

ARRI Textures

ALEXA 35

TECHNICAL NOTE

July 20, 2022

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1. Introduction

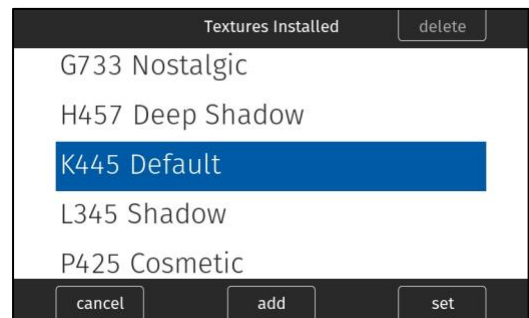
This document explains ARRI Textures and is meant as a guide for deciding on the right ARRI Texture for your project with the ALEXA 35.

2. What are ARRI Textures?

ARRI digital cameras have always had a 'texture' setting that is programmed into the way the camera processes images and that has always been baked into the subsequent ARRIRAW and ProRes images. That texture setting, comprising many carefully balanced parameters, determines the amount of grain in the image and the character of that grain. It also determines the amount of contrast at different levels of detail in the image, which defines the perceived sharpness (technically called the MTF curve).

Up until now, ARRI cameras have been pre-programmed with a single, unchangeable texture setting that is optimized for the widest possible range of shooting scenarios. The ALEXA 35 gives cinematographers the option to go beyond this default texture setting and choose from an evolving menu of ARRI Textures, each designed for specific applications. This unique feature allows cinematographers to fundamentally alter the way in which the camera records images. It is a major step forward in giving filmmakers creative control over the parameters of digital cinematography.

Behind the three main texture characteristics of grain volume, grain character, and perceived sharpness, are around 30 image processing settings that occur early in the imaging chain inside the camera, even before the ARRIRAW image is created. Since many of these steps interact with each other in complex ways, any user interface providing full access to all settings would be prohibitively complicated. Instead, we decided to collect sensible combinations of settings into individual ARRI Texture files. The camera comes with several ARRI Textures pre-installed, which have been designed in close cooperation with selected cinematographers. These textures can be chosen in-camera in a similar way to ARRI Look Files. Like with ARRI Look Files, additional ARRI Textures can be loaded into the camera in the future. ARRI Textures are applied to the image before the EI sensitivity setting, which controls the camera's sensitivity, and before the ARRI Look File processing, which controls color. You can think of choosing an ARRI Texture like choosing a film stock; both determine the basic behavior of grain and contrast in your image.



There is always one ARRI Texture active in the camera. If you choose the K445 Default texture, the camera will capture a cinematic image no matter what the situation, in the same way as every other ARRI digital camera you have worked with before. By choosing an ARRI Texture other than the K445 Default, it is possible to change the grain and contrast behavior of the image in myriad ways. There are ARRI Textures that increase grain and lower contrast for a nostalgic/vintage look; there are ARRI Textures for shooting in low light, and so on.

Since ARRI Textures are settings for image processing steps that occur before the ARRIRAW image is created in the camera, ARRI Textures are always baked into ARRIRAW and ProRes.

3. Viewing ARRI Textures

If a texture other than the K445 Default texture is to be used, it is very important for ARRI Textures to be tested and chosen by filmmakers during preproduction, in the highest-quality viewing environment possible.

An ARRI Texture that looks right in a DI suite or on a high-end display will be very subtle or perhaps even invisible when viewed in the camera's viewfinder or on a small regular SDR display connected to the camera's SDI output. It is for this reason that we recommend testing ARRI Textures in preproduction and viewing them on a large (at least 32-inch) high-quality UHD 4K monitor, ideally in HDR. Best practice is to view the images using an HDR 4K grading display.

