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Company Technology Strength Analysis Report

ABC Company

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Company Technology Strength Analysis Report

This report analyzes various aspects of a company's IP portfolio providing insights for readers who wish to uncover overall IP strengths of their competitors as well as their own. The analysis result is organized into a comprehensive infographics providing most up-to-date information on the company’s latest IP portfolio status.

Contents

■ **Organizations grouped under [ABC[.**

ABC Company

ABD Company

ABE Company

I. Technology Competitiveness

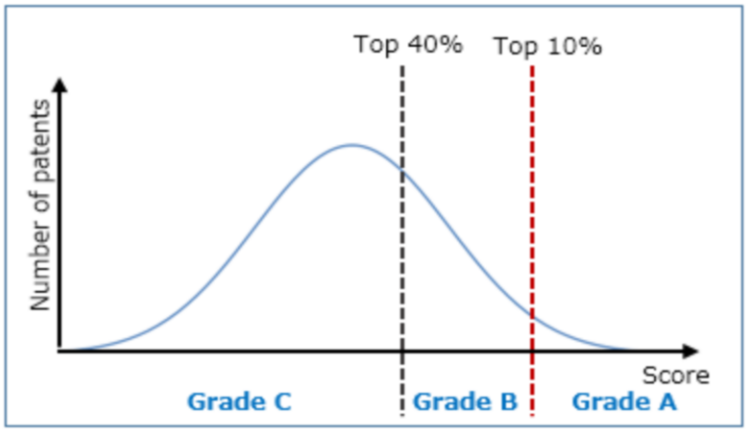
Technology competitiveness grade represents the competing strength of [ABC] patent portfolios. The grade is obtained by computing technology strength score per patent and applying the sum score to a weighted scale. This evaluation includes comparison analysis of all other patents that share the same technology space with [ABC].

Technology strength score measures the company's R&D capacity as well as the quality of existing patents. R&D capacity refers to the range of technology coverage areas and resource sufficiency for new inventive activities. The quality refers to the viability of patented technology. Together, a score is computed to measure the technology strength of a company.

Technology Competitiveness Grade **AAA**

As of 2016-03-30
TCG of ABC Company is at the Top 0.1%

Technology Strength Score **898**



Technology Competitiveness Index

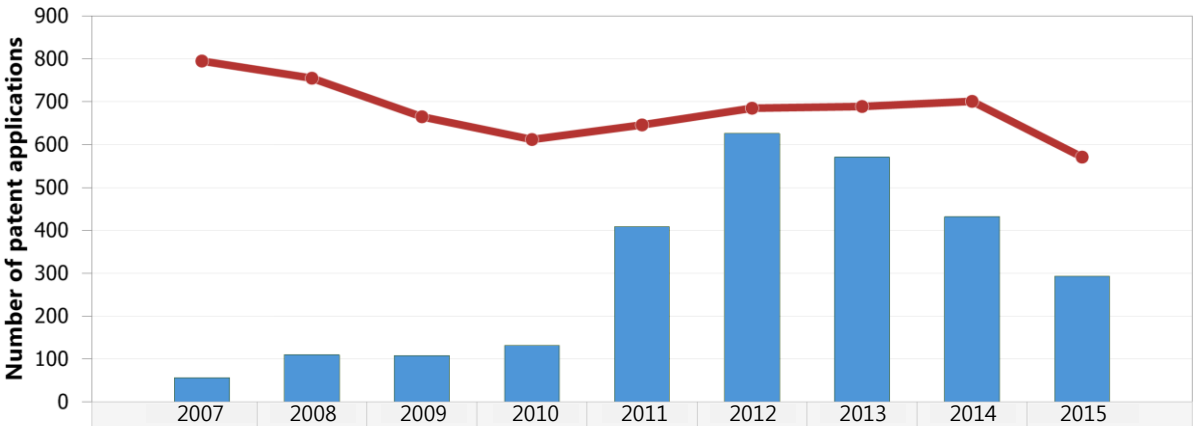
	Ratio	TCG
Top 0.1%	AAA	
Top 0.1 ~ 0.3%	AA+	
Top 0.3 ~ 0.5%	AA	
Top 0.5 ~ 1%	AA-	**Grade A**
Top 1 ~ 3%	A+	
Top 3 ~ 5%	A	
Top 5 ~ 10%	A-	
Top 10 ~ 20%	B+	
Top 20 ~ 30%	B	**Grade B**
Top 30 ~ 40%	B-	
Top 40 ~ 50%	C+	
Top 50 ~ 60%	C	**Grade C**
Below 60%	C-	

II. Patent Activities

1. Patent Application Trends

[Fig.1] compares last 10 years of [ABC's] patent applications with other players from the same technology space.

[Fig. 1] Patent Application Trends - Last 10 Years



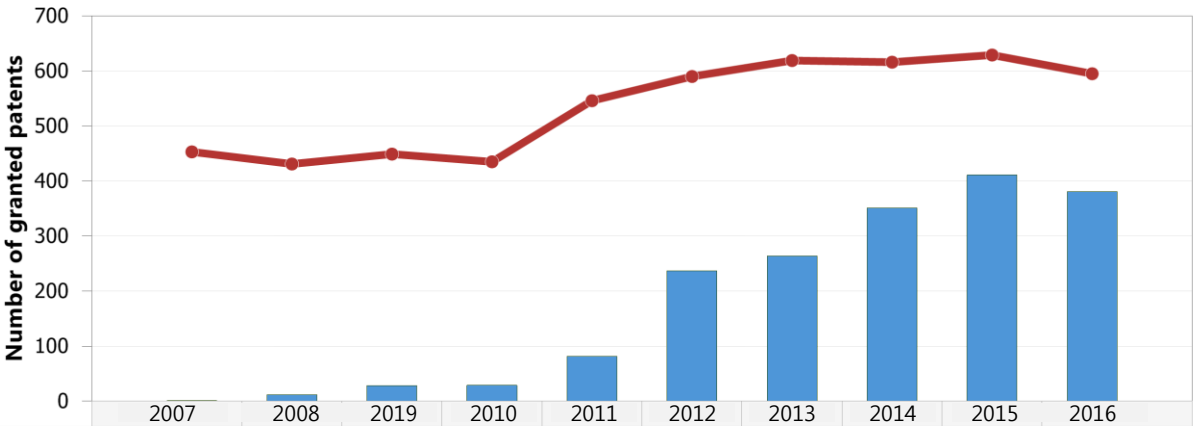
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Assessed Company	57	110	108	132	409	626	571	432	293
Avg. of 30 companies	795	755	665	612	646	685	689	701	571

- Refer to Appendix for the list of 30 companies in order of technology strength score.
- Number of applications depicted on graph is based on published patents.
- Most recent year data may differ from actual due to a time lag between patent application and publication.

2. Granted Patents Trends

[Fig.2] compares last 10 years of [ABC's] patent grants with other players from the same technology space.

