

<u>CHAPTER ONE: INTRODUCTION</u>	1
<u>STUDY GOALS AND OBJECTIVES</u>	1
<u>REASONS FOR DOING THIS STUDY</u>	1
<u>INTENDED AUDIENCE</u>	1
<u>SCOPE OF REPORT</u>	2
<u>METHODOLOGY</u>	2
<u>INFORMATION SOURCES</u>	2
<u>ANALYST CREDENTIALS</u>	3
<u>RELATED BCC WORK CREDENTIALS</u>	3
<u>BCC ONLINE SERVICES</u>	3
<u>DISCLAIMER</u>	3
<u>CHAPTER TWO: SUMMARY</u>	4
<u>SUMMARY</u>	4
<u>SUMMARY TABLE THE ORGANIC LIGHT-EMITTING DIODE</u>	
<u>MARKET THROUGH 2014 (\$ MILLIONS)</u>	5
<u>SUMMARY FIGURE VALUE OF OLED SHIPMENTS, 2008 AND 2014 (\$</u>	
<u>MILLIONS)</u>	5
<u>CHAPTER THREE: OVERVIEW</u>	6
<u>THE LIGHT-EMITTING DIODE</u>	6
<u>ORGANIC LIGHT-EMITTING DIODES</u>	7
<u>TABLE 1 GENERAL TYPES OF ORGANIC LEDES</u>	7
<u>TABLE 2 MAJOR APPLICATIONS OF OLEDS</u>	8
<u>OLED MATERIALS</u>	9
<u>TABLE 3 BASIC MATERIALS USED FOR OLEDS</u>	9
<u>CHAPTER FOUR: INDUSTRY STRUCTURE</u>	10
<u>TABLE 4 KEY COMPANIES INVOLVED IN THE OLED DISPLAY AND</u>	
<u>LIGHTING INDUSTRIES</u>	10
<u>TABLE 4 (CONTINUED)</u>	11
<u>TABLE 4 (CONTINUED)</u>	12
<u>LABORATORY AND UNIVERSITY INVOLVEMENT</u>	13
<u>TABLE 5 RESEARCH FACILITIES, UNIVERSITIES AND OTHERS</u>	
<u>INVOLVED IN ORGANIC LEDES</u>	14
<u>Semiconductor Energy Lab</u>	15
<u>Princeton University and University of Southern</u>	
<u>California</u>	15
<u>Georgia Tech</u>	15
<u>OLED MANUFACTURING</u>	16
<u>MOST MANUFACTURING DONE IN FAR EAST</u>	16
<u>TABLE 6 GLOBAL OLED MANUFACTURING SHARE BY REGION</u>	
<u>2008-2014 (%)</u>	17

<u>FIGURE 1 OLED MANUFACTURING SHARE BY REGION, 2008, 2009 AND 2014 (%)</u>	17
<u>OLED CONSUMPTION</u>	18
<u>REGIONAL OLED CONSUMPTION IS MORE EVENLY DISTRIBUTED</u>	18
<u>TABLE 7 OLED CONSUMPTION BY REGION, 2008-2014 (%)</u>	18
<u>FIGURE 2 OLED DISPLAY CONSUMPTION, 2008-2014 (%)</u>	19
<u>OLED MARKET LEADERS</u>	20
<u>TABLE 8 ESTIMATED MARKET LEADERS IN ORGANIC LED TECHNOLOGY FOR DISPLAYS AND LIGHTING (%)</u>	20
<u>FIGURE 3 ESTIMATED MARKET LEADERS IN THE ORGANIC DISPLAY AND LIGHTING INDUSTRIES (%)</u>	21
<u>COMPANY PROFILES</u>	22
<u>AUO OPTRONICS</u>	22
<u>CAMBRIDGE DISPLAY TECHNOLOGY LTD.</u>	22
<u>CHI MEI OPTOELECTRONICS</u>	23
<u>DUPONT CORP.</u>	23
<u>EASTMAN KODAK</u>	24
<u>GENERAL ELECTRIC GLOBAL RESEARCH</u>	25
<u>HANNSTAR DISPLAY CORP.</u>	25
<u>HITACHI DISPLAYS LTD.</u>	26
<u>LG ELECTRONICS, INC.</u>	26
<u>MERCK KGGA</u>	27
<u>NISSAN CHEMICAL INDUSTRIES LTD.</u>	27
<u>NOVALED AG</u>	28
<u>OLED-T LTD.</u>	28
<u>OSRAM OPTO SEMICONDUCTOR</u>	29
<u>RITDISPLAY COMPANY</u>	30
<u>SAMSUNG SEMICONDUCTOR INC.</u>	30
<u>SEIKO-EPSON</u>	31
<u>SIEMENS ENERGY AND AUTOMATION</u>	31
<u>TOHOKU PIONEER CORP.</u>	32
