

INTRODUCTION .....	XVIII
STUDY GOALS AND OBJECTIVES.....	XVIII
CONTRIBUTIONS OF STUDY AND FOR WHOM.....	XVIII
AUDIENCE FOR REPORT .....	XIX
SCOPE AND FORMAT OF REPORT .....	XIX
METHODOLOGY AND INFORMATION SOURCES.....	XIX
ANALYSTS CREDENTIALS .....	XX
RELATED BCC PUBLICATIONS .....	XX
REPORTS .....	XX
MONTHLY NEWSLETTERS .....	XXI
BCC ON-LINE SERVICES.....	XXI
INTERNET .....	XXI
DISCLAIMER .....	XXI
SUMMARY.....	XXII
<i>SUMMARY TABLE GLOBAL MARKET FOR OPTICAL THIN FILM COATINGS BY</i>	
<i>MARKETS, THROUGH 2007 (\$ BILLIONS) .....</i>	<i>XXII</i>
<i>SUMMARY FIGURE MARKET FOR OPTICAL THIN FILM COATINGS BY</i>	
<i>APPLICATION, 2001-2007 (\$ BILLIONS).....</i>	<i>XXIV</i>
OVERVIEW .....	1
MARKET DEFINITION AND SCOPE .....	1
COATINGS ON GLASS SURFACES .....	1
COATINGS ON PLASTIC SURFACES .....	1
Antireflective Coatings.....	1
Reflective Coatings .....	2
HISTORY.....	2
<i>TABLE 1 COATING TECHNOLOGY TIMELINE.....</i>	<i>2</i>
History (Continued).....	3
PRODUCT TYPES.....	4
TRANSMISSIVE OR ANTI-REFLECTIVE COATINGS .....	4
Filters .....	4
Multilayer Stacks.....	5
REFLECTIVE.....	5
Metallic .....	5
Multi-Layer Stacks .....	5
ELECTROCHROMIC COATINGS.....	6
TRANSPARENT ELECTRODES .....	6
APPLICATIONS .....	6
TELECOMMUNICATIONS .....	6
TRANSPORTATION.....	7
ELECTRONICS AND INSTRUMENTATION.....	8
MEDICINE.....	8
ARCHITECTURE .....	8
DEFENSE.....	9

INDUSTRY STRUCTURE .....	9
COSTS .....	10
CONSOLIDATION.....	10
REGIONALIZATION.....	10
GOVERNMENT.....	11
U.S. REGULATIONS.....	11
DEPARTMENT OF JUSTICE.....	11
OSHA.....	11
FEDERAL TRADE COMMISSION (FTC).....	12
EUROPEAN REGULATIONS.....	12
THE EUROPEAN UNION EFFECT.....	12
ASIAN REGULATIONS .....	13
JAPAN .....	13
CHINA .....	13
OTHER ASIAN COUNTRIES .....	14
TECHNOLOGY .....	15
MATERIALS .....	15
OXIDES .....	15
<i>TABLE 2 COMMON OXIDES USED IN OPTICAL THIN FILMS</i> .....	15
Alumina.....	15
Silica.....	16
Indium Tin Oxide (ITO) .....	16
Titania.....	16
Tantalum Oxide.....	17
NONOXIDES.....	17
Fluorides .....	17
Sputtering .....	18
Evaporative Fluoride Coatings .....	18
Coating Yields .....	19
Metals.....	19
Aluminum and Silver.....	20
Gold and Copper .....	20
<i>TABLE 3 METALS COMMONLY USED IN OPTICAL THIN FILMS</i> .....	21
DEPOSITION TECHNIQUES .....	21
COATING UNDER VACUUM.....	22
Evaporative.....	22
Vacuum Chambers.....	22
Pumping Systems .....	22
Substrate Process.....	23
Evaporation Sources .....	23
Thermal Evaporation.....	23
Electron Beam (E-Beam) Bombardment .....	24
Ion-Beam Assisted Deposition (IAD).....	24

SPUTTERING .....	25
Magnetron Sputtering .....	25
