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ATTACHMENT A

ECONOMIC ANALYSIS OF THE MERGER OF AT&T AND T-MOBILE

JOINT DECLARATION OF

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Control of Licenses and Authorizations)	

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COMPETITIVE HARM FROM THE MERGER OF AT&T AND T-MOBILE

I. INTRODUCTION AND EXECUTIVE SUMMARY

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3. Stephen D. Kletter is a Principal at Charles River Associates. His consulting experience has involved mergers and acquisitions, antitrust litigation, damages assessment, class certification, patent infringement, contract disputes, and industry performance analysis. He has also assisted in all facets of preparing economic expert witnesses to testify in litigation and regulatory agency proceedings. In a previous position, Mr. Kletter supervised and coordinated the efforts of interdisciplinary teams of scientists and economists who were conducting complex environmental and economic studies. He holds a Master's degree in Economics from the University of Michigan.

4. Serge X. Moresi, the Director of Competition Modeling at Charles River Associates, is an expert in the theory of industrial organization and specializes in applied game theory, including bidding and bargaining models, search markets, network effects and two-sided markets. He is an experienced developer of theoretical models and simulation programs dealing with strategic interactions among market participants. Dr. Moresi has provided clients with expert economic consulting services in many merger cases, antitrust litigation, damages cases, and regulatory proceedings spanning a large number of industries in North America, Europe, and Australasia. Dr. Moresi is the author of publications and conference papers on a variety of topics, including market definition, merger effects analysis, optimal taxation, insider trading, and ethical behavior. Before joining Charles River Associates, he served as an Assistant Professor of Economics at Georgetown University. He holds a Ph.D. in Economics from the Massachusetts Institute of Technology.

5. John R. Woodbury is a Vice President at Charles River Associates.

Dr. Woodbury has served as a senior economist on the Federal Communications Commission's ("Commission's" or "FCC's") Network Inquiry Special Staff, Chief of the Economics Division in the FCC's Common Carrier Bureau, and Vice President of Research and Policy Analysis at the National Cable and Telecommunications Association. He has been the lead economist both on telecommunications and merger-related matters including the FCC's review of the Sprint-Nextel transaction, the Commission's ongoing review of retransmission consent, and the proposed acquisition of Dollar Thrifty by Hertz. Dr. Woodbury is currently a member of the editorial board of the Antitrust Source, an online publication sponsored by the American Bar Association, and frequently writes for that publication. He holds a Ph.D. in Economics from Washington University (St. Louis).

* * *

6. Today, the Commission is at a crossroads. The wireless industry currently consists of four national players that compete in a national market together with a "fringe" of much smaller regional players. The proposed merger of AT&T and T-Mobile is likely to significantly reduce competition in wireless services. Whereas Verizon and AT&T currently are constrained at the national level, mainly by Sprint and T-Mobile, the merger would move the market irrevocably closer to a duopoly far less constrained by other competitors. That consolidation is likely to lead to higher prices and reduced innovation. These harms would be caused by adverse unilateral conduct by AT&T, an increased likelihood of coordination between AT&T and Verizon, as well as exclusionary effects that increase the costs of Sprint and the

fringe competitors. In the end, consumers of wireless service (individuals, businesses, and governments) would be harmed.

7. In this Declaration, we discuss these issues in more detail.¹ Our report analyzes market definition, market shares and concentration, and the competitive effects of the proposed merger. Our competitive effects analysis involves an evaluation of product differentiation, unilateral effects, coordinated effects, exclusionary effects, and AT&T's efficiency claims.

8. Our analysis identifies wireless product markets and market segments where there are potential competitive concerns. In addition to an all-wireless market, we also examine postpaid retail sales, prepaid retail sales, and corporate and governmental sales. We also analyze several wholesale and input markets; service to resellers; roaming; and backhaul. We conclude that this merger would raise significant competitive concerns.

9. Our analysis indicates the existence of a national geographic market as well as local markets. Although the Commission has traditionally analyzed wireless mergers at the local market level, there are solid economic reasons for evaluating this merger at the national level as well. First, the most significant competition occurs at the national level. The national carriers now generally charge uniform prices across the country, although there may be occasional local promotions. Product positioning and advertising are now predominately national. Handset exclusives and handset competition also take place at the national level. In addition, innovation competition also is predominately national. Second, the 2010 Horizontal Merger Guidelines now recognize the importance of evaluating mergers in any relevant market in which there are

¹ We intend to refine our analysis as additional information and more data become available.

competitive concerns, not only the narrowest possible market.² Thus, analysis of a national geographic market is relevant to evaluating the competitive effects of the merger.

10. After the proposed merger, the all-wireless market and the postpaid market would be highly concentrated at the national level according to the Merger Guidelines. Concentration is in the range where the DOJ and the FTC conclude that a merger is “presumed to be likely to enhance market power.”³ The Guidelines observe that this presumption may be “rebutted by persuasive evidence showing that the merger is unlikely to enhance market power.” However, the arguments and the evidence in AT&T’s application are insufficient to rebut the presumption of increased market power.

11. Using the Commission’s NRUF subscriber data, the Commission’s local market Herfindahl-Hirschman Index (“HHI”) screen is exceeded in [begin NRUF/LNP confidential information] [REDACTED] [end NRUF/LNP confidential information] CMAs, and [begin NRUF/LNP confidential information] [REDACTED] [end NRUF/LNP confidential information] CEAs.⁴ Moreover, [begin NRUF/LNP confidential information] [REDACTED] [REDACTED] [end NRUF/LNP confidential information] of the U.S. population resides in regions that “fail” the screen. The CMAs that fail the screen collectively account for [begin NRUF/LNP confidential information] [REDACTED] [end NRUF/LNP confidential information] of

² U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines (Aug. 19, 2010), *available at*: <<http://www.justice.gov/atr/public/guidelines/hmg-2010.html>> (“Guidelines” or “Merger Guidelines”).

³ *Id.* at 19.

⁴ These counts exclude six CMAs (American Samoa, Guam, Gulf of Mexico, Northern Mariana Islands, Virgin Islands 1 - St. Thomas Island, and Virgin Islands 2 - St. Croix Island) and four CEAs (American Samoa, Guam, Northern Mariana Islands, and U.S. Virgin Islands).

the U.S. population. The CEAs that fail the screen collectively account for **[begin NRUF/LNP confidential information]** [REDACTED] **[end NRUF/LNP confidential information]** of the U.S. population.

12. Using reported book values to measure spectrum value, we find that the merged AT&T/T-Mobile and Verizon would together control almost three-quarters of all spectrum devoted to wireless service.

13. Our initial analysis indicates that the merger is likely to have harmful competitive effects for several reasons aside from the high level of industry concentration that it would engender.

- a. First, the merger would eliminate T-Mobile, which is a significant low-price national competitor with an announced business plan to become a revitalized market “challenger.” As a result, the merger would give AT&T the unilateral incentives to raise the price of its services.
- b. Second, Sprint would be unable to constrain AT&T from raising prices because Sprint would have higher costs as a result of the merger. Sprint would continue to be dependent on AT&T and Verizon for essential inputs. Over time, these exclusionary effects of the merger would lead to Sprint being marginalized.
- c. Third, the regional fringe firms also would be unable to constrain AT&T’s prices, particularly prices for postpaid service and sales to business and governmental accounts. Not only do they have many fewer subscribers and much lower revenues than do the national competitors, each of these firms is handicapped by

the lack of a national footprint. They also are not significant participants in the market for sales to corporate and government accounts. With the exception of US Cellular, these firms have focused on prepaid service, which is significantly differentiated from the postpaid service that provides the predominant revenue for the national competitors. The fringe carriers also have weaker brand names. MetroPCS has recently introduced a 4G product, but it faces impediments to rapid growth, including its low initial base, limited geographic footprint and higher costs, as do the other regional firms. Leap and US Cellular also are hampered by a limited geographic footprint. While AT&T touts the rapid growth of MetroPCS, Leap, and the other fringe carriers, the overall share of all the facilities-based fringe carriers is very small. The combined market share of MetroPCS and Leap has increased only from 3.9% to 4.7% between the first quarter of 2009 and the last quarter of 2010. At the same time, the share of US Cellular actually fell from 2.4% to 2.1%. The exclusionary effects of the merger also would weaken these carriers.

- d. Fourth, entry would be unable to deter post-merger price increases and protect consumers. LightSquared's entry has been halted until resolution of the dispute over whether its service will cause harmful interference with Global Positioning System ("GPS") transmissions. Clearwire's growth is limited by the complicated regulatory structure in the EBS/BRS band. Cox Communications has recently announced that it is decommissioning its existing network and will use the Sprint network instead to provide its branded mobile service.

- e. Finally, the merger likely would facilitate coordinated conduct between AT&T and Verizon, particularly in the postpaid and corporate and governmental account markets. This coordination could involve parallel accommodating conduct; that is, Verizon would have the incentive to accommodate AT&T by raising its own prices in parallel, and vice versa. In addition, if T-Mobile were eliminated as a competitor, coordination could involve Verizon and AT&T reaching a common understanding of their mutual interdependence and the gains from cooperative over non-cooperative conduct and then following that strategy. Coordination would be more likely to succeed after the merger by eliminating T-Mobile and by the merger's exclusionary effects of increasing the costs and otherwise disadvantaging Sprint. These exclusionary effects would lead Sprint, in effect, to involuntarily support the coordination between AT&T and Verizon.
14. The proposed merger would result in a number of harmful exclusionary effects on Sprint and the regional fringe.
- a. First, Sprint and the fringe carriers are dependent on AT&T and Verizon for essential inputs – backhaul, roaming, and switched exchange access service for terminating wireless calls. Resellers are dependent on the national carriers for wholesale service. Although rates for exchange access service for terminating wireless calls are subject to dominant carrier regulation, many special access services are subject to the FCC's Phase II pricing flexibility rules, and roaming rates are not regulated at all. When contracts come up for renewal, AT&T would have the post-merger incentive to raise roaming rates, special access rates, and the

rates that it charges to resellers in order to limit the ability of Sprint, the regional carriers, and resellers to undercut its higher prices. Verizon would have the incentive to follow in parallel. Moreover, by removing T-Mobile as a purchaser of special access from independent suppliers, any actual or potential competition provided by those suppliers would be weakened, contributing further to an increase in special access rates.

