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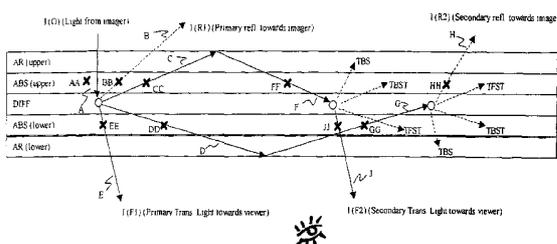
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(54) Title: HIGH EFFICIENCY VIEWING SCREEN

1st Order Screen Transmittance Model



TBS	TIR light that is back-scattered
TBST	TIR light that is back-scattered into more TIR light
TFS	TIR light that is forward-scattered
TFST	TIR light that is forward-scattered into more TIR light
AR	Antireflection layer
ABS	Absorbing layer
X	Denotes absorption
DIFF	Diffuser
I(O)	Ambient light incident on screen
I(R1)	Primary reflection component
I(R2)	Secondary reflection component
I(F)	Ambient light scattered towards the image source

(57) Abstract: A low-scatter polarization-preserving multilayer viewing screen. A substrate D, preferably a volume diffuser, for increasing the divergence of information-coded-light while preserving its polarization sense A as it passes therethrough has a discrimination of at least 2:1 within a viewing zone. An absorbing polarizer on one or both sides of D and aligned to pass polarization state A. In one embodiment, there is provided a polarization-state phaseshift layer for modifying the polarization state of forward-scatter and/or back-scatter that total internally reflects within the viewing screen into the state opposite of A. The phase-shift layer being located at any position between the polarizer and an outermost surface of the viewing screen through which said information-coded light passes.

WO 2004/027514 A3



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 G02F1/1335 G02B5/30

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 G02F G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/86343 A (3M INNOVATIVE PROPERTIES COMPANY) 15 November 2001 (2001-11-15) page 3, line 23 - line 24; figure 7 page 12, line 15 -page 14, line 24; figure 4 page 18, line 31 -page 19, line 20; figure 7 page 20, line 29 -page 21, line 28; figure 9	1-9, 12, 13, 15, 16
A	page 26, line 11 - line 18; figure 9 ---	20-24
X	US 6 011 528 A (INBAR) 4 January 2000 (2000-01-04) column 9, line 45 - line 60 column 11, line 6 - line 7	1
A	column 14, line 22 - line 58; figure 17 ---	3
	-/--	

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 03/29353

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00/70400 A (REVEO) 23 November 2000 (2000-11-23) page 7, line 3 - line 8	19
A	page 35, last paragraph; figure 31 ---	26
A	US 3 840 695 A (FISCHER) 8 October 1974 (1974-10-08) cited in the application column 1, line 61 -column 2, line 18; figure 3 ---	1
A	US 5 629 784 A (ABILEAH) 13 May 1997 (1997-05-13) cited in the application column 1, line 5 - line 10 column 14, line 16 - line 27; figure 1A ---	1
A	B. LARSON: "Image noise in high resolution rear projection screen" COCKPIT DISPLAYS IX : DISPLAYS FOR DEFENSE APPLICATIONS, DARREL G. HOPPER, PROCEEDINGS OF THE SPIE,, vol. 4712, 2002, pages 202-211, XP001156872 cited in the application page 202 : "1. Introduction" page 202,203 : "2.1 Screen technolgies" ---	3
A	EP 1 186 939 A (SHARP) 13 March 2002 (2002-03-13) paragraph '0028! - paragraph '0029!; figure 2 ---	10,25
A	US 5 272 473 A (THOMPSON) 21 December 1993 (1993-12-21) cited in the application column 6, line 13 - line 68; figure 1A ---	11
A	US 6 381 068 B1 (HARADA) 30 April 2002 (2002-04-30) cited in the application column 1, line 14 - line 18 column 4, line 42 - line 52 column 5, line 21 - line 63 ---	12-14,22
A	WO 02/059691 A (SULLIVAN) 1 August 2002 (2002-08-01) page 1, line 8 - line 12 page 25, line 31 -page 26, line 1 ---	12,13