[Fig. 2] Granted Patents Trends - Last 10 Years



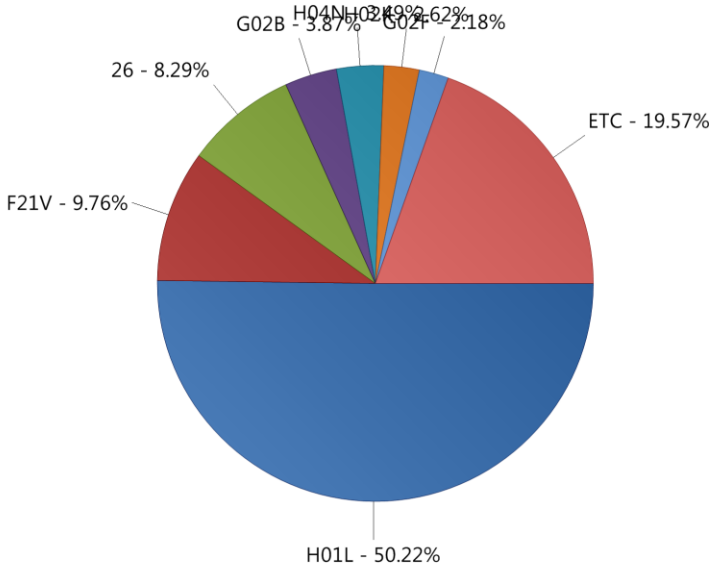
	2007	2008	2019	2010	2011	2012	2013	2014	2015	2016
Assessed Company	1	12	28	29	81	237	264	351	411	381
Avg. of 30 companies	453	431	449	435	546	590	619	616	629	595

- Refer to Appendix for the list of 30 companies in order of technology strength score.
- Data is based on granted patents with a valid term.

3. Patent Portfolio Status

[Fig.3] shows [ABC's] enforceable patents per technology classification.

[Fig. 3] Patent Status per Technology Area



Below is a reproduction of [Fig.3] in a table format.

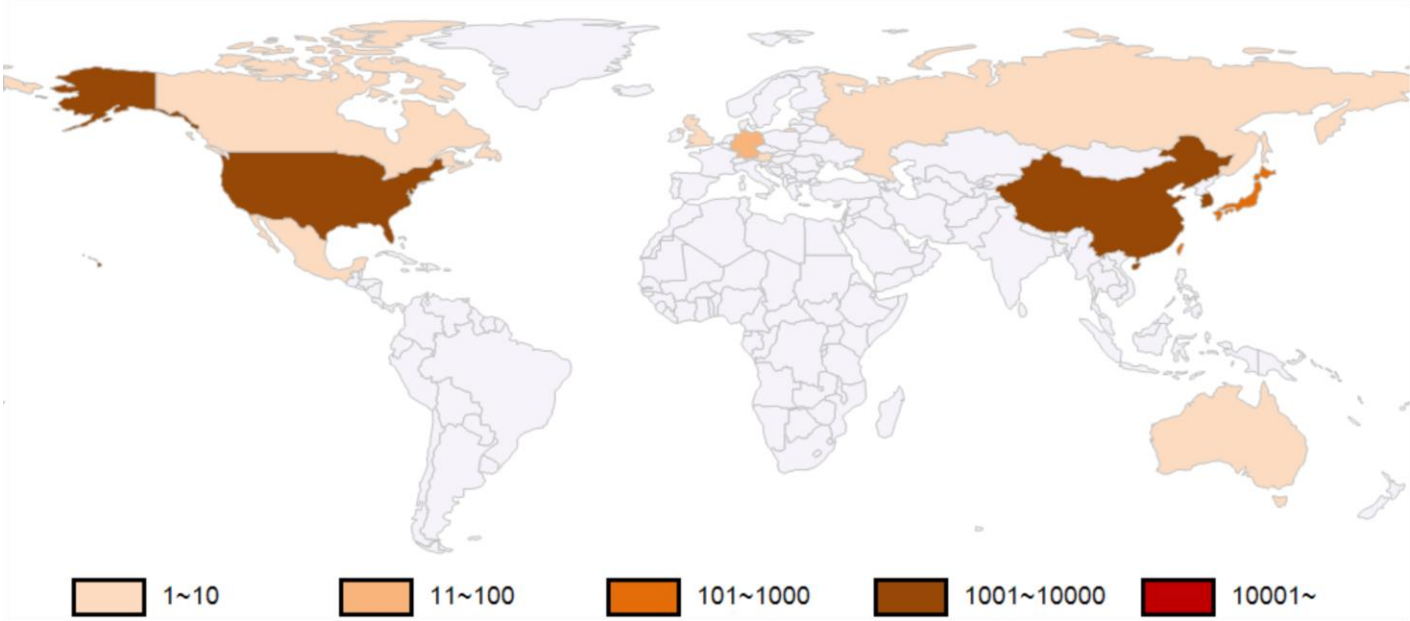
IPC Classification	Ratio(%)	No. of patents
[H01L]SEMICONDUCTOR DEVICES	50.22%	921
[F21V]Features of Lighting Devices	9.76%	179
[26]Design (Lighting apparatus)	8.29%	152
[G02B]OPTICS MECHANISM	3.87%	71
[H04N]PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)	3.49%	64
[H02K]GENERATOR / MOTOR	2.62%	48
[G02F]OPTICAL MODULATORS	2.18%	40
[ETC]	19.57%	359

- Primary IPC Subclass is used to classify technology areas.
- Primary IPC Subclass is the first code assigned to a patent when multiple codes are assigned.

4. International Patent Application Status

It is a common practice for companies involved in international businesses to file patents in countries where protection is sought. Reviewing the status of these international patent filings can help identify foreign markets pursued by the company. [Fig.4] shows last 10 years of patent filings per country by [ABC].

[Fig. 4] [ABC's] Patent Applications by Country



Country	No. of Applications
United States	3,033
China	1,591
Taiwan	456
Austria	8
Australia	4
Great Britain (UK)	1
Singapore	1