Ion Beam Sputtering .....	26
PHYSICAL VAPOR DEPOSITION .....	26
SOL-GEL .....	27
Unpromising Results .....	27
Low Cost Allure .....	28
EQUIPMENT SUPPLIERS .....	28
TABLE 4 COATING EQUIPMENT SUPPLIERS .....	28
TABLE 4 (CONTINUED) .....	29
DEVICES .....	29
MIRRORS .....	30
MULTI-LAYER STACKS .....	30
Dense Wavelength Division Multiplexing (DWDM) .....	30
TABLE 5 SAMPLE WAVELENGTH FILTER STACK CHARACTERISTICS .....	31
TABLE 6 COATING COST FACTORS .....	31
Beamsplitters .....	31
Wideband Beamsplitters .....	32
Dichroic Beamsplitters .....	32
TRANSPARENT CONDUCTORS .....	32
COATING PRICE MODEL .....	33
TABLE 7 FACTORS IN PRICING .....	33
HIGH VOLUME PROCESSES .....	33
Captive vs. Merchant .....	33
LOW VOLUME PROCESSES .....	34
MODEL METHODOLOGY .....	34
TABLE 8 AVERAGE GLOBAL PRICES FOR COATINGS, THROUGH 2007 (\$) .....	35
Anti-Reflective (AR) .....	35
Multi-Stack Layer Coatings .....	36
Transparent Electrodes .....	37
Metallic .....	37
COMPETING TECHNOLOGIES .....	37
COMPETING TECHNOLOGIES (CONTINUED) .....	38
PRODUCT TYPES .....	39
OVERVIEW .....	39
TABLE 9 MOST COMMON TYPES OF COATINGS .....	40
TABLE 10 GLOBAL COATING REVENUES, THROUGH 2007 (\$ BILLIONS) .....	41
FIGURE 1 GLOBAL COATING REVENUES, 2001-2007 (\$ BILLIONS) .....	42
REVENUES BY APPLICATION COATING TYPE .....	42
TABLE 11 REVENUE SHARE BY COATING TYPE, THROUGH 2007 (%) .....	43
TABLE 12 GLOBAL REVENUE BY COATING TYPE, THROUGH 2007 (\$ BILLION) .....	43
ANTI-REFLECTIVE COATINGS .....	43
TABLE 13 GLOBAL ANTI-REFLECTIVE COATING MARKET, THROUGH 2007 (\$	
BILLIONS) .....	44
TABLE 14 GLOBAL ANTI-REFLECTIVE COATING MARKET, THROUGH 2007	
(BILLION UNITS) .....	45

<i>FIGURE 2 GLOBAL AR COATING MARKET, 2001-2007 (BILLION UNITS)</i> .....	45
Captive vs. Merchant .....	45
<i>TABLE 15 CAPTIVE VS MERCHANT ANTI-REFLECTIVE COATINGS, THROUGH 2007 (UNIT BILLIONS)</i> .....	46
FILTERS.....	47
Beamsplitters.....	47
<i>TABLE 16 GLOBAL REVENUES FOR TELECOMMUNICATIONS FILTERS, THROUGH 2007 (\$ MILLIONS)</i> .....	47
<i>FIGURE 3 GLOBAL TELECOMMUNICATIONS FILTER REVENUES, 2001-2007 (\$ MILLIONS)</i> .....	48
Filter Materials.....	48
<i>TABLE 17 FILTER MATERIAL</i> .....	49
REFLECTIVE COATINGS .....	49
<i>TABLE 18 TYPICAL METALLIC MIRROR</i> .....	50
<i>TABLE 19 GLOBAL REVENUE FOR METALLIC COATINGS BY COMPOSITION, THROUGH 2007 (\$ MILLIONS)</i> .....	50
ELECTROCHROMIC .....	51
<i>TABLE 20 GLOBAL ELECTROCHROMIC COATING REVENUES, THROUGH 2007 (\$ MILLIONS)</i> .....	51
<i>FIGURE 4 GLOBAL ELECTROCHROMIC COATING REVENUES, 2001-2007 (\$ MILLIONS)</i> .....	52
TRANSPARENT ELECTRODES .....	52
