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www.fdtimes.com Nov 2024

ZEISS Special Report

FILM AND DIGITAL TIMES

Art, Technique and Technology in Motion Picture Production Worldwide



ZEISS Supreme Zoom Radiance

ZEISS Supreme Zoom Radiance (SZR)



November 12, 2024. ZEISS introduces three new lenses: Supreme Zoom Radiance (SZR) 15-30, 28-80 and 70-200 mm. Their irises all open to T2.9 and there's no exposure ramping. Breathing and distortion are minimal. Flares are where and when you want them. Images are painterly, as I found during tests. Skin tones are warm and silky smooth. Bokeh are beautiful. These are high-end Full Frame cine zoom lenses. They can save lots of time on set (fewer lens changes) as you create wonderful and controllable looks that tell the stories of features and series, or attract attention on commercials.

Supremes

Quick review: ZEISS introduced Supreme Prime Lenses (SP) in June 2018. They were a great success—fulfilling demand for Full Frame lenses to fit the new Full Frame cameras: VENICE (9/2017), RED MONSTRO VV (10/2017), ALEXA LF (2/2018), ALEXA MINI LF (4/2019).

Radiance

When ZEISS Prime Radiance (SPR) lenses arrived in December

2019, Benjamin Völker (Dr. Ghost) explained, “Radiance lenses artistically emphasize ghosting (flares). They have a warmer color tone. But, they are not simply the same lenses with different coatings. We wanted to introduce ghosts in controllable shapes and colors and avoid the white haze and loss of light that is typical in vintage lenses.

“Ghosting depends a great deal on what light you use, at what position in the picture, how the background is illuminated and at what T-stop the lens is set. Getting rid of ghosts completely is easy. Adding controllable ghosts is very difficult. Radiance lenses are more versatile because you can use them throughout an entire production. If you don't want flares, you can just flag the light.”

SZR

You might assume that Supreme Zoom Radiance lenses are intended to complement your Supreme Prime Radiance sets. Yes they do. And vintage lenses as well. But, as Dr. Ghost said, if you don't want flares, just keep the lights from hitting the front element. I found that they will match very nicely with the many sets of regular Supreme Primes out there.

Christophe Casenave Introduces SZR



Christophe Casenave is Head of Business Unit Cinematography, in charge of product management, marketing, and sales of ZEISS cinema products

Jon: When did you start working on this idea? And why?

Christophe: We started working on the idea in 2020. Why? Because of the tremendous success of the Supreme Prime Radiance lenses.

We saw that people really liked this mix of character, not exaggerated character, as well as modern mechanics and good ergonomics. They saw that they don't need to use rehoused vintage glass. Radiance lenses are not vintage but they have character and that's what people liked.

So, we said okay, let's make zooms with character. Ultimately, doing a new product should fit the needs and requests of the users with technical capability in an unoccupied space on the market. So, we said, "Let's try it."

Quite a few people still believe that Zooms are not as good as Primes.

That belief is not valid anymore. But it doesn't really matter if they believe it or not. They still always have a Zoom on their camera truck or on set. So why should they have not a Zoom that matches their Primes?

How would you define character?

Character is something that is different from what you would normally expect. It surprises you. A lens with character has special qualities that go beyond a pure neutral look. "Character" might be flares, distortion, a certain tint or something else. It's the same with people. A person with character does something that you wouldn't necessarily expect.

I like that analogy. You might say, "Oh, that DP is a character!"

It means they are not ordinary.

But wouldn't you say that old, vintage zooms have character—kind of flare and soft?

Yes. But the new Supreme Zoom Radiance are Full Frame, with character and reliable modern mechanics. They're super reliable. That was the concept of the Supreme Prime Radiance: a bit more

character but without disturbing the whole production or distracting from telling the story.

From a technical point of view, how do you achieve this kind of character in zoom lenses?

It's the same method as the Supreme Prime Radiance. They have proper contrast, proper resolution, and then we add a bit of this blue flare. One of optical designers, whom we call Dr. Ghost, worked especially hard on this. On an average prime lens, you have from seven to fifteen lens elements. On these zooms, you have at least 22 elements, with two surfaces on each. For him, it was like, "I have many more surfaces to play with in my toy box."

