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## Avo Photonics and Weatherford Develop Downhole Multi-Channel Photometer

Horsham, Pa. – Custom opto-electronic design and production specialist Avo Photonics in collaboration with the Wireline R&D optical sensor group at Weatherford International has successfully designed and validated the performance of a downhole multi-channel photometer. The sensor has now completed several field trials and is being volume manufactured by Avo Photonics for Weatherford commercial deployment.

The Reservoir Fluid Analyzer (RFA) sensor conforms to a 4.5 inch diameter space performing downhole fluid analysis up to five kilometers below the earth's surface. The sensor design allows the device to perform high-quality photometric analysis while withstanding operating temperatures from -20 to 177°C with total differential pressures up to 30,000 psi.

"Avo's optical and opto-mechanical design and manufacturing expertise for harsh environment operations and their rapid understanding of the downhole challenges were critical to create a sensor assembly that would work within our existing wireline equipment," said Dr. Jess V. Ford, Weatherford Senior Staff Scientist.

"Designing and manufacturing an optical fluid analyzer for downhole is challenging, and Weatherford's extended long wavelength requirements compounded the difficulties of high temperature performance," said Dr. Thomas Haslett, Avo Photonics Chief Technology Officer. "We created an original design from our unique perspective. The result has been a high-quality, high-fidelity instrument that is continually produced at Avo."

### About Weatherford

Weatherford is one of the largest multinational oilfield services companies. Weatherford's product and service portfolio spans the life cycle of the well, and includes capability in drilling and formation evaluation, well construction, completion and production. The Company provides innovative solutions, technology and services to the oil and gas industry, and operates in over 100 countries. For more information, please visit [www.weatherford.com](http://www.weatherford.com)

### About Avo Photonics

Avo Photonics provides exclusive, private services for medical, industrial, military, aerospace and communications applications. Through its pureservice business model, Avo produces confidential, client-owned products and systems that launch its customers to the forefront of their markets. To find out more about Avo Photonics and its unique service process that enables it to work with companies at any stage of their idea lifecycle, visit [www.avophotonics.com](http://www.avophotonics.com), email [sales@avophotonics.com](mailto:sales@avophotonics.com)

### Forward-Looking Statements

The statements set forth in this press release that are not historical facts are forward within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "will," "intend," "expect," and similar expressions are intended to identify forward-looking statements. These forward-looking statements are subject to numerous risks and uncertainties, many of which are beyond Weatherford's control. Actual results and benefits may differ from any results expected or implied by such statements.

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