- b. Second, the merger would further disadvantage Sprint in bidding for handsets. The Commission has already noted the disadvantage that smaller carriers face in obtaining timely access to new and innovative handsets. By further increasing the size disparity between Sprint and AT&T, the merger would increase this disadvantage because AT&T would have the incentive to bid more for exclusives, partly in order to protect a higher retail price on its larger market share.
- c. Third, by removing T-Mobile from the market and reducing AT&T's need to innovate in order to compete, the merger would raise the costs or delay the development of new technologies needed by Sprint and the regional fringe carriers. After the merger, Sprint and the fringe would need to finance more of the development themselves. The collective market share of carriers other than Verizon and AT&T would fall by almost one-third, from 36% to 24%, as a result of the merger. Sprint and the fringe would have such a small market share when compared to post-merger AT&T and Verizon that mainstream developers and equipment manufacturers may conclude that Sprint and the fringe carriers do not provide critical mass sufficient to justify developing handsets and equipment for

them. In effect, the merger would disadvantage Sprint and the fringe by shifting more of the development costs to them.

- d. Finally, Sprint's higher costs caused by the merger and resulting reduction in its market share would squeeze Sprint's EBITDA and investible funds. This would magnify Sprint's existing disadvantages, which would further handicap Sprint in the race to invest and innovate, further reducing innovation competition.

15. These exclusionary effects would increase AT&T's unilateral incentives to raise price and reinforce the upward pricing pressure that would result from AT&T gaining control over T-Mobile. These exclusionary effects similarly would increase the ability and incentive of AT&T and Verizon to engage in parallel accommodating conduct and other coordinated conduct. They would thus lead to competitive effects analogous to AT&T gaining partial control over Sprint and the regional fringe.

16. The wireless market is vulnerable to coordination by AT&T and Verizon and the merger would increase that vulnerability. The merger would eliminate one national competitor, T-Mobile, and the exclusionary effects of the merger would weaken the other national competitor, Sprint, as well as the regional fringe. The combined subscriber shares of AT&T and Verizon would increase to 76% in an all-wireless market and to 82% in a postpaid service market. Their share of wireless revenues would be even higher. In addition, AT&T and Verizon know each other's prices, buyers are small, and competitors have higher costs. Moreover, competitors are dependent on both AT&T and Verizon for essential inputs. AT&T and Verizon also are similarly situated in the market as incumbent local exchange carriers ("ILECs") with high market shares, meaning that both carriers would account for wireline "cannibalization" in setting

wireless prices. As a result, the merger raises a substantial risk of parallel accommodating conduct as well as the risk of facilitating informal coordination resulting from a common understanding by AT&T and Verizon of their mutual interdependence and the relative gains from cooperative versus non-cooperative conduct. Although the resulting coordination would not be perfect, consumers still would be harmed.

17. The FCC has long recognized that wireless duopolies cannot be expected to price competitively and that the presence of additional competitors can be expected to lead to lower prices. In fact, a number of studies of the cellular industry have shown that that the entry of additional carriers did lead to significant price reductions. These studies reinforce the concern that the creation of an AT&T/Verizon wireless services duopoly would lead to significant price increases.

18. These harmful effects are unlikely to be outweighed by efficiency benefits from the merger. The likely harmful effects from the exclusionary, unilateral and coordinated effects are significant. In addition, AT&T's efficiency claims are overstated and flawed in several ways.

- a. First, most if not all of the claimed efficiency benefits could be achieved by AT&T without the merger. Those benefits would not be merger-specific and thus would not be cognizable under the Merger Guidelines or prior Commission decisions.
- b. Second, some of the claimed efficiency benefits come at the expense of T-Mobile subscribers, both current and potential future subscribers. Future subscribers who would have preferred T-Mobile service would lose that choice. AT&T also intends to move T-Mobile subscribers from T-Mobile's AWS band to AT&T's

UMTS band, a move that AT&T apparently was unwilling to undertake with its own subscribers prior to the merger. AT&T fails to take into account this negative effect in describing its efficiency claims.

- c. Third, AT&T's claims of a spectrum shortage are much overstated. In fact, AT&T made public statements in 2010 about its substantial spectrum holdings. Moreover, its Application indicates that the spectrum shortages that it claims will be overcome by the proposed merger will not be present in all CMAs and may not occur for several years even in those "affected" CMAs.
- d. Finally, as noted above, some of the claimed efficiency gains do not *reduce* social costs but instead *shift* those costs to Sprint and the fringe firms. As such, these gains should not be treated as cognizable efficiency benefits, but rather would increase the ability of AT&T to raise its prices.

19. In sum, our economic analysis indicates that the proposed merger raises serious competitive concerns. The harmful effects likely would be substantial. The cognizable efficiencies (if any) likely are relatively small and the benefits are temporary at best. The competitive harms from the merger would be larger and more long-lasting.

20. For the same reason, our analysis indicates that these harms could be avoided only by prohibiting the merger. Localized divestitures and other regulatory conditions would not be effective remedies for eliminating these harms. A package of *local* divestitures would not replace the loss of T-Mobile as a *national* competitor with a valuable brand name. Indeed, divestitures to Verizon would do nothing to prevent the development of an ILEC duopoly. Regulatory or behavioral constraints on special access and roaming rates would be difficult to

implement and enforce efficiently and would be insufficient to remedy the horizontal concerns. In the end, the market would be left with an irreversible ILEC duopoly with a marginalized third national competitor and an even weaker regional fringe.

21. Policy makers have a choice. A march to an entrenched ILEC duopoly is neither natural nor inevitable. AT&T and Verizon have achieved their dominant positions through a series of acquisitions combined with the advantages retained from being dominant wireline carriers, not as a result of superior skill, foresight and industry. Indeed, it is just the opposite. AT&T's justification for the merger amounts to a concession that it has failed to invest adequately in its network and now wants the Commission to bail it out by allowing it to merge with T-Mobile.

22. This latest step to duopoly entrenchment would be the result of yet another acquisition by an ILEC, not natural forces. The acquisition would remove a large independent competitor, raise the costs of Sprint and the regional fringe carriers, and marginalize them in other ways. The acquisition also would eliminate the possibility that Sprint and T-Mobile would have been able to overcome their mutual disadvantages, either individually or by combining forces in some way to become stronger national players.

23. In the remainder of this report, we describe our analysis in more detail. The report is organized as follows. Product and geographic market definition is analyzed in Section II. Market shares and concentration are analyzed in Section III. We then turn to our analysis of competitive effects. Exclusionary effects are analyzed in Section IV. Unilateral effects are analyzed in Section V. Coordinated Effects are analyzed in Section VI. AT&T's claimed efficiency benefits are analyzed in Section VII. Section VIII concludes.

II. MARKET DEFINITION

24. There are several relevant markets or market segments that may be affected by the proposed merger. We consider: all-wireless service; postpaid retail wireless service; prepaid retail wireless service; wireless service to corporate customers; and wholesale wireless service. The potential geographic markets that we consider are individual local markets and a national market. In this section, we analyze market definition. The calculation of market shares and market concentration in these markets is discussed in Section III.

A. General Principles

25. The centerpiece of all antitrust analysis is competitive effects. Market definition is not the goal of antitrust analysis; instead, it is a tool that is used to facilitate the goal of evaluating competitive effects. In particular, the market definition exercise helps focus the competitive effects analysis. Analysis of the markets and market segments in which the adverse conduct and competitive harm occur (which may encompass several different markets) is central to rigorous antitrust analysis.

26. These general remarks apply to horizontal merger analysis, where the overarching goal is to evaluate the competitive effects of a proposed merger between competitors. Consumer harm may result from a merger along a number of possible price and non-price dimensions, both in the short-run and the longer run. The goal of market definition is to help identify the consumers who might be injured by the merger as well as the potential competitive constraints that might mitigate or prevent that injury.

27. This approach is summarized in the Merger Guidelines. The Guidelines make the point that “the ultimate goal of market definition is to help determine whether the merger may substantially lessen competition.”⁵ The Guidelines explain that “market definition helps specify the line of commerce and section of the country in which the competitive concern arises.”⁶ It also “allows the Agencies to identify market participants and measure market shares and market concentration.”⁷ The Guidelines make the further analytic point that relevant market definition (and the measurement of market shares and concentration) is not the only analytic tool, but that “evaluation of competitive alternatives available to customers is always necessary at some point in the analysis.”⁸ The Guidelines similarly observe that “[e]vidence of competitive effects can inform market definition, just as market definition can be informative regarding competitive effects.”⁹

28. Some believe that there is only a single relevant market in which to analyze the effects of a merger. That is not correct.¹⁰ Merger analysis may involve multiple relevant markets. This is because competitive effects and consumer harm may occur in multiple markets. In addition, market definition principles often do not lead to a single, unique relevant market. For example, it is clear that, within an overall market, firms may be able to raise prices only to

⁵ Guidelines at 12.

⁶ *Id.* at 7.

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.* at 9-10.