<u>TPO DISPLAYS</u>	32
<u>UNIVERSAL DISPLAY CORP.</u>	33
<u>VITEX SYSTEMS INC.</u>	33
<u>CHAPTER FIVE: ORGANIC LED INDUSTRY COMPETITIVENESS</u>	34
<u>OLED DISPLAY INDUSTRY CHARACTERISTICS</u>	34
<u>THE CRT VERSUS THE FLAT-PANEL DISPLAY</u>	35
<u>TABLE 9 PRACTICAL PROBLEMS WITH THE CRT DISPLAY</u>	35
<u>Early Flat Panels Costly and Difficult to Make</u>	36
<u>Flat Panels Surpass CRT</u>	36
<u>CONTINUED EXPANSION OF FLAT PANEL TECHNOLOGY</u>	36
<u>TABLE 10 PRODUCT AND MARKET FACTORS FAVORING FLAT-PANEL DISPLAYS</u>	36

<u>OLED LIGHTING INDUSTRY CHARACTERISTICS</u>	37
<u>GLOBAL LIGHTING PERSPECTIVE</u>	37
<u>TABLE 11 ESTIMATED GLOBAL CONSUMPTION OF ENERGY, 2008</u>	37
<u>THE SEARCH FOR MORE EFFICIENT LIGHTING</u>	38
<u>SOLID-STATE LIGHTING</u>	38
<u>TABLE 12 BENEFITS OF SOLID-STATE (LED) LIGHTING</u>	39
<u>GOVERNMENT/INDUSTRY SUPPORT FOR OLED DISPLAYS</u>	39
<u>UNITED STATES OLED DISPLAYS SUPPORT</u>	39
<u>Flex Tech Alliance</u>	39
<u>TABLE 13 MISSION OF THE FLEX TECH ALLIANCE</u>	40
<u>SEMI Flat-panel Display Division</u>	40
<u>Phosphor Technology Center of Excellence (PTCOE)</u>	41
<u>TABLE 14 MAJOR ACTIVITIES AT PTCOE</u>	42
<u>Impact of U.S. Display Activities</u>	42
<u>EUROPEAN OLED DISPLAY SUPPORT ACTIVITIES</u>	42
<u>TABLE 15 KEY GOALS OF EUROPEAN DISPLAY EFFORTS</u>	43
<u>European Commission Programs</u>	43
<u>German Flat Panel Display Forum (DFF)</u>	44
<u>TABLE 16 MISSION OF THE GERMAN FLAT PANEL DISPLAY</u> <u>FORUM</u>	44
<u>Impact of European Display Support</u>	45
<u>ASIA-PACIFIC AND CHINA SUPPORT ACTIVITIES</u>	45
<u>Japanese Involvement</u>	45
<u>TABLE 17 DEVELOPMENT OF THE JAPANESE DISPLAY INDUSTRY</u>	45
<u>Japan's Industry Association</u>	46
<u>Republic of Korea</u>	46
<u>Taiwan</u>	47
<u>Singapore's Activities</u>	47
<u>TABLE 18 GOALS OF THE SINGAPORE INSTITUTE OF MATERIALS</u> <u>RESEARCH & ENGINEERING</u>	48
<u>China Joins the Display Manufacturers</u>	48
<u>DISPLAY GOVERNMENT/INDUSTRY SUPPORT SUMMARY</u>	48
<u>GOVERNMENT/INDUSTRY SUPPORT FOR OLED LIGHTING</u>	49
<u>UNITED STATES ORGANIC LIGHTING SUPPORT</u>	49
<u>Department of Energy (DOE) Programs</u>	49
<u>TABLE 19 INTERACTIVE PATHWAYS FOR DOE RESEARCH</u>	49
<u>High-Efficiency Blue Emitting OLED Devices for</u> <u>Lighting</u>	50
<u>Transparent Conductive Oxides for Organic</u> <u>Lighting Using Combinatorial Techniques</u>	50
<u>High-quality, Low-cost Transparent Conductive</u> <u>Oxides</u>	50
<u>High-Efficiency, Long Lifetime OLEDs with Stable</u> <u>Cathode Nanostructures</u>	50

<u>Long-term Device Stability via Transmission</u>	
<u>Electron Microscopy</u>	51
<u>Industry Support</u>	51