	-/--	

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 03/29353

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 481 385 A (ZIMMERMAN) 2 January 1996 (1996-01-02) cited in the application abstract column 8, line 25 - line 40; figure 1 column 12; example 3 ---	17
A	BAHAA E. A. SALEH AND MALVIN CARL TEICH: "FUNDAMENTALS OF PHOTONICS PAGES 203-208" 1991, JOHN WILEY & SONS, INC, NEW YORK XP002277591 cited in the application page 208 : "Internal reflection" ---	19
A	US 6 445 487 B1 (RODDY) 3 September 2002 (2002-09-03) cited in the application ---	
A	US 6 428 198 B1 (SACCOMANNO) 6 August 2002 (2002-08-06) cited in the application ---	
A	US 6 421 148 B2 (STEINER) 16 July 2002 (2002-07-16) cited in the application ---	
A	US 6 421 103 B2 (YAMAGUCHI) 16 July 2002 (2002-07-16) cited in the application ---	
A	US 6 388 661 B1 (RICHARDS) 14 May 2002 (2002-05-14) cited in the application ---	
A	US 6 317 169 B1 (SMITH) 13 November 2001 (2001-11-13) cited in the application ---	
A	US 6 268 941 B1 (HALLDORSSON) 31 July 2001 (2001-07-31) cited in the application ---	
A	US 6 261 664 B1 (BEESON) 17 July 2001 (2001-07-17) cited in the application ---	
A	US 6 248 859 B1 (CARUSO) 19 June 2001 (2001-06-19) cited in the application ---	
A	US 6 239 907 B1 (ALLEN) 29 May 2001 (2001-05-29) cited in the application ---	
	-/--	

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/29353

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 201 045 B1 (KOIKE) 13 March 2001 (2001-03-13) cited in the application ---	
A	US 6 174 394 B1 (GVON) 16 January 2001 (2001-01-16) cited in the application ---	
A	US 6 163 402 A (CHOU) 19 December 2000 (2000-12-19) cited in the application abstract ---	
A	US 6 123 877 A (CLABBURN) 26 September 2000 (2000-09-26) cited in the application ---	
A	US 6 060 157 A (LAPERRE) 9 May 2000 (2000-05-09) cited in the application ---	
A	US 6 012 818 A (ARAKI) 11 January 2000 (2000-01-11) cited in the application ---	
A	US 6 010 747 A (BEESON) 4 January 2000 (2000-01-04) cited in the application ---	
A	US 5 973 834 A (KADABA) 26 October 1999 (1999-10-26) cited in the application ---	
A	US 5 889 615 A (DREYER) 30 March 1999 (1999-03-30) cited in the application ---	
A	US 5 751 388 A (LARSON) 12 May 1998 (1998-05-12) cited in the application ---	
A	US 5 609 939 A (PETERSEN) 11 March 1997 (1997-03-11) cited in the application ---	
A	US 5 161 041 A (ABILEAH) 3 November 1992 (1992-11-03) cited in the application ---	
A	US 4 697 407 A (WASSERMAN) 6 October 1987 (1987-10-06) cited in the application ---	
	-/--	