(or by more to) certain groups of customers. As stated in the Guidelines, the Agencies “may evaluate competitive effects separately by type of customer.”¹¹

29. Merger analysis is not restricted to the narrowest possible market that satisfies the Guideline’s market definition test.¹² For example, as a general matter, it may be relevant to analyze a merger in both a national market and local geographic markets. A merger is anticompetitive if it reduces competition in *any* relevant market, not simply the narrowest possible market that satisfies the hypothetical monopolist test set out in the Guidelines.¹³

B. Product Markets

30. We focus on several product markets that may be adversely affected by the merger. These include: all-wireless service; postpaid wireless service; prepaid wireless service; and wireless service to corporate and governmental accounts. All-wireless service is the broadest category. The other markets are narrower and reflect the fact that there are, or could be, distinct prices charged to customers in different categories.

31. Wireless phone service is purchased by various types of consumers with different needs. Wireless phone service is a differentiated product and carriers differ in their offerings and

¹¹ *Id.* at 6.

¹² *Id.* at 9-10.

¹³ Jonathan B. Baker, *Stepping Out in an Old Brown Shoe: In Qualified Praise of Submarkets*, 68 ANTITRUST L.J. 203, 207 (2000) (“Although a court might often focus its concern and analysis on the smallest such market, as the Merger Guidelines ‘generally’ recommend, a court is entitled to identify a violation of the antitrust laws based on harmful effects in any market, even one that is not the smallest. Doing so does not undermine the economic point of market definition if all such markets, whether broad or narrow, are defined with reference to substitution possibilities, as through the Merger Guidelines methodology.”) (footnotes omitted).

success in various consumer segments. These differences could prevent the services of some carriers from being reasonably interchangeable with the services of other carriers for certain customers. These differences also could make some carriers not cost competitive with other carriers. As a result, these differences could lead to targeted competitive effects.

32. Some examples of the relevant points of product and price differentiation include: payment plans; contract lengths; types of handsets; data features and costs of data services; roaming costs; calling circle terms; and family plans.

33. The sale of service is also differentiated between retail plans sold to individuals and families, on the one hand, and corporate plans sold to businesses and government agencies, on the other.¹⁴ These plans can differ in several ways besides price: geographical breadth of the carrier; roaming features; and the information and databases that are available for managing the plans. Business and governmental account plans are often individually negotiated.¹⁵

34. Because carriers have the ability to set distinct prices for particular service packages, these various differences imply that the merger could be analyzed in any or all of a number of relevant product markets or sub-markets, or market segments of more broadly defined markets.

¹⁴ [begin confidential information]

[end confidential information]

¹⁵ Declaration of John Dupree, Attachment C ¶ 11 (“Dupree Decl.”). When there is price discrimination, competitive effects may be evaluated separately by type of customer. Guidelines at 6.

1. All-Wireless Service

35. The broadest market is the aggregation of all wireless service sold to both retail and corporate customers, regardless of the set of features and particular services or pricing plans that are offered.

36. There is unlikely to be any controversy over whether all-wireless service satisfies the hypothetical monopolist test for product market definition.¹⁶ Consider a uniform (across-the-board) price increase for all wireless service by a hypothetical monopolist that controlled the capacity and sales of all current wireless carriers. It seems uncontroversial that such a uniform price increase would be profitable for the monopolist.¹⁷

37. Most of our analysis in this report focuses on the all-wireless market. However, certain other markets or market segments are worthy of analysis.

¹⁶ Guidelines at 8-9 (“The Agencies use the hypothetical monopolist test to identify a set of products that are reasonably interchangeable with a product sold by one of the merging firms.”). The Guidelines go on to describe this test as follows: “The hypothetical monopolist test requires that a product market contain enough substitute products so that it could be subject to post-merger exercise of market power significantly exceeding that existing absent the merger. Specifically, the test requires that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products (‘hypothetical monopolist’) likely would impose at least a small but significant and non-transitory increase in price (‘SSNIP’) on at least one product in the market, including at least one product sold by one of the merging firms.” *Id.* at 9 (footnote omitted).

¹⁷ AT&T has provided no evidence to suggest that the market is broader than all-wireless service. It is unlikely that, in response to a small price increase for wireless service, a sufficiently large number of consumers would substitute to alternatives (*i.e.*, wireline calls from home, office, or payphones, or restrict their wireless calling solely to WiFi hotspots) in order to conclude that these alternatives would render the price increase unprofitable. Of course, if they did switch to wireline, Verizon and AT&T would recapture most of the revenue. In that situation, a hypothetical cartel would find it profitable to raise the price of wireless service. *See id.* at 9, n.4 (discussing the concept of the hypothetical profit-maximizing cartel).

2. Postpaid and Prepaid Wireless Service

38. Retail wireless service is sold on a postpaid and a prepaid basis, and there are significant differences between the two plan types.¹⁸ Postpaid plans generally involve long term contracts and heavily subsidized handsets. Postpaid plans generally involve credit checks and carriers offer these plans only to credit-worthy customers. Postpaid plans are more likely to offer customers the most current high-end smartphones with data features such as email and music and video downloading and the ability to hold multi-line accounts. In contrast, prepaid plans do not require long-term contracts and, as a result, handsets are less subsidized, if at all.¹⁹ Some prepaid plans do not include roaming, or may include high roaming fees. We understand that an increasing number of prepaid customers obtain service that is subsidized through the Universal Service Low-Income Fund.²⁰ Prepaid sellers also may not offer their plans on a national basis.

39. Carriers differ in the proportion of their business that is postpaid. The four national carriers tend to specialize in postpaid plans – 91% of AT&T’s retail customers, 95% of Verizon’s, 73% of Sprint’s, and 84% of T-Mobile’s, are postpaid.²¹ The regional carriers are

¹⁸ Declaration of William Souder, Attachment B ¶¶ 9-11 (“Souder Decl.”). We use the term “prepaid” to encompass all pay-in-advance offerings, whether from facilities-based or resale carriers.

¹⁹ *Id.*

²⁰ Universal Service Administrative Company, *Low Income Program*, available at: <<http://www.usac.org/about/universal-service/fund-programs/fund-programs-li.aspx>> (last visited May 26, 2011).

²¹ Based on data compiled from wireless carrier annual reports, 10-Ks, and press releases.

more varied. Neither MetroPCS nor Leap Wireless has postpaid plans; all are prepaid.²² In contrast, 89% of US Cellular’s customers are postpaid.²³ Resellers tend to specialize in prepaid plans. TracFone, which accounts for about 75% of reseller subscribers, offers exclusively prepaid service.²⁴ TracFone acquires minutes on a wholesale basis from facilities-based carriers AT&T and Verizon.²⁵

40. Postpaid retail wireless service likely is a relevant product market under the Guidelines.²⁶ There is significant product differentiation between prepaid and postpaid wireless services. Postpaid and prepaid ARPUs are significantly different. Although the number of prepaid subscribers is growing,²⁷ the prepaid share of total subscribers is only about 24% and customer demographics differ between the services.²⁸ If the price of postpaid plans were to increase by a small but significant amount, it is unlikely that a sufficient number of users of

²² MetroPCS Communications, Inc., Annual Report (Form 10-K) at 6 (Mar. 1, 2011) (“MetroPCS 2010 10-K”). Leap Wireless International, Inc., Annual Report (Form 10-K) at 2 (Feb. 25, 2011) (“Leap Wireless 2010 10-K”).

²³ United States Cellular Corporation, Annual Report (Form 10-K), Exh. 13 at 5 (Feb. 25, 2011).

²⁴ Based on data compiled from wireless carrier annual reports, 10-Ks, and press releases.

²⁵ *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Fourteenth Report, 25 FCC Rcd 11407, ¶ 33 (2010) (“14th CMRS Competition Report”).

²⁶ As explained in the Guidelines, “[m]arket shares of different products in narrowly defined markets are more likely to capture the relative competitive significance of these products, and often more accurately reflect competition between close substitutes. As a result, properly defined antitrust markets often exclude some substitutes to which some customers might turn in the face of a price increase even if such substitutes provide alternatives for those customers.” Guidelines at 8.

²⁷ *14th CMRS Competition Report* ¶ 163 (“[P]repaid subscribers as a percentage of total subscribers has been increasing over the past few years.”).

²⁸ Based on data compiled from wireless carrier annual reports, 10-Ks, and press releases.

postpaid plans would switch to prepaid plans or wireline service to render the price increase unprofitable. However, whether postpaid service is a relevant product market, or simply a segment in the all-wireless market, it is likely that consumers of postpaid service would be adversely affected by the merger.

41. Professor Carlton, Dr. Shampine, and Dr. Sider (collectively, “Professor Carlton”) and AT&T suggest that AT&T faces significant competition from regional fringe carriers that offer prepaid calling plans.²⁹ However, these carriers’ prepaid plans generally have much lower ARPUs than the postpaid plans of the national carriers. As shown in Table 1, the ARPUs for the prepaid plans of MetroPCS and Leap are \$39.79 and \$37.76, respectively. In contrast, the ARPUs of the postpaid plans of AT&T, Verizon, T-Mobile, and Sprint are \$62.57, \$52.92, \$52.00, and \$55.00, respectively. Professor Carlton provides no quantitative evidence of AT&T’s subscriber losses to MetroPCS, US Cellular, and Leap. If there are losses, they are likely to be disproportionately low-end subscribers, not subscribers who are looking for the latest devices and features on their wireless phone. One normally expects that similarly priced high-end brands are closer substitutes for one another than are lower priced brands that provide a somewhat different mix of attributes or features.³⁰ As stated in the Guidelines:

[i]n differentiated product industries, some products can be very close substitutes and compete strongly with each other, while other products are more distant substitutes and compete less strongly. For example, one high-end

²⁹ Declaration of Dennis W. Carlton, Allan Shampine, and Hal Sider (“Carlton Decl.”) at ¶ 9, attached to Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 11-65 (Apr. 21, 2011) (“Application”).