<i>TABLE 21 GLOBAL TRANSPARENT ELECTRODE COATINGS REVENUES, THROUGH 2007 (\$ BILLIONS)</i> .....	53
<i>FIGURE 5 GLOBAL TRANSPARENT ELECTRODE COATING REVENUES 2001- 2007 (\$ BILLIONS)</i> .....	53
INFRARED (IR) MATERIALS .....	54
<i>TABLE 22 GLOBAL IR COATINGS REVENUES, THROUGH 2007 (\$ MILLIONS)</i> .....	54
APPLICATIONS .....	55
<i>TABLE 23 SUMMARY OF GLOBAL COATINGS BY APPLICATION MARKETS, THROUGH 2007 (\$ BILLIONS)</i> .....	55
<i>FIGURE 6 SUMMARY OF COATING APPLICATION MARKETS, 2001-2007 (\$ BILLIONS)</i> .....	56
TELECOMMUNICATIONS .....	56
TELECOMMUNICATION MARKET OVERVIEW .....	57
<i>TABLE 24 ISSUES AND EFFECTS IN TELECOMMUNICATIONS MARKET FOR COATINGS</i> .....	57
Increased Competition.....	57
Lower Prices.....	58
Consolidation .....	58
Economic Slowdown .....	58
International Factors .....	59
BANDWIDTH GLUT?.....	59
Vendor Financing .....	60
WORLDWIDE FIBER DEPLOYMENT .....	60
Short-term Market Shift .....	61
<i>TABLE 25 LENGTH OF NEW NETWORK FIBER INSTALLED, THROUGH 2007 (MILLION FIBER KILOMETERS)</i> .....	62

<i>FIGURE 7 LENGTH OF NEW NETWORK FIBER INSTALLED, 2001-2007 (MILLION FIBER KILOMETERS)</i> .....	63
Future Demand.....	63
Regional .....	63
<i>TABLE 26 REGIONAL FIBER DEPLOYMENT, THROUGH 2007 (%)</i> .....	64
Upcoming Applications.....	64
LONG HAUL NETWORKS .....	65
Signal Regeneration .....	65
DWDM Channels.....	65
Filter Characteristics .....	65
Yield.....	66
DWDM Networks.....	66
Filter Unit Calculation .....	67
<i>TABLE 27 LONG HAUL NETWORK CHARACTERISTICS</i> .....	67
Price.....	68
<i>TABLE 28 GLOBAL FILTER PRICES, THROUGH 2007 (\$)</i> .....	68
<i>FIGURE 8 GLOBAL FILTER PRICES, 2001-2007 (\$)</i> .....	69
Economic Slowdown.....	69
More Producers .....	69
New Technologies.....	69
Long Haul Revenues.....	70
<i>TABLE 29 GLOBAL LONG-HAUL FILTER REVENUE CALCULATION, THROUGH 2007</i> .....	70
Production Yields .....	71
Dark Fiber .....	71
<i>FIGURE 9 GLOBAL LONG HAUL FILTER REVENUES, 2001-2007 (\$ MILLIONS)</i> .....	72
Projected Revenue.....	72
R&D.....	73
DWDM Applications .....	73
METRO/NETWORKS/CABLE.....	73
Metro/Access Market Overview .....	73
<i>TABLE 30 GLOBAL COATING REVENUES FROM CABLE TELEVISION FIBER NETWORKS, THROUGH 2007 (\$ MILLIONS)</i> .....	74
U.S. ....	74
Europe .....	75
Asia .....	75
Fiber to the Home .....	76
<i>FIGURE 10 GLOBAL COATINGS REVENUES FOR CABLE TV FIBER NETWORKS BY REGION, 2001-2007 (\$ MILLIONS)</i> .....	76
Cable Market Model Network.....	77
Worldwide Cable Subscribers.....	77
<i>TABLE 31 GLOBAL CABLE SUBSCRIBERS BY REGION, THROUGH 2007 (MILLIONS)</i> .....	78
