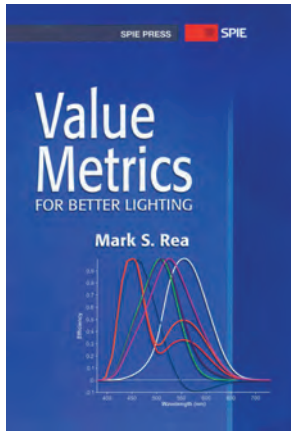


# BOOK REVIEW

by Fred Oberkircher



**Value Metrics for Better Lighting**  
By Mark S. Rea  
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[www.spie.org](http://www.spie.org)

As is the case with several other of the current giants within our field, when Mark Rea writes something, you read it as soon as it arrives. . . and then a few times more in a continuing attempt to adequately understand what Rea, the director of the Lighting Research Center at RPI, is saying. That was never more apparent than my first reading of his latest work, *Value Metrics for Better Lighting*.

Although this paperback book is the size of a pocket book at 113 pages, it packs enough new insights to fill a small library. Rea's central thesis is that we in the lighting field will be better equipped to convey the value of light if we are willing to expand the manner in which we speak about and evaluate light's basic metrics. This is, in fact, a call to action for the 21<sup>st</sup> century of lighting.

Rea begins with a value-based analysis of our current lighting metrics and presents areas where the current metrics come up short, concluding with these observations:

- *"Delivering light based only in terms of photopic light will not produce reliable visual effects for many applications and the delivered light will be wasteful in terms of both capital costs and electric energy."*
- *"The photopic luminous efficiency function should not be the sole basis for quantifying light."*
- *"CRI and CCT should not be the sole basis for quantifying color."*

Noting that these metrics are quite precise, he then begins to make the case that they also "limit our collective ability to provide benefit and, therefore, value in many lighting applications."

What are these applications?

- Off-axis vision, such as the detection of hazards or threats and where subjective impressions of brightness are more important than high spatial resolution.

- Situations when mesopic light levels are commonly encountered such as secondary streets and pedestrian walkways at night.
- Non-visual effects including circadian lighting applications.
- When color appearance is important.
- When lighting efficiency (benefit/cost) is defined by the benefits provided in both the temporal and the spatial domains.

In short, applications that are within the common scope of most lighting practitioners.

In Chapter 4, entitled "An Invitation," Rea lays out his plan for increasing lighting value, beginning with the statement: "Simplified, more accurate metrics characterizing the benefits of lighting will effect a greater positive change on society and the environment than will the precise metrics we are currently using." He makes this point through the analogy of an archery target in which the arrows of current metrics are closely clustered, but away from the bulls-eye, as opposed to a more simplified approach that scatters the arrows around the target, including several approaching the bulls-eye.

Although this book will require the reader's complete focus and attention, Rea has attempted to provide a manifesto for the lighting community—the beginning of a new conversation mixing research and application to create a better value-based series of lighting metrics to be used for the benefit of society.

**BUY IT.** . . If the future of lighting is of interest to you.

**DON'T BUY IT.** . . If your reading focus is limited to sound bite-sized material.

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