³⁰ In this report, we do not analyze whether there is a separate market for wireless service using smartphones with advanced data features.

product may compete much more directly with another high-end product than with any low-end product.³¹

42. Professor Carlton makes a similar point about the product differentiation inherent in the differential business and pricing strategies of the regional fringe carriers versus those of the national carriers:

...wireless firms today have highly diverse business strategies. Some, including AT&T and Verizon Wireless, focus principally on contract subscribers served through multi-year contracts. Others, *including MetroPCS and Leap*, focus almost exclusively on non-contract subscribers served on a month-to-month basis Differences among carriers extend to pricing strategies with different firms (*such as MetroPCS and Leap*) focusing on plans that provide unlimited voice and data services; while carriers such as Verizon Wireless, Sprint Nextel and T-Mobile USA offer unlimited data services but a range of plans with different “buckets” of voice minutes and texts. AT&T, however, offers tiered pricing for data services for new customers along with different buckets of voice minutes and texts.³²

43. Prepaid and postpaid services tend to appeal to a different demographic segment. Prepaid users tend to be younger and have lower incomes.³³ Because they do not require a credit check,³⁴ prepaid plans may enable less credit-worthy consumers who do not qualify for postpaid plans to obtain wireless service. The plans often tend to have fewer features. We understand that one factor in the growth of prepaid service is that it can be partially subsidized by the Universal Service Low-Income Fund. Prepaid plans are less likely to offer expensive smartphones with extensive data features. Prepaid plans also are better suited for people who do

³¹ Guidelines at 20.

³² Carlton Decl. ¶ 149 (emphasis supplied).

³³ Souder Decl. ¶ 10. *See also* Leap Wireless 2010 10-K at 3.

³⁴ Leap Wireless 2010 10-K at 3.

limited travelling because their roaming features often are poorer than those of the postpaid plans.³⁵

44. AT&T reports that Leap Wireless added about 100,000 net subscribers in the fourth quarter of 2010 and MetroPCS added about 300,000 net subscribers in the same quarter.³⁶ However, as discussed in more detail in Section III, the combined share of the fringe carriers in an all-wireless national market is just 7%. Moreover, the combined market share of MetroPCS and Leap increased only from 3.9% in the first-quarter of 2009 to 4.7% in last quarter of 2010, while the share of US Cellular actually fell from 2.4% to 2.1%. Overall these three carriers went from a share of 6.3% to 6.7% between 2009 and 2010.

3. Wireless Service to Corporate and Governmental Accounts

45. Many corporations and government entities acquire wireless service for their employees to use.³⁷ In this way, these firms are better able to control cost and maintain information and controls on usage. Carriers bid for these corporate contracts, often as the result of RFPs.³⁸ For larger accounts the prices are individually negotiated and the prices are not tied to generally available retail prices. We understand that corporate rates are lower than retail

³⁵ [begin confidential information] [redacted] [end confidential information]

³⁶ Declaration of David A. Christopher, attached to Application, ¶¶ 60, 62 (“Christopher Decl.”).

³⁷ Dupree Decl. ¶¶ 3-4. These entities sometimes negotiate packages on behalf of employees who pay for the service themselves.

³⁸ *Id.* ¶¶ 12-13.

individual or family plans. Thus, corporate sales, which include sales to government agencies as well as commercial firms, likely qualify as a separate relevant market.³⁹

46. We understand that virtually all sales to these customers are made by the four national carriers, except for small, local businesses and governmental agencies.⁴⁰ These customers often require a national carrier because they have employees around the country and, because their employees travel frequently, they generally require free roaming. They also prefer the benefits of one-stop shopping. These customers are unlikely to switch to regional carriers in response to a small price increase by the various national carriers.

4. Wholesale and Input Markets

47. There also are several wholesale and input markets that warrant analysis. The merger will have exclusionary effects on Sprint and the fringe competitors in these markets that will further exacerbate the adverse unilateral and coordinated effects in the downstream wireless markets.

a. Wholesale Wireless Service to Resellers

48. The four national carriers sell wireless service to resellers on a wholesale basis. Thus, the national carriers' wholesale and retail pricing incentives are interdependent to some degree. We understand that most resellers offer prepaid service plans.

49. The merger would eliminate wholesale competition between AT&T and T-Mobile for GSM resellers. Resellers like TracFone can purchase more service at wholesale from Sprint

³⁹ Guidelines at 6.

⁴⁰ Dupree Decl. ¶ 15.

and Verizon. However, because that would involve use of CDMA handsets instead of GSM handsets, the competition afforded by Sprint and Verizon may only be feasible with respect to new subscribers, not those that already have GSM handsets.

b. Backhaul Services

50. AT&T and Verizon also provide backhaul services as an input to the other carriers. Backhaul services involve dedicated circuits (known as “special access”) that are used to carry traffic to and from a wireless carrier’s cell sites.⁴¹ In the areas in which AT&T is the ILEC, it is by far the leading provider of backhaul services, but it faces limited actual or potential competition from other providers.⁴² The situation is similar with respect to Verizon in the areas in which it is the ILEC. The backhaul provider sets the price of backhaul service. Although special access rates have been the subject of a longstanding Commission proceeding, AT&T and other ILECs have had their special access pricing largely deregulated in areas in which they have received Phase II pricing flexibility and completely deregulated nationally for Ethernet backhaul.

51. As discussed in more detail below, the merger likely would lead to higher rates for backhaul services to Sprint and the smaller regional carriers for two reasons. First, if AT&T raises its retail and corporate rates, it also would have the incentive to raise its backhaul rates as well in order to limit the ability of Sprint and, to a lesser extent the regional carriers, to gain market share at its expense. Second, because AT&T’s higher retail and corporate rates would

⁴¹ *14th CMRS Competition Report* ¶ 293.

⁴² Comments of T-Mobile USA, Inc., WC Docket No. 05-25, at 7-8 (Aug. 8, 2007) (“T-Mobile Special Access Framework Comments”).

give Verizon the incentive to raise its own retail rates, Verizon also would have the incentive to raise its backhaul rates.

c. Roaming

52. AT&T and T-Mobile both currently offer roaming service to the small rural GSM carriers. Verizon provides roaming services to CDMA carriers like Sprint.

53. As discussed in more detail in Section IV.A below, the merger would give AT&T and Verizon incentives to raise the roaming rates that they charge. One reason is that AT&T would no longer face any competition from T-Mobile in the provision of roaming to GSM carriers. AT&T also would have the incentive to raise roaming rates to raise its competitors' costs and thus support its higher retail rates. As with backhaul, Verizon would gain the incentive to raise roaming rates as it raises its own retail rates in response to higher retail rates charged by AT&T.

C. Geographic Markets

54. Today, there are four large nationwide facilities-based wireless carriers: AT&T, Verizon, Sprint, and T-Mobile. There also is a fringe of other competitors that operate facilities in more limited geographic regions. Consumers reside in different areas of the country, although many consumers make a significant number of wireless calls to other parts of the country or use their wireless phones when they travel.

55. The Commission has traditionally analyzed wireless mergers solely or primarily within local geographic markets. In the past, pricing and service offerings by each firm were less uniform across geographies. Thus, by the standard hypothetical monopoly test, there clearly

were local geographic markets. Moreover, for mergers that involved the acquisition by a national carrier of a carrier with a narrow geographic footprint, for example the acquisition of Dobson Communications by AT&T, it would not have made sense to overlook effects in local areas. Even in the proposed merger of AT&T and T-Mobile, which involves two national competitors, there may be narrowly targeted local effects. Thus, it may be relevant to consider local markets when evaluating the competitive effects of this merger.

56. Importantly, however, competition among the four national carriers is currently focused primarily on the national rather than the local level. Although Sprint in the past had priced its plans at the level of regional or even narrower geographies, that is no longer the case.⁴³ Each of the four leading wireless providers has sought to present a nationwide image. Despite potential differences in network quality, uniform national prices today appear to be the norm,⁴⁴ although there are a few exceptions that result from limited local promotions or marketing trials.⁴⁵ Carriers advertise the same messages throughout the country and appear to offer the

⁴³ Souder Decl. ¶ 3.

⁴⁴ In his Declaration in connection with AT&T's acquisition of Centennial Communications, David A. Christopher declared that: "*Very infrequently*, AT&T can lower plan prices in a local area or region to boost sales All such rate plan promotions must be approved at senior levels *and approval is rarely granted.*" Declaration of David A. Christopher, attached to Applications of AT&T Inc. and Centennial Communications Corporation for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 08-246, ¶ 6 (Nov. 21, 2008) (emphasis supplied). Similarly, in his Declaration in connection with AT&T's acquisition of Dobson Communications, Paul Roth declared that: "Local rate plan promotions are *not* offered at the discretion of local managers and must be approved at senior levels of the company. *Local rate promotions are rarely approved.*" Declaration of Paul Roth, attached to Applications of AT&T Inc. and Dobson Communications Corp. for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 07-153, ¶ 7 (July 13, 2007) (emphasis supplied) ("Roth Dobson Decl.").

⁴⁵ We do understand, for example, that Verizon is currently conducting a trial that is confined to areas in which it is not the ILEC. Similarly, according to AT&T, it has engaged in

same service plans everywhere that they offer service.⁴⁶ Handset offerings do not appear to differ regionally.⁴⁷ Significant innovation decisions of the national carriers are carried out on a national basis, although new services may not be rolled out simultaneously in all local markets.⁴⁸

57. This acquisition raises concerns about loss of price and non-price competition at the national level. It follows from the market definition principles analysis above that a national geographic market satisfying the Merger Guidelines’ test would be germane to evaluating the competitive effects. The proposed merger of AT&T and T-Mobile involves two carriers with important brand names that compete nationally, not simply overlap in a few narrow geographic

some local promotions against all-you-can-eat (“AYCE”) carriers in South Florida, Texas, and Detroit. See Christopher Decl. ¶ 8.

