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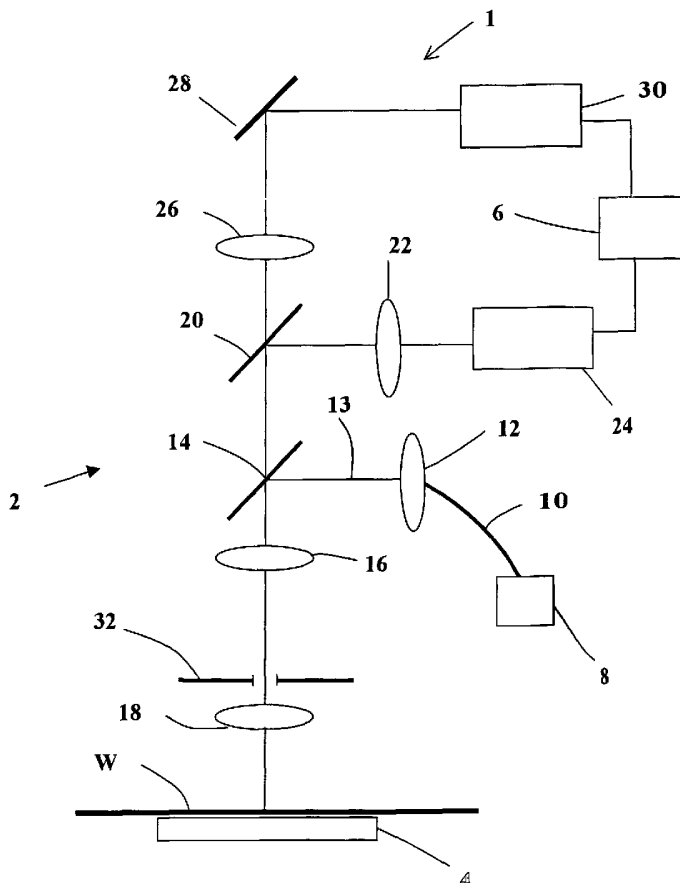
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[Continued on next page]

(54) Title: OPTICAL MEASUREMENTS OF PATTERNED STRUCTURES



(57) Abstract: A method and a system for optical measuring in a structure having a pattern in the form of spaced-apart parallel elongated regions of optical properties different from that of spaces between said regions. The system comprises a broadband illuminator (8) for generating incident radiation, a spectrophotometer arrangement (30) for detecting a spectral response of the structure to the incident radiation, and an optical arrangement (2) for directing the incident light to the structure and collecting the response of the structure, said optical arrangement (2) comprising a numerical aperture (32) selectively limiting the range of at least one of light incidence or collecting angles in direction substantially perpendicular to longitudinal axes of said elongated regions of the pattern.

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ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL03/00168

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G03B 27/54; G01N 21/47

US CL : 355/67-71; 356/364-365, 369, 445-447

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 355/67-71; 356/364-365, 369, 445-447

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	U.S. 5,917,594 A (Norton) 29 June 1999 (29.06.1999), entire document, and figure 1.	1-22
Y	US 5,867,276 A (McNeil et al ) 02 February 1990 (02.02.1990), fig.3a, entire document.	1-22
Y,P	U.S. 2002/0039184 A1 (Sandusky) 04 April 2002 (04.02.2002), figure 1 and entire document.	1-22
A,P	US 6,483,580 B1 (Xu et al) 19 November 2002 (19.11.2002), entire document.	1-22



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

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# INTERNATIONAL SEARCH REPORT

PCT/IL03/00168

## Continuation of B. FIELDS SEARCHED Item 3:

East text search (JPO, Derwent, USP, EPO)

Search term: scatterometer, scatterometry, broad wavelength, ((numerical adj2 aperture) or NA)