Is it created with different types of coatings?

Basically he plays with the recipe of each coating. And not every element is coated in the same way. He plays with every single surface.

Do the Supreme Zoom Radiance have eXtended Data that includes shading and distortion information?

Yes, the zooms have the same eXtended Data as the primes. Also, the zooms are precisely calibrated for every focal length across the entire range. The focal length you see in the eyepiece, on a monitor, in our CinCraft Scenario tracking system, in post-production or VFX is really the exact one. We spent a lot of time to calibrate the zoom scale with the internal data encoders of the lenses. Frame accurate lens data is especially important for virtual production and LED walls.

How would you define this blue flare? Is it point source, internal barrel flare, veiling glare?

Yeah, it depends on the type of your light source and its angle of entry. Is it diffused or a hard light? There are ghosting bubbles if you have a strong, hard source aimed into the lens. If you use the zoom in a normal way, with mattebox and flags, you will not notice anything. You need to aim light into the lens to get flares. And the nice thing is that you can plan it. Same as the Radiance Primes. It's reproducible.

Where are the ZEISS Supreme Zoom Radiance lenses made?

Right here at ZEISS headquarters in Oberkochen, Germany. On the second floor of our building, same as the Prime Radiance.

ZEISS SZR



ZEISS SZR and SPR



ZEISS SZR, SPR, SP Specifications

Supreme Zoom Radiance (SZR)

Lens	Aperture	Close Focus	Length	Front Diameter	Weight	Image Diagonal	Focus Barrel Rotation
15 mm - 30 mm	T2.9 to T22	0.55 m / 21"	198 mm / 7.8"	114 mm	2.95 kg / 6.50 lb	46.3 mm	300°
28 mm - 80 mm	T2.9 to T22	0.83 m / 2'9"	198 mm / 7.8"	114 mm	2.76 kg / 6.09 lb	46.3 mm	300°
70 mm - 200 mm	T2.9 to T22	1.5 m / 5'	232 mm / 9.1"	114 mm	3.18 kg / 7.01 lb	46.3 mm	300°

Supreme Prime Radiance (SPR)

Lens	Aperture	Close Focus	Length	Front Diameter	Weight	Image Diagonal	Focus Barrel Rotation
18 mm	T1.5 to T22	0.35 m / 14"	163 mm / 6.4"	114 mm	2.27 kg / 5.00 lb	46.3 mm	300°
21 mm	T1.5 to T22	0.35 m / 14"	119 mm / 4.7"	95 mm	1.5 kg / 3.3 lb	46.3 mm	300°
25 mm	T1.5 to T22	0.26 m / 10"	119 mm / 4.7"	95 mm	1.42 kg / 3.13 lb	46.3 mm	300°
29 mm	T1.5 to T22	0.33 m / 13"	121 mm / 4.8"	95 mm	1.61 kg / 3.55 lb	46.3 mm	300°
35 mm	T1.5 to T22	0.32 m / 13"	119 mm / 4.7"	95 mm	1.40 kg / 3.09 lb	46.3 mm	300°
40 mm	T1.5 to T22	0.42 m / 17"	121 mm / 4.8"	95 mm	1.49 kg / 3.28 lb	46.3 mm	300°
50 mm	T1.5 to T22	0.45 m / 18"	119 mm / 4.7"	95 mm	1.22 kg / 2.69 lb	46.3 mm	300°
65 mm	T1.5 to T22	0.6 m / 2'	121 mm / 4.8"	95 mm	1.63 kg / 3.59 lb	46.3 mm	300°
85 mm	T1.5 to T22	0.84 m / 2'9"	119 mm / 4.7"	95 mm	1.42 kg / 3.13 lb	46.3 mm	300°
100 mm	T1.5 to T22	1.1 m / 3'9"	119 mm / 4.7"	95 mm	1.7 kg / 3.74 lb	46.3 mm	300°
135 mm	T1.5 to T22	1.4 m / 4'6"	146 mm / 5.7"	114 mm	2.27 kg / 5.00 lb	46.3 mm	300°