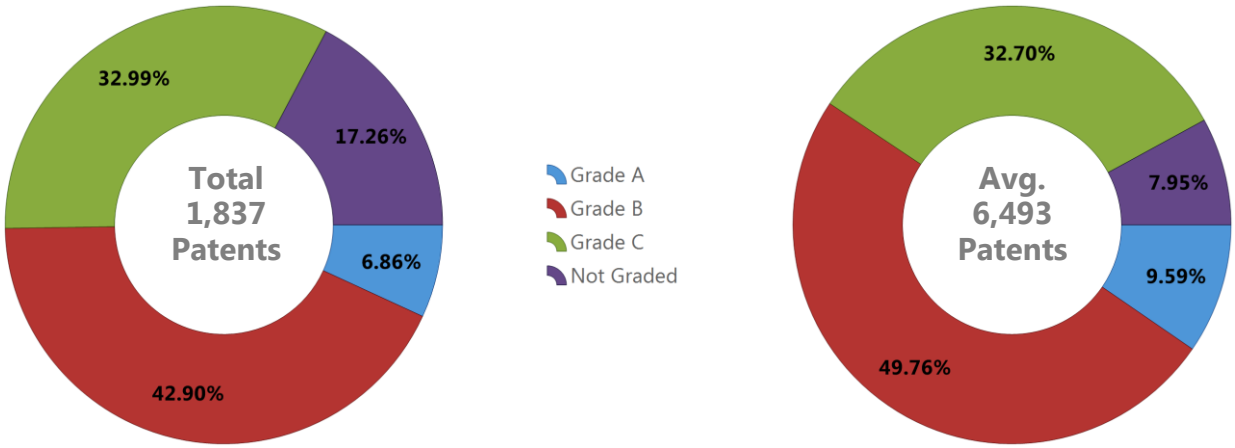
Country	No. of Applications
Korea (South)	2,797
Japan	849
Germany	35
Canada	5
Russian Federation	4
Mexico	1

III. Quality Evaluation

1. Patent Portfolio

The patent grade represents a patent's certainty and clarity of rights. The patent grade covers following quality attributes: inventors' expertise, technology significance, technology endurance, marketability, technology focus, novelty, applicant's endeavors and breadth and completeness of rights.

[Fig. 5] Patent Portfolio Comparison



Patent portfolio grade of assessed company

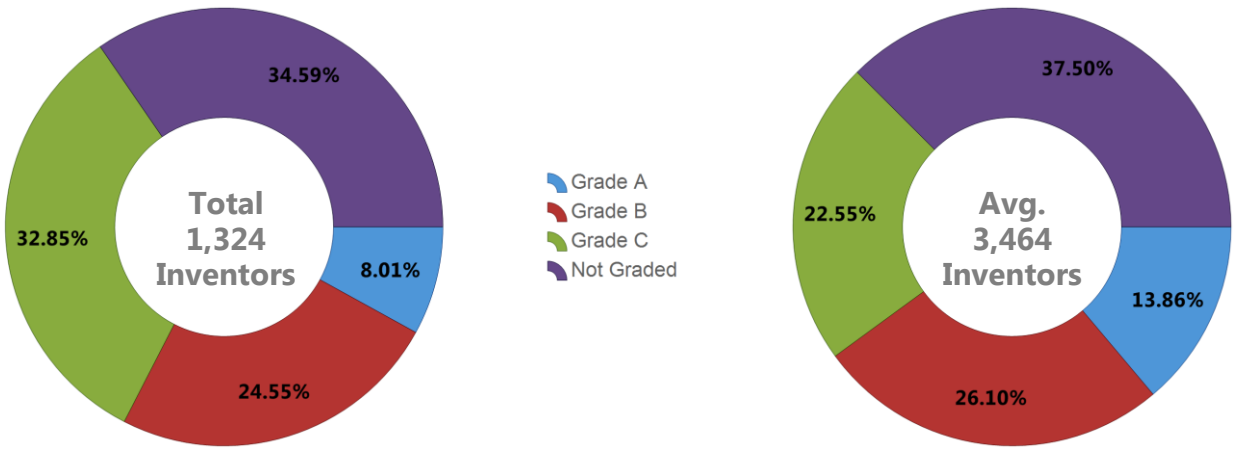
Average patent portfolio grade of 30 companies in comparison

- Data depicted in [Fig.5] is based on granted patents with a valid term.

2. Inventors

Inventors grade represents the level of inventors' expertise related to patenting activities. The grade is computed by comparing patenting activities of all inventors who are assigned to evaluated patents in [Fig.5].

[Fig. 6] Inventors Comparison



Inventors Grade for the assessed company

Averaged Inventors Grade for 30 companies in comparison

- Data depicted in [Fig.6] is based on inventors with patent filing records within last 10 years.

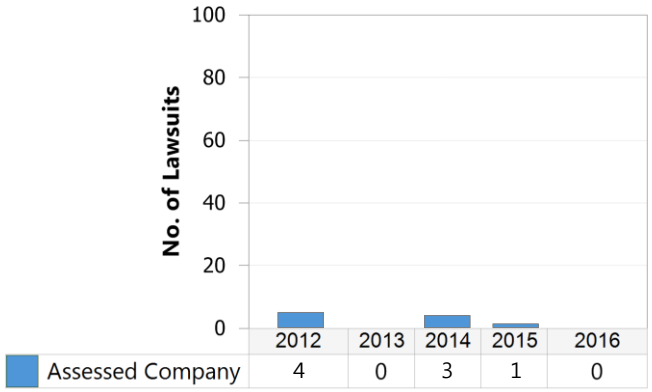
IV. Patent Litigation & Acquisition

1. Patent Litigation Status

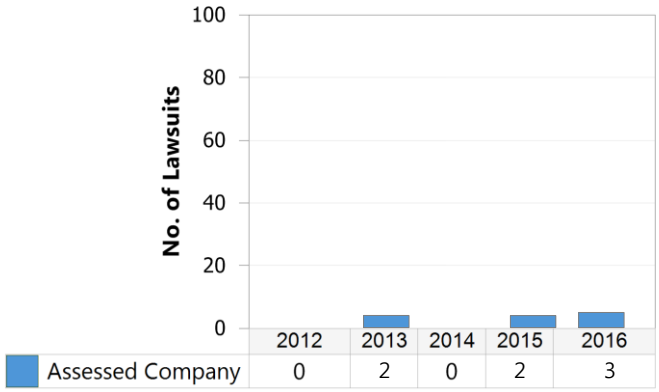
Below graph shows the last 5 years of patent litigation for ABC.

Assessed Company as the Defendant	Assessed Company as the Plaintiff
8	7

[Fig. 7] As the Defendant - Last 5 years



[Fig. 8] As the Plaintiff - Last 5 years

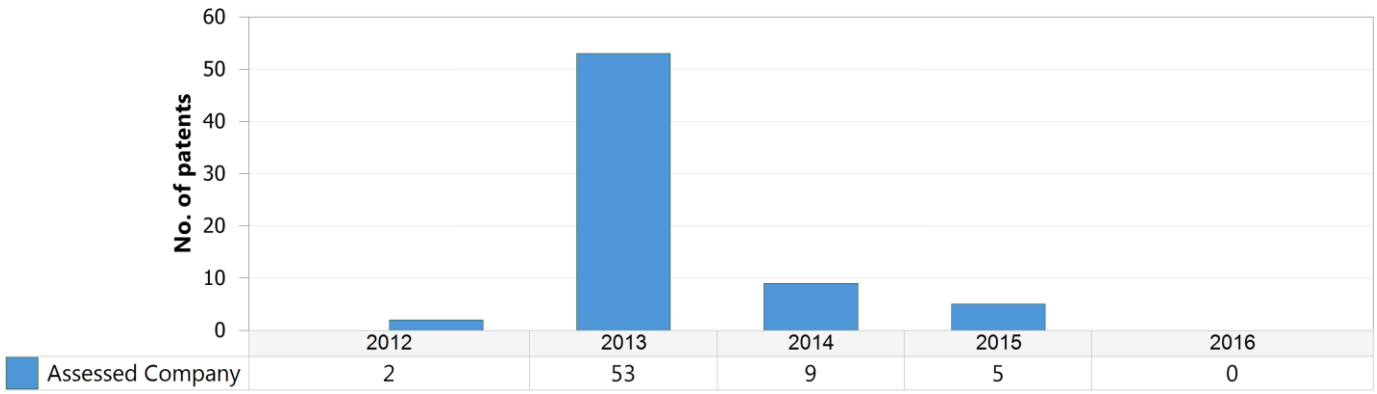


Data source: U.S. Court and USITC (U.S. International Trade Commission).