<i>FIGURE 11 GLOBAL CABLE SUBSCRIBERS BY REGION, 2001-2007 (MILLIONS)</i> .....	79
Cable Subscribers in the U.S. ....	79
<i>TABLE 32 CABLE SUBSCRIBERS IN THE U.S., THROUGH 2007</i> .....	80
<i>TABLE 33 CANADIAN CABLE SUBSCRIBERS, THROUGH 2007 (MILLIONS)</i> .....	80

Cable Subscribers in Japan.....	80
<i>TABLE 34 CABLE SUBSCRIBERS IN JAPAN, THROUGH 2007.....</i>	<i>81</i>
Cable Subscribers in Europe and Israel.....	81
<i>TABLE 35 CABLE SUBSCRIBERS IN EUROPE AND ISRAEL, THROUGH 2007.....</i>	<i>82</i>
Filters Per Hub .....	82
Wavelength per Fiber .....	82
Fibers per Hub .....	82
<i>TABLE 36 MODEL HUB PARAMETERS, 2001-2007 .....</i>	<i>83</i>
<i>TABLE 37 GLOBAL TOTAL OF HUBS WITH FIBER, THROUGH 2007 .....</i>	<i>84</i>
Filters Deployed in Cable Systems .....	84
<i>TABLE 38 GLOBAL MARKET FOR FILTERS DEPLOYED IN CATV NETWORKS, THROUGH 2007 (UNITS MILLIONS).....</i>	<i>85</i>
<i>TABLE 39 GLOBAL MARKET FOR LAYERS DEPLOYED IN CATV FIBER NETWORKS, THROUGH 2007 (MILLIONS) .....</i>	<i>86</i>
TRANSPORTATION .....	86
AUTOMOTIVE OVERVIEW .....	86
<i>TABLE 40 GLOBAL VEHICLE COATING REVENUES, THROUGH 2007 (\$ MILLIONS) .....</i>	<i>87</i>
<i>FIGURE 12 GLOBAL VEHICLE COATING REVENUES BY CATEGORY, 2001-2007 (\$ MILLIONS).....</i>	<i>88</i>
Vehicle Window Revenues .....	88
Consumer Vehicles .....	89
<i>TABLE 41 GLOBAL VEHICLE WINDOW COATING REVENUES, THROUGH 2007 (\$ MILLIONS).....</i>	<i>89</i>
Commercial Vehicles .....	89
Mirrors .....	90
<i>TABLE 42 GLOBAL VEHICLE MIRROR COATING REVENUES, THROUGH 2007 (\$ MILLIONS) .....</i>	<i>90</i>
Consumer Vehicles .....	90
Commercial Vehicles .....	91
Instrument Panels.....	91
<i>TABLE 43 GLOBAL VEHICLE INSTRUMENT PANEL COATING REVENUES, THROUGH 2007 (\$ MILLIONS) .....</i>	<i>92</i>
Consumer Vehicles .....	92
Commercial Vehicles .....	92
Electrochromic Coatings .....	92
<i>TABLE 44 GLOBAL VEHICLE ELECTROCHROMIC COATING REVENUES, THROUGH 2007 (\$ MILLIONS).....</i>	<i>93</i>
<i>FIGURE 13 GLOBAL AUTOMOTIVE ELECTROCHROMIC COATING REVENUES, 2001-2007 (\$ MILLIONS).....</i>	<i>94</i>
VEHICLE VOLUMES.....	94
Cars and Light Trucks .....	94
<i>TABLE 45 GLOBAL CONSUMER VEHICLE SALES VOLUME, THROUGH 2007 (MILLION UNITS) .....</i>	<i>95</i>
<i>FIGURE 14 GLOBAL CONSUMER VEHICLE SALES VOLUME, 2001-2007 (MILLION UNITS) .....</i>	<i>96</i>
Commercial Vehicles .....	96
<i>TABLE 46 GLOBAL COMMERCIAL VEHICLE SALES VOLUME, THROUGH 2007 (MILLIONS).....</i>	<i>97</i>

ANTI-REFLECTIVE COATINGS IN VEHICLES.....	97
TABLE 47 GLOBAL NUMBER OF VEHICLE ANTI-REFLECTIVE COATINGS, THROUGH 2007 (MILLION UNITS).....	98