<u>EUROPEAN ORGANIC LIGHTING SUPPORT</u>	52
<u>European Photonics Industry Consortium</u>	52
<u>TABLE 20 GOVERNING BOARD MEMBERS OF EPIC</u>	52
<u>Organic LED Lighting in European Dimensions</u>	52
<u>TABLE 21 PARTICIPANTS IN OLED100.EU</u>	53
<u>JAPANESE SUPPORT ACTIVITY</u>	54
<u>Japanese Firms Form Joint Venture for OLED Lighting</u>	54
<u>Japanese Government Supports OLED Research</u>	54
<u>OLED LIGHTING SUPPORT IN CHINA</u>	55
<u>LIGHTING, INDUSTRY SUPPORT SUMMARY</u>	55
<u>THE GLOBAL ECONOMIC CRISIS</u>	55
<u>CURRENT SITUATION</u>	56
<u>Drop in GDP and Falling Consumer Sales</u>	56
<u>TABLE 22 FIRST QUARTER 2009 ECONOMIC MILESTONES (%)</u>	57
<u>TABLE 23 ECONOMIC FACTORS IMPACTING THE ORGANIC LED</u>	
<u>INDUSTRY</u>	57
<u>Impact on Current demand</u>	58
<u>The Current Consensus on the Technology Industry</u>	58
<u>The Economists View</u>	58
<u>Long Term Look at the Economy</u>	59
<u>TABLE 24 ECONOMIC ASSUMPTIONS FOR THE GROWTH OF</u>	
<u>ORGANIC LEDS, 2009-2014</u>	59
<u>OLED TECHNOLOGY DEVELOPMENT</u>	60
<u>MARKET GROWTH FACTORS</u>	60
<u>Driving Forces for Growth</u>	61
<u>Impact of Market Growth Factors</u>	61
<u>TABLE 25 IMPACT OF KEY COMPETITIVENESS FACTORS ON THE</u>	
<u>GROWTH OF THE ORGANIC LED INDUSTRY (%)</u>	62
<u>FIGURE 4 IMPACT OF INDUSTRY COMPETITIVENESS FACTORS</u>	
<u>ON THE GROWTH OF ORGANIC LEDS (%)</u>	62
<u>CHAPTER SIX: THE ORGANIC LED MARKET</u>	63
<u>MARKET APPROACH</u>	63
<u>MARKET PERSPECTIVE</u>	63
<u>TABLE 26 ESTIMATED GLOBAL ORGANIC LED REVENUES AND</u>	
<u>MARKET SHARE BY TECHNOLOGY, 2008 (\$ MILLIONS, SHARE %)</u>	63
<u>FIGURE 5 TOTAL GLOBAL ORGANIC LED MARKET, 2008 (\$</u>	
<u>MILLIONS)</u>	64
<u>MARKET ANALYSIS</u>	65
<u>MEASUREMENT OBJECTIVES</u>	65

CHAPTER SEVEN: THE ORGANIC LIGHT-EMITTING DISPLAY

<u>MARKET</u>	66
<u>ORIGIN AND HISTORY</u>	66
<u>ORIGIN AND HISTORY (CONTINUED)</u>	67
<u>OLED DISPLAY MARKET STRUCTURE</u>	68
<u>TABLE 27 CURRENT OLED DISPLAY MANUFACTURERS, 2009</u>	68
<u>TABLE 27 (CONTINUED)</u>	69
<u>BASIC OLED TECHNOLOGY</u>	70
<u>THE MECHANICS OF LIGHT EMISSION</u>	70
<u>DISPLAY COMPONENTS</u>	70
<u>TABLE 28 TYPICAL OLED DISPLAY LAYERED STRUCTURE</u>	71
<u>Passive versus Active Displays</u>	71
<u>Active-matrix OLEDs</u>	72
<u>Using TFT Infrastructure</u>	72
<u>OTHER TYPES OF OLED DISPLAYS</u>	73
<u>Transparent OLEDs</u>	73
<u>TABLE 29 PROPERTIES OF TRANSPARENT OLEDs</u>	74
<u>Top Emission OLEDs</u>	74
<u>Flexible OLED</u>	74
<u>Stacked OLEDs</u>	75
<u>Flexible Display Initiative</u>	75
<u>MORE ON POLYMER OLED DISPLAYS</u>	75
<u>Developments in P-OLED Technology</u>	76
