



Lex Machina

Patent Litigation Report 2023



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Published February 2023

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Introduction

Lex Machina is excited to release its Patent Litigation Report 2023. This report analyzes the latest trends and insights from patent litigation, primarily focusing on comparing data across the three-year time period from the beginning of 2020 to the end of 2022.

Lex Machina's patent module represents the most comprehensive and accurate dataset available for analyzing patent litigation. This report encompasses the 44,434 patent cases that were filed in the U.S. District Courts from 2013 to 2022 (see Figure 1), as well as the 4,132 patent cases that were appealed to the federal courts of appeals from 2013 to 2022 (see Figure 4).

In the report, some of the data is broken down into categories based on Lex Machina's case filter system. Lex Machina allows users to filter cases by various claims and characteristics in order to make apples-to-apples comparisons and to see what types of cases are driving certain areas of litigation. This year's report looks at trends in federal district court, federal courts of appeals, and the Patent Trial and Appeal Board (PTAB). The data is filtered to focus on general patent cases, ANDA cases, PTAB cases, and patent appellate cases.

This report includes data-driven insights into the behavior of courts, judges, parties, and law firms. Legal Analytics is used for planning, forecasting, and litigation strategy. From precise timing metrics that inform legal budgeting to trends among top law firms and leading judges, Legal Analytics provides customized insights that supplement traditional research and accumulated experience. The metrics in this report can help readers decide who to pursue as clients, whether to file a particular motion, or when to settle (and for how much). Leveraging this data gives firms and companies a competitive edge in litigation.

For more information, please see the Data and Methodology section at the end of this report.

Executive Summary

Federal Courts:

In 2022, 3,820 patent cases were filed, continuing the steady trend of patent case filings since 2017. General patent case filings have remained relatively stable over the past six years, while ANDA case filings and federal appellate patent cases have declined.

While a significant proportion of patent case filings continued to funnel into the top three district courts (two of which were in Texas), the early effects of the July 2022 standing order in the Western District of Texas may have contributed to the decreased numbers of cases filed in this court in 2022. Similarly, though Judge Albright continued to hold onto his top ranking as the most active district court judge over the past three years as a whole and in 2022 in particular, the number of filed cases before him in 2022 had dropped significantly from the number in 2021.

The most active plaintiffs largely featured entities who focus on the monetization of patent portfolios, while technology companies comprised the bulk of the most active defendants. Over the last three years, The Chong Law Firm was the most active law firm representing plaintiffs in patent cases, while Fish & Richardson was the most active law firm representing defendants, appearing on behalf of defendants in nearly twice as many patent cases as the next most active defendants' firm.

A large proportion of patent cases were resolved on procedural grounds, but of those that were resolved on substantive grounds, claimants won twice as often as claim defendants, primarily on default and consent judgment. For patent cases that were appealed to a federal appellate court and that terminated from 2020 to 2022 with a decision on the merits of the appeal, 36% were ultimately reversed.

From 2020 to 2022, \$7.5 billion in total damages were awarded as Reasonable Royalty across 102 cases.

PTAB:

The number of PTAB petitions filed continued to hold steady over the past three years. There was a slight increase in instituted trials compared with the data reported in the 2022 Patent Litigation Report (from 49% to 51%). In addition, 24% of federal PTAB appellate cases that terminated from 2020 to 2022 were ultimately reversed. Samsung was the most active petitioner in PTAB petitions filed during the three-year period from 2020 to 2022, and Fish & Richardson represented parties in the highest number of petitions filed in each of those three years.

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U.S. Federal Courts

Cases Filed

Figure 1 shows all patent cases filed over the past ten years. Over the decade, the number of patent cases filed each year has been on a general decline from 2013 until 2019 (with the exception of a brief spike in 2015). 2013 and 2015 were likely peak filing years for patent cases due, in part, to the high number of cases filed by "High-Volume Plaintiffs". High-Volume Plaintiffs (or "HVP") are plaintiffs that filed at least 10 patent cases (excluding ANDA cases) within a 365-day period. Case filings rose slightly in 2020 and have remained steady over the most recent three years (hovering between 3,800 and just over 4,000 cases filed each year).

Figure 1: Patent Cases Filed from 2013 to 2022

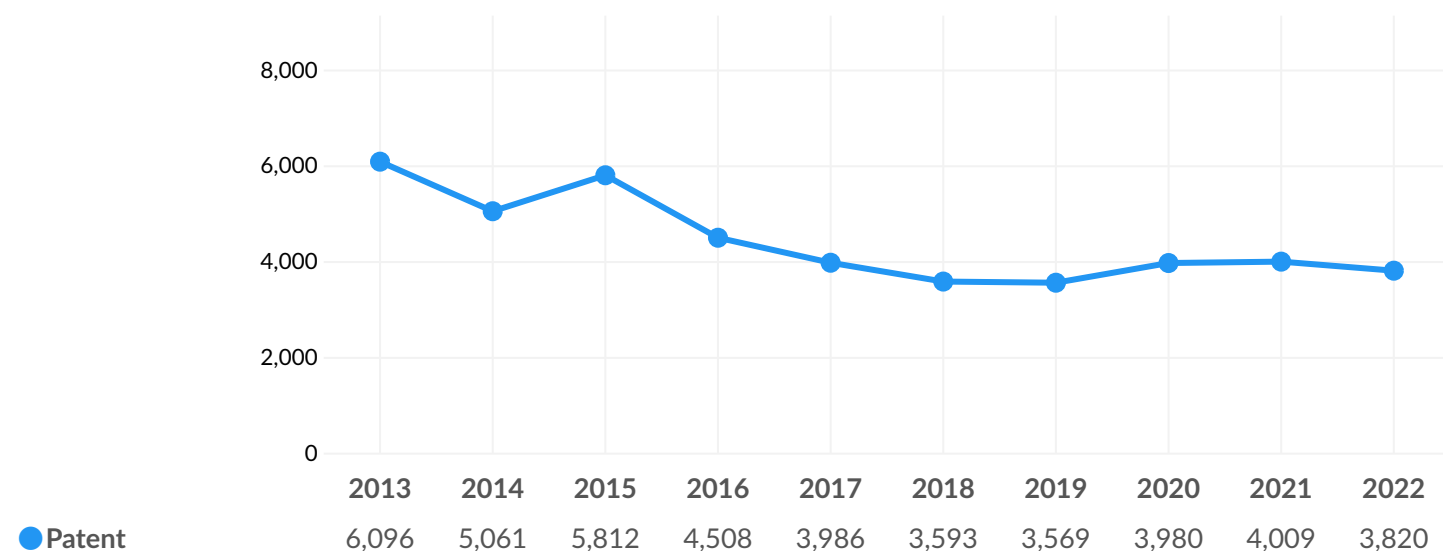
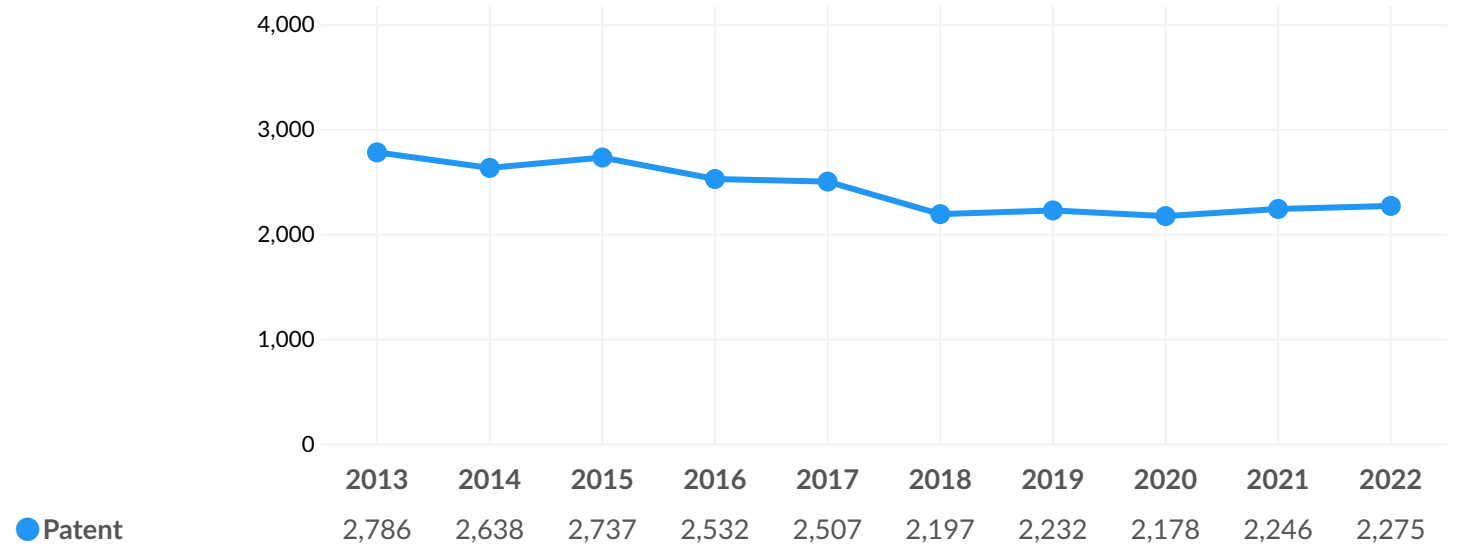


Figure 2 shows the number of patent cases filed each year with the High-Volume Plaintiffs excluded. This dataset reveals a more steady case filing trend over the past decade, with the number of cases filed each year landing in the range between 2,100 and 2,800 cases per year. The number of cases filed each year over the past five years (from 2018 to 2022) remained especially steady year over year, with a delta of approximately 100 cases between the lowest number of cases filed (2,178 in 2020) and the highest number of cases filed (2,275 in 2022). The fact that excluding HVP cases resulted in a steadier case filing trend over the ten-year period suggests that the overall decrease in general patent cases filed over the past ten years was driven, at least in part, by a decrease in HVP cases.

Figure 2: Patent Cases Filed from 2013 to 2022 (excluding High-Volume Plaintiffs)



Over the past decade, ANDA case filings exhibited another different trend in which the number of cases filed each year increased sharply from 2013 to 2015. After 2015, the number of ANDA cases filed each year generally declined (with a larger drop in 2016) until 2021.