Supreme Prime (SP)

Lens	Aperture	Close focus	Length	Front Diameter	Weight	Image Diagonal	Focus Barrel Rotation
15 mm	T1.8 to T22	0.35 m / 14"	149 mm / 5.9"	114 mm	2.25 kg / 4.96 lb	46.3 mm	300°
18 mm	T1.5 to T22	0.35 m / 14"	163 mm / 6.4"	114 mm	2.27 kg / 5.00 lb	46.3 mm	300°
21 mm	T1.5 to T22	0.35 m / 14"	120 mm / 4.7"	95 mm	1.61 kg / 3.54 lb	46.3 mm	300°
25 mm	T1.5 to T22	0.26 m / 10"	119 mm / 4.7"	95 mm	1.42 kg / 3.13 lb	46.3 mm	300°
29 mm	T1.5 to T22	0.33 m / 13"	121 mm / 4.8"	95 mm	1.61 kg / 3.55 lb	46.3 mm	300°
35 mm	T1.5 to T22	0.32 m / 13"	119 mm / 4.7"	95 mm	1.40 kg / 3.09 lb	46.3 mm	300°
40 mm	T1.5 to T22	0.42 m / 17"	121 mm / 4.8"	95 mm	1.49 kg / 3.28 lb	46.3 mm	300°
50 mm	T1.5 to T22	0.45 m / 18"	119 mm / 4.7"	95 mm	1.22 kg / 2.69 lb	46.3 mm	300°
65 mm	T1.5 to T22	0.6 m / 2'	121 mm / 4.8"	95 mm	1.63 kg / 3.59 lb	46.3 mm	300°
85 mm	T1.5 to T22	0.84 m / 2'9"	119 mm / 4.7"	95 mm	1.42 kg / 3.13 lb	46.3 mm	300°
100 mm	T1.5 to T22	1.1 m / 3'9"	119 mm / 4.7"	95 mm	1.70 kg / 3.74 lb	46.3 mm	300°
135 mm	T1.5 to T22	1.4 m / 4'6"	146 mm / 5.7"	114 mm	2.27 kg / 5.00 lb	46.3 mm	300°
150 mm	T1.8 to T22	1.5 m / 5'	146 mm / 5.7"	114 mm	2.27 kg / 5.00 lb	46.3 mm	300°
200 mm	T2.2 to T22	2 m / 6'6"	183 mm / 7.2"	114 mm	2.87 kg / 6.33 lb	46.3 mm	300°

- Close Focus: Minimum marked distance, measured from the image plane.
- Length: Front to PL mount flange.
- Illumination Circle (Image Diagonal): 46.3 for all SZR and SPR lenses.
- eXtended Data for zoom (zoom value, focus value, T-stop value, distortion, shading).
- Iris: Linear for 15-30 & 28-80; non-linear for 70-200. Non-linear for Primes.
- Focus mechanism like Supreme Prime and Supreme Prime Radiance.
- Focusing ring can be switched between meters and feet.
- Scales engraved and painted yellow.
- Interchangeable mount system: PL and LPL with electronics.



Photos by Masako Misaki.

Markus Förderer, ASC, BVK called in from Queensland, Australia, where was beginning his latest feature. He had just completed *My View*, a short film using the new ZEISS Supreme Zoom Radiance lenses. Markus's recent credits include *September 5*, *Constellation*, *Red Notice* and many more.

Jon: You tested all three, new ZEISS Supreme Zoom Radiance (SZR) lenses: 15-30, 28-80, 70-200 mm. Tell us more.

Markus: Yes. I remember when the Supreme Prime Radiance lenses were in development and ZEISS showed me prototypes. There was a debate whether to go with blue flares or warm flares. Ultimately, they went with blue, which makes skin tones warmer. My first reaction to these new zooms is that they're not quite as flarey as the Primes, maybe because the Primes open wider to T1.5 and the zooms are T2.9. I think these new lenses have a great balance: high quality zooms with character but not like vintage lenses that can become unpredictable. You never have to be worried, for example on some projects where you don't want to risk having a bad surprise. I think the Supreme Prime Radiance sets and these new Supreme Zoom Radiance lenses are well controlled, and very nice.