2. Patent Acquisition Status

[Fig.9] shows last 5 years of patent acquisitions by [ABC].

[Fig. 9] Patent Acquisition Trends during last 5 years

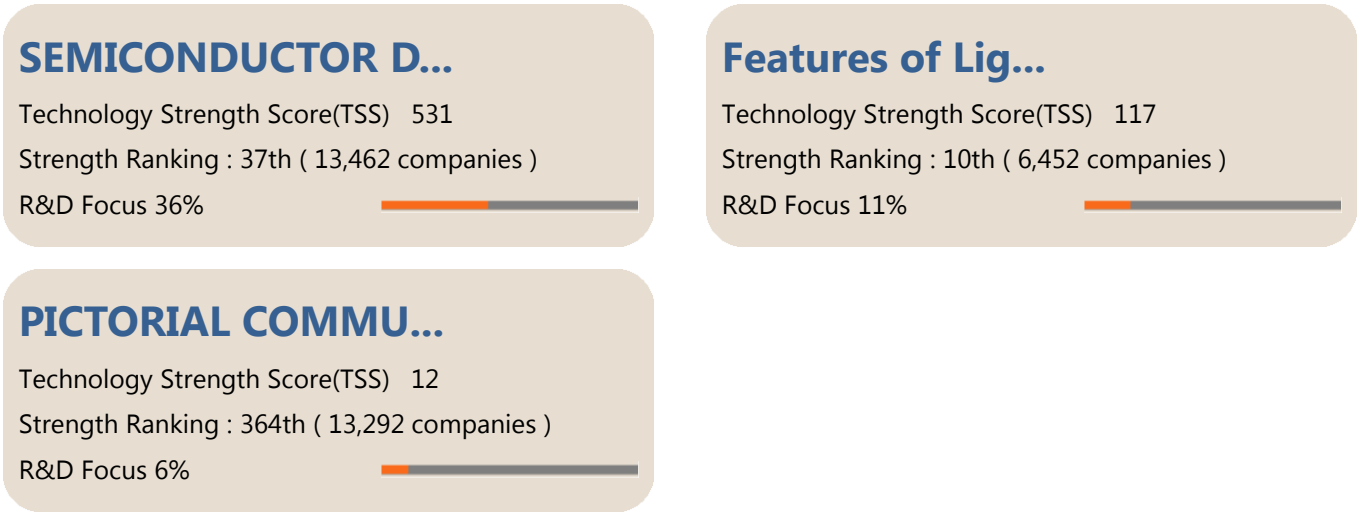


V. Technology Sector Analysis

1. [ABC]'s Major Technology Sector

Major technology sector(s) is defined by patenting activities concentration level.

[Fig. 10] Major Technology Sector(s)



Technology Strength Score (TSS)

Technology Strength Score measures the viability of patented technology and R&D capability (refer to page 5 for TSS description). Each patent is evaluated individually for a score, and sum score is then weighted by each sector's total patent count to produce the average technology strength score. Higher score indicates higher viability over lower score.

Strength Ranking

Strength Ranking shows where [ABC's] patent portfolio stands in comparison to all other companies participating in the same technology sector. To measure ranks, an index is created by computing technology strength score for all other patents that share the same technology space.

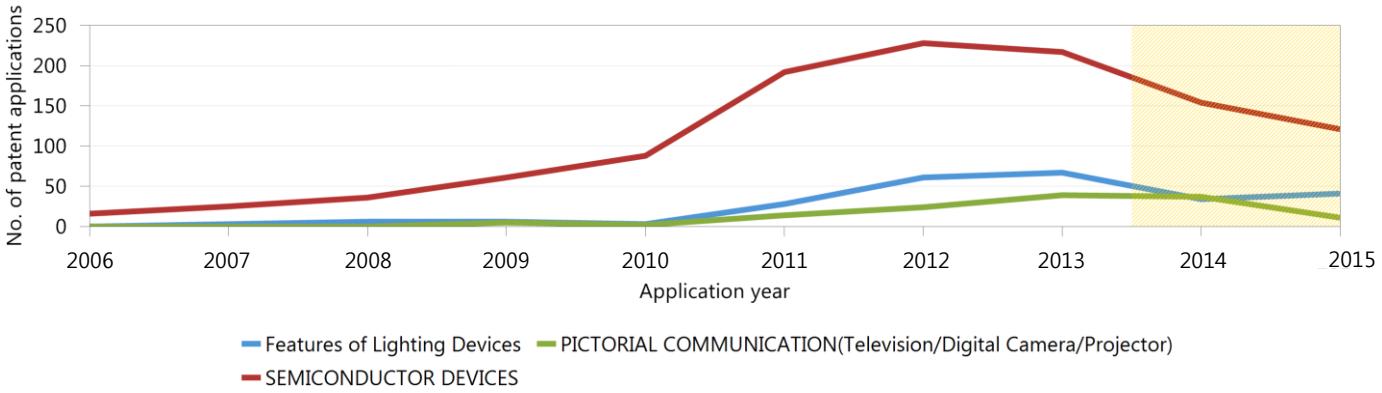
R&D Focus

R&D focus measures the proportion of a particular sector filings from total patent filings. R&D focus covers last 5 years of patent filings.

2. Patent Application Trends per Major Sector

Below graph shows [ABC's] patent application filings per major sector during the last 10 years.