In an ANDA case, the submission of an application to the Food and Drug Administration (FDA) to market a generic drug in the future is an act of infringement. The overall downward case filing trend may reflect, at least in part, a lower number of expiring drug patents. In addition, it may be the case that we are not seeing the expiration of many “blockbuster” drug patents.

It will be interesting to see if the slight increase in cases filed in 2022 is part of a larger increasing trend or an anomaly. Lex Machina will continue monitoring case filings to track the emerging pattern.

Figure 3: ANDA Patent Cases Filed from 2013 to 2022

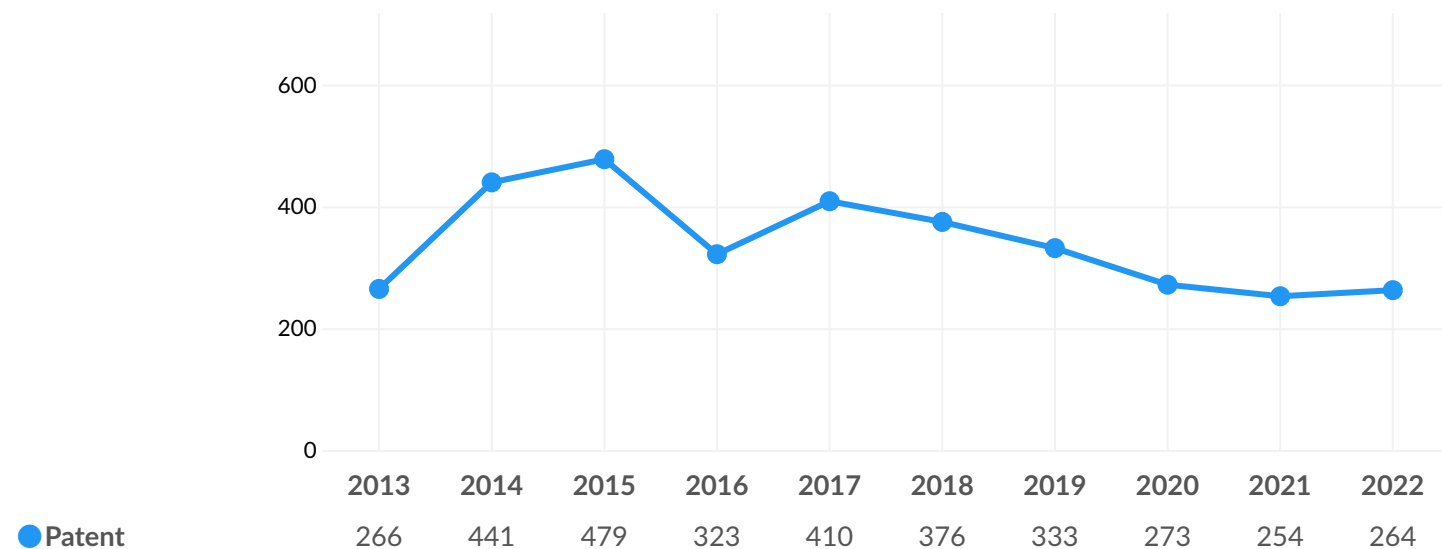
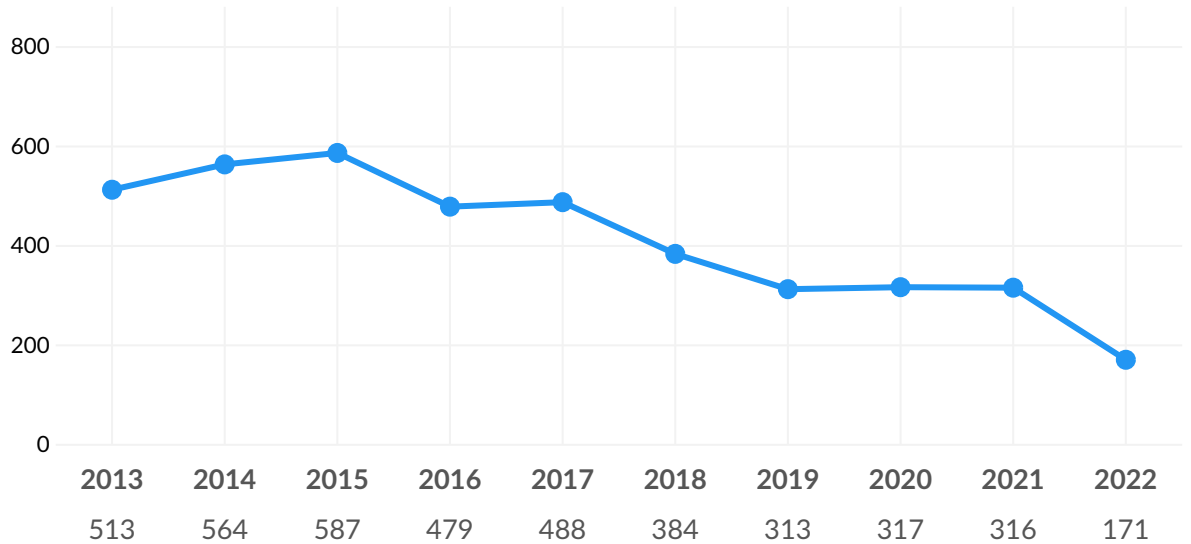


Figure 4 tracks the cases that were docketed in the federal courts of appeals that originated from patent cases (though they were not necessarily appealed on a patent-specific issue) (the “Patent Appellate Cases”). Over the past ten years, the number of Patent Appellate Cases docketed each year increased from 2013 to 2015 before embarking on a general decline over the rest of the decade (interspersed with two plateaus: one from 2016 to 2017, and the other from 2019 to 2021). The number of Patent Appellate Cases docketed in 2022 was particularly low, only 171 cases - the lowest number docketed in any year over the past ten years, and a 71% drop from the highest number (587 cases in 2015). The bulk (94%) of Patent Appellate Cases are appealed to the Federal Circuit Court.

The case numbers for Patent Appellate Cases were likely affected by the fact that docketed federal appellate cases typically lag behind district court case filings by a few years. In addition, the recent drop in Patent Appellate Cases likely reflected the impact of the pandemic on court proceedings.

Figure 4: Federal Patent Appellate Cases Docketed from 2013 to 2022



Cases

Most Active District Courts

This section shows the district courts with the most patent cases filed in the last three years. The columns set forth the breakdown each year, along with the proportion of patent cases that the particular district presided over in the specified year.

Figure 5 shows that the Western District of Texas was not only the most active court over the last three years in total number of cases, it also heard the highest number of patent cases in each of the three years from 2020 to 2022. All together, 23% of patent cases filed in federal district court over the three-year period were filed in the Western District of Texas. The second most active district court was the District of Delaware with 2,286 cases over the same period, followed by the Eastern District of Texas with 1,315 cases. The top three most active district courts presided over a combined total of over 50% of all patent cases filed during the three-year period.

These trends are unsurprising, given Judge Albright's efforts over the last three years to attract patent cases, with the result that a high number of patent cases were funneled to the Western District of Texas. However, the July 2022 standing order from then-Chief Judge Orlando Garcia of the Western District of Texas – which ordered that patent cases filed in Waco be randomly assigned to other judges in the Western District, including Judge Albright – appeared to have reduced the number of cases filed in that district in 2022 when compared to the previous year. Interestingly, before taking senior status in December 2022, Judge Garcia issued another standing order that appeared to assign all civil and criminal cases filed in Waco to Judge Albright. However, Judge Garcia's successor, Chief Judge Alia Moses, has ordered that the July 2022 procedure of assigning patent cases filed in Waco Division remains in place, except that patent cases will no longer be assigned to Senior Judge Frank Montalvo. Lex Machina will continue to monitor the emerging patent litigation trends.

Figure 5: Most Active Districts by Cases Filed from 2020 to 2022

| District | 2020 | 2021 | 2022 | Total | Percent |
|----------|------|------|------|-------|---------|
| W.D.Tex. | 863 | 981 | 867 | 2,711 | 22.96% |
| D.Del. | 736 | 882 | 668 | 2,286 | 19.36% |
| E.D.Tex. | 395 | 448 | 472 | 1,315 | 11.14% |
| C.D.Cal. | 298 | 245 | 223 | 766 | 6.49% |
| N.D.Cal. | 243 | 176 | 141 | 560 | 4.74% |
| N.D.Ill. | 183 | 161 | 211 | 555 | 4.70% |
| D.N.J. | 151 | 108 | 117 | 376 | 3.18% |
| S.D.N.Y. | 110 | 105 | 119 | 334 | 2.83% |
| N.D.Tex. | 86 | 61 | 86 | 233 | 1.97% |
| S.D.Fla. | 59 | 73 | 78 | 210 | 1.78% |

Most Active Judges

This section looks at the judges who presided over the most patent cases filed in federal district court over the last three years. Judge Albright held on to the position of most active judge by a considerable margin, in each individual year and cumulatively over the three-year period from 2020 to 2022. He presided over a combined total of 2,404 patent cases over the three-year period, which amounted to over 20% of the patent cases filed during that time. Judge Albright heard more cases over the past three years than the next two district court judges combined.

In addition to Judge Albright's explicit efforts to encourage the filing of patent cases in the Western District of Texas, his local rules for patent litigation also postponed determining the issue of patent eligibility in most cases until summary judgment or claim construction. This resulted in a court that offered the possibility of a faster-moving docket. These factors likely contributed to his top ranking as the most active judge.

The second most active judge was Judge Gilstrap of the Eastern District of Texas, who presided over five times as many cases as the next most active district court judge in Texas (Judge Mazzant in eighth place). The next five most active judges were from the District of Delaware, across which the three-year caseload was more evenly distributed. Two other judges from the Western District of Texas - Judge Pitman and Judge Yeakel - were tied for 11th place on the most active judges list.

One factor that likely affected these rankings is the order that went into effect in July of 2022, which purported to randomly assign cases filed in Waco to other judges in the Western District of Texas. This likely contributed to the significant drop in Judge Albright's cases in 2022 compared to 2021. In contrast, the District of Delaware's policy is to distribute cases equally. One reason that the 2022 case numbers for the District of Delaware were a little uneven compared to previous years is likely because Judge Stark was elevated to the Federal Circuit in March 2022 and Judge Williams assumed office in September 2022.