<u>Similar Principles of Operation</u>	76
<u>TABLE 30 BASIC OPERATION OF A P-OLED</u>	76
<u>P-OLEDs also Have Active and Passive Drivers</u>	77
<u>FABRICATING OLEDs</u>	77
<u>TABLE 31 MAJOR METHODS OF FABRICATION OF OLED DISPLAYS</u>	78
<u>Vacuum Thermal Evaporation</u>	78
<u>Organic Phase Deposition</u>	78
<u>Inkjet Printing</u>	79
<u>Advantages for Flexible Displays</u>	79
<u>TECHNICAL COMPARISON BETWEEN THE OLED AND</u> <u>LCD DISPLAYS</u>	79
<u>TABLE 32 MAKING A TFT LCD VERSUS AN ACTIVE-MATRIX OLED</u>	80
<u>ORGANIC DISPLAY TECHNOLOGY DEVELOPMENT</u>	81
<u>OLED DISPLAY PATENT ANALYSIS</u>	82
<u>SCOPE OF PATENT ACTIVITY IN THIS REPORT</u>	82
<u>TABLE 33 TOTAL PATENTS RELATING TO OLED DISPLAYS AND</u> <u>LIGHTING, 2007-2009</u>	82
<u>FIGURE 6 NUMBER OF PATENTS RELATING TO OLED DISPLAYS</u> <u>AND LIGHTING 2007-2009</u>	83
<u>A LOOK AT DISPLAY PATENTS</u>	83
<u>PATENTS BY TECHNICAL SUBJECT</u>	84

<u>TABLE 34 OLED DISPLAY PATENTS BY TECHNICAL CATEGORY</u>	
<u>2007-2009</u>	84
<u>PATENTS BY COMPANY</u>	85
<u>TABLE 35 OLED PATENTS BY COMPANY 2007-2009</u>	85
<u>SAMPLE PATENT ABSTRACTS</u>	86
<u>Active-matrix Organic Light-emitting Diode Display</u>	86
<u>Pixel Driving Circuit and Its Use in Active-matrix Display</u>	86
<u>Water Dispersible Polyanilines for Electronics</u>	
<u>Applications</u>	86
<u>Organic Light-emitting Diode Display</u>	87
<u>Driving Method for OLED Display</u>	87
<u>OLED DISPLAY MATERIALS</u>	88
<u>TABLE 36 BASIC MATERIALS USED IN OLEDs</u>	88
<u>Dendrimers for Added Efficiency</u>	88
<u>OLED DISPLAY APPLICATIONS</u>	89
<u>THE LCD COMPARISON</u>	89
<u>TABLE 37 KEY APPLICATIONS OF OLED DISPLAYS</u>	90
<u>BENEFITS OF OLED TECHNOLOGY</u>	91
<u>CURRENT OBSTACLES</u>	91
<u>OLED MARKET ASSESSMENT</u>	92
<u>RECENT OLED GROWTH RATES</u>	92
<u>TABLE 38 GLOBAL SHIPMENTS OF OLED DISPLAYS, 2004-2008</u>	
<u>(UNITS 000)</u>	92
<u>The Major Market Thrust</u>	93
<u>A Pause in Growth</u>	93
<u>TABLE 39 FORECAST ASSUMPTIONS: GROWTH OF OLED</u>	
<u>DISPLAYS</u>	94
<u>FORECAST: GLOBAL OLED SHIPMENTS</u>	94
<u>TABLE 40 FORECAST: GLOBAL SHIPMENTS OF OLEDs BY</u>	
<u>DISPLAY TYPE THROUGH 2014 (UNITS 000)</u>	95
<u>FORECAST: VALUE OF OLED SHIPMENTS</u>	96
<u>TABLE 41 ESTIMATED AVERAGE PRICES OF OLED PANELS BY</u>	
<u>APPLICATION, 2008-2014 (\$)</u>	96
<u>TABLE 42 GLOBAL VALUE OF OLED DISPLAY SHIPMENTS,</u>	
<u>THROUGH 2014 (\$ MILLIONS)</u>	97
<u>FIGURE 7 VALUE OF GLOBAL OLED SHIPMENTS, 2008-2014 (\$</u>	
<u>MILLIONS)</u>	97
<u>FORECAST: VALUE OF SHIPMENTS BY APPLICATION</u>	98
<u>TABLE 43 GLOBAL SHIPMENTS OF OLED DISPLAYS BY</u>	
<u>APPLICATION, THROUGH 2014 (UNITS 000)</u>	98
