



Longer wear & deeper immersion: SCHOTT drops weight of Augmented Reality glass by 20% - September 14, 2021

- A new optical glass significantly reduces weight of Augmented Reality (AR) waveguides, maintaining highest standard in glass quality and enabling pristine quality of the virtual image.
- Users' field of view (FoV) increases nearly 10 degrees with improved Refractive Index (RI) of 1.9 in comparison to current AR devices using glass wafers with refractive index (RI) glass of 1.8
- AR device makers can reduce the overall device weight and improve user experience.

One of the most significant drawbacks to AR devices is the goggle's weight, which can cause discomfort, especially on the user's nose.

With a new 20% lighter RI 1.9 high-index glass wafer, SCHOTT can reduce a wearable's overall weight by roughly 7%. SCHOTT RealView® 1.9 lightweight doesn't sacrifice image quality or durability, even with the dramatic reduction in density. This innovation will be featured at the China International Optoelectronic Exposition (CIOE) in September.

SCHOTT pioneer Marga Faulstich, the company's first female leader in company history, invented the first lightweight lens for spectacles, "Schwerflint 64" (SF 64), almost 50 years ago. This invention led to a new lightweight generation of glasses and sunglasses, today's standard. Now, Augmented Reality (AR) glasses are called "the next big thing" in Consumer Tech, and SCHOTT is building on Marga's legacy by introducing a new lightweight and more immersive optical lens designed to bring AR to the masses.

SCHOTT, the inventor of specialty glass and international technology group, today unveils the next pioneering innovation in AR, SCHOTT RealView® 1.9 lightweight. The new optical glass shaves five grams off the weight of the waveguides currently used in AR devices, in which means a lighter, more comfortable, more immersive experience for the user. Manufacturers designing consumer-grade products target a total device weight of 70 grams, so saving 5 grams only by incorporating the new lightweight glass is a milestone in material and device development.

The weight cut is mainly due to a reduced density of the material. The result: AR devices that offer highest wearing comfort while not compromising in image quality thanks to the 1.9 high-refractive index.

Another crucial step to bringing AR to the masses

With consumer spending on AR and VR expected to eclipse \$72 billion by 2024, SCHOTT has positioned itself as an industry leader with its latest optical glass wafer innovation. This iteration of SCHOTT RealView® maintains the highest RI available, allows for customization with anti-reflective coatings or other finishes, is mass-production ready with wafer sizes up to 300 mm (12 inches), and offers superb image quality.

"Every optical component in AR must push the boundaries of technology to keep manufacturing costs low, while also achieving a high-quality image, a large field of view, and a full immersion experience in a compact form factor without added weight or bulk," said Dr. Rüdiger Sprengard, Vice President Augmented Reality at SCHOTT. "With those goals in mind, we created an all-new glass formulation that was tailor-made for AR use while pushing the limits of what was possible for density, clarity, and robustness."

SCHOTT RealView® 1.9 lightweight is not an existing optical glass retrofit for AR use. Its formulation and processing were developed from scratch specifically for the AR application. The company's glass scientists developed the glass formulation leveraging more than 125 years of heritage in Advanced

Optics. SCHOTT's proprietary melting technology has been tailored to mass-produce this innovative material – underlining SCHOTT's position as the leading optical glassmaker serving a global market with products manufactured in the company's headquarter in Mainz, Germany.

Proven compatibility with mass-manufacturing ecosystem

SCHOTT's manufacturing ecosystem partners have proven compatibility with the new wafers. Inkron, Finland, has developed an index-matching nano-imprintable resin. Compatibility with nanoimprint mass production equipment of both the new SCHOTT RealView® 1.9 lightweight and the new resin has been demonstrated by EV Group (EVG), a leading supplier of nanoimprint lithography (NIL) equipment for high-volume manufacturing.

An industry-leading optical glass powerhouse

Given SCHOTT's pioneering role as leading supplier to the AR industry, the SCHOTT RealView® product portfolio constantly grew over the past years: broadest portfolio in available refractive indices and wafer sizes. SCHOTT is serving design houses, manufacturing companies, and consumer brands. The latest lightweight substrate underlines SCHOTT's innovation power and the company's strong commitment to the industry. SCHOTT RealView® high-index glass wafers have been awarded the 2019 Display Industry Award for Display Component of the Year from the Society of Information Display, SID. Optical pioneer Marga Faulstich would have been proud of these developments.

Pioneering – responsibly – together

These attributes characterize SCHOTT as a manufacturer of high-tech materials based on specialty glass. Founder Otto Schott is considered its inventor and became the pioneer of an entire industry. Always opening up new markets and applications with a pioneering spirit and passion – this is what has driven the #glasslovers at SCHOTT for more than 130 years. Represented in 34 countries, the company is a highly skilled partner for high-tech industries: Healthcare, Home Appliances & Living, Consumer Electronics, Semiconductors & Datacom, Optics, Industry & Energy, Automotive, Astronomy, and Aerospace. In the fiscal year 2020, its 16,500 employees generated sales of 2.24 billion euros. With the best teams, supported by the best digital tools, the group intends to continue to grow. SCHOTT AG is owned by the Carl Zeiss Foundation, one of the oldest foundations in Germany. It uses the Group's dividends to promote science. As a foundation company, SCHOTT has anchored responsibility for employees, society and the environment deeply in its DNA. The goal is to become a climate-neutral company by 2030.

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<https://www.glassglobal.com/news/longer-wear-deeper-immersion-schott-drops-weight-of-augmented-reality-glass-by-20-31578.html>