Figure 6: Most Active Judges by Cases Filed from 2020 to 2022

| Judge | District | 2020 | 2021 | 2022 | Total | Percent |
|------------------------|----------|------|------|------|-------|---------|
| Alan D Albright | W.D.Tex. | 794 | 932 | 678 | 2,404 | 20.36% |
| James Rodney Gilstrap | E.D.Tex. | 252 | 328 | 366 | 946 | 8.01% |
| Maryellen Noreika | D.Del. | 220 | 238 | 150 | 608 | 5.15% |
| Richard Gibson Andrews | D.Del. | 183 | 229 | 181 | 593 | 5.02% |
| Colm Felix Connolly | D.Del. | 194 | 233 | 165 | 592 | 5.01% |
| Leonard Philip Stark | D.Del. | 173 | 219 | 31 | 423 | 3.58% |
| Gregory Brian Williams | D.Del. | 29 | 39 | 124 | 192 | 1.63% |
| Amos Louis Mazzant III | E.D.Tex. | 71 | 59 | 50 | 180 | 1.52% |
| Sean D. Jordan | E.D.Tex. | 57 | 29 | 30 | 116 | 0.98% |
| John Arnold Kronstadt | C.D.Cal. | 47 | 36 | 32 | 115 | 0.97% |
| Robert Lee Pitman | W.D.Tex. | 38 | 16 | 51 | 105 | 0.89% |
| Earl Leroy Yeakel III | W.D.Tex. | 38 | 29 | 38 | 105 | 0.89% |
| James V. Selna | C.D.Cal. | 56 | 36 | 9 | 101 | 0.86% |
| George H. Wu | C.D.Cal. | 42 | 31 | 28 | 101 | 0.86% |
| Andre Birotte Jr. | C.D.Cal. | 34 | 26 | 26 | 86 | 0.73% |

Most Active Parties

Entities who focus on the monetization of patent portfolios feature predominantly on the list of most active plaintiffs in patent litigation. Cedar Lane Technologies Inc. filed the most cases overall, with the highest number filed in 2022.

WSOU Investments LLC came in second, with the bulk of its cases filed in 2020. In third was Bell Semiconductor, LLC with the majority of its cases filed in 2022.

Figure 7: Most Active Plaintiffs by Cases Filed from 2020 to 2022

| Party | 2020 | 2021 | 2022 | Total | Districts |
|------------------------------------------------|------|------|------|-------|-----------|
| Cedar Lane Technologies Inc. | 53 | 107 | 176 | 336 | 20 |
| WSOU Investments LLC | 182 | 17 | 6 | 205 | 5 |
| Bell Semiconductor, LLC | 4 | 0 | 102 | 106 | 14 |
| Social Positioning Input Systems, LLC | 16 | 41 | 13 | 70 | 22 |
| Rothschild Broadcast Distribution Systems, LLC | 23 | 32 | 7 | 62 | 14 |
| Symbology Innovations, LLC | 47 | 11 | 0 | 58 | 14 |
| Stormborn Technologies LLC | 14 | 23 | 20 | 57 | 18 |
| Display Technologies, LLC | 19 | 24 | 12 | 55 | 16 |
| Geographic Location Innovations LLC | 17 | 38 | 0 | 55 | 20 |
| Aperture Net LLC | 14 | 17 | 22 | 53 | 10 |
| BE Labs, Inc. | 15 | 28 | 10 | 53 | 10 |

Technology companies comprised all but two of the most active defendants in patent litigation. Samsung Electronics America, Inc. defended against the highest number of patent cases filed over the last three years, followed by Google LLC and Samsung Electronics Co., Ltd. The last four places on the list of the ten most active defendants were taken by the four pharmaceutical companies on the list: Lupin Ltd., Aurobindo Pharma Ltd., Aurobindo Pharma USA, Inc., and Teva Pharmaceuticals USA, Inc.

Figure 8: Most Active Defendants by Cases Filed from 2020 to 2022

| Party | 2020 | 2021 | 2022 | Total | Districts |
|-----------------------------------|------|------|------|-------|-----------|
| Samsung Electronics America, Inc. | 42 | 58 | 51 | 151 | 7 |
| Google LLC | 48 | 46 | 50 | 144 | 12 |
| Samsung Electronics Co., Ltd. | 40 | 55 | 42 | 137 | 9 |
| Apple Inc. | 21 | 41 | 34 | 96 | 14 |
| Microsoft Corporation | 40 | 18 | 23 | 81 | 11 |
| Amazon.com, Inc. | 21 | 25 | 32 | 78 | 18 |
| LG Electronics, Inc. | 27 | 26 | 19 | 72 | 9 |
| Dell Technologies Inc. | 36 | 18 | 13 | 67 | 4 |
| Lupin Ltd. | 25 | 20 | 15 | 60 | 3 |
| Aurobindo Pharma Ltd. | 21 | 21 | 16 | 58 | 3 |
| Aurobindo Pharma USA, Inc. | 22 | 19 | 17 | 58 | 2 |
| Teva Pharmaceuticals USA, Inc. | 22 | 18 | 18 | 58 | 5 |

Most Active Firms

Lex Machina extracts counsel data from raw sources and normalizes the information in order to collect analytics on law firms and attorneys. This section includes the most active law firms by plaintiffs' and defendants' firms. The tables below include a column for the percentage of cases over the past three years that were filed by High-Volume Plaintiffs.

The most active law firm representing plaintiffs over the three-year period from 2020 to 2022 was The Chong Law Firm who filed the majority of those cases on behalf of High-Volume Plaintiffs. Second was Rabicoff Law followed by Sand, Sebolt & Wernow. For all of the three most active plaintiff-side law firms, over 80% of the cases each of them filed were on behalf of High-Volume Plaintiffs.

Figure 9: Most Active Law Firms Representing Plaintiffs by Cases Filed from 2020 to 2022

| Firm | 2020 | 2021 | 2022 | Total | Districts | HVP |
|----------------------------------|------|------|------|-------|-----------|--------|
| The Chong Law Firm | 228 | 318 | 249 | 795 | 12 | 83.02% |
| Rabicoff Law | 356 | 159 | 162 | 677 | 25 | 83.01% |
| Sand, Sebolt & Wernow | 202 | 273 | 143 | 618 | 23 | 83.17% |
| Ramey | 22 | 169 | 329 | 520 | 22 | 58.08% |
| Devlin Law Firm | 200 | 106 | 193 | 499 | 30 | 58.32% |
| Direction IP Law | 122 | 121 | 133 | 376 | 24 | 86.44% |
| The Mort Law Firm | 170 | 86 | 115 | 371 | 9 | 50.13% |
| Morris, Nichols, Arsht & Tunnell | 113 | 131 | 102 | 346 | 3 | 1.73% |
| Russ August & Kabat | 85 | 103 | 76 | 264 | 19 | 76.89% |
| Kizzia & Johnson | 105 | 110 | 27 | 242 | 23 | 95.45% |
| McKool Smith | 36 | 60 | 140 | 236 | 19 | 59.75% |
| Fabricant | 35 | 96 | 85 | 216 | 3 | 62.04% |
| Gawthrop Greenwood | 43 | 142 | 29 | 214 | 5 | 90.65% |
| Garteiser Honea | 46 | 96 | 62 | 204 | 14 | 81.37% |
| Ward, Smith & Hill | 39 | 94 | 71 | 204 | 9 | 37.75% |

Fish & Richardson was the most active law firm representing defendants over the last three years, appearing on behalf of defendants in nearly twice as many patent cases (728 cases) as the next most active law firm, Gillam & Smith (389 cases). Third was Morris, Nichols, Arsht & Tunnell with 272 cases, and who also appeared in eighth place on the list of the most active law firms representing plaintiffs. As local counsel in the District of Delaware, Morris, Nichols, Arsht & Tunnell generally did not represent High-Volume Plaintiffs, though they defended against them in 42% of their cases representing defendants.

Figure 10: Most Active Law Firms Representing Defendants by Cases Filed from 2020 to 2022

| Firm | 2020 | 2021 | 2022 | Total | Districts | HVP |
|-----------------------------------|------|------|------|-------|-----------|--------|
| Fish & Richardson | 243 | 242 | 243 | 728 | 42 | 65.38% |
| Gillam & Smith | 121 | 140 | 128 | 389 | 8 | 42.93% |
| Morris, Nichols, Arsht & Tunnell | 91 | 111 | 70 | 272 | 5 | 41.91% |
| Winston & Strawn | 101 | 93 | 69 | 263 | 19 | 34.60% |
| DLA Piper | 70 | 94 | 97 | 261 | 20 | 48.28% |
| Perkins Coie | 79 | 70 | 77 | 226 | 27 | 47.35% |
| The Dacus Firm | 42 | 55 | 62 | 159 | 5 | 30.82% |
| Baker Botts | 64 | 59 | 31 | 154 | 10 | 46.10% |
| Quinn Emanuel Urquhart & Sullivan | 57 | 59 | 31 | 147 | 20 | 40.82% |
| Young Conaway Stargatt & Taylor | 52 | 39 | 35 | 126 | 2 | 26.19% |
| Richards, Layton & Finger | 43 | 43 | 38 | 124 | 1 | 25.00% |
| Alston & Bird | 36 | 46 | 41 | 123 | 19 | 40.65% |
| Shelton Coburn | 88 | 30 | 5 | 123 | 7 | 57.72% |
| Potter Minton | 56 | 43 | 23 | 122 | 7 | 48.36% |
| Morris James | 43 | 44 | 29 | 116 | 3 | 23.28% |