[Fig. 11] Patent Application Trend per Major Sector



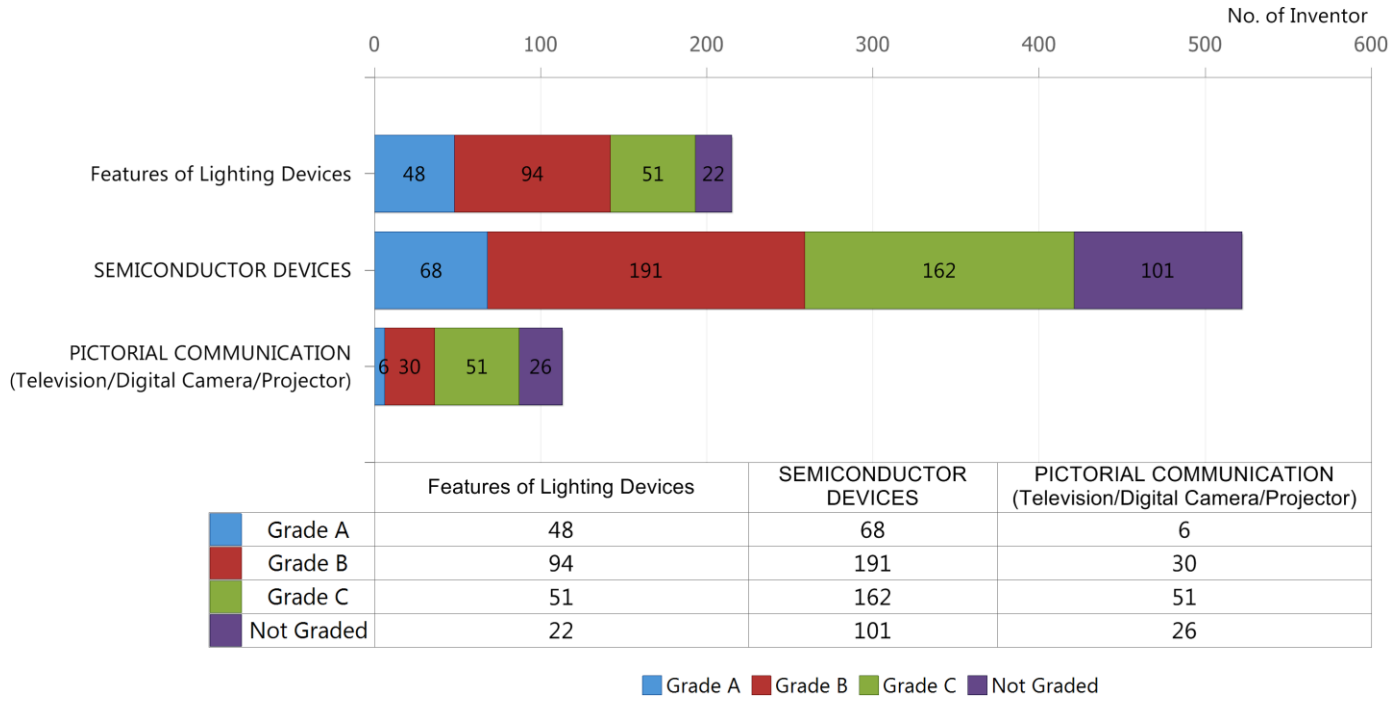
Technology Sector		No. of patent applications			
IPC Code	NAME	2005	2006	2007	2008
H01L	SEMICONDUCTOR DEVICES	16	25	36	61
F21V	Features of Lighting Devices		3	6	6
H04N	PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)				5

Technology Sector		No. of patent applications					
		2009	2010	2011	2012	2013	2014
H01L	SEMICONDUCTOR DEVICES	88	192	228	217	154	121
F21V	Features of Lighting Devices	3	28	61	67	34	41
H04N	PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)	2	14	24	39	37	11

3. Inventors Status

Below graph shows the status of [ABC 's] inventors for the last 10 years.

[Fig. 12] Inventors per Major Sector



	Features of Lighting Devices	SEMICONDUCTOR DEVICES	PICTORIAL COMMUNICATION (Television/Digital Camera/Projector)
Grade A	48	68	6
Grade B	94	191	30
Grade C	51	162	51
Not Graded	22	101	26

An inventor who contributes to more than one sector may be subject to a duplicate count.

4. Latest Patent Applications by Major Sector

Below table shows 5 latest patent application filings per sector by [ABC].
(Source: last 10 years of patent publication data)

[F21V] Features of Lighting Devices

FUNCTIONAL FEATURES OR DETAILS OF LIGHTING DEVICES OR SYSTEMS THEREOF; STRUCTURAL COMBINATIONS OF LIGHTING DEVICES WITH OTHER ARTICLES, NOT OTHERWISE PROVIDED FOR[1,7]

Patent No.	Title	Application Date
US2016004XXXXA1	DISPLAY DEVICE	2015-10-21
US2016004XXXXA1	DISPLAY DEVICE	2015-10-16
US2016002XXXXA1	XXXX UNIT AND VEHICLE XXXX APPARATUS USING THE XXXX	2015-10-07
US2016002XXXXA1	XXXXX XXXXX, DISPLAY DEVICE INCLUDING THE XXXXX, METHOD FO...	2015-10-05
US2016002XXXXA1	XXXXXX XXXXX XXXXXX AND DISPLAY DEVICE INCLUDING THE XXXX	2015-10-05

[H01L] SEMICONDUCTOR DEVICES

SEMICONDUCTOR DEVICES; ELECTRIC SOLID STATE DEVICES NOT OTHERWISE PROVIDED FOR

Patent No.	Title	Application Date
US2016007XXXXA1	XXXXXXX XXXXXX LIGHT EMITTING DEVICE	2015-11-03
US2016007XXXXA1	XXXX XXXXX WITH IMPROVED CURRENT XXXXX XXXXX	2015-11-03
US2016004XXXXA1	XXXXXX XXXXX DEVICE AND XXXX XXXXX DEVICE XXXXX...	2015-10-28
US2016004XXXXA1	XXXXX XXXXXX DEVICE AND XXXXXXXXXXX APPARATUS	2015-10-28
US2016004XXXXA1	XXXXX XXXXX XXXXXX PACKAGE INCLUDING A XXXXXX....	2015-10-26

4. Latest Patent Applications per Sector

Below table shows 5 latest patent application filings per sector by [ABC].
(Source: last 10 years of patent publication data)

[H04N] PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)