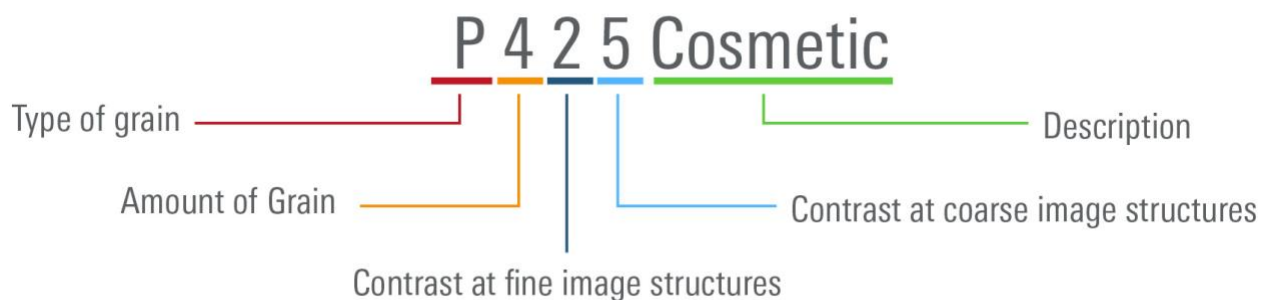
4. ARRI Texture Names

ARRI Texture names consist of two parts: a technical summary of the texture and a more memorable word (or words) that describe the texture.

While ARRI Textures represent about 30 image processing settings, we have distilled those to four important attributes for the technical summary, so you can quickly tell what you will get:

- First character: a letter indicating the type of grain. As the type of grain can vary in quite complex ways, e.g., more or less color, finer or coarser size, different shapes, etc., we have chosen the abstract classification of a letter (A-Z). The grain of the K445 Default texture complies with a letter in the middle of the alphabet. Letters that are closer to each other in the alphabet represent types of grain that are more like each other. Letters that are farther away from each other in the alphabet represent types of grain that are more different from each other.
- Second character: a number indicating the amount of grain. The higher the number, the more grain there is (0 to 9).
- Third character: a number indicating the amount of contrast for fine image structures (high spatial frequencies). The higher the number, the higher the contrast (0 to 9).
- Fourth character: a number indicating the amount of contrast for coarse image structures (low spatial frequencies). The higher the number, the higher the contrast (0 to 9).

Example: P425 Cosmetic



5. ARRI Textures in the ALEXA 35

1.1. K445 Default

The K445 Default texture is designed to work well for all subject matters and settings, while making the most of the camera's cinematic strengths. It is forgiving on skin, but also renders images with exceptional clarity and detail, which makes it also a perfect texture for green screen shots. This is also the texture to use when shooting with ALEXA 35 and previous ARRI digital cameras, as it closely matches those camera's textures. Low to moderate grain. Perfect for all EI settings.

1.2. P425 Cosmetic

A softer texture, very close to the cinematic K445 Default, especially recommended for rendering skin tones. More forgiving on skin while keeping structures and highlights pronounced. Low to moderate grain, but a bit softer compared to K445 Default. Perfect for all EI settings.



1.3. G733 Nostalgic

A grainy texture with a vintage feel, designed to render a lot of grain and a soft character. The unsaturated grain is additionally emphasizing the nostalgic film emulation. Perfect for all EI settings.



1.1. G522 Soft Nostalgic

A grainy texture with a subtle vintage feel, designed to render some unsaturated grain and a softer character. Little softer vintage texture with less grain and less contrast than G733 Nostalgic. Perfect for all EI settings.



1.2. F567 Clarity

A texture designed to work for any kind of footage, with increased sharpness and detail compared to the K445 Default texture. The Clarity textures are a perfect choice for landscape shots. Works best for low to mid EI settings, not recommended for high EI settings, because it might accentuate the grain.