MIRRORS .....	98
TABLE 48 GLOBAL NUMBER OF VEHICLE MIRRORS, THROUGH 2007 (MILLION UNITS).....	99
Margins .....	99
ELECTROCHROMIC .....	99
TABLE 49 GLOBAL ELECTROCHROMIC MIRROR MARKET, THROUGH 2007 (MILLION UNITS) .....	100
Gentex Corporation .....	100
Donnelly Corporation .....	101
OPTICAL SENSING SYSTEMS IN TRANSPORTATION .....	101
Intelligent Transportation Systems Market Background .....	101
Regional Differences .....	102
Recent Technology Introductions.....	102
Autovue .....	103
Night Vision Systems .....	104
Technology .....	104
Night Vision Market .....	105
Other Visible Systems for Vehicles .....	105
Fujitsu .....	105
Donnelly .....	105
Buyer Influence.....	106
Outlook .....	106
TABLE 50 TRENDS IN NIGHT VISION TECHNOLOGY.....	107
Issues and Challenges .....	107
Revenues .....	107
TABLE 51 GLOBAL THERMAL IMAGING REVENUES IN VEHICLES, THROUGH 2007.....	108
Safety and Security .....	109
ELECTRONICS AND INSTRUMENTATION .....	109
TABLE 52 GLOBAL COATING REVENUES FOR ELECTRONIC AND INSTRUMENTATION, THROUGH 2007 (\$ BILLIONS) .....	110
PHOTOGRAPHY.....	111
TABLE 53 GLOBAL CONSUMER STILL CAMERA MARKETS, 2001 (%).....	111
Camera Sales .....	112
Digital.....	112
TABLE 54 DIGITAL STILL CAMERAS, GLOBAL VOLUME AND SALES, THROUGH 2007.....	113
Non-Digital Still Cameras .....	113
TABLE 55 NON-DIGITAL STILL CAMERAS GLOBAL VOLUME AND SALES, THROUGH 2007.....	114
High-End Cameras .....	114
Global Economics .....	115
Web Camera Coatings .....	115
TABLE 56 GLOBAL COATINGS REVENUES FOR WEB CAMERAS, THROUGH 2007 .....	115

Camcorder Coatings .....	116
TABLE 57 CONSUMER CAMCORDERS, GLOBAL VOLUME AND SALES, THROUGH 2007 .....	116
Television Cameras .....	117
Digital.....	117
TABLE 58 TELEVISION CAMERAS COATINGS GLOBAL VOLUME, THROUGH 2007 (UNITS MILLIONS).....	118
TABLE 59 CAPTIVE VS MERCHANT TV CAMERA COATINGS REVENUES, THROUGH 2007 (\$ MILLIONS) .....	118
CONSUMER ELECTRONIC DEVICES .....	119
Coated Surfaces .....	119
TABLE 60 GLOBAL COATED PANEL DISPLAYS VOLUME AND SALES, THROUGH 2007 .....	119
Cellular Phones.....	120
TABLE 61 GLOBAL CELL PHONE COATING REVENUES, THROUGH 2007 (\$ MILLIONS) .....	120
AR Coating Revenues .....	121
Transparent Electrode Coatings.....	121
Personal Digital Assistants (PDAs) .....	122
TABLE 62 GLOBAL PDA COATING REVENUES, THROUGH 2007 (\$ MILLIONS).....	122
Market Background .....	123
AR Coating Revenues for PDAs.....	123
ITO Coating Revenues for PDAs .....	124
Televisions.....	124
TABLE 63 GLOBAL TELEVISION AR COATING REVENUES, THROUGH 2007.....	124
Calculators .....	125