PICTORIAL COMMUNICATION, e.g. TELEVISION

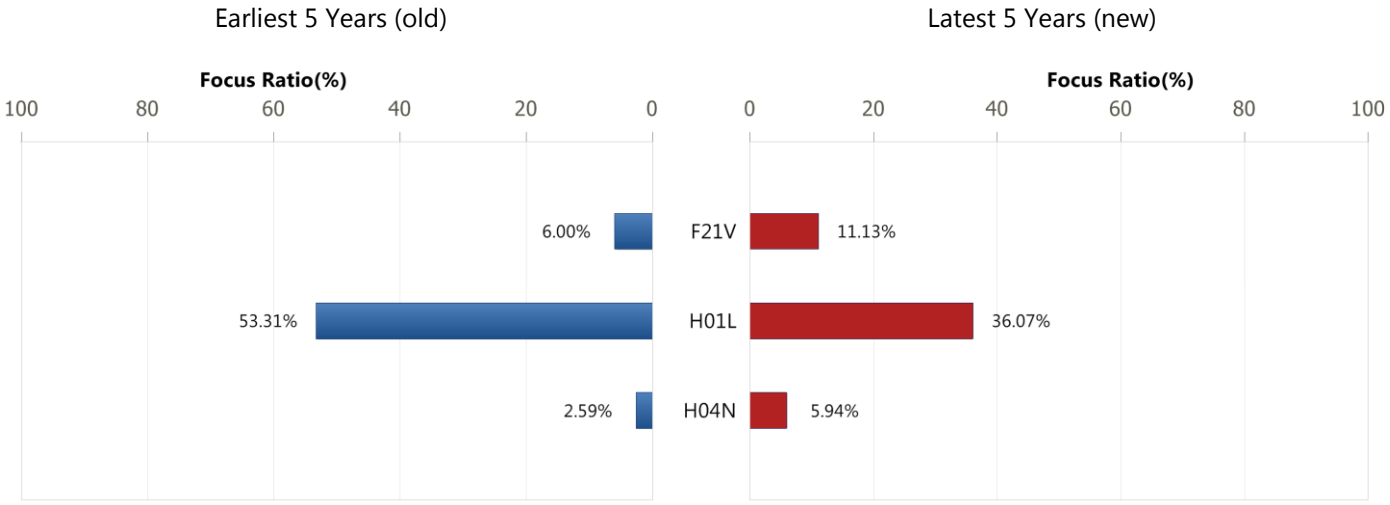
Patent No.	Title	Application Date
US2016005XXXXA1	CAMERA MODULE	2015-11-02
US2015038XXXXA1	CAMERA MODULE	2015-09-09
US2016003XXXXA1	IMAGE SENSOR AND XXXXXX XXXXXX XXXXXXX	2015-08-03
US2016003XXXXA1	IMAGE SENSOR AND IMAGE XXXXXXXXXXXX XXXXXX XXXXXXX	2015-07-31
US2015028XXXXA1	Imaging Lens	2015-06-23

Click Patent No. to see patent details in full text.

5. Application Focus by Major Sector

[Fig.13] provides an indication on [ABC's] output changes in inventive activities during the last 10 years. The bar graph breaks the timeline into two patenting periods for comparison, the red bar indicating most recent five years and the blue bar indicating five years prior to that. The focus ratio measures the proportion of each sector filings from total filings by the company. This timeline analysis helps the reader to easily identify changes in inventive activities and patenting strategies.

[Fig. 13] Application Comparison by 10-Year Timeline



IPC Code	Description
F21V	Features of Lighting Devices
H01L	SEMICONDUCTOR DEVICES
H04N	PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)

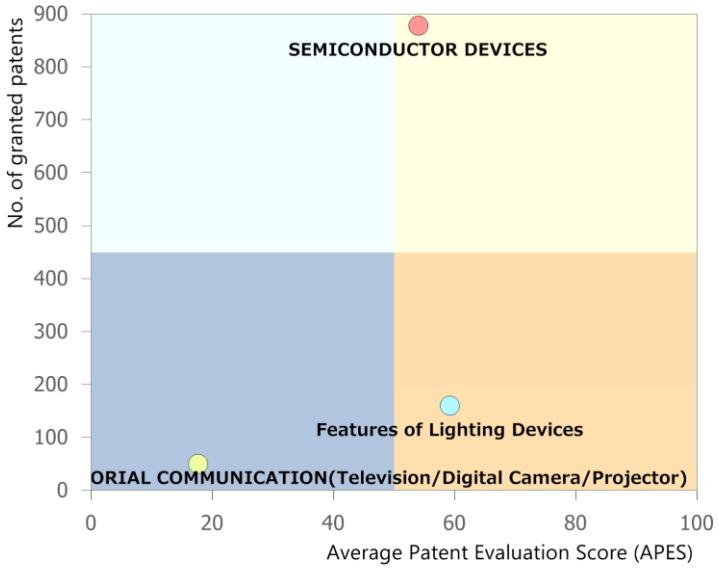
6. Technology Position by Major Sector

The Quadrant Map [Fig.14] compares technology positions of [ABC's] major sector patents. This analysis is accomplished by plotting the granted patents count and average patent evaluation score from each sector on a single graph. The vertical axis represents patent quantity while the horizontal axis illustrates average patent evaluation score. By plotting the coordinates of patent quantity and score, each sector is visualized with an attribute to its technology position.

[Fig. 14] Quadran Map Assessment

Diverse
High number of patents but with lower APES. Vigorous and diverse R&D activities.

Weak Stature
Low number of patents with low APES. Weak technology competitiveness.



Highly Focused
High number of patents with high APES. Vigorous R&D activities with strong technology competitiveness.

Specialized
Low number of patents but with higher APES. Specialized technologies without diversity.

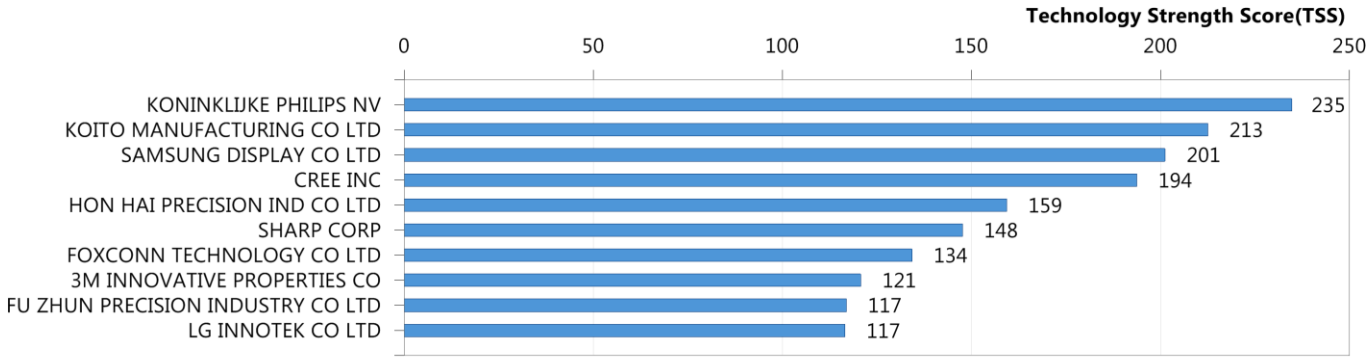
- APES (Average Patent Evaluation Score) is computed by Wisdomain's proprietary PatentGrading™ system which uses objective analysis criteria described in [Fig.5]. Each patent is evaluated individually, and sum score is then weighted by each sector's total patent count to produce APES. Higher APES indicates higher patent quality over lower APES.
- Patent quantity depicted in [Fig.14] represents the number of granted patents only.