Please describe the short film you did with SZR lenses?

When the prototypes were ready, I was already in Australia preparing a feature. We went out on two weekends to try the SZRs

in some interesting locations in Queensland, with lots of nature, waterfalls, a tropical rainforest, etc. You may remember that my Cineflares lens comparison project is very technical, with motion control. But when I test for a feature project, I really like to work the way I would actually shoot on the film. So, on the SZR test, we followed one actress with all kinds of lighting scenarios from early sunrise with really hard sun hitting the lens, to low light in a dark cave.

Our model and actress was from the Torres Strait Islander community. (*There are 133 islands in the Torres Strait, where the Pacific and Indian Oceans meet between Queensland Australia and Papua New Guinea.*)

She cherishes her culture and I wanted to tell her story about embracing nature and connections with the past. We went out really early, got sunrises over the ocean, and worked through sunset and magic hour.

I think it's beautiful how these lenses handled everything from strong highlights to gentle gloom. They don't behave like true vintage lenses, but they are also not as sterile as most modern lenses.

Because I'm in prep for quite a big film, I had amazing help from some of my crew on this shoot. We had a heavy lifter drone because I wanted to get some aerial shots and do a "dolly-zoom" push in and gentle zoom out, so you feel the space expanding in a



way at a certain moment in the story.

What camera were you using?

The RED V-RAPTOR [X] with its VV large format global shutter sensor. We shot open gate. I was surprised: even the 15-30 zoom covers the large sensor size of open gate. Because I was shooting handheld a lot, the global shutter helps avoid jittery or jello artifacts and it feels almost like you're on a gimbal and a Steadicam.

We did a few actual gimbal shots, but the majority was handheld.

Lighting?

I wanted to explore with a lot of available light outdoors to see how the lenses would react under natural lighting. We also had some controlled lighting setups. When she wakes up in her apartment, we used an LED Leko style light as a small eye light, along with a bounce and negative fill. That was pretty much it. When we went on location, it was with a small crew. We had to hike to several places, carrying all the equipment in backpacks. Some of those locations, like the waterfall, were really remote. The weather was wild. Sometimes it was raining, then sunny, then every possible mix. I embraced it as we wanted to show different lighting scenarios. It was quite fun.

Tell us about the SZR flare characteristics. With the SZRs' blue flares, you get a color contrast. Even if you don't see the flare, it creates a warm-cool contrast. The skin tones feel slightly warmer,

and the shadows get richer. Even when there's not an obvious flare, for example, a bright white sky creates a subtle haze and the blacks add a nice dark blue color contrast. Psychologically, that makes the highlights feel warmer, and that's why the skin tones are quite beautiful.

The skin tones are wonderful.

Our actress has amazing skin. There's almost no makeup. That was the whole idea.

Since you are the force behind Cineflares Lens Lab, did you test the SZRs there?

I also put the Supreme Zoom Radiance lenses through our Cineflares Lens Lab which reveals their unique flare characteristics in a controlled way. It allows filmmakers to compare not only how the three lenses match within the zoom range but also how they pair with Supreme Prime and Supreme Prime Radiance lenses.

It is also interesting to discover which vintage lenses pair nicely with these zooms. Many vintage prime lenses lack a matching zoom lens. By comparing lenses, we found that popular K35 and Super Baltars match nicely in their flare characteristics with the ZEISS Supreme Zoom Radiance.

We shot all three zooms at different focal lengths and T-stops in our motion control flare setup.



We just released the test on Cineflares Lens Lab (cineflares.com)

Cineflares is a free resource for filmmakers to virtually test and compare lenses. We also have a paid Pro version with the full test library with hundreds of individual lenses and additional features to compare lenses. I started this project out of passion and necessity to compare lenses in a controlled environment. We have built a community of thousands of users and continue to grow the library with more lenses and new features.