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/29353

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 536 063 A (SOUTHWELL) 20 August 1985 (1985-08-20) cited in the application ---	
A	US 4 373 065 A (PREST) 8 February 1983 (1983-02-08) cited in the application ---	
A	US 4 340 275 A (HENKES) 20 July 1982 (1982-07-20) cited in the application ---	
A	US 4 174 874 A (BIGELOW) 20 November 1979 (1979-11-20) cited in the application ---	
A	US 4 155 630 A (IH) 22 May 1979 (1979-05-22) cited in the application ---	
A	US 4 153 654 A (MAFFITT) 8 May 1979 (1979-05-08) cited in the application ---	
A	US 4 035 068 A (RAWSON) 12 July 1977 (1977-07-12) cited in the application ---	
A	US 3 909 111 A (MEYERHOFER) 30 September 1975 (1975-09-30) cited in the application ---	
A	US 3 712 707 A (HENKES) 23 January 1973 (1973-01-23) cited in the application ---	
A	US 3 437 405 A (NORTHROP) 8 April 1969 (1969-04-08) cited in the application ---	
A	US 3 279 314 A (MILLER) 18 October 1966 (1966-10-18) cited in the application ---	
A	US 3 262 359 A (CARPENTER) 26 July 1966 (1966-07-26) cited in the application ---	
A	US 2 380 241 A (JELLEY) 10 July 1945 (1945-07-10) cited in the application ---	
A	US 2 378 252 A (STAEHLE) 12 June 1945 (1945-06-12) cited in the application ---	
	-/--	

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 03/29353

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2 364 369 A (JELLEY) 5 December 1944 (1944-12-05) cited in the application ----	
A	US 2 362 573 A (MACNEILLE) 14 November 1944 (1944-11-14) cited in the application ----	
A	US 2 287 556 A (LAND) 23 June 1942 (1942-06-23) cited in the application ----	
A	US 2 180 113 A (LAND) 14 November 1939 (1939-11-14) cited in the application ----	
A	US 1 942 841 A (SHIMIZU) 9 January 1934 (1934-01-09) cited in the application ----	
A	US 1 666 808 A (BÜCHNER) 17 April 1928 (1928-04-17) cited in the application ----	
A	US 997 899 A (BUECHNER) cited in the application ----	
A	GOLDENBERG J F ET AL: "REAR PROJECTION SCREENS FOR LIGHT VALVE PROJECTION SYSTEMS" PROCEEDINGS OF THE SPIE, SPIE, BELLINGHAM, VA, US, vol. 3013, 1997, pages 49-59, XP000957534 ISSN: 0277-786X cited in the application page 56,57 : "5. MTF IN THE PRESENCE OF SPECKLE" ----	
A	SHIMIZU J A: "INVITED PAPER: SCROLLING COLOR LCOS FOR HDTV REAR PROJECTION" 2001 SID INTERNATIONAL SYMPOSIUM DIGEST OF TECHNICAL PAPERS. SAN JOSE, CA, JUNE 5 - 7, 2001, SID INTERNATIONAL SYMPOSIUM DIGEST OF TECHNICAL PAPERS, SAN JOSE, CA: SID, US, vol. 32, 2001, pages 1072-1075, XP008026122 cited in the application -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/29353

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
WO 0186343	A	15-11-2001	AU 5969701 A	20-11-2001
			CN 1440511 T	03-09-2003
			EP 1285288 A2	26-02-2003
			JP 2003532930 T	05-11-2003
			WO 0186343 A2	15-11-2001
			US 2001055153 A1	27-12-2001
US 6011528	A	04-01-2000	DE 69425979 D1	26-10-2000
			DE 69425979 T2	15-02-2001
			WO 9514949 A2	01-06-1995
			WO 9514950 A2	01-06-1995
			EP 0730749 A1	11-09-1996
			EP 0730750 A1	11-09-1996
			EP 0918241 A2	26-05-1999
			JP 10503030 T	17-03-1998
			JP 10503290 T	24-03-1998
			US 5760851 A	02-06-1998
			US 5790216 A	04-08-1998
			US 5859676 A	12-01-1999
			US 5835173 A	10-11-1998
			DE 69427768 D1	23-08-2001
			WO 9516934 A2	22-06-1995
			EP 0734540 A1	02-10-1996
JP 2000512024 T	12-09-2000			
WO 0070400	A	23-11-2000	US 2002113921 A1	22-08-2002
			AU 4855400 A	05-12-2000
			TW 513601 B	11-12-2002
			WO 0070400 A1	23-11-2000
US 3840695	A	08-10-1974	CA 1005566 A1	15-02-1977
			JP 983499 C	22-01-1980
			JP 49074438 A	18-07-1974
			JP 54018886 B	11-07-1979
US 5629784	A	13-05-1997	AT 227438 T	15-11-2002
			CA 2146902 A1	13-10-1995
			DE 69528719 D1	12-12-2002
			DE 69528719 T2	11-09-2003
			EP 0677768 A1	18-10-1995
EP 1186939	A	13-03-2002	GB 2296151 A	19-06-1996
			EP 1182488 A2	27-02-2002
			EP 1186939 A2	13-03-2002
			DE 69528145 D1	17-10-2002
			DE 69528145 T2	31-07-2003
			EP 0721132 A2	10-07-1996
			GB 2296099 A	19-06-1996
			JP 8240790 A	17-09-1996
			US 5917562 A	29-06-1999
			US 5272473	A
DE 69019043 T2	31-08-1995			
EP 0385706 A2	05-09-1990			
JP 3040694 A	21-02-1991			
US 6381068	B1	30-04-2002	AU 4700099 A	09-10-2000
			CN 1350648 T	22-05-2002