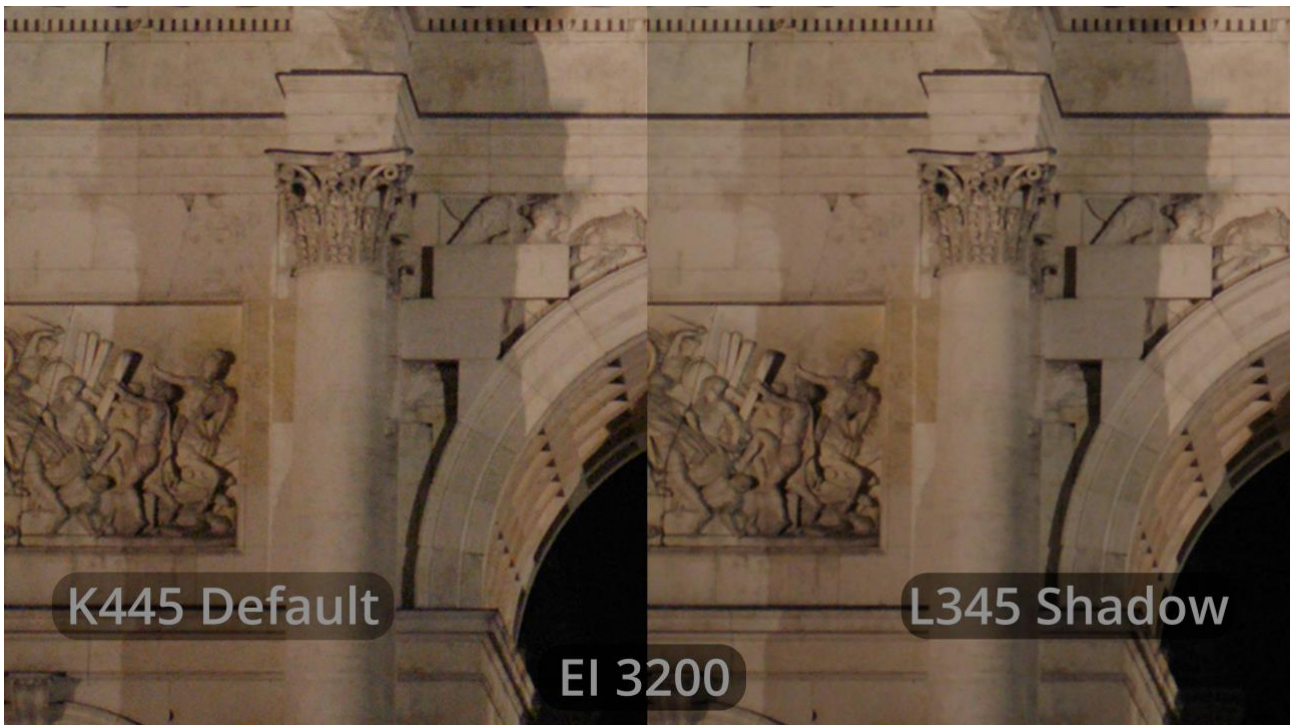
1.3. F578 High Clarity

A texture designed to work for any kind of footage, with even more detail compared to the F567 Clarity texture. The Clarity textures are a perfect choice for landscape shots. Works best for low to mid EI settings, not recommended for high EI settings, because it might accentuate the grain.