⁴⁶ Charles River Associates conducted a preliminary pricing survey in April and May 2011. The survey included 150 zip codes in an equal mix of rural and urban areas and across all 50 states. The survey looked at the various talk and data plan offerings and associated pricing for individual (*i.e.*, single-phone line) wireless plans offered on the respective Internet sites of the four national carriers. Although this sample was limited, the survey documented that none of the carriers varied their individual plan offerings or pricing based on geographic location of the customer – meaning that the carriers set plan offerings and pricing at the national level. We anticipate that the Commission will obtain complete data from the carriers.

⁴⁷ **[begin confidential information]** [REDACTED] **[end confidential information]** In his Declaration in this matter, David A. Christopher states that AT&T’s Vice Presidents/General Managers “strive to meet unique local customer demand . . . by offering local promotions on handsets and peripheral devices.” Christopher Decl. ¶ 13. Similarly, in his Declaration in connection with AT&T’s acquisition of Dobson Communications, Paul Roth declared that “AT&T Mobility’s regional Vice President General Managers (“VPGMs”) have discretion to lower handset pricing in order to meet sales targets.” Roth Dobson Decl. ¶ 7. However, neither provides any indication of the frequency with which local handset promotions occur and our own preliminary survey found none, as described above.

⁴⁸ **[begin confidential information]** [REDACTED] **[end confidential information]**

areas. They are not offering different products at separate local prices based on distinct local capacities. Thus, a national market is relevant for evaluating the competitive effects of this merger in addition to (or even potentially instead of) separate competitive evaluations in each local market. Moreover, if national competitive concerns are found, localized remedies are unlikely to be successful in resolving those concerns. Thus, in our view, this merger should be analyzed at the national level, in addition to the local level. Professor Carlton seems to agree.⁴⁹

58. This approach to national market definition should not be controversial. Our analysis flows from the first principles of antitrust analysis for mergers and other conduct. As noted earlier, at one time the Merger Guidelines seemed to say that only the smallest market would be analyzed, but this approach is no longer the policy of the antitrust agencies. Moreover, in recent mergers, AT&T contended that only national competition was relevant, indeed, that it was the *only* relevant consideration. For example, as it stated in its acquisition of Dobson Communications in 2007:

[T]he evidence shows that the predominant forces driving competition among wireless carriers operate at the national level. Therefore, examining market structure in areas as small as CMAs or CEAs does not accurately account for the competitive forces that will constrain the behavior of the merged firm As the Commission has recognized, rate plans of national scope, offering nationwide service at a single price without roaming charges, have become the standard in the wireless industry AT&T establishes its rate plans and pricing on a national basis, which means that the terms of such plans are set without reference to market

⁴⁹ Carlton Decl. ¶ 83 (“There are both national and local dimensions to competition in the provision of wireless service.”). In supporting Verizon’s acquisition of ALLTEL, Professor Carlton supported a national market definition. Declaration of Dennis W. Carlton, Allan Shampine and Hal Sider, attached to Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC for Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager and De Facto Transfer Leasing Arrangements, WT Docket 08-95, ¶¶ 36-38 (June 13, 2008) (“Carlton ALLTEL Decl.”).

structure at the CMA level. Rather, AT&T develops its rate plans, features, and prices in response to competitive conditions and offerings at the regional and national level – primarily the plans offered by the other national carriers.⁵⁰

1. Local Markets

59. In previous mergers, the Commission has defined local markets corresponding to CMAs and CEAs. Indeed, the Commission has considered only local markets in its review of past wireless mergers. For example, in its consideration of the AT&T-Dobson Communications merger, the Commission noted that, although the applicants “argue that there may be substantial similarity in the prices of national rate plans amongst nationwide service providers, they admit to adjusting prices in local markets. We conclude that these assertions regarding the nationwide service providers do not establish the existence of a national market.”⁵¹ In concluding that the relevant geographic market was local, the Commission noted that there was significant local variation in wireless prices. The Commission’s analysis also may have been motivated by the

⁵⁰ Public Interest Statement, attached to Applications of AT&T Inc. and Dobson Communications Corp. for Consent to Transfer Control of Licenses and Authorizations, WT Docket No. 07-153, at 18-19 (July 13, 2007) (footnotes omitted). As the Commission noted in the Verizon-ALLTEL transaction, “the Applicants argue that the market for mobile telephony/broadband services is increasingly national in scope.” *Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC for Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager and De Facto Transfer Leasing Arrangements, and Petition for Declaratory Ruling that the Transaction is Consistent with Section 310(b)(4) of the Communications Act*, Memorandum Opinion and Order and Declaratory Ruling, 23 FCC Rcd 17444, ¶ 50 (2008) (“Verizon-Atlantis Merger Order”).

⁵¹ *Applications of AT&T Inc. and Dobson Communications Corp. For Consent to Transfer Control of Licenses and Authorizations*, Memorandum Opinion and Order, 22 FCC Rcd 20295, ¶ 25 (2007).

smallest market principle in the earlier versions of the Merger Guidelines.⁵² However, as we have noted above, consideration of *both* local and national markets would be consistent with the new Guidelines.⁵³

60. Local markets likely also would satisfy the hypothetical monopolist test, just as would the national market. Carriers do have the ability to set distinct prices in each local area, although that clearly is not the norm for the national carriers. Arbitrage likely would be limited because subscribers need to provide address information for a credit check and billing relationship for postpaid service. We provide market concentration information at the local market level in Section III, based on our preliminary analysis of the NRUF data.

2. National Market

61. A national geographic market is relevant to the analysis of this merger because national carriers like AT&T and T-Mobile set their conduct based on a number of key competitive dimensions for all of the areas that they serve. These dimensions include pricing, service plans and product positioning, handsets, and advertising. Moreover, their innovative activities are intended to develop new products for all of the areas that they serve, not for individual geographic areas. For the four national carriers, this equates to nationwide competition, whereas for the regional carriers the scope is much narrower. It also may be relevant to analyze competition on a national basis because the quality of a carrier's product in

⁵² See, e.g., *Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent to Transfer Control of Licenses and Authorizations*, Memorandum Opinion and Order, 19 FCC Rcd 21522, ¶ 89 (2004).

⁵³ See Guidelines at 9-10 (“The Agencies may evaluate a merger in any relevant market satisfying the test, guided by the overarching principle that the purpose of defining the market and measuring market shares is to illuminate the evaluation of competitive effects.”).

one local area (*e.g.*, the quality of service that it offers) affects the perceived desirability of the carrier by consumers who reside in other areas but roam.

a. Price Competition

62. Although, in the past, Sprint sometimes set different prices for customers that resided in different areas, that no longer is the case.⁵⁴ Moreover, the other major national carriers generally have uniform national pricing.

63. The national carriers might offer geographically uniform national pricing plans for several reasons. The carriers present a national product, which they support with national advertising. National pricing is simpler for resellers and internal customer service people. Localized pricing might be perceived as inconsistent with the ubiquity they are promoting.⁵⁵

b. Product Positioning and Service Plan Competition

64. National carriers also compete nationwide with respect to fundamentally important non-price attributes that comprise the “brand equity” of each national carrier. These attributes include network quality, product positioning, and innovation. The four national carriers each make investments and position themselves in product space for the entire nation, not separately for each local area. The strength of each of the brands in any local area is based on the national attributes of the carriers, not just the attributes in that particular area. For

⁵⁴ Souder Decl. ¶ 3.

⁵⁵ This is not to say that local conditions have no bearing on pricing. In setting its uniform national price, each carrier may as an economic matter take into account local conditions and aggregate them up into an overall effect on the total national demand for its own product and the type of competitive interaction that it would expect. However, as a practical matter, Sprint would not change its national prices in response to price changes in just a few local geographies. *Id.*

example, Sprint has positioned itself as offering reliable service and strong value. Sprint’s innovations include having the first all-digital voice network, the first nationwide 3G network, the first 4G network from a national carrier, and the first unlimited 4G plan. Verizon has positioned itself as the carrier with the highest quality network. T-Mobile has positioned itself as the lowest-cost national carrier. Until recently, AT&T promoted itself as the only carrier that offered the iPhone.⁵⁶

c. Handset Competition

65. The national carriers also compete nationally in handset procurement. The four major national carriers offer the same handsets to customers throughout the entire country.⁵⁷ When carriers have exclusive handset contracts, those contracts cover the entire country.⁵⁸ Contracts for the Apple iPhone and other handsets are negotiated to cover the entire nation, not separately for each local area. Many applications for smartphones are developed for national use.

d. Advertising Competition

66. The national carriers advertise price plans, services, and handsets largely through national media. Over [begin confidential information] [redacted] [end confidential information] of

⁵⁶ Declaration of John Carney, Attachment F ¶ 4 (“Carney Decl.”).

⁵⁷ [begin confidential information] [redacted]
[redacted] [end confidential information]

⁵⁸ “[H]andset manufacturers generally employ EHAs [Exclusive Handset Agreements] with providers that have larger customer bases and extensive network penetration. For instance, all nationwide providers have some EHAs, while non-nationwide service providers typically do not have EHAs.” *14th CMRS Competition Report* ¶ 317.

the advertising by the national carriers has been through national outlets.⁵⁹

e. Innovation Competition

67. Innovation competition is a key component of dynamic wireless competition and occurs primarily on a national basis.⁶⁰ R&D applies to all regions and innovations are offered on a national basis. Although national carriers roll out 4G service sequentially around the country as the network build progresses rather than at the same time everywhere, the 4G innovation is national in scope for the four national carriers and will be offered by them throughout the nation within a few years.

68. This is not to say that all competition is solely national. Carriers' incentives may differ geographically. For example, AT&T and Verizon, unlike Sprint and T-Mobile, have incentives to discourage "cord-cutting" in areas where they are the ILECs.⁶¹ Carriers invest to expand capacity in particular areas and may have temporary promotions or geographically targeted advertising campaigns. Each carrier will have a geographic rollout plan for 4G. Nonetheless, our analysis indicates that national competition is the primary aspect of competition, so that assessing the effects of the merger on competition should not be limited to the local level.