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/29353

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6381068	B1	EP 1166158 A1 JP 2002540445 T WO 0057214 A1	02-01-2002 26-11-2002 28-09-2000
WO 02059691	A	01-08-2002	WO 02059691 A2 US 2002113753 A1 01-08-2002 22-08-2002
US 5481385	A	02-01-1996	AT 164235 T AU 7215994 A CA 2165432 A1 CN 1126520 A DE 69409114 D1 DE 69409114 T2 EP 0706673 A1 FI 956291 A HK 1007241 A1 JP 8033540 B JP 7509327 T MX 9404971 A1 SG 48056 A1 WO 9501584 A1 15-04-1998 24-01-1995 02-01-1995 10-07-1996 23-04-1998 09-07-1998 17-04-1996 28-12-1995 01-04-1999 29-03-1996 12-10-1995 31-01-1995 17-04-1998 12-01-1995
US 6445487	B1	22-08-2002	US 2002114057 A1 JP 2002344050 A 22-08-2002 29-11-2002
US 6428198	B1	06-08-2002	CA 2336827 A1 CN 1406190 T JP 2003531391 T US 2003002296 A1 US 2003198456 A1 AU 4967899 A EP 1095295 A1 WO 0002065 A2 13-01-2000 26-03-2003 21-10-2003 02-01-2003 23-10-2003 24-01-2000 02-05-2001 13-01-2000
US 6421148	B2	18-10-2001	US 2001030778 A1 EP 1244925 A1 US 2002063914 A1 US 2003063340 A1 AU 3084901 A WO 0151966 A1 18-10-2001 02-10-2002 30-05-2002 03-04-2003 24-07-2001 19-07-2001
US 6421103	B2	28-06-2001	JP 2001188230 A US 2001005243 A1 10-07-2001 28-06-2001
US 6388661	B1	14-05-2002	AU 5949201 A JP 2003532160 T WO 0184531 A1 US 2002145585 A1 12-11-2001 28-10-2003 08-11-2001 10-10-2002
US 6317169	B1	13-11-2001	AU 4235200 A CN 1354842 T DE 10084527 T0 GB 2363929 A , B JP 2002543455 T TW 413739 B WO 0065401 A1 10-11-2000 19-06-2002 05-09-2002 09-01-2002 17-12-2002 01-12-2000 02-11-2000
US 6268941	B1	31-07-2001	DE 19704741 A1 20-08-1998