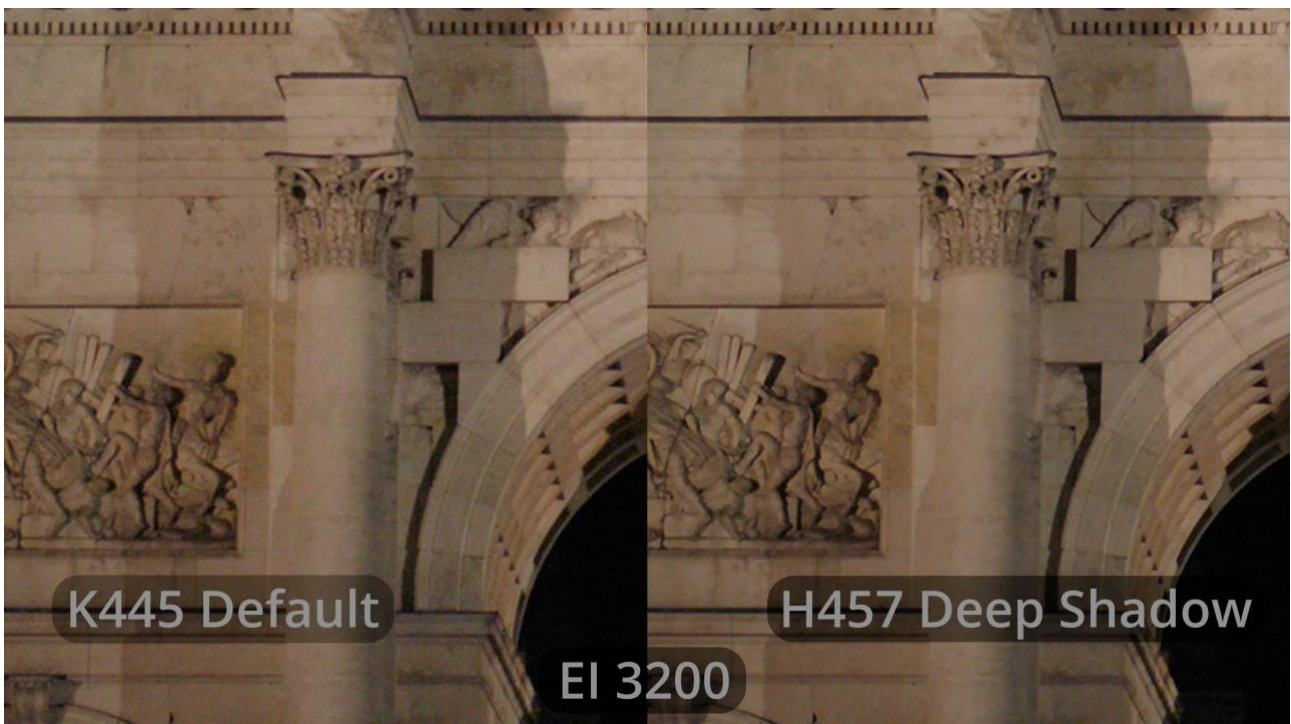
1.4. L345 Shadow

A texture based on the K445 Default texture, with lower noise and grain optimized for images with a lot of dark content. The visible grain emulates the look of grain in the toe of color negative film and is more pleasing in darker scenes, as the color of the grain has been desaturated. The Shadow textures are optimized for mid to high EI settings of the sensor and therefore work best in this exposure range.



1.5. H457 Deep Shadow

A texture designed for the darkest shots. This texture has low grain, and the color of the remaining grain is less saturated. It has higher clarity (more contrast) and even more shadow detail retention than the L345 Shadow texture. The Shadow textures are optimized for mid to high EI settings of the sensor and therefore work best in this exposure range.



6. ARRI Textures Frequently Asked Question

1.6. Why are the Textures so subtle?

1. ARRI Textures is a new feature for us and for cinematographers, DITs and postproduction houses alike. So, we want to explore it slowly and carefully before we provide stronger options.
2. ARRI Textures do not stand on their own. Aside from the choice of location, set design, costumes, lighting, fog, and other such camera-external factors, the final image is created by the combination of the cinematographer's choice of lens, T-stop, filters, frame rate, shutter, exposure index and color look in addition to the ARRI Textures. All these factors influence each other. For instance, a high exposure index in combination with a very contrasty texture will make grain more visible, which is probably not a good idea. We think it will take us all a while to do some serious testing and to figure out what works best and what does not. To avoid bad images resulting from unintentionally chosen bad combinations of these factors, we have kept the textures subtle.
3. How much an ARRI Texture is visible depends greatly on your viewing setup. Something that will be clearly visible on a 7" on-board monitor will be ugly and way too strong on a large, high-quality HDR display. Something that looks great on a large, high-quality HDR display will be barely visible on a 7" on-board monitor. We decided to be on the safe side and therefore provide subtle textures that will look good on large, high-quality HDR displays, even though they may be difficult to see on smaller monitors. We strongly recommend to test ARRI Textures in pre-production with a large, high-quality HDR display, so you know what you will be getting.

1.7. How can I add new ARRI Textures?

Once we have more feedback from the field about what other types of textures are desired, we will create new ones and post them on the ALEXA 35 website. You can then download them and load them into the camera, like you do with ARRI Look Files.

1.8. Can I create my own ARRI Textures?

No. An ARRI Texture is created by a combination of around 30 image processing settings that are complicated and interact with each other. We have not figured out yet how to simplify them so a person that is not an ARRI color scientist can use them. Until we do this, you can use the textures included in the camera and those we will upload to our website.

1.9. What is the best ARRI Texture to match ALEXA 35 to existing ARRI cameras?

The K445 Default texture matches existing ARRI digital cameras best. We have experimented with several other textures, but always found K445 Default to work best when matching ALEXA 35 with existing ARRI digital cameras.

1.10. What is the best ARRI Texture to shoot green/blue screen with the ALEXA 35?

The K445 Default texture works best for green/blue screen work. We also recommend turning Enhanced Sensitivity Mode off when working with green/blue screen.

7. Test before use

As always, please shoot your own tests.

8. Contact

In case you have questions or recommendations, please contact the Digital Workflow Solutions group within ARRI via email: digitalworkflow@arri.de