<u>FIGURE 8 PROJECTION OF OLEDs INTO VARIOUS APPLICATIONS,</u>	
<u>2008-2014 (000 UNITS)</u>	99
<u>DISPLAY SUMMARY</u>	100
<u>CHAPTER EIGHT: THE OLED LIGHTING MARKET</u>	101

<u>ORIGIN, HISTORY, AND CURRENT POSITION</u>	101
<u>THE OLED IN CURRENT LIGHTING SYSTEMS</u>	102
<u>The OLED in Current Lighting Systems (Continued)</u>	103
<u>TABLE 44 EFFICACIES OF CURRENT LIGHTING SYSTEMS</u>	
<u>(LUMENS PER WATT)</u>	104
<u>OLED LIGHTING MARKET STRUCTURE</u>	104
<u>TABLE 45 CURRENT OLED LIGHTING MANUFACTURERS</u>	104
<u>TABLE 45 (CONTINUED)</u>	105
<u>BASIC OLED LIGHTING TECHNOLOGY</u>	106
<u>LEDS VERSUS OLEDS</u>	106
<u>TABLE 46 VISIBLE DIFFERENCES BETWEEN THE LED AND OLED</u>	107
<u>TYPICAL STRUCTURE</u>	107
<u>TABLE 47 TYPICAL STRUCTURE OF AN OLED LIGHT</u>	107
<u>HOW OLED LIGHTING WORKS</u>	108
<u>Color Capability</u>	108
<u>FLEXIBLE LIGHTING IS ALSO A BIG MARKET POTENTIAL</u>	108
<u>Moisture/barrier Layer</u>	109
<u>TABLE 48 TYPICAL STRUCTURE OF A PROPOSED OLED FLEXIBLE</u>	
<u>SUBSTRATE LIGHT</u>	109
<u>FABRICATION PROCESSES OF OLED LIGHTING</u>	110
<u>TABLE 49 KEY ADVANTAGES OF OLED LIGHTING FABRICATION</u>	
<u>METHODS</u>	110
<u>Substrate Size Is Key</u>	110
<u>Roll-to-Roll Method Will Be Important</u>	111
<u>TABLE 50 ADVANTAGES OF ROLL-TO-ROLL FABRICATION</u>	112
<u>ORGANIC LIGHTING TECHNOLOGY DEVELOPMENT</u>	112
<u>Advances in White Color Performance</u>	112
<u>Advances in White ... (Continued)</u>	113
<u>Claim White Light Record</u>	114
<u>Novel Products</u>	114
<u>TABLE 51 CURRENT PERFORMANCE OF A LUMIBLADE OLED</u>	
<u>LIGHT</u>	115
<u>Advances in Lighting Concepts</u>	115
<u>Other Plans for the OLED</u>	116
<u>OLED LIGHTING PATENT ANALYSIS</u>	116
<u>SCOPE OF PATENT ACTIVITY</u>	117
<u>OUR LOOK AT DISPLAY PATENTS</u>	117
<u>PATENTS BY TECHNICAL SUBJECT</u>	117
<u>TABLE 52 OLED LIGHTING PATENTS BY TECHNICAL CATEGORY,</u>	
<u>2007-2009</u>	118
<u>PATENTS BY COMPANY</u>	118
<u>TABLE 53 OLED LIGHTING PATENTS BY COMPANY, 2007-2009</u>	119
<u>SAMPLE PATENT ABSTRACTS</u>	120

<u>Light-emitting Molecules and Organic Light-Emitting</u>	
<u>Devices including Light-Emitting Molecules</u>	120
<u>Nanostructured Electrode</u>	120
<u>Organic Compounds for Electroluminescence and Organic</u>	
<u>Devices</u>	120
<u>Producing Light with Organic Light-Emitting Devices</u>	121
<u>Organic Light-Emitting Diode with Improved Operational</u>	
<u>Stability</u>	121
<u>Heat Conducting Mounting Fixture for Solid-State Lamp</u>	121
<u>Device Structure for OLED Light Device Has Multi</u>	
<u>Element Light Extraction and Luminescence</u>	
<u>Conversion Layer</u>	122