You were in some tough locations. How did the lenses hold up?

Masako Misaki from ZEISS Japan arrived with the three prototypes. I hope she wasn't too worried because these were the only prototypes in the world at that point. I was walking in the waves, and it was raining and storming. I said, "Don't worry, we'll clean them after," and our amazing ACs cleaned the lenses every evening. The SZR lenses are super robust.

The look?

They feel rich, especially the bokeh. When you see our film, it looks like we shot with Prime lenses. Some people don't want to use Zooms because they think Primes look better, but I shot everything at T2.9, wide open. The look felt very gentle, and I think that's an attribute of the large internal elements.

We took all three lenses in a backpack, and those three lenses cov-

ered everything from 15 to 200 mm.

I didn't see any drawbacks compared to using Primes. Maybe if you need more speed, a faster T-stop, but I could totally see them working on a feature.

When you're shooting a feature, do you try to get flares in the shot?

Yes, but with restraint. They are easily overused. I often avoid using a matte box so the ambient light reflects in the lens. But it's not to see an obvious lens flare, where you see a spherical spot flare, where everybody can say "there's a flare." But I do it just to feel the light... as you pan past a bright window that's soft, it internally reflects a bit, lifts the shadows, makes them seem cool. I like to play with this all the time, and then use a flare where it's appropriate.

That's a good thing about these SZR lenses: there are no surprise flares. You really have to see a point light source in the frame. They have quite a nice amount of control, especially for Zoom lenses with so many internal optical elements.

Lens metadata?

Having the lens metadata on these lenses was very helpful. First of all, you see what you're doing live on the monitor. Even during playback, you can see, "Oh, this was that Zoom at 35mm at T4.0." I think it's so essential these days. Most of the current, interesting



character lenses lack lens data because they're vintage. That's why I think ZEISS came up with something very unique: Full Frame zooms with character and lens data. It's almost like having automatic camera reports. Especially on a big film, where you constantly have pickups, or have to recreate a shot. Yes, we all take notes, and it's on the slate, but you know how it is, there's always human error. Maybe the wrong lens is on the slate, or you slated two cameras at the same time, but having that lens data burned-in into the raw file is just so helpful.

You have shot with regular Supreme Prime and Supreme Prime Radiance lenses. It seems that these Radiance Zooms cut in nicely with both sets?

Yes. I think for a rental house, it's probably a no-brainer to add them. I think they would intercut with both. The flare is not aggressive. It could be the Radiance, or it could be the regular Supremes.

If you don't want to get the blue flare, you just flag it off, or use a matte box?

Yes. When we shot with the drone, we flew at sunrise, with the sun in the middle of the shot. The 15-30, the wider zoom, didn't show any obvious flare in this bright scenario. With the longer lenses, as we zoomed in, we could create a nice subtle flare.

And yet, people still say that Zooms are not as good or sharp as Primes. Why is that?

It's going to change. Recently, I suggested a zoom for a certain setup on a movie. My director said, "Oh, no. We don't do that." Michael Ballhaus used to be my professor at the HFF film school in Munich. He always said people were afraid of zooms, but he used them all the time on a dolly. You push in, you zoom in a little bit, or you correct slightly. You don't have to move the dolly track. Even if Michael was not operating the camera, he would adjust the zoom remotely from Video Village. It was not noticeable as a zoom, but especially when the camera is moving, you can gently zoom a couple of millimeters.

Getting back to the SZR lenses: my first impression was, "Oh, wow, I was expecting them to flare more."

I was almost a bit disappointed until I went out into the real world and started shooting, and I realized that these are high quality, high performance lenses with character. I think in that order. They are not like character beasts.

These are a good zoom lenses for features, commercials and anywhere you would want character and high quality. They're very pleasing. The micro contrast gives you beautiful skin tones. The bokeh are beautiful.

My View SZR Frames



My View SZR Frames





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Cover Photo: Frame from short film *My View* by Markus Förderer, ASC, BVK