TABLE 64 GLOBAL CALCULATOR COATING REVENUES, THROUGH 2007 (\$ MILLIONS) .....	125
Computers .....	126
TABLE 65 GLOBAL COATING REVENUES FOR DESKTOP COMPUTER MONITORS, THROUGH 2007 (\$ MILLIONS).....	127
Laptop Computers .....	127
TABLE 66 GLOBAL LAPTOP COMPUTER COATING REVENUES, THROUGH 2007 (\$ MILLIONS) .....	128
Pagers.....	129
TABLE 67 GLOBAL COATING REVENUES FOR PAGERS, THROUGH 2007 (\$ MILLIONS) .....	129
Gas Dispensers.....	130
TABLE 68 GLOBAL COATING REVENUES FOR GAS DISPENSERS, THROUGH 2007 (\$ MILLIONS).....	130
Point of Sale (POS) Devices.....	131
TABLE 69 GLOBAL COATING REVENUES FROM POS DEVICES, THROUGH 2007 (\$ MILLIONS).....	131
Compact Disk (CD), Digital Versatile Disk (DVD).....	131
TABLE 70 GLOBAL COATING REVENUES FROM AUDIO EQUIPMENT, THROUGH 2007 .....	132
INDUSTRIAL LASER SYSTEMS .....	133
TABLE 71 LASER PRODUCTION IN 2000.....	134
Revenues .....	134



TABLE 72 GLOBAL LASERS AND COATED SURFACES VOLUME, THROUGH 2007.....	134
Opportunity .....	135
MEDICAL APPLICATIONS.....	135
Eyewear Lenses .....	135
TABLE 73 EYEGLASS MARKET IN THE U.S., THROUGH 2007 (UNITS MILLIONS).....	136
Eyewear Lenses (Continued).....	137
TABLE 74 WORLD POPULATION, THROUGH 2007 (MILLIONS).....	138
TABLE 75 GLOBAL EYEGLASS MARKET, THROUGH 2007 (MILLION UNITS).....	139
TABLE 76 GLOBAL EYEGLASS COATING REVENUES, THROUGH 2007 (\$	
MILLIONS) .....	140
ARCHITECTURAL.....	141
TABLE 77 ARCHITECTURAL COATING REVENUES, THROUGH 2007.....	141
DEFENSE .....	142
TABLE 78 GLOBAL COATINGS REVENUES FOR DEFENSE APPLICATIONS,	
THROUGH 2007 (\$ MILLIONS) .....	143
TABLE 79 GLOBAL NIGHT VISION COATING REVENUES FROM LAW	
ENFORCEMENT, THROUGH 2007 .....	144
INDUSTRY DYNAMICS .....	145
STRUCTURE .....	145
MERGERS AND ACQUISITIONS .....	145
MARKET INFLECTION POINT.....	146
Telecom Industry.....	146
Other Potential High-End Markets .....	146
NEW ENTRANTS .....	147
Shrinking Margins .....	147
Start-Ups.....	148
INTERNATIONAL COMPETITION.....	148
DISTRIBUTION .....	148
TABLE 80 SYSTEM INTEGRATORS, 2000.....	149
COMPETITIVE FACTORS .....	149
TABLE 81 COMPETITION FACTORS .....	149
WORLDWIDE ECONOMIC CONDITIONS .....	150
North America .....	150
Internet and Cable Television .....	150
Deployment Outstrips Demand .....	150
Slow Recovery .....	151
Europe .....	151
Asia.....	152
PRICE .....	152
Higher Margins Applications .....	152
Competing Technologies.....	153
Used Technology .....	153
QUALITY.....	153
Yield .....	153
AVAILABILITY AND DELIVERY .....	153
Automation of Production .....	154

CUSTOMER SERVICE.....	154
INNOVATION.....	154
COMPETITORS BY APPLICATION MARKET.....	155