<u>OLEDs Doped With Phosphorescent Compounds</u>	122
<u>OLED LIGHTING MATERIALS</u>	123
<u>TABLE 54 BASIC MATERIALS USED IN OLED LIGHTING</u>	123
<u>ORGANIC LIGHTING APPLICATIONS</u>	123
<u>Blue Efficiency Helps OLED Market</u>	124
<u>TABLE 55 KEY APPLICATIONS OF OLED LIGHTING TECHNOLOGY</u>	125
<u>THE ADVANTAGES OF OLED LIGHTING OVER BULB</u>	
<u>PRODUCTS</u>	125
<u>CURRENT OBSTACLES</u>	126
<u>Thin Film Moisture Barrier for OLED Lamps</u>	127
<u>OLED LIGHTING MARKET ASSESSMENT</u>	128
<u>RECENT OLED LIGHTING GROWTH RATES</u>	128
<u>TABLE 56 GLOBAL SHIPMENTS OF OLED LIGHTING PRODUCTS,</u>	
<u>THROUGH 2008 (UNITS 000)</u>	129
<u>Lighting Has Become a Key Market</u>	129
<u>The General Illumination Market Is Primary</u>	
<u>OLED Target</u>	129
<u>A Pause in Growth</u>	130
<u>FORECAST ASSUMPTIONS</u>	131
<u>TABLE 57 FORECAST ASSUMPTIONS: GROWTH OF OLED</u>	
<u>LIGHTING</u>	131
<u>FORECAST: GLOBAL OLED LIGHTING SHIPMENTS</u>	132
<u>TABLE 58 FORECAST: GLOBAL SHIPMENT OF OLED LIGHTS BY</u>	
<u>TYPE, THROUGH 2014 (UNITS 000)</u>	132
<u>FORECAST: VALUE OF OLED LIGHTING SHIPMENTS</u>	133
<u>TABLE 59 ESTIMATED AVERAGE PRICES OF OLED LIGHTING</u>	
<u>DEVICES BY APPLICATION, 2008-2014 (\$)</u>	133
<u>TABLE 60 GLOBAL VALUE OF OLED LIGHTING DEVICE</u>	
<u>SHIPMENTS THROUGH 2014 (\$ MILLIONS)</u>	134
<u>FIGURE 9 GLOBAL VALUE OF OLEDs FOR LIGHTING DEVICES,</u>	
<u>2008-2014 (\$ MILLIONS)</u>	135

<u>FORECAST: VALUE OF LIGHTING SHIPMENTS BY APPLICATION</u>	136
<u>TABLE 61 GLOBAL SHIPMENTS OF OLED LIGHTING BY APPLICATION, THROUGH 2014 (UNITS 000)</u>	136
<u>FIGURE 10 PROJECTION OF OLED LIGHTING INTO APPLICATIONS, 2008-2014 (UNITS 000)</u>	137
<u>LIGHTING SUMMARY</u>	138
<u>Lighting Summary (Continued)</u>	139
<u>CHAPTER NINE: MARKET ANALYSIS</u>	140
<u>TABLE 62 GLOBAL OLED SHIPMENTS AND MARKET SHARE BY TYPE OF PRODUCT, 2008-2014 (000 UNITS AND SHARE %)</u>	140
<u>DISPLAY SHIPMENTS</u>	140
<u>FIGURE 11 GLOBAL OLED SHIPMENTS BY TYPE OF PRODUCT, 2008-2014 (000 UNITS)</u>	141
<u>LIGHTING SHIPMENTS</u>	142
<u>VALUE OF OLED TECHNOLOGIES</u>	143
<u>TABLE 63 VALUE OF GLOBAL OLED SHIPMENTS AND MARKET SHARE BY TYPE OF PRODUCT, 2008-2014 (\$ MILLIONS AND SHARE %)</u>	143
<u>FIGURE 12 VALUE OF GLOBAL OLED SHIPMENTS, 2008-2014 (\$ MILLIONS)</u>	144
<u>VALUE OF DISPLAY SHIPMENTS</u>	144
<u>VALUE OF LIGHTING SHIPMENTS</u>	145
<u>BENEFITS OF SOLID-STATE LIGHTING IN ILLUMINATION</u>	146
<u>SENSORS MAY PROVIDE ADDITIONAL OLED APPLICATION</u>	147
<u>APPLICATION OF OLEDS IN SENSORS</u>	147
<u>BENEFITS OF OLED SENSORS</u>	148
<u>TABLE 64 BENEFITS OF OLED-BASED SENSORS</u>	148