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/29353

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
US 6268941	B1	WO 9835246 A1	13-08-1998	
		DE 59806532 D1	16-01-2003	
		EP 0958515 A1	24-11-1999	
		JP 2001510587 T	31-07-2001	
US 6261664	B1	17-07-2001		
		US 6010747 A	04-01-2000	
		US 6424786 B1	23-07-2002	
		US 2001019748 A1	06-09-2001	
		CA 2273050 A1	11-06-1998	
		DE 69711072 D1	18-04-2002	
		DE 69711072 T2	19-09-2002	
		EP 0941502 A1	15-09-1999	
		JP 2001505497 T	24-04-2001	
		KR 2000057318 A	15-09-2000	
		TW 444140 B	01-07-2001	
WO 9825181 A1	11-06-1998			
US 6248859	B1	19-06-2001	WO 0102462 A1	11-01-2001
US 6239907	B1	29-05-2001		
		AU 3581700 A	10-04-2001	
		CA 2382775 A1	15-03-2001	
		CN 1384928 T	11-12-2002	
		EP 1212658 A1	12-06-2002	
		JP 2003508822 T	04-03-2003	
TW 472168 B	11-01-2002			
WO 0118599 A1	15-03-2001			
US 6201045	B1	13-03-2001		
		JP 8110402 A	30-04-1996	
		DE 69524861 D1	07-02-2002	
		DE 69524861 T2	22-08-2002	
		EP 0740168 A1	30-10-1996	
WO 9606370 A1	29-02-1996			
US 6174394	B1	16-01-2001		
		RU 2047643 C1	10-11-1995	
		DE 69428697 D1	22-11-2001	
		DE 69428697 T2	08-08-2002	
		EP 0700420 A1	13-03-1996	
		JP 3492693 B2	03-02-2004	
		JP 8511109 T	19-11-1996	
		WO 9428073 A1	08-12-1994	
US 5739296 A	14-04-1998			
US 6163402	A	19-12-2000		
		AU 4095699 A	30-12-1999	
		AU 4199399 A	30-12-1999	
		CN 1305607 T	25-07-2001	
		CN 1312919 T	12-09-2001	
		DE 1178351 T1	06-03-2003	
		DE 69903029 D1	24-10-2002	
		DE 69903029 T2	30-04-2003	
		EP 1162500 A2	12-12-2001	
		EP 1178351 A2	06-02-2002	
		EP 1084450 A1	21-03-2001	
		EP 1084449 A1	21-03-2001	
		JP 2002517800 T	18-06-2002	
		WO 9964928 A1	16-12-1999	
		WO 9964927 A1	16-12-1999	
		US 6449089 B1	10-09-2002	
		US 6515798 B1	04-02-2003	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/29353

Patent document cited in search report		Publication date	Patent family member(s)	Publication date			
US 6123877	A	26-09-2000	DE 69516723 D1	08-06-2000			
			DE 69516723 T2	09-11-2000			
			EP 0800658 A1	15-10-1997			
			WO 9620419 A1	04-07-1996			
			JP 11500538 T	12-01-1999			
US 6060157	A	09-05-2000	US 2003022260 A1	30-01-2003			
			AU 703068 B2	11-03-1999			
			AU 4463296 A	19-06-1996			
			BR 9509836 A	21-10-1997			
			CA 2206319 A1	06-06-1996			
			DE 69504370 D1	01-10-1998			
			DE 69504370 T2	12-05-1999			
			EP 0795137 A2	17-09-1997			
			EP 0819953 A2	21-01-1998			
			JP 10510227 T	06-10-1998			
			WO 9617263 A2	06-06-1996			
			US 6012818	A	11-01-2000	AU 4406496 A	10-07-1996
						CA 2206298 A1	27-06-1996
CN 1170424 A	14-01-1998						
EP 0799285 A1	08-10-1997						
FI 972627 A	18-06-1997						
JP 11507400 T	29-06-1999						
WO 9619543 A1	27-06-1996						
US 6010747	A	04-01-2000	CA 2273050 A1	11-06-1998			
			DE 69711072 D1	18-04-2002			
			DE 69711072 T2	19-09-2002			
			EP 0941502 A1	15-09-1999			
			JP 2001505497 T	24-04-2001			
			KR 2000057318 A	15-09-2000			
			TW 444140 B	01-07-2001			
			WO 9825181 A1	11-06-1998			
			US 6261664 B1	17-07-2001			
			US 6424786 B1	23-07-2002			
US 2001019748 A1	06-09-2001						
US 5973834	A	26-10-1999	CA 2249898 A1	19-06-1999			
			EP 0924538 A1	23-06-1999			
			JP 11248937 A	17-09-1999			
US 5889615	A	30-03-1999	AU 4997897 A	19-01-1999			
			CA 2293657 A1	07-01-1999			
			CN 1260047 A ,B	12-07-2000			
			EP 0991962 A1	12-04-2000			
			JP 2002508089 T	12-03-2002			
			TW 382068 B	11-02-2000			
			WO 9900682 A1	07-01-1999			
US 5751388	A	12-05-1998	DE 69626637 D1	17-04-2003			
			DE 69626637 T2	18-12-2003			
			EP 1258746 A2	20-11-2002			
			EP 1273959 A2	08-01-2003			
			EP 1258747 A2	20-11-2002			
			EP 1258748 A2	20-11-2002			
			EP 1258749 A2	20-11-2002			
			EP 0819259 A1	21-01-1998			