7. Top 10 Companies by Major Sector

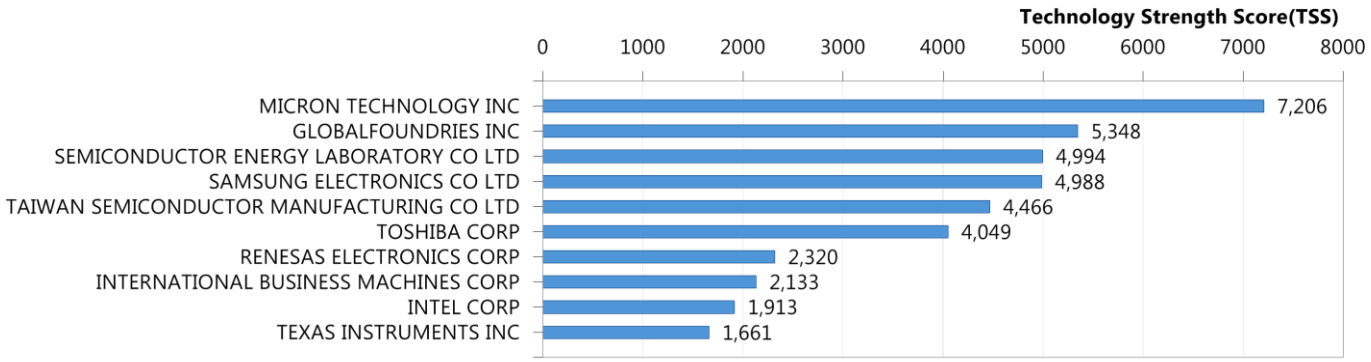
[Fig.15] shows top 10 companies within [ABC's] major technology sectors. Top 10 companies are defined by technology strength score (refer to page5 for score description).

[Fig. 15] Companies by major sector

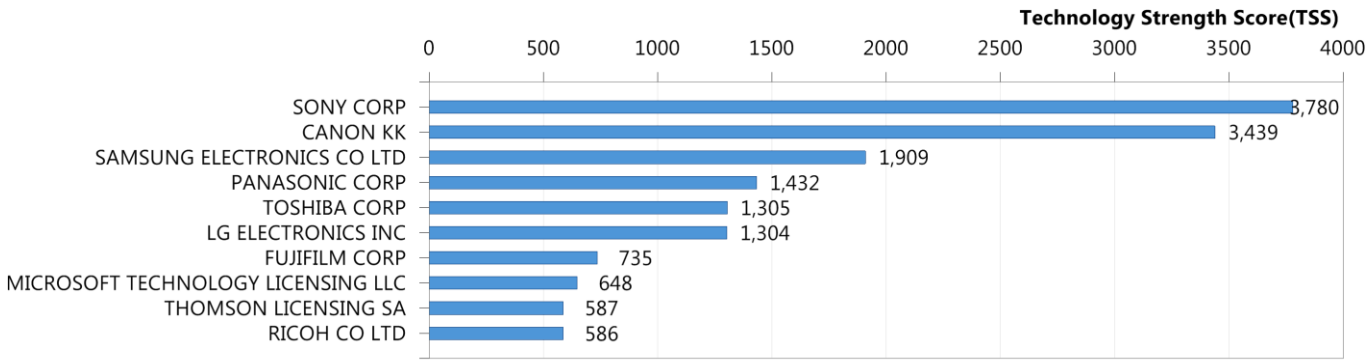
[F21V] Features of Lighting Devices



[H01L] SEMICONDUCTOR DEVICES



[H04N] PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)



VI. [ABC's] Major Patents & Inventors

Below list shows [ABC's] top 20 patents and contributing inventors by quality ranking.

■ Top 20 Patents

Patent No.	Title	Original Assignee	Application Date	Patent Grade
US7148XXX	Diode having vertica...	ABC Company	2001-10-26	AA
US7563XXX	Method of fabricatin...	ABC Company	2005-09-23	AA
US7652XXX	Light emitting devic...	ABC Company	2007-05-07	AA
US7569XXX	Method of fabricatin...	ABC Company	2004-12-03	AA
US7816XXX	Method of fabricatin...	ABC Company	2009-07-21	AA
US8591XXX	LED lighting apparat...	ABC Company	2012-04-27	A+
US7947XXX	Semiconductor light ...	ABC Company	2009-04-20	A+
US8235XXX	Street lamp	ABC Company	2010-10-29	A+
US7250XXX	Method of fabricatin...	ABC Company	2005-09-23	A+
US7791XXX	Nitride semiconducto...	ABC Company	2005-12-05	A+
US7592XXX	Light emitting diode...	ABC Company	2006-10-19	A+
US7928XXX	Method of fabricatin...	ABC Company	2010-06-09	A+
US8294XXX	Method of fabricatin...	ABC Company	2002-04-09	A+
US8579XXX	Street lamp	ABC Company	2012-07-10	A+
US7093XXX	LED light source ass...	ABC Company	2004-03-17	A+
US7075XXX	Light emitting diode...	ABC Company	2004-04-22	A+
US7858XXX	Light emitting devic...	ABC Company	2008-04-17	A+
US7588XXX	Method of fabricatin...	ABC Company	2005-01-07	A+
US7691XXX	Thin film light emit...	ABC Company	2004-10-28	A+
US7939XXX	Light emitting devic...	ABC Company	2009-12-14	A+

Click Patent No. to see patent details in full text.

■ Top 20 Inventors

Inventor	No. of granted patents	No. of applications	First Filed Date	Last Filed Date	Inventor Grade
Je	102	117	2006-07-31	2015-07-13	AA
LE	71	85	2006-10-16	2015-07-13	AA
Sc	61	73	2009-03-19	2015-07-13	AA
Pa	44	50	2006-05-18	2015-07-08	AA
JA	21	25	2006-04-26	2015-01-20	AA
Ch	41	45	2006-09-26	2014-11-24	AA
Ki	47	49	2007-05-07	2014-10-17	AA
Ki	60	63	2009-12-15	2014-10-07	AA
Ki	66	68	2010-04-20	2014-07-31	AA
Hv	27	31	2009-07-10	2015-11-03	A+
Ki	32	38	2006-05-16	2015-10-26	A+
Pa	23	43	2007-05-10	2015-10-22	A+
Ki	32	35	2010-01-05	2015-07-29	A+
Ch	40	49	2010-06-04	2015-07-13	A+
Ki	18	19	2006-10-19	2015-07-08	A+
M	27	34	2010-06-10	2015-05-29	A+
Ki	22	25	2010-08-19	2015-04-22	A+
Ko	22	23	2006-11-21	2015-03-04	A+
KI	17	18	2007-12-27	2015-03-04	A+
Sc	40	43	2006-11-22	2015-02-11	A+

Appendix

The patent data used in this report to create infographics is provided in following table format to support the data capture in other graphic forms.

■ Top 30 Companies

Below table shows top 30 companies participating in [ABC's] technology spaces in order of TSS (technology strength score). These 30 companies' patent data was used for comparison analysis to create benchmarks and evaluate technology competitiveness, strength, quality and positioning of [ABC].