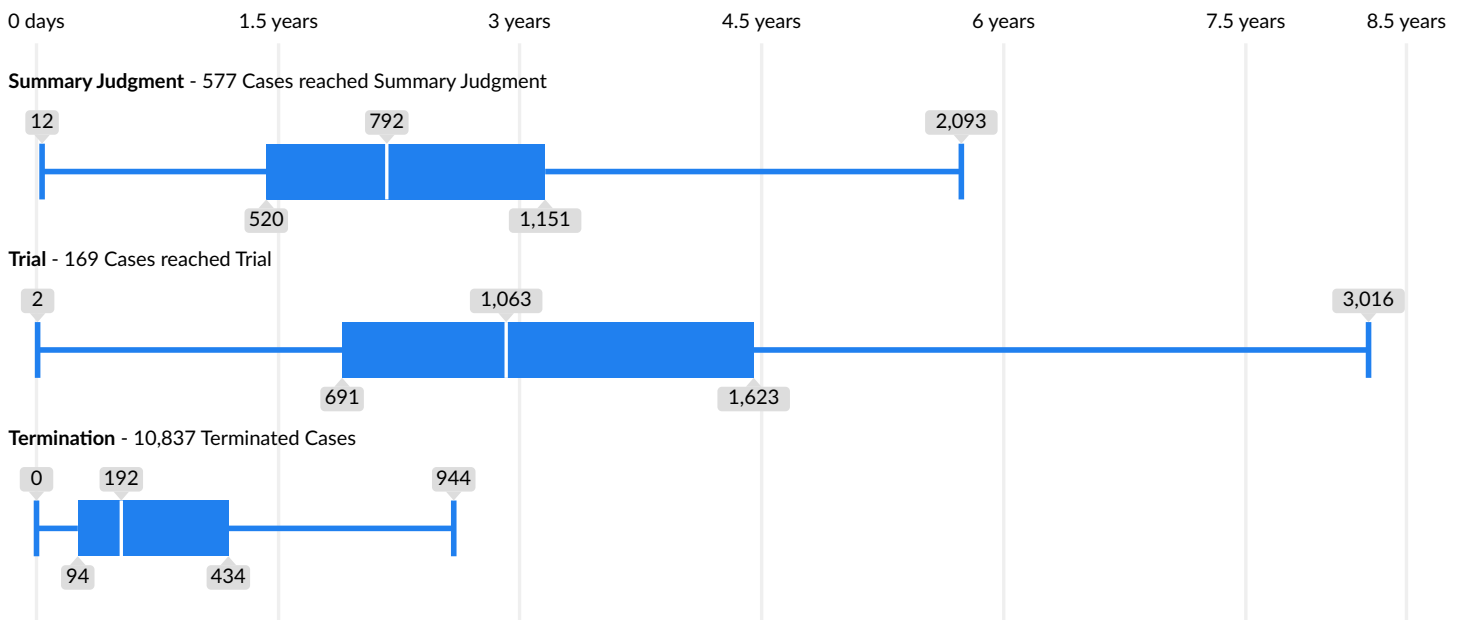
Timing

This section contains three figures with timing analytics. Lex Machina provides case timing data to certain milestones, which is often used for forecasting, calendaring, and budgeting. In viewing boxplots, the lines represent the lower and upper quartiles and the box represents the middle 50% of cases with the median number highlighted in the center (more information is in the Understanding Boxplots section at the end of this report).

For all patent cases (excluding ANDA cases) that terminated in the three-year period from 2020 to 2022, the median time to summary judgment was over two years. The median time to trial was nearly three years, while the median time to termination was just over half a year.

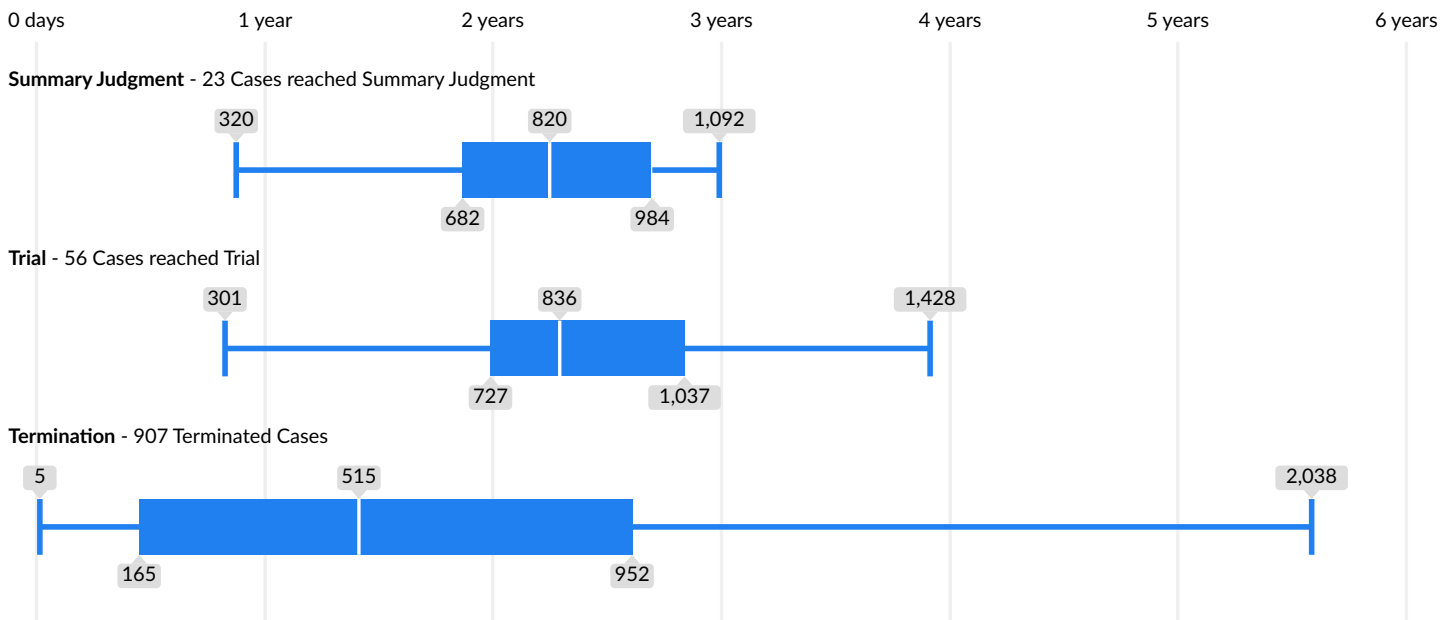
Note that the range of time it takes to get to trial is particularly wide, and practitioners should consider other information, such as case claims and the assigned judge, in order to obtain additional insights on timing.

Figure 11: Time to Events in Patent Cases Terminated from 2020 to 2022 (excluding ANDA Cases)



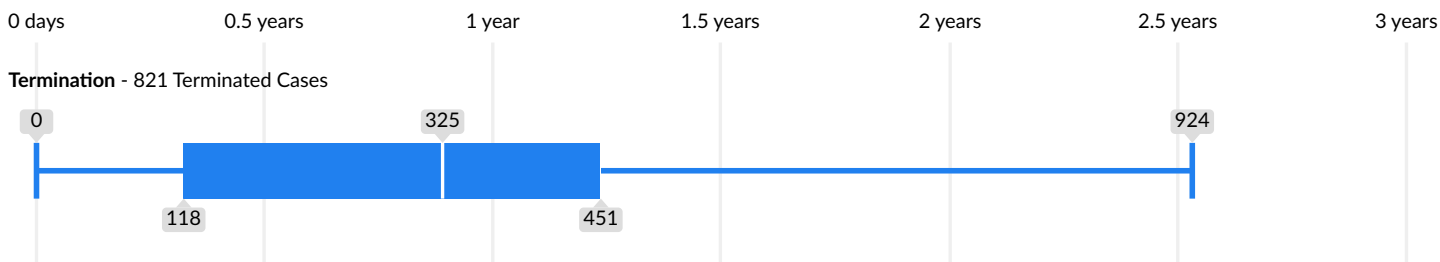
For ANDA cases terminated within the same three-year period, the time to termination was significantly longer than for general patent cases (over two and a half times longer). One of the contributing factors to this difference in timing is likely due, in part, to the fact that ANDA cases are less likely to settle early (by filtering the data in Lex Machina, one would discover that only 33% of ANDA cases resolved with a likely settlement compared to 79% of non-ANDA cases). However, ANDA cases reached trial in a shorter median time than general patent cases (over half a year more quickly). This difference in timing may be explained, in part, by the fact that the parties involved in ANDA cases tend to be repeat-player pharmaceutical companies with “deep pockets” who routinely engage in this type of litigation.

Figure 12: Time to Events in ANDA Patent Cases Terminated from 2020 to 2022



Patent Appellate Cases reached termination in a median of 325 days after docketing in the federal appellate court.

Figure 13: Time to Termination in Patent-Originating Federal Appellate Cases Terminated from 2020 to 2022