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/29353

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5751388	A		IL 117777 A	12-03-1999
			IL 126255 A	10-02-2002
			IL 126256 A	08-08-2001
			JP 3096851 B2	10-10-2000
			JP 11502036 T	16-02-1999
			US 6310671 B1	30-10-2001
			WO 9631794 A1	10-10-1996
			US 5999239 A	07-12-1999
US 5609939	A	11-03-1997	AU 6245994 A	28-02-1995
			CA 2168106 A1	09-02-1995
			WO 9504303 A1	09-02-1995
US 5161041	A	03-11-1992	US 5262880 A	16-11-1993
US 4697407	A	06-10-1987	US 4336092 A	22-06-1982
			JP 56134225 A	20-10-1981
US 4536063	A	20-08-1985	NONE	
US 4373065	A	08-02-1983	NONE	
US 4340275	A	20-07-1982	NONE	
US 4174874	A	20-11-1979	NONE	
US 4155630	A	22-05-1979	NONE	
US 4153654	A	08-05-1979	US 4114983 A	19-09-1978
			AU 513979 B2	15-01-1981
			AU 3339778 A	23-08-1979
			CA 1103499 A1	23-06-1981
			DE 2807414 A1	24-08-1978
			FR 2381323 A1	15-09-1978
			GB 1601029 A	21-10-1981
			IT 1101815 B	07-10-1985
			JP 1424764 C	15-02-1988
			JP 53125048 A	01-11-1978
			JP 62026441 B	09-06-1987
US 4035068	A	12-07-1977	CA 1064746 A1	23-10-1979
			GB 1551756 A	30-08-1979
US 3909111	A	30-09-1975	AU 7843275 A	26-08-1976
			BE 826025 A1	16-06-1975
			CA 1034413 A1	11-07-1978
			CH 592319 A5	31-10-1977
			DE 2508152 A1	28-08-1975
			FR 2262324 A1	19-09-1975
			GB 1499135 A	25-01-1978
			IT 1031148 B	30-04-1979
			JP 50122210 A	25-09-1975
			NL 7502275 A	29-08-1975
			SE 7501850 A	28-08-1975
			US 3996051 A	07-12-1976
			US 3712707	A

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 03/29353

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3437405	A	08-04-1969	NONE
US 3279314	A	18-10-1966	NONE
US 3262359	A	26-07-1966	GB 1043310 A 21-09-1966
US 2380241	A	10-07-1945	NONE
US 2378252	A	12-06-1945	NONE
US 2364369	A	05-12-1944	NONE
US 2362573	A	14-11-1944	NONE
US 2287556	A	23-06-1942	NONE
US 2180113	A	14-11-1939	NONE
US 1942841	A	09-01-1934	NONE
US 1666808	A	17-04-1928	NONE
US 997899	A		NONE