⁵⁹ [begin confidential information] [REDACTED] [end confidential information]


⁶⁰ *14th CMRS Competition Report*, Statement of Chairman Julius Genachowski ("Competition in the wireless voice market over the past 15 years has spurred investment, innovation, and in many cases higher quality for lower prices for American consumers.").

⁶¹ American households are increasingly cutting the cord. *See e.g.*, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, *Wireless Substitution: State-level Estimates From the National Health Interview Survey, January 2007 - June 2010*, (April 20, 2011), available at: <<http://www.cdc.gov/nchs/data/nhsr/nhsr039.pdf>>.

D. Applying the Hypothetical Monopolist Test for Market Definition to the National Geographic Market

69. At the national level, a straightforward application of the hypothetical monopolist test for market definition would indicate the existence of a national market. Consider a uniform (*i.e.*, across-the-board) national price increase for all-wireless service (or postpaid service) by a hypothetical monopolist that controlled the capacity and sales of all current wireless carriers. As discussed above, it seems uncontroversial that such a uniform price increase would be profitable for a wireless monopolist.

III. MARKET SHARES AND CONCENTRATION

70. Once each of the relevant markets is defined, the market definitions can be used to calculate market shares and market concentration. Market concentration then can be compared to the safe harbor and anticompetitive presumption concentration thresholds in the 2010 Merger Guidelines. After the proposed AT&T/T-Mobile merger, concentration in the all-wireless and postpaid national markets would far exceed even the relaxed threshold in the new Guidelines for mergers that are “presumed to be likely to enhance market power.” The Merger Guidelines observe that this presumption may be “rebutted by persuasive evidence showing that the merger is unlikely to enhance market power.”⁶² However, the arguments and the evidence in AT&T’s application are insufficient to rebut the presumption. The presumption is true whether the market is defined nationally **[begin NRUF/LNP confidential information]**  **[end NRUF/LNP confidential information]**.

⁶² Guidelines at 3.

A. Market Participants and Market Shares

71. Market definition analysis in the Merger Guidelines is based on demand-side substitution. However, the Merger Guidelines explain that other firms may participate in the market as rapid entrants. Market shares are calculated for all current producers of products in the relevant market. For firms that participate as rapid entrants, the Guidelines explain that the Agencies will also calculate market shares for these other participants “if this can be done to reliably reflect their competitive significance.”⁶³

B. National Market Concentration

72. The Merger Guidelines make the general point that the higher are the post-merger HHI and the increase in the HHI, the greater are the potential competitive concerns that are raised by a merger. The Guidelines create several regions of relative concern. For a merger that leads to a post-merger HHI above 2500 in a relevant market and an HHI increase of more than 200, the Agencies conclude that the merger is “presumed to be likely to enhance market power” in that relevant market. For a merger that leads to a post-merger HHI below 1500 in a relevant market, the Agencies conclude that the merger is unlikely to have adverse competitive effects in that market. For a merger that leads to an HHI in the 1500-2500 range in a relevant market and an HHI increase of more than 100 points, the Agencies conclude that the merger would “potentially raise significant competitive concerns and often warrant scrutiny.”⁶⁴

⁶³ *Id.* at 16.

⁶⁴ *Id.* at 19.

1. All-Wireless Market

73. Table 2 provides HHIs for an all-wireless market based on the number of subscribers.⁶⁵ The left panel of Table 2 attributes subscribers to the facilities-based carrier(s) that supply resellers with minutes on a wholesale basis. This follows the Commission’s usual methodology, which attributes the subscribers of resellers to the facilities-based carriers whose services that they resell. The Commission has said that “only facilities-based competition can fully unleash competing providers’ abilities and incentives to innovate, both technologically and in service development, packaging, and pricing.”⁶⁶ The right panel of Table 2 attributes the subscribers of resellers to the resellers, treating them as fully independent competitors.⁶⁷ Both post-merger HHIs are in the highly concentrated region of the Guidelines.

74. The post-merger HHI when the resellers’ subscribers are fully attributed to the facilities-based wholesale service providers is 3198 and the increase in the HHI is 696. When the resellers’ subscribers are instead fully attributed to the resellers, the post-merger HHI is 2649

⁶⁵ The subscriber shares in Table 2 exclude connected devices and therefore differ slightly from the shares reported in paragraphs 13 and 44. The subscriber counts for the four national carriers are as follows: 86.2 million for AT&T, 31.8 million for T-Mobile, 94.1 million for Verizon, and 48.1 million for Sprint.

⁶⁶ *Promotion of Competitive Networks in Local Telecommunications Markets*, Notice of Proposed Rulemaking and Notice of Inquiry in WT Docket No. 99-217 and Third Further Notice of Proposed Rulemaking in CC Docket No. 96-98, 14 FCC Rcd 12673, ¶ 4 (1999).

⁶⁷ [begin highly confidential information]

[end highly confidential information]

and the increase in the HHI is 549. In either case, the level and increase in concentration that would result from the merger would be presumed to enhance market power.⁶⁸

75. The Guidelines explain that market shares and concentration are generally measured on the basis of revenues. Revenues are particularly relevant when the products are differentiated, as they are in this market. Table 3 calculates HHIs using revenue shares, using the same two methods for attributing revenue. In the left panel, revenues are fully attributed to the facilities-based carriers. Under this method, the revenue-based HHI for an all-wireless market is 3356 and the increase in the HHI is 741. In the right panel, where the resellers' subscribers instead are fully attributed to the resellers, the revenue-based HHI is 3279 and the increase in the HHI is 727. Using either approach, the merger would be presumed to enhance market power.

2. Postpaid and Prepaid Wireless Shares

76. Postpaid service likely is a relevant market. As presented in Table 4, the subscriber-based post-merger HHI would be 3595 and the increase in the HHI would be 724, which falls into the highly concentrated region where the transaction would be presumptively anticompetitive under the Guidelines.⁶⁹

⁶⁸ If the subscribers were partially attributed to the resellers and partially to the facilities-based carriers, the resulting shares and HHI would be between those reported here.

⁶⁹ MetroPCS and Leap Wireless currently sell only prepaid plans. We do not view these carriers as “rapid entrants” into postpaid services. However, even if they were considered participants, our results would be unlikely to change substantially because they would be unlikely to gain substantial postpaid shares.

77. We have not yet evaluated whether prepaid service is a relevant product market or simply a market segment. Resellers sell prepaid services and subscribers to resellers might, in principle, be assigned either to facilities-based carriers or resellers. We have calculated subscriber shares both ways.⁷⁰ These shares and the associated HHIs are presented in Table 4.

- a. Prepaid Wireless Subscribers (Attribution to Facilities-Based Carriers): If the subscribers of the prepaid resellers are attributed to the facilities-based carrier that provides the wholesale minutes, the post-merger HHI would be 2496 and the increase in the HHI would be 607, which falls into the upper end of the moderately highly concentrated region. The increase in the HHI is sufficiently large that the transaction likely would warrant further scrutiny under the Guidelines.
- b. Prepaid Wireless Subscribers (Attribution to Resellers): If subscribers to prepaid services are attributed to resellers as independent competitors, the post-merger HHI would be 1609 and the increase in the HHI would be 135, which falls into the lower end of the moderately highly concentrated region. The increase in the HHI is sufficiently large that the transaction may warrant further scrutiny under the Guidelines, but it is not at the high end of the range.

3. Corporate and Governmental Accounts

78. We understand the carriers other than the four national carriers are not significant participants in this market. In fact, Professor Carlton reports shares for AT&T, T-Mobile,

⁷⁰ We currently lack data sufficient to calculate revenue shares for postpaid and prepaid services.

Verizon, and Sprint. Using the shares that he reports, the market for “business customers” has a post-merger HHI of [begin highly confidential information] [REDACTED] [end highly confidential information] and an HHI increase of [begin highly confidential information] [REDACTED] [end highly confidential information]. Professor Carlton does not provide sufficient information for us to verify his share data.⁷¹

C. Local Market Concentration

79. As discussed above, the Commission’s traditional approach is to evaluate concentration at the local market level. Based on our analysis of the NRUF data, we find that the merger violates the Commission’s HHI subscriber screens in local areas that comprise the [begin NRUF/LNP confidential information] [REDACTED] [end NRUF/LNP confidential information] of the U.S. population and subscribers.⁷² The CMAs that “fail” the screen together account for [begin NRUF/LNP confidential information] [REDACTED] [end NRUF/LNP confidential information] of the U.S. population and the CEAs that “fail” the screen together account for [begin NRUF/LNP confidential information] [REDACTED] [end NRUF/LNP confidential information] of the U.S. population.

D. Spectrum-Based Market Concentration

80. We have also analyzed concentration in an all-wireless market on the basis of spectrum ownership. Concentration in spectrum ownership has significant implications for

⁷¹ Carlton Decl. at Table 2.

⁷² See Tables 5a to 5c. The Commission screen triggers close competitive analysis when (1) the post-merger HHI would be greater than 2,800 and the change in HHI will be 100 or greater, or (2) the change in HHI would be 250 or greater, regardless of the level of the HHI. See, e.g., Verizon-Atlantis Merger Order ¶ 78.

competition in the provision of wireless service for two related reasons. First, spectrum is an essential input for wireless carriers. Carriers with limited spectrum holdings have limited capacities and are, for that reason, handicapped in competing for wireless subscribers. Second, because there are significant scale economies in the provision of wireless services, a carrier with small spectrum holdings, and a commensurately small share of subscribers, can be expected to have higher costs *per subscriber* than a carrier with large spectrum holdings and a large subscriber share. This cost disadvantage reinforces the effect of the competitive disadvantage that results directly from the carrier's smaller capacity.