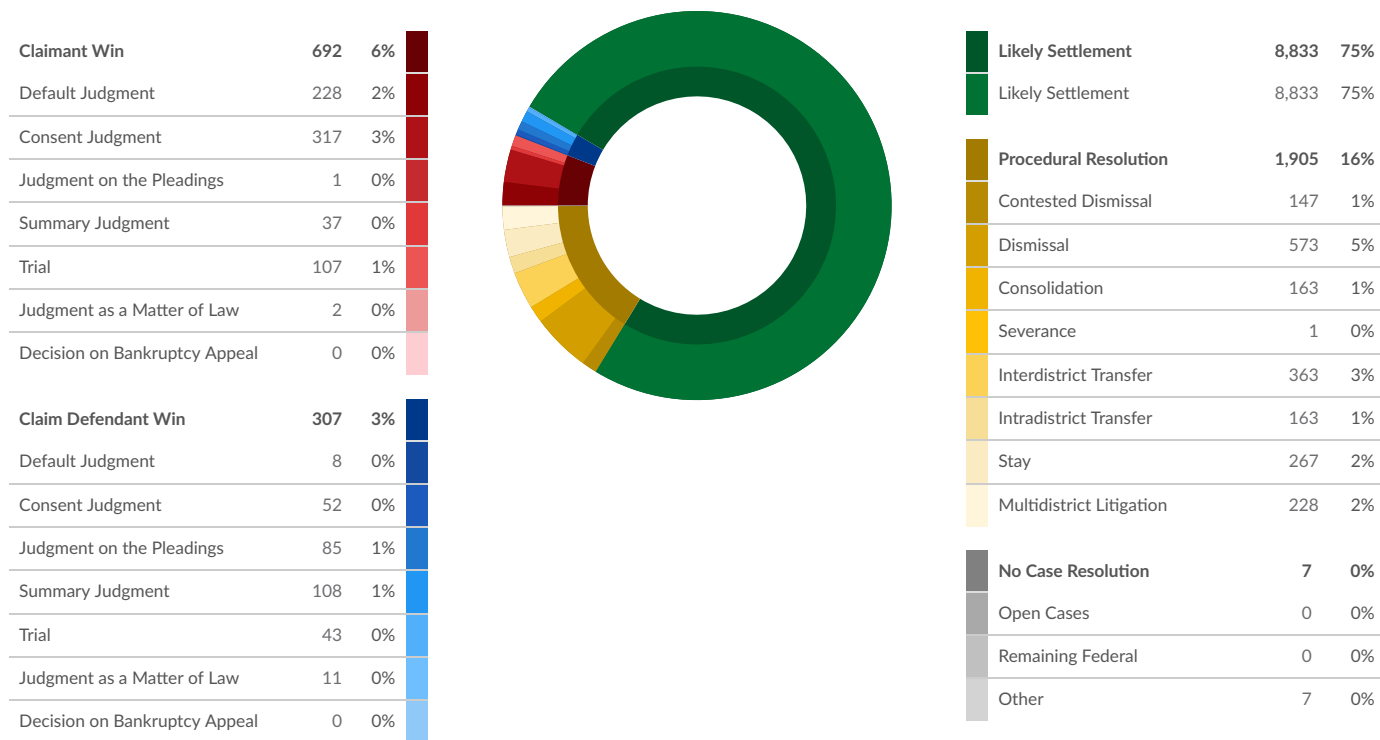
Case Resolutions

This section showcases case resolutions for district court patent cases and Patent Appellate Cases terminated in the three-year period from 2020 to 2022.

For district court patent cases, settlements and procedural resolutions are on the right with the parties' wins on the left. On the left side, case resolutions are broken down into claimant and claim defendant wins for cases that resolved at various stages of litigation.

The bulk of the district court cases terminated in the last three years were resolved with a likely settlement or on procedural grounds (91% of cases). With regard to cases resolved on substantive grounds, they were resolved in favor of claimants twice as often as claim defendants (692 cases to 307), primarily on consent and default judgments (though 15% of the cases resolved in favor of claimants were done so at trial). However, for cases resolved on summary judgment, claim defendants prevailed almost three times as often (108 cases to 37). Note that as this figure looks at the way cases were terminated, claim defendants were likely to have more cases resolved at judgments on the pleadings and summary judgments due to the nature of those proceedings. In comparison, if the claimant wins at those stages of trial, the cases often do not terminate and instead proceed onward.

Figure 14: District Court Case Resolutions for Cases Terminated from 2020 to 2022

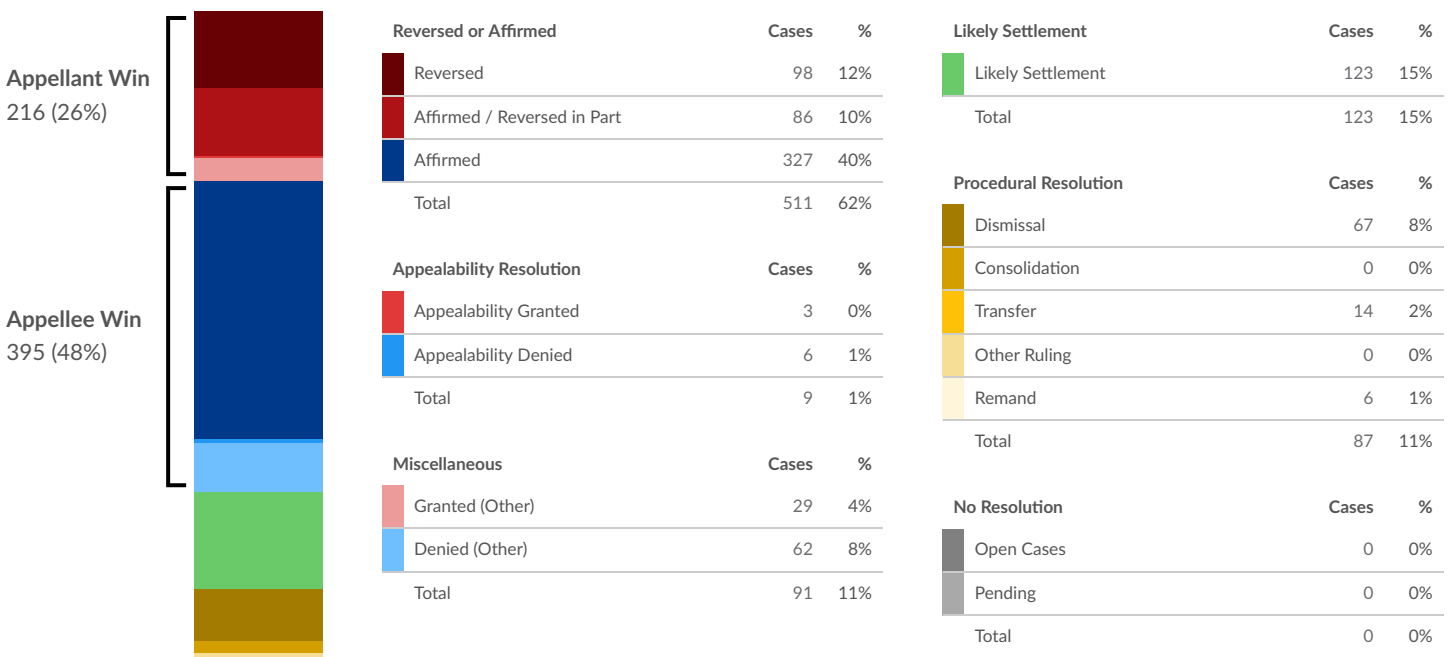


For Patent Appellate Cases, appellant/appellee wins are on the left, and the settlement and procedural resolutions are on the right. On the bottom, the bar graph shows the reversal rate of district court cases that resulted in a substantive decision (either reversed or affirmed).

The Patent Appellate Cases that terminated in the last three years with a decision on the merits of the appeal held a 36% reversal rate.

Figure 15: Federal Appellate Case Resolutions for Patent-Originating Cases Terminated from 2020 to 2022

All Resolutions



Reversal Rate of Reversed or Affirmed Cases

36%

Reversal rate

64%

Affirmance rate



The reversal rate is calculated by dividing the number of cases (184) that were either ● Reversed (98) or ● Affirmed / Reversed in Part (86) by the total number of cases (511) that were ● Reversed, ● Affirmed / Reversed in Part, or ● Affirmed (327).

Findings

Lex Machina tracks findings at various stages of litigation, which may indicate how difficult it will be to receive a favorable decision at various points in the case. Outside of this report, Lex Machina also breaks down findings by judge or court in order to enable attorneys to strategize accordingly. The figures below show the number of cases with a finding at each stage of litigation, as well as overall. The columns will not necessarily add up to the “Any” column because a case may have findings at more than one judgment event; for example, a finding at summary judgment and another finding at trial.

The first figure in this section shows the number of cases with a patent finding at various judgment events for patent cases that terminated in the last three years. The second figure delves deeper into the specific reasons patents were found invalid over the same three-year time period. For the figures in this section, findings made as part of a claim construction order are counted as findings at summary judgment.

With regard to patent cases terminated during the three-year period from 2020 to 2022, Infringement was found the most often (in 569 cases), primarily on default and consent judgments. At the summary judgment stage, however, courts found No Infringement more than four times as often as Infringement. The most common finding at trial was No Invalidity (in 101 cases), followed by Infringement (in 95 cases).

Figure 16: Patent Findings by Judgment Event for Cases Terminated from 2020 to 2022

| Finding | Default Judgment | Consent Judgment | Judgment on the Pleadings | Summary Judgment | Judgment as a Matter of Law | Trial | Any Judgment Event | |
|---------------------|------------------|------------------|---------------------------|------------------|-----------------------------|-------|--------------------|-----|
| Infringement | | 252 | 211 | 1 | 34 | 95 | 1 | 569 |
| No Infringement | | 5 | 81 | 6 | 154 | 66 | 8 | 286 |
| Invalidity | | 4 | 10 | 114 | 138 | 48 | 8 | 312 |
| No Invalidity | | 27 | 181 | 0 | 48 | 101 | 5 | 339 |
| Unenforceability | | 1 | 0 | 0 | 0 | 5 | 0 | 6 |
| No Unenforceability | | 23 | 165 | 3 | 25 | 10 | 1 | 224 |

Looking closer at Invalidity reveals that courts invalidated patents most often on the grounds that the patent was directed towards an ineligible subject matter, primarily found at judgment on the pleadings. The second most common grounds was indefiniteness, predominantly found at claim construction (which, as mentioned above, is combined with summary judgment for the purposes of the findings in this section).

Figure 17: Patent Invalidity Reasons by Judgment Event for Cases Terminated from 2020 to 2022

| Findings | Default Judgment | Consent Judgment | Judgment on the Pleadings | Summary Judgment | Judgment as a Matter of Law | Trial | Any Judgment Event | |
|-----------------------------------------|------------------|------------------|---------------------------|------------------|-----------------------------|-------|--------------------|--|
| 101 Subject Matter | 0 | 2 | 113 | 26 | 1 | 2 | 140 | |
| 102 Anticipation / Novelty | 4 | 1 | 0 | 13 | 16 | 2 | 35 | |
| 102(f) Derivation (pre-AIA) | 0 | 0 | 0 | 0 | 2 | 0 | 2 | |
| 103 Obviousness | 1 | 2 | 0 | 5 | 26 | 2 | 35 | |
| 112 Definiteness | 0 | 1 | 1 | 93 | 1 | 1 | 97 | |
| 112 Enablement | 0 | 0 | 0 | 3 | 6 | 0 | 9 | |
| 112 Written Description | 0 | 1 | 0 | 10 | 8 | 1 | 20 | |
| 171 Improper Design Patent | 0 | 1 | 0 | 1 | 0 | 0 | 1 | |
| 132, 251, 255, 305 Defective Correction | 0 | 0 | 0 | 1 | 0 | 0 | 1 | |
| Obviousness-Type Double Patenting | 0 | 0 | 0 | 0 | 1 | 0 | 1 | |
| No Invalidity Reason Specified | 0 | 2 | 0 | 1 | 9 | 0 | 12 | |

Damages

Figure 18 reflects the total patent damages awarded each year (excluding fees, costs, and interest) over the ten-year period from 2013 to 2022. The first three columns from the left show the numbers of cases with damages awarded each year and the total damages awarded that year. The damages awards in the third column are those that have not been reversed on appeal, and thus, many are final awards. The fifth column shows the damages awarded each year that were later reversed on appeal. The damages in the third and fifth columns are mutually exclusive.

