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## In The News: Technology

*Circa 1991*

- KLA Conquers Phase Shift

As lithography moved into ever lower k factors, the concepts of Phase Shifting the light, pioneered by Mark Levinson at IBM, led to [phase shift masks](#). But without a way to inspect the reticles, the technology would have never made it to production. This meant the mask infrastructure needed to respond early on to create the tools to reliably make entire chips. KLA's introduction of the 219HRL-PS was a critical step in making this happen. Without it, Moore's Law might have come to an early end.

*- G. Dan Hutcheson*



KLA Instruments Corporation

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News Release

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## KLA Instruments Announces Phase Shift Mask Inspection Product

San Jose, California, May 15, 1991 -- KLA Instruments Corporation today announced introduction of the KLA 219HRL-PS, the world's first inspection system capable of defect capture on phase shift masks and reticles. The Company also announced the shipment of the first system to key development partners and the establishment of demonstration capabilities in both Japan and the U.S. This introduction comes as an increasing number of researchers seek to develop phase shift technology to extend current optical lithography equipment capabilities down to 64 Mbit DRAM linewidths.

KLA's 219HRL-PS system creates phase shift mask inspection compatibility by combining the Company's KLA 259 system transparent resist layer inspection experience with the high resolution, long-working distance chrome inspection capabilities of the KLA 219HRL. Jim Wiley, KLA's RAPID Division Director of Technical Marketing stated, "We see the 219HRL-PS as a key tool for developing, characterizing, and improving phase shift processes and procedures, and for determining defect causes and effects. We've already made deliveries to early development partners who are using the 219HRL-PS to help solve problems in their phase shift development programs."

Phase shift compatibility is available only as a factory installed option on the KLA 219HRL-PS, and does not affect chrome mask inspection sensitivity. This makes the 219HRL-PS suitable for standard chrome mask production inspection as well as for engineering use in phase shift development programs. According to Arthur Zwern, Manager of Product Marketing for KLA's 200 series products, "This unique flexibility gives our users a way to have phase shift inspection expertise today, without a large incremental investment."

KLA's quick response to the need for phase shift compatibility also lays the foundation for future customer benefits. Zwern pointed out that "It was important to introduce a compatibility feature as early as possible as part of our continuing commitment to helping customers advance and meet their key inspection challenges. The 219HRL-PS responds to the immediate needs of today, while allowing KLA to develop the applications experience necessary to meet the industry's future phase shift production needs."

KLA Instruments Corporation is a leading innovator of industrial image automation systems. KLA is a publicly held corporation, traded on the NASDAQ National Market System under the symbol "KLAC".

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**Ideal Caption:** KLA's 219HRL-PS provides the first phase shift mask inspection compatibility available.

**KLA**

KLA 219HR-PS