Rank	Company	TSS	No. of Patents	H01L's TSS	F21V's TSS	H04N's TSS
1	SA	29,275	98,538	4,988	103	1,909
2	TO	18,653	60,274	4,049	30	1,305
3	PA	15,984	49,792	1,538	62	1,432
4	MI	15,486	24,671	7,206	1	108
5	SH	7,858	27,258	1,110	148	388
6	TE	7,324	23,712	1,661	12	187
7	MI	6,939	28,667	849	36	300
8	KO	6,808	37,303	247	235	344
9	RE	5,693	15,647	2,320	0	46
10	AV	5,082	12,724	782	15	130
11	INI	3,147	9,133	1,443	0	3
12	INI	TE TAIWAN 1,735	8,869	273	19	25
13	RO	1,473	4,937	511	16	42
14	CR	1,219	2,306	692	194	0
15	TO	1,071	2,874	308	34	0
16	**ABC Company**	**898**	**3,097**	**531**	**117**	**12**
17	NI	500	1,173	295	27	1
18	OS	426	1,347	263	31	2
19	IN	425	1,288	85	10	14
20	EPISTAR CORP	361	984	289	21	0

Rank	Company	TSS	No. of Patents	H01L's TSS	F21V's TSS	H04N's TSS
21	ST	345	1,116	87	98	3
22	OS	310	1,449	92	53	0
23	PH	253	425	176	25	0
24	CIT	156	511	35	29	0
25	SE	155	397	94	14	0
26	LIT	150	1,181	19	12	7
27	SE	147	342	129	0	0
28	AD	93	481	75	10	0
29	SE	55	145	52	0	0
30	LE	50	408	28	11	0
31	TS	11	34	9	1	0

[Table 1] II-1. Patent Application Trends

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Assessed Company	57	110	108	132	409	626	571	432	293	2,738
30 Companies Average	795	755	665	612	646	685	689	701	571	6,119

[Table 2] II-2. Granted Patents Trends

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Assessed Company	1	12	28	29	81	237	264	351	411	381	1,795
30 Companies Average	453	431	449	435	546	590	619	616	629	595	5,363

[Table 5] III-1. Patent Portfolio Grade

Assessed Company

Evaluation Grade	No. of Patents	Ratio
Grade A	126	6.86%
Grade B	788	42.90%
Grade C	606	32.99%
Not Graded	317	17.26%

30 Companies Average

Evaluation Grade	No. of Patents	Ratio
Grade A	623	9.59%
Grade B	3,231	49.76%
Grade C	2,123	32.70%
Not Graded	516	7.95%

[Table 6] III-2. Inventors Grade

Assessed Company

Evaluation Grade	No. of Inventors	Ratio
Grade A	106	8.01%
Grade B	325	24.55%
Grade C	435	32.85%
Not Graded	458	34.59%

30 Companies Average

Evaluation Grade	No. of Inventors	Ratio
Grade A	480	13.86%
Grade B	904	26.10%
Grade C	781	22.55%
Not Graded	1,299	37.50%

[Table 7,8] IV-1. Patent Litigation Status

	2012	2013	2014	2015	2016	Total
Lawsuits Faced	4	0	3	1	0	8

	2012	2013	2014	2015	2016	Total
Lawsuits Filed	0	2	0	2	3	7

[Table 9] IV-2. Patent Acquisition Status

	2012	2013	2014	2015	2016	Total
No. of Acquisition	2	53	9	5	0	69

[Table 10] V-1. [ABC] Major Technology Sector

Rank	IPC Code	Technology Sector	TSS	TSS Rank	Companies Total	R&D Focus Ratio
1	H01L	SEMICONDUCTOR DEVICES	531	37	13,462	36.07%
2	F21V	Features of Lighting Devices	117	10	6,452	11.13%
3	H04N	PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)	12	364	13,292	5.94%

[Table 11] V-3. Inventors Status by Major Sector

IPC Code	Technology Sector	Inventor Grade	No. of Inventors
F21V	Features of Lighting Devices	Grade A	48
		Grade B	94
		Grade C	51
		Not Graded	22
H01L	SEMICONDUCTOR DEVICES	Grade A	68
		Grade B	191
		Grade C	162
		Not Graded	101
H04N	PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)	Grade A	6
		Grade B	30
		Grade C	51
		Not Graded	26

[Table 13] V-5. Application Focus by Major Sector

Year	IPC Code	Technology Sector		No. of Applications & Application Ratio
2010'	F21V	Features of Lighting Devices	Total no. of applications	58
			Application Ratio	6.00
	H01L	SEMICONDUCTOR DEVICES	Total no. of applications	515
			Application Ratio	53.31
	H04N	PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)	Total no. of applications	25
			Application Ratio	2.59
2014'	F21V	Features of Lighting Devices	Total no. of applications	225
			Application Ratio	11.13
	H01L	SEMICONDUCTOR DEVICES	Total no. of applications	729
			Application Ratio	36.07
	H04N	PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)	Total no. of applications	120
			Application Ratio	5.94

[Table 14] V-6. Technology Position by Major Sector

IPC Code	Technology Sector		
F21V	Features of Lighting Devices	No. of granted patents	160
		Average Patent Evaluation Score	59.18
H01L	SEMICONDUCTOR DEVICES	No. of granted patents	878
		Average Patent Evaluation Score	53.99
H04N	PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)	No. of granted patents	50
		Average Patent Evaluation Score	17.63

[Table 15] V-7. Top 10 Companies by Major Sector

IPC Code	Technology Sector	Company	TSS
F21V	Features of Lighting Devices	3M INNOVATIVE PROPERTIES CO	121
		CREE INC	194
		FOXCONN TECHNOLOGY CO LTD	134
		FU ZHUN PRECISION INDUSTRY CO LTD	117
		HON HAI PRECISION IND CO LTD	159
		KOITO MANUFACTURING CO LTD	213
		KONINKLIJKE PHILIPS NV	235
		ABC Company	117
		SAMSUNG DISPLAY CO LTD	201
		SHARP CORP	148
H01L	SEMICONDUCTOR DEVICES	GLOBALFOUNDRIES INC	5,348
		INTEL CORP	1,913
		INTERNATIONAL BUSINESS MACHINES CORP	2,133
		MICRON TECHNOLOGY INC	7,206
		RENESAS ELECTRONICS CORP	2,320
		SAMSUNG ELECTRONICS CO LTD	4,988
		SEMICONDUCTOR ENERGY LABORATORY CO LTD	4,994
		TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	4,466
		TEXAS INSTRUMENTS INC	1,661
		TOSHIBA CORP	4,049
H04N	PICTORIAL COMMUNICATION(Television/Digital Camera/Projector)	CANON KK	3,439
		FUJIFILM CORP	735
		LG ELECTRONICS INC	1,304
		MICROSOFT TECHNOLOGY LICENSING LLC	648
		PANASONIC CORP	1,432
		RICOH CO LTD	586
		SAMSUNG ELECTRONICS CO LTD	1,909

		SONY CORP	3,780
		THOMSON LICENSING SA	587
		TOSHIBA CORP	1,305