The total amount of patent damages awarded in each of the last three years surpassed \$2 billion each year. In addition, in 2022, total damages were awarded to the highest number of cases in any year over the ten-year period. Lex Machina will continue tracking damages to see whether these newer damage awards are reversed or left to stand.

Figure 18: Total Patent Damages Awarded from 2013 to 2022 (excluding Fees and Interest)

| Year | Cases | Amount | Reversed Cases | Reversed Amount |
|------|-------|-----------------|----------------|-----------------|
| 2022 | 67 | \$2,821,828,993 | | |
| 2021 | 60 | \$3,392,034,179 | | |
| 2020 | 49 | \$3,179,079,057 | 3 | \$1,502,214,100 |
| 2019 | 54 | \$819,062,005 | 7 | \$780,833,141 |
| 2018 | 58 | \$1,234,505,028 | 6 | \$545,131,441 |
| 2017 | 61 | \$700,383,484 | 8 | \$385,117,446 |
| 2016 | 53 | \$547,325,309 | 8 | \$29,900,504 |
| 2015 | 43 | \$337,722,691 | 12 | \$445,891,690 |
| 2014 | 54 | \$1,418,537,292 | 8 | \$512,654,435 |
| 2013 | 50 | \$354,536,252 | 10 | \$703,608,583 |

Figure 19 showcases the various types of damages and the amount of damages awarded at various judgment events during the three-year period from 2020 to 2022. Lex Machina annotates certain types of damages specific to patent cases: Reasonable Royalty, Lost Profits, and Enhanced Damages. Other / Mixed Damage Types, Prejudgment Interest, and Attorneys' Fees / Costs are not specific to the patent practice area, but are annotated generally within Lex Machina.

The highest amount of damages were awarded as Reasonable Royalty: \$7.5 billion awarded in 102 cases over the three-year period. Courts awarded \$1.6 billion in Enhanced damages in a much lower number of cases (27 cases), primarily on the merits.

Figure 19: Total Patent Damages by Type Awarded from 2020 to 2022

| Type | Cases | Awarded | DFJ | CJ | Verdict | Merits |
|----------------------------|-------|-----------------|--------------|--------------|-----------------|-----------------|
| Reasonable Royalty | 102 | \$7,505,787,247 | \$11,379,743 | \$5,577,370 | \$6,596,079,251 | \$892,750,883 |
| Lost Profits | 59 | \$307,362,026 | \$44,719,832 | \$17,861,202 | \$219,029,967 | \$25,751,025 |
| Enhanced Damages | 27 | \$1,554,278,031 | \$17,445,684 | \$9,772,632 | | \$1,527,059,716 |
| Other / Mixed Damage Types | 26 | \$25,514,925 | \$10,448,362 | \$5,931,100 | \$5,838,181 | \$3,297,282 |
| Prejudgment Interest | 31 | \$76,850,261 | \$401,093 | \$835,932 | | \$75,613,236 |
| Attorneys' Fees / Costs | 203 | \$87,367,365 | \$3,500,309 | \$4,846,623 | | \$79,020,433 |

Patent Trial and Appeal Board

PTAB Filings

Figure 20 tracks the numbers of PTAB petitions filed each year over the ten-year period from 2013 to 2022. The petition filings increased sharply from 2013 to 2014 before holding relatively steady until 2018. There was a small drop in filings from 2018 to 2019, after which filings have remained fairly steady.

The drop in PTAB filings in 2019 may partially be explained by the fact that in that year, the USPTO and the Federal Circuit Court began to adjust standards of review for patents among the different venues, and they instituted policies to minimize redundant reviews of patents. Furthermore, the brief spike in 2020 may have been driven, in part, by the increased clarification of the standards set forth in 2019. Compounding this with the relative resilience of PTAB during the pandemic (through which PTAB continued to operate essentially uninterrupted), PTAB likely became an increasingly popular venue for litigation in 2020. Note that there are no covered business method (CBM) filings in 2021 and 2022 because CBM review ended in September 2020.

Figure 20: PTAB Petitions Filed from 2013 to 2022

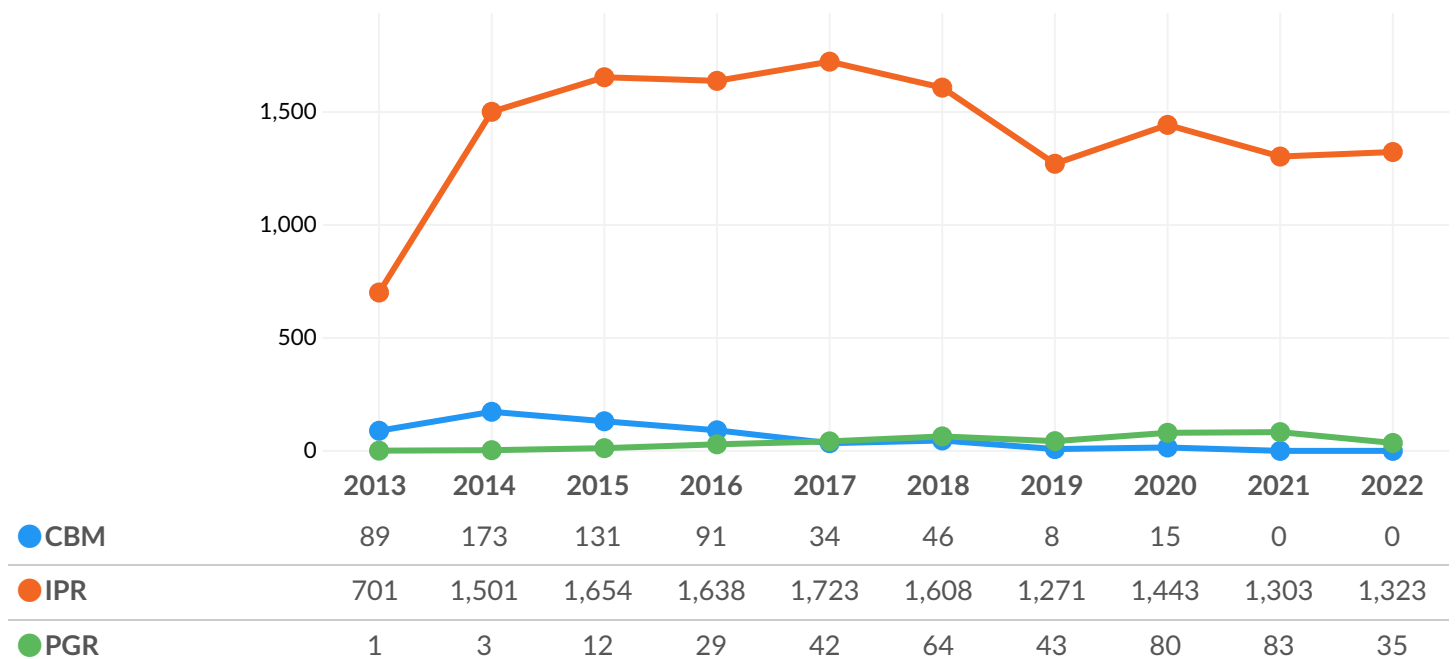
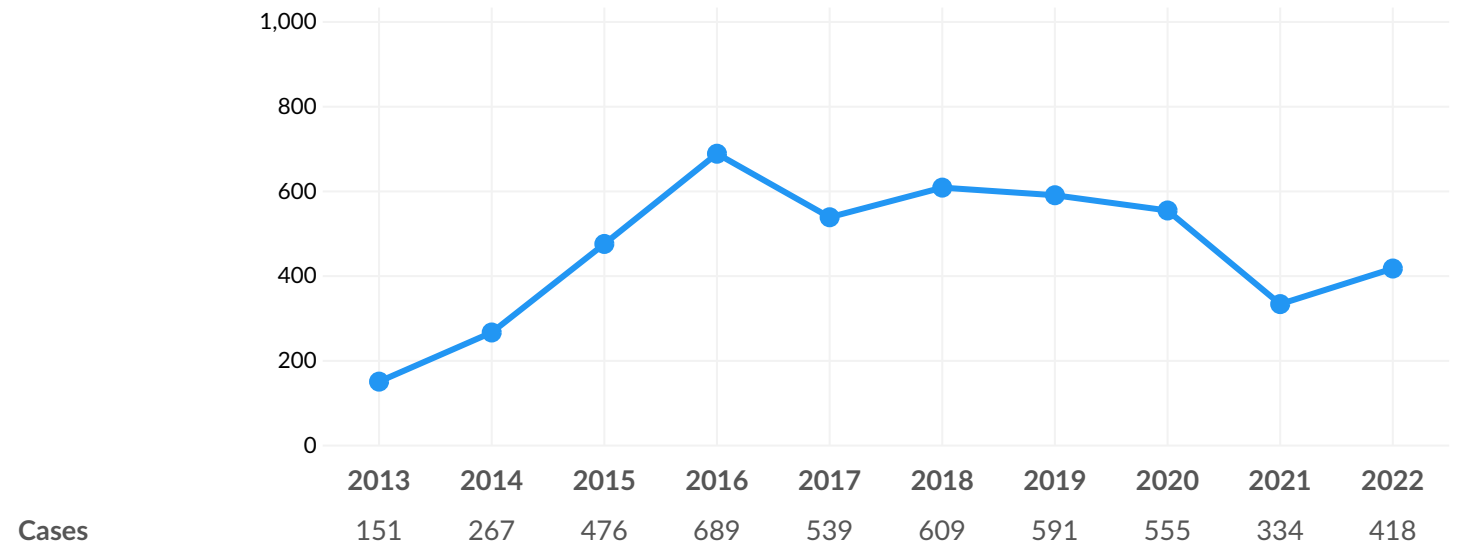


Figure 21 tracks the cases originating from PTAB that were appealed to the federal courts of appeals (the “PTAB Appeals Cases”). PTAB Appeals Case filings increased from 2013 until peaking in 2016, after which they dropped in 2017. From 2017 to 2020, they remained fairly steady before exhibiting a steep drop in 2021. This recent drop was possibly driven by the clarified standards set forth by the USPTO and the Federal Circuit Court in 2019 (as discussed above). PTAB Appeals Case filings rose slightly in 2022. Lex Machina will continue to monitor to see whether this rise becomes part of a larger trend.

