

Tips for Reproducing Solid Picture Edges of an Image's Highlights

Preface

When shooting a bouquet using a spotlight, the bright areas of the image can be overexposed. This phenomenon can be eliminated using the KNEE function, keeping the brightness level (luminance level) of the image within the video signal's dynamic range (refer to Issue 05).

However, in certain cases, the KNEE process can also cause the picture edges of objects to appear blurred. This is because the contrast of highlight areas is reduced as a result of compressing the luminance signal.

The "Before setting" image demonstrates how the KNEE function eliminates highlight "washed-outs," but also shows that the picture edges of bright objects such as the flower petals and plastic cubes get blurred.

In such situations, the picture edges of the highlight areas can be reproduced with more contrast by applying image enhancement only to the signals compressed by the KNEE function.



Before Setting



After Setting

Features of Sony Cameras

Sony cameras have a KNEE APERTURE function, which effectively reproduces solid picture edges in the highlight areas of an image. This function reproduces the picture edges that originally existed but were compressed due to using the KNEE function. Increasing the KNEE APERTURE level sharpens the edges of bright objects, such as the yellow petals and plastic cubes as shown in the "After Setting" image. De-

creasing the KNEE APERTURE level makes the image look soft and fuzzy. This function is also effective for shooting a bright and solid object, such as a wedding gown, a snow scene, or a cloud.

Major Sony cameras with the KNEE APERTURE adjustment function

HDW-900 series, HDW-750/730 series
DVW-970 series, PDW-530/510 series
DSR-450/400 series, MSW-970 series

Camera Settings

To adjust KNEE APERTURE, use the DETAIL 2 page of the PAINT menu.

1 Open DETAIL 2 of the PAINT menu.

00●CONTENTS	TOP
01.SW STATUS	
02.WHITE	
03.BLACK/FLARE	
04.GAMMA	
05.BLACK GAMMA	
06.KNEE	
07.DETAIL 1	
→08.DETAIL 2	
09.DETAIL 3	
10.SKIN DETAIL	

2 Set KNEE APERTURE to ON.

P080DETAIL 2	
→KNEE APERTURE	ON
KNEE APT LVL	0
DETAIL COMB	0
CROSS COLOR	OFF
CROSS COLOR LVL	43
DETAIL LIMIT	0
DTL WHT LMT	0
DTL BLK LMT	0
DTL V-BLK LMT	0

3 Adjust KNEE APT LVL in the range of -99 to +99.

P080DETAIL 2	
KNEE APERTURE	ON
→KNEE APT LVL	90
DETAIL COMB	0
CROSS COLOR	OFF
CROSS COLOR LVL	43
DETAIL LIMIT	0
DTL WHT LMT	0
DTL BLK LMT	0
DTL V-BLK LMT	0

Setting the KNEE APT LVL to a positive (+) value sharpens the image with a solid appearance enhanced, and setting it to a negative (-) value softens the bright areas of the image. In the case shown in the "After Setting" image, the level was set to "+90."

The example shown is with the DSR-450WSL. The results of this adjustment may differ from the sample image, depending on the camera model and the lighting conditions.

For additional information, refer to the Operating Instructions for your camera.

Technical Information

What is KNEE APERTURE?

When the KNEE function is set to ON, the bright areas of the image are compressed so that the signal level falls within the video signal's dynamic range (Fig. 1). In this process, the luminance of the image is compressed, which can cause the contrast of the image to drop, and accordingly the solid appearance of the image to decrease.

In such situations, KNEE APERTURE reproduces the sharpness and solid appearance

of the image, enhancing only the signals compressed by the KNEE function (Fig 2). Although this function may seem similar to the DETAIL function (refer to Issue 01), the two differ in that DETAIL emphasizes the entire luminance range of the signal, while KNEE APERTURE emphasizes signals only in the highlight areas that were compressed by the KNEE function.

The KNEE APERTURE function enhances signals in the highlight areas

Fig. 1. Signals in the highlight areas that were compressed by the KNEE function

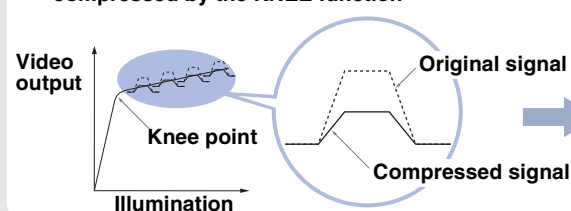


Fig. 2. Compressed signals enhanced by the KNEE APERTURE function

