Logitech
Innovation Brief

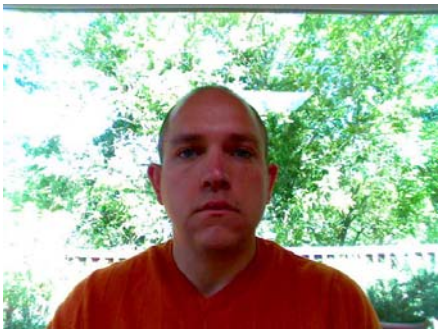
RightLight™ 2 Technology

Today's most popular webcam applications, such as Skype® with Video and Windows Live™ Messenger Video Call are empowering friends and family to see and talk to each other from around the world as if they're in the same room.

That benefit, however, is truly realized when a webcam can accurately create high-quality images in a variety of lighting conditions – whether it's in a dark hotel room or in a bright, window-lighted living room. When lighting isn't perfect, which is often the case, people on camera can appear silhouetted in shadows or ghostly bright white with very little facial detail.

Enter Logitech® RightLight™ 2 Technology, a system of hardware and software in Logitech's performance webcams that delivers superior image quality – even in these lighting-challenged environments. RightLight 2 Technology intelligently adjusts the webcam's video settings in low-light and uneven lighting, offering a marked improvement in the image quality.

Putting the face first: When there is harsh backlighting, many webcams produce an image that results in a silhouetted face (as shown above). Webcams with Logitech RightLight 2 intelligently prioritize the subject's face (below), adjusting the lighting based on this most important feature.



Using RightLight 2: Auto and Manual Modes

RightLight 2 Technology works in two different ways – through auto-enabled settings and through manual settings that the user can adjust at any time. The first time a webcam with RightLight 2 Technology encounters a lighting challenge, a dialog box opens reading: "Your camera has detected the need for RightLight Technology. Would you like to apply it?" People can choose one of three options presented in the box: allow RightLight 2 to automatically make changes any time it encounters a lighting challenge, apply the technology for only this one instance, or always decline the automatic adjustments. If people choose not to use the automated RightLight settings, they can open the RightLight Settings window – located within Logitech's QuickCam software – and manually make adjustments at any time.

Whether used in automated or manual mode, Logitech RightLight Technology makes improvements to video

performance by altering four different settings: Spot Metering, Low-Light Saturation, Low-Light Boost, and Video Noise.

Here's how Logitech RightLight 2 affects each setting:

Spot Metering

"You look like a ghost, but that painting in the background sure looks great!"

When people communicate, the face is almost always the center of attention. We look into each other's eyes as we speak and listen. When we laugh, we're also smiling. And after we make a point, we may add a nod or a wink of the eye for emphasis.

Logitech RightLight 2 Technology uses intelligent face-tracking software to identify the face in a video image, and then establishes the light and color settings based on this most important feature – just as spot metering in traditional photography measures the light in a specific area. Other cameras on the market simply measure the amount of light in the entire image – if there is a bright window or a lamp in the frame, a person's face may appear dark with very little detail.

If the face is dark, Logitech RightLight 2 Technology responds by increasing the brightness of the entire image. The face will be seen clearly by the friend or family member on the other end of the video call. Similarly, if an overly bright face appears in a frame where the background is dark, Logitech's RightLight 2 Technology will identify the face and darken the image so that the face appears in the best lighting possible.

Low-Light Boost

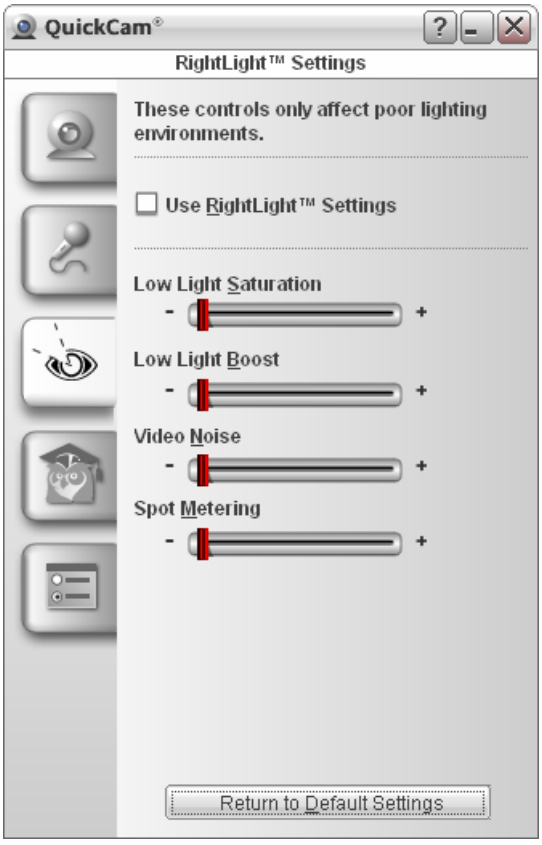
"All I see are shadows… Is that you or the cat?"

One of the most common challenges for webcams is interpreting and transmitting images when the level of light in a room is low. Webcams with Logitech RightLight 2 Technology measure the overall amount of light coming through the lens, and if it is too low, the camera adjusts to improve the lighting and detail in the on-screen image.

Other cameras on the market increase the brightness of a poorly lighted environment only through software adjustments, often introducing digital artifacts in the form of specks or digital garble. RightLight 2 Technology does more than artificially raise the brightness level in an image: It adjusts the frame rate, increasing the exposure time of the camera and allowing the sensor to capture more light and improve the baseline image quality without introducing noise.

Video Noise

Auto or Manual: RightLight 2 will send a notification when there is a challenging lighting situation, giving people the chance (as shown above) to enable its automated lighting adjustments. People can also manually make any of four adjustments in the RightLight 2 Settings window (below).



"Are there fireworks going off in your living room?"

Artificial digital specks (commonly referred to as artifacts or noise) are often introduced in low-light environments as a webcam attempts to reproduce every frame clearly. RightLight 2 Technology identifies static areas in an image and refreshes them less often, dramatically reducing background video noise.

Low-Light (Color) Saturation

"What a wonderfully vibrant shirt you have – but why is it that I can't see your eyes?"

When an environment has a low level of light, a heavy amount of rich color can confuse a typical webcam – this color saturation is extra weight in an already dark environment. The result is often dark and flat images, with additional video noise introduced by a camera sensor trying to create contrast where there is very little.

An extreme example of a solution to a similar problem, the technology in military-grade night-vision goggles strips out colors and produces black and white (often with a green tint) images that show as much image contrast as possible.

When Logitech's RightLight 2 Technology identifies a low-light environment, it lowers the level of color saturation slightly – producing sharp images that have greater detail and contrast, and a dramatic redution of artifical noise.

Delivering the Best Experience

Logitech, which has been developing award-winning webcams for more than 10 years, thoroughly evaluates each webcam's individual components, always delivering compelling new technologies at the best-possible value for the consumer. Logitech RightLight 2 Technology is thoroughly tested with each model of webcam – factoring in the different kinds of hardware components, such as lenses and sensors – so that the video performance is maximized based on how each webcam functions in different lighting conditions. By accounting for real-life lighting challenges, RightLight 2 Technology helps Logitech's performance webcams deliver the premium video communications experience in the industry.

Low Light to RightLight:
Logitech RightLight 2 Technology boosts the lighting in a dark image (above) by decreasing the amount of color saturation and, in some cases, slowing the frame rate of a video clip so that it can deliver sharper video images with improved lighting contrast (as shown below).