81. In the Commission's *14th CMRS Competition Report* on competition in the mobile wireless industry, the Commission reported the Population-Weighted Average Megahertz Holdings by Provider for each of the major wireless carriers, some smaller carriers, and a catch-all "Other" category separately for each of the following spectrum frequency bands: (1) 700 MHz; (2) Cellular; (3) SMR; (4) PCS; (5) AWS; (6) BRS; and (7) EBS.⁷³

82. However, these figures likely understate the concerns about spectrum concentration. Because the Population-Weighted Average Megahertz Holdings reported by the Commission do not take into account differences in the values of spectrum in the various bands, they provide a misleading picture of the respective license holdings of each carrier and, thus, their respective capacities to serve subscribers. Indeed, the Commission itself has recognized the importance of differences in spectrum values:

Two licensees may hold equal quantities of bandwidth but nevertheless hold very different spectrum assets Bidders in recent auctions in the United States also appear to have recognized these differences, which helps

⁷³ *14th CMRS Competition Report* ¶ 267, Table 26.

explain the significantly different prices per MHz-POP in the AWS-1 and 700 MHz auctions.⁷⁴

83. The spectrum owned by AT&T and Verizon tends to be superior in a number of important respects to spectrum held by other carriers, particularly the spectrum holdings of Clearwire and LightSquared. AT&T and Professor Carlton do not take into account the differences in spectrum values and, as a result, they overstate the competitive significance of the spectrum licenses held by LightSquared and Clearwire.⁷⁵

84. The Commission has found that EBS spectrum and portions of BRS spectrum are not suitable for mobile telephony/broadband services and are therefore not included in the Commission's spectrum screen analysis. The Commission has also found that mobile satellite service ancillary terrestrial component ("MSS ATC") spectrum, including LightSquared's spectrum in the L band, does not meet its spectrum screen criteria. To be conservative, we nonetheless have included the Clearwire and LightSquared in our analysis.

85. To account for differences in spectrum quality, we have calculated spectrum holdings on the basis of the values carried on each carrier's balance sheet as submitted in its annual filings to the Securities and Exchange Commission.⁷⁶ As can be seen in Table 6, using

⁷⁴ *Id.* ¶ 268.

⁷⁵ Application at 92-94; Carlton Decl. ¶¶116-120.

⁷⁶ Although book values are imperfect proxies for market values, they show clearly that the spectrum holdings of Clearwire and LightSquared are dramatically overstated by the MHz-Pop measure. In their 2010 Annual Reports, several carriers make statements about the relationship between the book value and market value for spectrum. AT&T says that the fair market value of its spectrum licenses "exceeded the book value by more than 25%." *See A Network of Possibilities*, AT&T Inc. 2010 Annual Report at 46, *available at*: <http://www.att.com/Common/about_us/annual_report/pdfs/ATT2010_Full.pdf> (last visited May 26, 2011) Sprint says that fair market value is "more than 20% above" book value. *See Sprint Nextel Corporation*,

this measure, AT&T and Verizon today together account for 66% of the value of all spectrum holdings by wireless carriers.⁷⁷ With the addition of T-Mobile, AT&T and Verizon would account for 74% of the value of all spectrum held by wireless carriers. In contrast, the combined holdings of Clearwire and LightSquared account for just 4%.

86. The shares based on book values reflect the differential performance characteristics of various spectrum blocks. First, users in some spectrum bands may cause interference with the operations of other users. To limit or prevent interference, therefore, users may have to engage in protective measures, for example, by leaving some portions of the band unused, limiting power output, or restricting the directions in which signals radiate. Each of

Annual Report (Form 10-K) at 41 (Feb. 24, 2011) (“A decline in the estimated fair value of FCC licenses of approximately 20% also would not result in an impairment of the carrying [book] value.”) (“Sprint 2010 10-K”). Verizon says that fair market value “significantly exceeded” book value. *See* Verizon Communications 2010 Annual Report at 34 (“The fair value of Domestic Wireless [spectrum license holdings] significantly exceeded its carrying [book] value.”), *available at*: <http://www22.verizon.com/investor/investor-consump/groups/public/documents/investorrelation/2010_annualreport_quicklinks.pdf>. Leap says that fair market value is “39% above” book value. Leap 2010 10-K at 109 (“The aggregate fair value of the Company’s and Savary Island’s individual wireless licenses was \$2,734.7 million, which when compared to their respective aggregate carrying [book] value of \$1,920.0 million, yielded significant excess value.”). *See also* MetroPCS 2010 10-K at F-11 (“No impairment [on spectrum license holdings] was recognized as the fair value of the indefinite-lived intangible assets exceeded their carrying value as of September 30, 2010.”); Clearwire Corporation, Annual Report (Form 10-K) at 54 (Feb. 22, 2011) (“If the projected buildout to the target population coverage was delayed by one year and the buildout rate of preceding periods were to decline by 5%, the fair values of the [spectrum] licenses, while less than currently projected, would still be higher than their book values.”). LightSquared and T-Mobile make no statement. Even if the ratio of market value to book value of Clearwire and LightSquared were dramatically underestimated *relative to that of the larger carriers*, Clearwire and LightSquared are sufficiently small that the conclusions about the greater accuracy of book value rather than the MHz-Pop measure would not be altered.

⁷⁷ The AT&T spectrum holdings used in the calculation account for the AT&T’s agreement to purchase nearly \$2 billion of spectrum from Qualcomm that was announced in December 2010.

these measures makes the spectrum less valuable than if it could be used without the interference safeguards. For example, concerns have been raised about possible interference between LightSquared's proposed service and GPS and Global Navigation Satellite System ("GNSS") receivers, maritime and aeronautical emergency communication systems, and Inmarsat receivers used by governmental agencies.⁷⁸ AT&T understates the difficulties that LightSquared and other developers of new spectrum bands face in making their spectrum holdings available for use. As a recent Congressional Research Service Report notes: "If AT&T projects a long lag before the 700 MHz spectrum will be available for use, then it would seem that an even longer lag is probable before the LightSquared spectrum is available"⁷⁹

87. Second, users of some spectrum bands have greater degrees of incumbency, variable licensing areas, smaller or variable channelization schemes, use limitations, and other administratively imposed transaction costs than other bands do. For example, the Commission has long recognized that the spectrum bands employed by Clearwire for BRS/EBS services have lower values than other bands because, among other reasons, use of these bands requires complex and difficult negotiations with numerous other licensees. For that reason, as indicated above, the Commission declined to include all of the EBS channels and a large portion of the

⁷⁸ See, e.g., Letter from Lawrence E. Strickling, Assistant Secretary for Communications and Information, National Telecommunications and Information Administration, United States Dept. of Commerce, to Julius Genachowski, Chairman, Federal Communications Commission, SAT-MOD-20101118-00239 (Jan. 12, 2011).

⁷⁹ Charles B. Goldfarb, *The Proposed AT&T/T-Mobile Merger: Would It Create a Virtuous Cycle or a Vicious Cycle?*, Congressional Research Service at 15 (May 10, 2011), available at: <<http://ieeusa.org/policy/eyeonwashington/2011/documents/attmerger.pdf>>.

BRS channels employed by Clearwire in its spectrum screen as part of the Sprint/Clearwire transaction.⁸⁰

E. Economic Evidence on Wireless Concentration and Prices

88. Our competitive effects analysis suggests that the proposed merger would raise unilateral, coordinated, and exclusionary effects concerns. By eliminating T-Mobile as an independent competitor and marginalizing Sprint, the wireless market would move closer to an entrenched duopoly of AT&T and Verizon.

89. A substantial body of empirical work, including estimates from the wireless industry, indicates that high concentration – particularly duopoly – is associated with higher prices.⁸¹ These studies reinforce the concern that an AT&T/Verizon wireless services duopoly would lead to significant price increases.

90. For example, Hausman reports that “the effect of ...competition on wireless rates in the U.S. has been significant. Throughout the 1984-1995 period, real, inflation-adjusted cellular rates had fallen at a rate of 4-5% per year. Between 1995 and 1999, however, real cellular rates fell at a rate of 17% per year as [the newly-entered] PCS service providers offered

⁸⁰ *Sprint Nextel Corporation and Clearwire Corporation; Applications for Consent to Transfer Control of Licenses, Leases, and Authorizations*, Memorandum Opinion and Order, 23 FCC Rcd 17570, ¶¶ 67-71 (2008).