Figure 21: Federal Court of Appeals Cases Originating from PTAB Filed from 2013 to 2022



Most Active Parties (PTAB)

Figure 22 shows the parties who appeared in the most PTAB trials based on petitions during the three-year period from 2020 to 2022. The right hand columns list the number of patents at issue and the number of administrative patent judges presiding over trials involving the specific party.

Large tech companies continued to dominate the list of the most active petitioners during this three-year period. The two most active petitioners were Samsung entities, followed by Apple Inc. and Google LLC. These four entities were also the top four patent defendants in cases filed in district court from 2020 to 2022, albeit in a different order (see Figure 8 above).

Figure 22: Most Active Petitioners by Trials Petitioned from 2020 to 2022

| Party | 2020 | 2021 | 2022 | Total | Patents | APJS |
|-----------------------------------|------|------|------|-------|---------|------|
| Samsung Electronics Co., Ltd. | 118 | 138 | 127 | 383 | 318 | 99 |
| Samsung Electronics America, Inc. | 124 | 134 | 99 | 357 | 295 | 98 |
| Apple Inc. | 100 | 69 | 137 | 306 | 249 | 83 |
| Google LLC | 57 | 63 | 88 | 208 | 155 | 75 |
| Unified Patents, LLC | 40 | 24 | 29 | 93 | 93 | 91 |
| Intel Corporation | 39 | 34 | 9 | 82 | 52 | 36 |
| Microsoft Corporation | 23 | 27 | 25 | 75 | 61 | 39 |
| Dell Inc. | 37 | 19 | 14 | 70 | 58 | 26 |
| Dell Technologies Inc. | 27 | 16 | 14 | 57 | 48 | 34 |
| Lenovo (United States) Inc. | 32 | 23 | 0 | 55 | 38 | 25 |

Figure 23 lists the patent owners who defended their patents in the highest number of trials petitioned during the three-year period from 2020 to 2022. Telefonaktiebolaget LM Ericsson topped the list with 62 trials petitioned, followed by Ericsson, Inc with 53 trials petitioned. WSOU Investments LLC, the third most active patent owner in PTAB, was also the second most active district court patent plaintiff (see Figure 7 above).

Figure 23: Most Active Patent Owners by Trials Petitioned from 2020 to 2022

| Party | 2020 | 2021 | 2022 | Total | Patents | APJS |
|---------------------------------|------|------|------|-------|---------|------|
| Telefonaktiebolaget LM Ericsson | 0 | 30 | 32 | 62 | 35 | 11 |
| Ericsson, Inc | 0 | 26 | 27 | 53 | 32 | 11 |
| WSOU Investments LLC | 10 | 31 | 4 | 45 | 44 | 6 |
| Masimo Corporation | 30 | 0 | 12 | 42 | 31 | 5 |
| Jawbone Innovations, LLC | 0 | 1 | 35 | 36 | 9 | 6 |
| Scramoge Technology Ltd. | 0 | 10 | 24 | 34 | 22 | 7 |
| Neodron, Ltd. | 26 | 6 | 0 | 32 | 15 | 4 |
| Express Mobile, Inc. | 0 | 19 | 11 | 30 | 5 | 8 |
| BTL Industries, Inc. | 12 | 16 | 0 | 28 | 9 | 5 |
| Intellectual Ventures II LLC | 1 | 7 | 20 | 28 | 19 | 15 |
| Monterey Research, LLC | 21 | 4 | 3 | 28 | 16 | 6 |

Most Active Law Firms (PTAB)

Figure 24 lists the law firms who appeared in the most PTAB trials in the three-year period from 2020 to 2022. The right-hand columns show the percentage of cases in which the firm appeared on behalf of petitioners, the number of patents at issue, and the number of administrative patent judges they appeared before.

Similar to the list of the most active law firms representing defendants in district court (see Figure 10 above), Fish & Richardson topped the list of the most active law firms by trials petitioned from 2020 to 2022. They were followed by Finnegan, Henderson, Farabow, Garrett & Dunner, and then by Sterne, Kessler, Goldstein & Fox.

Figure 24: Most Active Firms by Trials Petitioned from 2020 to 2022

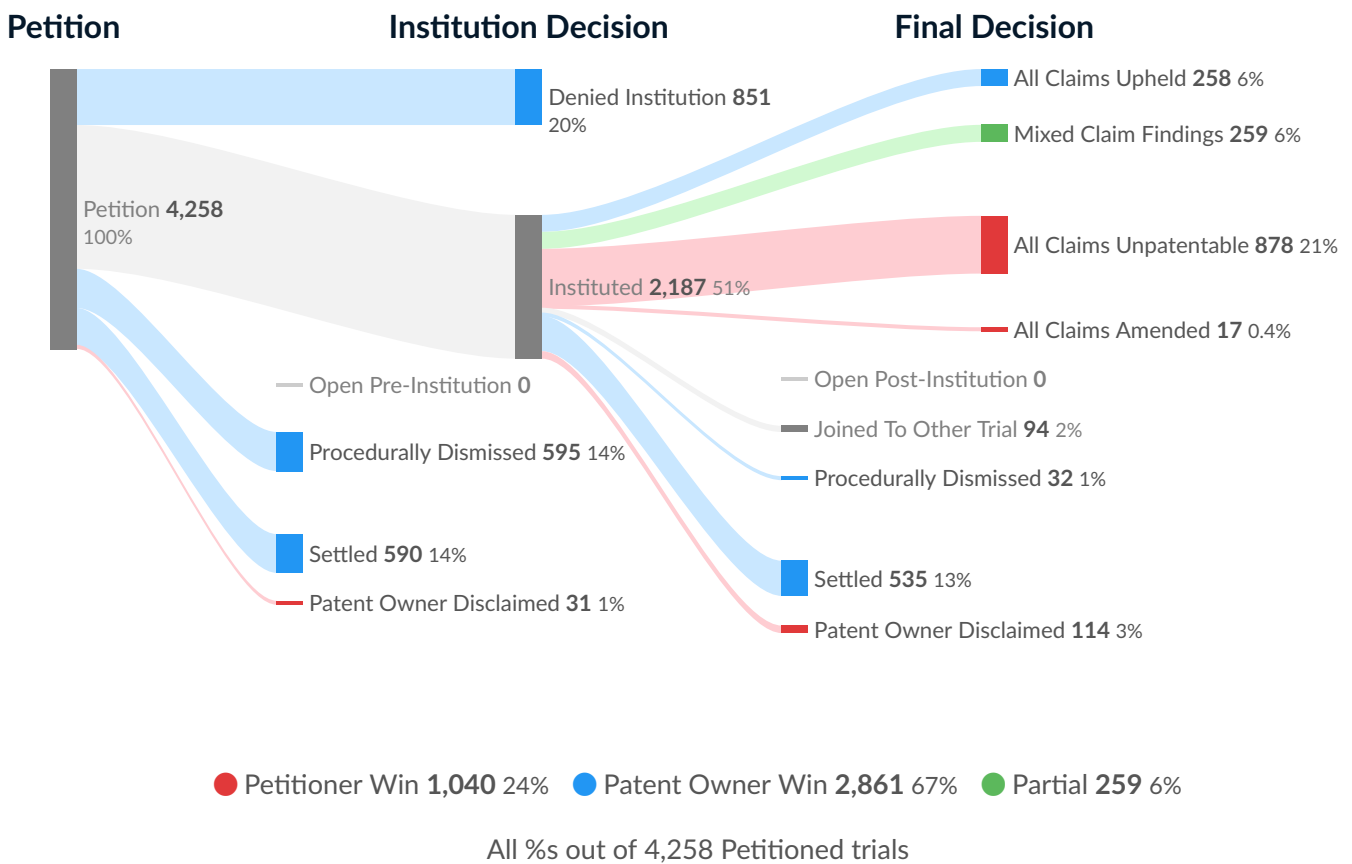
| Party | 2020 | 2021 | 2022 | Total | For Petitioner | Patents | APJS |
|------------------------------------------------|------|------|------|-------|----------------|---------|------|
| Fish & Richardson | 205 | 141 | 138 | 484 | 72.31% | 391 | 129 |
| Finnegan, Henderson, Farabow, Garrett & Dunner | 126 | 81 | 117 | 324 | 73.77% | 288 | 126 |
| Sterne, Kessler, Goldstein & Fox | 104 | 58 | 54 | 216 | 46.30% | 139 | 91 |
| Haynes and Boone | 56 | 65 | 74 | 195 | 83.08% | 177 | 94 |
| Russ August & Kabat | 56 | 55 | 75 | 186 | 0.00% | 114 | 51 |
| Baker Botts | 44 | 60 | 77 | 181 | 79.01% | 162 | 80 |
| Ropes & Gray | 83 | 67 | 25 | 175 | 76.57% | 140 | 79 |
| Kirkland & Ellis | 50 | 61 | 58 | 169 | 81.66% | 157 | 69 |
| Quinn Emanuel Urquhart & Sullivan | 65 | 66 | 35 | 166 | 58.43% | 142 | 86 |
| Paul Hastings | 49 | 77 | 37 | 163 | 87.12% | 129 | 87 |

PTAB Trial Flow

The following trial flow analytics show the progression of PTAB trials from Petition through various stages and includes a summary of how the trial ended. For trials ending during the period from 2020 to 2022, over half of the cases were instituted. All claims were found to be unpatentable 21% of the time, with mixed claim findings 6% of the time. All claims were upheld 6% of the time.

There was a slight increase in instituted trials compared with the data reported in the 2022 Patent Litigation Report (from 49% to 51%), which may reflect PTO Director Kathi Vidal's scaling back of the Fintiv (discretionary denial) doctrine. There was also a drop in the number of procedural dismissals (which is how discretionary denials are annotated in Lex Machina).