NETWORK SYSTEMS PROVIDERS.....	155
TABLE 82 OPTICAL NETWORK SYSTEMS PROVIDERS.....	155
JDS Uniphase .....	155
Corning.....	156
Lucent.....	156
Nortel.....	156
Other Competitors .....	157
COATED GLASS PANELS.....	157
TABLE 83 LARGE ASIAN COATING HOUSES, 2002.....	157
COATING CUSTOMERS .....	157
DWDM FILTERS .....	157
GLOBAL MARKETS .....	158
TABLE 84 REGIONAL COATINGS MARKET SHARE, 2001-2007 (%).....	158
TABLE 85 REGIONAL REVENUE SHARE GLOBAL COATINGS MARKET, THROUGH 2007 (\$ BILLIONS).....	159
NORTH AMERICA .....	159
Short-Term Squeeze .....	159
EUROPE.....	160
ASIA.....	160
Japan.....	160
Optics.....	160
China.....	161
Internet Growth .....	161
COMPANY LIST .....	162
MATERIAL PROVIDERS.....	162
ALL-CHEMIE, LTD. ....	162
CERAC.....	162
GFS CHEMICALS, INC.....	163
REFLEX ANALYTICAL CORP. ....	163
TARGET MATERIALS, INC. (TMI).....	163
EQUIPMENT MANUFACTURERS .....	164
IGC-POLYCOLD SYSTEMS .....	164
ULVAC JAPAN, LTD.....	164
UNAXIS BALZERS.....	164
VACUUM PROCESS TECHNOLOGY, INC.....	165
COATING SERVICES COMPANIES .....	165
ABRISA GLASS & COATINGS, INC.....	166
ACCUCOAT INC.....	166
ACT MICRODEVICES, INC.....	166
ALIGN OPTICS INC.....	166
ANDOVER CORPORATION .....	167

APOGEE.....	167
APPLIED FILM CORP. ....	167
BALZERS THIN FILMS INC. ....	168
BARR ASSOCIATES.....	168
CORNING OCA CORP. ....	169
DENTON VACUUM, LLC .....	169
DICON FIBEROPTICS, INC.....	169
DONTECH, INC.....	170
DYNAVAC .....	170
EVAPORATED COATINGS, INC. ....	170
EVAPORATED METAL FILMS (EMF) OPTICS .....	170
FLIR SYSTEMS OPTRONICS .....	171
FOSTA-TEK OPTICS, INC.....	171
HAMPTON SCIENTIFIC, INC. ....	171
HOYA CORP-OPTICS DIV.....	172
HUDSON OPTICAL LABORATORIES, INC. ....	172
II-VI.....	172
INTEGRATED OPTICAL SERVICES CORP. ....	173
IRIDIAN SPECTRAL TECHNOLOGIES, LTD.....	173
JDSU UNIPHASE.....	173
KODAK OPTICAL PRODUCTS.....	174
LASER OPTICS, INC.....	175
LENS TECHNOLOGY I, LLC .....	175
METAVAC, A DIV. OF THE NAUGATUCK GLASS CO.....	175
NEWPORT THIN FILM LABORATORY, INC.....	175
OPHIR OPTRONICS LTD. ....	176
O & S RESEARCH, INC. ....	176
OPTI-FORMS, INC. ....	176
OPTICAL COATINGS.COM.....	177
OPTICAL COMPONENTS, INC. ....	177
OPTICORP INC. ....	177
OPTOPLEX .....	178
PPG .....	178
PRECISION OPTICS CORP., INC., (POCI) .....	179
REPUBLIC LENS CO., INC.....	179
RESEARCH ELECTRO-OPTICS, INC. ....	179
REYNARD CORP.....	180
SELECTRON MANAGEMENT CORP. ....	180
STERLING PRECISION OPTICS.....	180
TAYSIDE OPTICAL TECHNOLOGY LTD. ....	181
THIN FILM COATING.....	181
THIN FILM TECHNOLOGY, INC.....	181
THIN-FILMS RESEARCH, INC. ....	181

VACUUM PROCESS TECHNOLOGY, INC..... 182