devices and not for flashlight projection devices is quite simple. Theatre projection devices utilize optical magnifier lenses
to accurately eliminate 99% of “cascaded” or “wasted” light. This means that the light is being precisely focused onto the surface area intended, and almost no light is lost outside the area of focus.

Although there are some flashlights which utilize high quality optical magnifier lenses to project a beam, most do not. Nearly 90% of all flashlights (including the most expensive models available today) use highly polished/coated reflectors.

Light projection devices which use these highly polished or coated reflectors (almost all flashlights) have cascaded light which is not part of the center beam or “hot-spot.” This may be by design or because of poor quality. Between as much as 100-1000% of the light emissions may therefore be lost in the cascaded light. Thus explaining for the gross performance variation for lights bearing the same or similar lumen ratings.

Typically, companies putting more time and money into the development of their flashlights achieve much higher lux ratings at much lower lumina outputs and thereby increase the efficiency of their lights while also increasing their run-time and battery life. This causes what therefore is known as a “brighter” light with regards to visual performance, to actually have a smaller impact on the natural environment due to the saving of energy through this efficiency… lumina increase therefore generally means more power consumption, while lux increase may well be a sign of better manufacturing if battery efficiency is increased.

Lumens has been a chosen rating by many flashlight companies in recent years, much to the surprise of the scientific community. Whereas lux is a quantifiable performance rating which can determine the actual distance a projected beam can travel, and is therefore an acceptable and accurate performance rating – lumina, or lumens, have very little to do with the calculatable performance of any such projection devices which use polished reflectors. This explains why no two beam projection devices (or flashlights) which have the same “lumens” rating actually perform the same… many differing in projection strength as much as 1000%!

Lumina, or lumens is therefore the perfect rating for a flashlight if you want to hide the actual projection performance of a beam. Lux is the optimum characteristic if actual performance of a beam projection device is desirable.

Now let’s look at lumens and the lights in our households and businesses. A single fluorescent
fixture with an output of 12000 lumens might light a residential kitchen with an luminance of 500 lux. To light a factory floor with an area dozens of times that of the kitchen would require dozens of such fixtures. Lighting a larger area to the same level of lux requires a greater number of lumens.

In the end it all comes down to ethics… *Use lux if you want a useful measurable unit which can easily convert to useful information on the battlefield… Use lumens if you feel the need to hide your light’s actual performance behind a measurement – which can leave your true performance a mystery.*

If you use this newfound knowledge to choose your next flashlight, you should now come away with the following steps to choose the best illumination tool:

1) Quality is obvious when you hold the light.
2) A quality brand can be important, but make sure no one is selling a light looking exactly the same.
3) If you see a light sold on TV, just make sure that the company sells an entire line of lights (meaning they are actually in that business) and that they state that “these are the same as used by the military” NOT “these are similar or like those used by military.”
4) Good quality is not cheap. Good lights range from $50 to $500. (Take the ExtremeBeam M4, a $59 light, for example. That light was a true military light, but for marketing purposes was priced low simply to promote the brand. It was higher quality and better performing then many $200 lights on the market. On the other hand, beware of the $59 G700 light later sold as the Atomic Light, and Bell&Howel for much cheaper. That light is a $2 light…literally.
5) Compare lights side-by-side, and return the lesser of the two. A good brand will take returns. But if you can find a good brand on close-out, buy it up. That happens, but very rarely in the flashlight world.
6) Remember that quality counts. When you need that flashlight, you want it to work. It could be life or death when you need it. You’ll be glad you spent good money on a great product.

7) Read reviews online. This tip cannot be understated.

8) Beauty is not important. Generally the very best lights are basic.

9) Reference. If it has a great or honorable spokesperson, it's likely going to be a good product. Most notable people don’t put their reputations on the line for garbage.

10) Buy “Mil-Spec” or Military Grade. Don’t buy cheap garbage…

11) Last but not least, enjoy that you followed the advice listed here in tips one through ten. If you’ve read this report, and follow it to the best of your ability, you’ll have an illumination tool that will last you for many years to come.

That concludes the Tactical Flashlight Report.
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