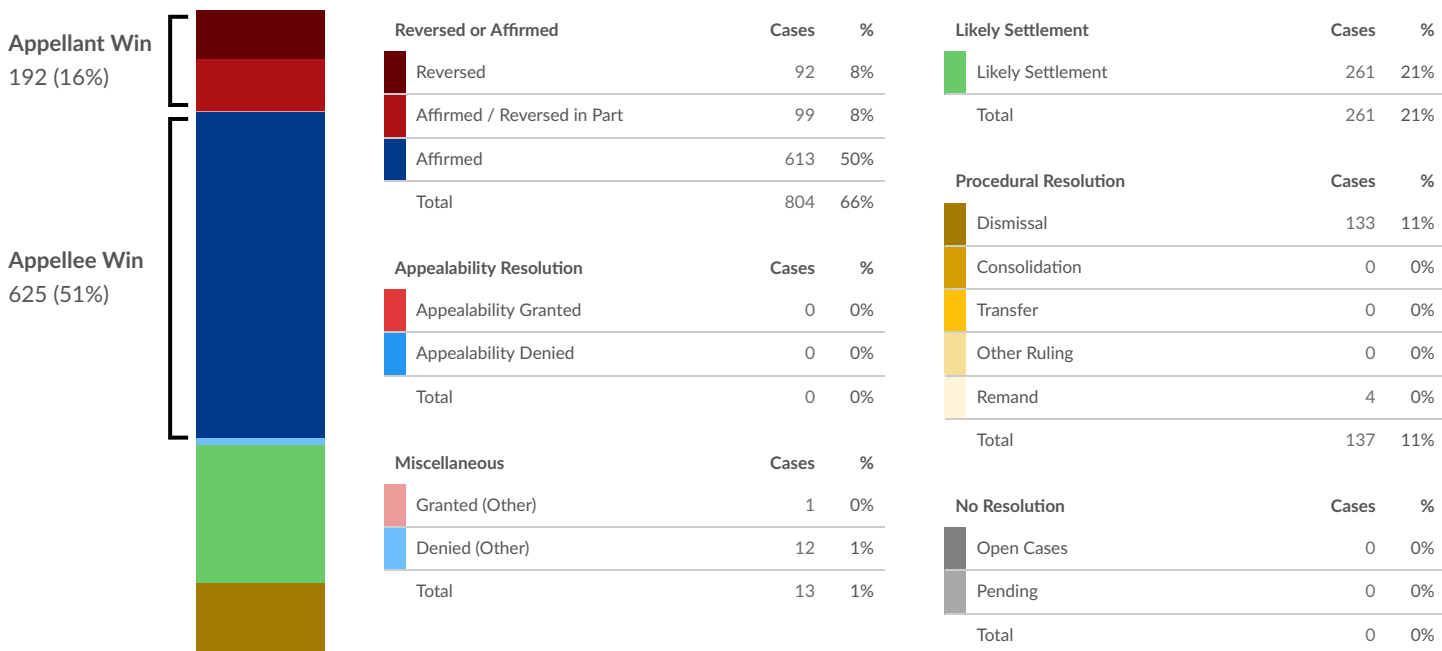
Figure 25: PTAB Trial Flow for Trials Terminated from 2020 to 2022



The below figure shows PTAB Appeals Cases, in which 24% of those appeals decided on the merits resulted in a reversal.

Figure 26: Federal PTAB Appellate Cases Docketed from 2020 to 2022

All Resolutions



Reversal Rate of Reversed or Affirmed Cases



The reversal rate is calculated by dividing the number of cases (191) that were either ● Reversed (92) or ● Affirmed / Reversed in Part (99) by the total number of cases (804) that were ● Reversed, ● Affirmed / Reversed in Part, or ● Affirmed (613).

Data and Methodology

This report presents data from Lex Machina's Legal Analytics platform. Using machine learning and technology-assisted attorney review, raw data is extracted from sources including PACER. The raw data is then cleaned, tagged, structured, and loaded into Lex Machina's proprietary platform. This report is prepared by the Lex Machina Product Team using charts and graphs from the platform. Commentary is provided by Lex Machina's legal experts.

Lex Machina supplements and corrects primary data from PACER in a variety of ways, including:

- Correcting errors ranging from spelling mistakes to complex data problems
- Normalizing data on judges, parties, law firms, and attorneys
- Extracting records of law firms and attorneys not found in docket reports
- Tagging and categorizing cases
- Annotating case resolutions, damages, and dispositive rulings

What Kinds of Data Does Lex Machina Offer?

Lex Machina maintains a specialized database containing information about litigation in the U.S. District Courts, several state courts, the U.S. Patent and Trademark Office's Patent Trial and Appeal Board, the U.S. International Trade Commission, the U.S. Bankruptcy Courts, and the U.S. Federal Courts of Appeals. On a daily basis, Lex Machina requests and receives data from the various courts' PACER systems on new cases and docket entries filed. Lex Machina's automated systems ensure the completeness and consistency of this data before analyzing it in conjunction with other data sources.

This document was published in February 2023. The Lex Machina platform updates daily; therefore, any numbers in this report will change as new cases get added to PACER with new information. This report is meant to provide trends and general research information as of the date of publication.

What is a Patent case?

A case with one or more claims involving patent infringement, invalidity, or unenforceability brought under 35 USC § 271. False marking, inventorship, or contract cases are not included in the Patent case type.

What are the Patent Case Tags?

Lex Machina uses machine learning and natural language processing to create case tags that identify certain claims in a case. In patent, case tags to identify these common types of claims include:

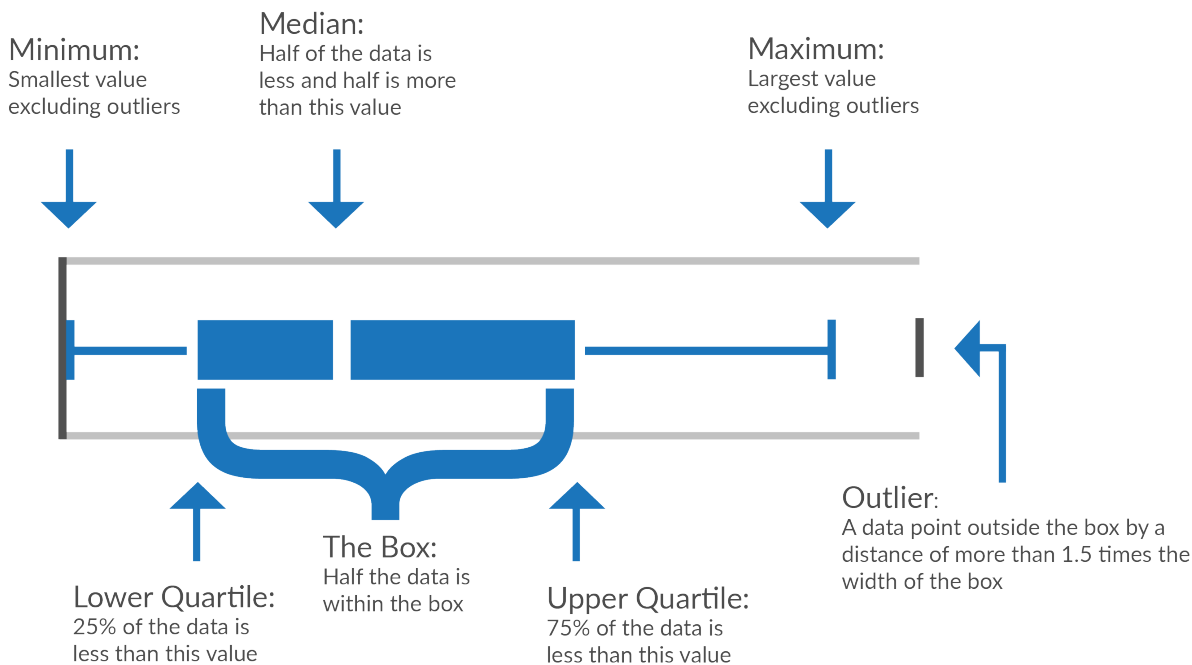
ANDA — Patent cases prompted by the filing of an ANDA or paper NDA that includes a Paragraph IV Certification (incentivized by the Hatch-Waxman Act's first to file exclusivity provisions for prospective generic drug makers).

High-Volume Plaintiff — Patent cases in which a plaintiff (or defendant in a declaratory judgment case) is a high-volume filer, meaning that the party has filed at least 10 patent cases (excluding ANDA cases) within a 365-day period. Once a party is determined to be a high-volume filer, this tag applies to all of the party's patent cases (excluding ANDA cases) in which the party is a plaintiff (or defendant in a declaratory judgment case), regardless of when the cases were filed. This behavior-based classification focuses objectively on a party's tendency towards mass litigation, and it avoids the inherent subjectivity and ambiguity of classifying parties as Non-Practicing Entities (NPEs) or Patent Assertion Entities (PAEs). Thus, while this tag primarily applies to cases with NPEs or PAEs, the tag also applies to cases with operating companies that file a significant volume of patent cases.

Understanding Box Plots

Lex Machina's analytics use a data visualization known as the box plot to convey information about the timing of significant events in a case. A box plot summarizes a series of data points to help you understand the shape or distribution of the values in those points. The box plot is drawn based on five numbers: the median, the upper and lower quartiles, and the whiskers for a distribution.

Figure 27: Paying attention to these key parts of the plot will help you quickly understand what you need to know.



The four observations below explain the significance of a box plot:

Median

The middle dividing line of the box splits the data points evenly so that 50% fall to either side. It's a form of average that gives a single number representation of what to reasonably expect.

Box bounds

The box encloses the middle-most 50% of the data points (from the 25th percentile to the 75th), with 25% of the data points falling outside to either side. This makes the box a good representation of the range one can reasonably expect.

Box compressed or elongated

A more compressed box means that more data points fall into a smaller range of time and therefore are more consistent; in contrast, a longer box means that the data points are spread out over a wider time period and are therefore less predictable.

Whiskers

Whiskers are drawn to show the outside bounds of reasonable expectation, beyond which data points are considered outliers. By statistical convention, box plots define outliers as points beyond more than 1.5 times the width of the box (sometimes called the "interquartile range").