⁸¹ *See, e.g.*, Richard Schmalensee, *Inter-Industry Studies of Structure and Performance*, HANDBOOK OF INDUSTRIAL ORGANIZATION, Vol. II, Richard Schmalensee and Robert D. Willig, eds. (1989); Timothy F. Bresnahan, *Empirical Studies of Industries with Market Power*, HANDBOOK OF INDUSTRIAL ORGANIZATION, Vol. II, op. cit.; Paul A. Pautler, *Evidence on Mergers and Acquisitions*, 48 ANTITRUST BULLETIN 119 (2003); Jonathan B. Baker, *Mavericks, Mergers, and Exclusion: Proving Coordinated Competitive Effects Under Antitrust Laws*, 77 N.Y.U. L. REV. 135, 153 (2002).

service at prices per minute in bucket plans that were more than 50% lower than existing cellular rates.”⁸²

91. The FCC also has recognized that duopolies cannot be expected to price competitively and that the entry of additional firms could be expected to lead to lower prices. For example, in the Commission’s First Report on competition in mobile telephone service, it noted:

The duopoly nature of cellular service made it less than fully competitive Therefore, in the early 1990s, the Commission allocated 143 Megahertz (“MHz”) of spectrum, almost three times the spectrum allocation for cellular service, to create Personal Communications Services (“PCS”) Already, the approach of broadband PCS appears to be influencing incumbent wireless providers to lower prices and increase features.⁸³

IV. EXCLUSIONARY EFFECTS ON THE NON-ILEC CARRIERS

92. As highlighted in Section 1 of the Guidelines, mergers may have exclusionary effects on competitors. The analysis of these exclusionary effects is germane to a full evaluation

⁸² Jerry Hausman, *Mobile Telephone*, HANDBOOK OF TELECOMMUNICATIONS ECONOMICS, Vol. I, 580, 582, Martin Cave *et al.*, eds. (2002). Similar results are reported for other countries. *See, e.g.*, Thierry Penard, *Competition and Strategy on the Mobile Telephony Market: a Look at the GSM Business Model in France*, 45 COMMUNICATIONS AND STRATEGIES 49 (2002); Tommaso Valletti and Martin Cave, *Competition in U.K. mobile telecommunications*, 22 TELECOMMUNICATIONS POLICY 109 (1998); Mathias-W Stoetzer and Daniel Tewes, *Competition in the German cellular market?*, 20 TELECOMMUNICATIONS POLICY 303 (1996). In addition to the finding that the presence of additional competitors leads to lower prices, there is also evidence that entry affects the services that are offered and the range of price plans that are available. *See* Katja Seim and V. Brian Viard, *The Effect of Market Structure on Cellular Technology Adoption and Pricing*, 3 AMERICAN ECONOMIC JOURNAL: MICROECONOMICS 221 (2011).

⁸³ *Implementation of Section 6002(B) of the Omnibus Report Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Memorandum Opinion and Order, 10 FCC Rcd 8844, ¶ 4 (1995).

of competitive effects. The AT&T/T-Mobile merger raises the potential for such exclusionary effects on both Sprint and the regional carriers. These effects would reinforce AT&T's unilateral incentives to raise price and would further increase the likelihood of harmful coordinated effects.

93. If the merger were to inflict higher costs on Sprint and the regional carriers, or reduce the quality of the services that they receive from AT&T and Verizon, they would face cost or demand disadvantages in competing for subscribers. Moreover, exclusionary effects in one local area can have effects throughout the nation. For example, high roaming rates in one area raise the cost of serving subscribers from other areas who roam there. In addition, if Sprint would incur higher costs, and therefore obtain a smaller market share and receive lower profits as a result of the merger, that fact would reduce its incentives and ability to bid for favorable handset contracts or finance new infrastructure investments. As a result, Sprint and the fringe carriers would have a reduced ability and incentive to competitively constrain AT&T and Verizon, which would, as a result, be able to charge higher prices than they would otherwise.⁸⁴ There also would be adverse effects on investment and innovation competition.

A. Impact on Roaming and Special Access Costs

94. Sprint and the fringe carriers are highly dependent on AT&T and Verizon for certain essential inputs, primarily access to their wireline networks for backhaul and access to their wireless networks for roaming. In the pre-merger market, all carriers are highly dependent on AT&T and Verizon for backhaul. In addition, small GSM fringe carriers currently have the benefit of competition between T-Mobile and AT&T for wholesale roaming. Sprint is also

⁸⁴ Baker, *supra* n.81 at 137 (“Exclusionary conduct, too, may lead to changes in market structure that help create or maintain a collusive agreement.”).

dependent on Verizon for roaming. Sprint has estimated that it pays approximately **[begin confidential information]** [REDACTED] **[end confidential information]** per CDMA postpaid subscriber per month for backhaul and roaming.⁸⁵ This represents a significant cost disadvantage, relative to AT&T and Verizon, each of which pays a large fraction of these costs to itself.⁸⁶

95. The merger would result in this cost disadvantage becoming more pronounced. The GSM regional carriers would no longer have the benefit of wholesale roaming competition between AT&T and T-Mobile. With T-Mobile eliminated as a purchaser of backhaul from independent suppliers, that market would be likely to become less attractive to actual and potential competitive backhaul providers. As a result, Sprint and the regional fringe carriers would be left with even fewer alternatives to AT&T and Verizon. Verizon and AT&T would be likely to have an incentive to raise their roaming rates in parallel in order to support higher retail prices.⁸⁷

1. Backhaul

96. Independent wireless carriers, including Sprint, are highly dependent on AT&T and Verizon for an important input, the facilities that they use for backhaul, which are acquired under the terms of special access tariffs. Sprint has estimated that it pays approximately **[begin confidential information]** [REDACTED] **[end confidential information]** per wireless subscriber per

⁸⁵ Declaration of Paul Schieber, Attachment D ¶¶ 6, 11 (“Schieber Decl.”).

⁸⁶ That is, these two ILECs would charge themselves marginal cost while other carriers pay prices substantially greater than marginal cost.

⁸⁷ Guidelines at 24.

month for special access, most of it to AT&T and Verizon.⁸⁸ T-Mobile has argued that “[t]he unregulated, supra-competitive prices that T-Mobile must pay for [special access] services harm consumers as well as T-Mobile” and that “ILECs have both the ability and the incentive to discriminate against competitors in favor of their wireless affiliates.”⁸⁹

97. T-Mobile has further noted that it has “always attempted to use...the very limited number of alternative suppliers of special access that exist in a small number of urban areas”⁹⁰ Of course, that will no longer be the case if the merger of AT&T and T-Mobile is approved. By eliminating one of the two principal purchasers of special access from independent suppliers, the merger of AT&T and T-Mobile would shrink further the already highly limited market that these suppliers can serve, reducing still further competition in the supply of backhaul services. That would harm Sprint, other independent wireless carriers, and their subscribers.

98. Moreover, as discussed in more detail in Section VI, the proposed merger substantially increases the likelihood that AT&T and Verizon could coordinate to raise retail prices. Because they would be earning a higher retail margin, both would have incentives to increase the rates that they charge (or increase the provisioning difficulties) for special access to Sprint and other carriers. As their costs rise, Sprint and the regional carriers would have to raise their own retail rates, further increasing their competitive disadvantage.

⁸⁸ Schieber Decl. ¶ 11.

⁸⁹ T-Mobile Special Access Framework Comments at 2, 5. *See generally* Comments of Sprint Nextel Corporation, WC Docket No. 05-25 (Jan. 19, 2010).

⁹⁰ T-Mobile Special Access Framework Comments at 7.

2. Roaming

99. Sprint and the regional fringe carriers also may face higher roaming fees as a result of the merger. Roaming costs can be significant. For example, Sprint has estimated that it pays average per CDMA postpaid subscriber monthly roaming costs of approximately **[begin confidential information] [REDACTED] [end confidential information]**.⁹¹ The per-subscriber costs for other CDMA carriers are likely to be even higher in light of their more limited coverage. In fact, the fringe carriers typically do not offer roaming in their standard prepaid packages or offer roaming as an add-on or on a per minute charge basis.

100. Prior to the proposed merger, the small GSM fringe carriers have been able to benefit from actual or potential competition between T-Mobile and AT&T for wholesale roaming. If T-Mobile were eliminated as a competitor, however, AT&T would lose this constraint.⁹² AT&T also would have the incentive to raise its roaming rates in order to limit the ability of other carriers to constrain the higher retail rates that it would have an incentive to charge. Moreover, because the proposed merger would substantially increase the likelihood that AT&T and Verizon could coordinate to raise prices to their retail customers, that would give Verizon an incentive to increase the roaming rates that it charges Sprint and the fringe carriers, further weakening the competitive influence of these competitors.

⁹¹ Schieber Decl. ¶ 6.

⁹² Indeed, we have a natural experiment to test that prediction. We understand that after the 2007 merger of the only two CDMA carriers in Mexico, Sprint's roaming rates were almost immediately raised by more than **[begin confidential information] [REDACTED] [end confidential information]**, and have increased by more than **[begin confidential information] [REDACTED] [end confidential information]** in total since the merger.

101. The impact of higher roaming costs would have adverse effects on Sprint, fringe competitors, and competition, similar to the effects discussed above with respect to the cost of special access for backhaul services. If the increased roaming rates were passed on to Sprint's subscribers, or if Sprint responded by reducing service quality, subscribers would be less likely to select Sprint (and the fringe carriers) and that would increase the ability of AT&T and Verizon to raise their prices further, even while increasing their market shares. It also could increase the likelihood of post-merger retail price coordination between AT&T and Verizon, whether from parallel accommodating conduct or a common understanding of their mutual interdependence and the gains from cooperative over non-cooperative conduct. This is because the higher roaming costs would further reduce Sprint's ability and incentive to disrupt any coordination between AT&T and Verizon.

3. Inter-Carrier Compensation

102. Wireless carriers pay a regulated price for access to the switched wireline network. As wireline carriers, AT&T and Verizon pay a high percentage of these fees to themselves. In contrast, these fees represent a real cost for the non-ILEC wireless carriers. This cost contributes to the non-ILECs' cost disadvantage. Although this regulated price would not be increased as a result of the merger, these higher costs currently limit the ability of Sprint and the other non-ILEC carriers to constrain unilateral and coordinated price increases by AT&T and Verizon, both before and after the merger.

4. Wholesale Prices to Resellers

103. Resellers are dependent on facilities-based carriers for wholesale service. This reduces their independent role as rivals, since the facilities-based carriers provide and set the

price of the underlying wholesale services. After the merger, AT&T and Verizon would provide more than 85% of this service and each would have the incentive to raise its wholesale rates.⁹³ When resellers' contracts expire, AT&T and Verizon would gain the ability to do so. These higher prices would reduce the ability of resellers to constrain AT&T and Verizon from raising their retail rates after the merger.⁹⁴ AT&T also may be able to exercise certain influence over TracFone, the largest reseller, because two members of the Board of Directors of American Móvil, the entity that controls TracFone, are AT&T employees.⁹⁵

B. Impact on Handset Competition

104. The largest national carriers, AT&T and Verizon, often obtain earlier access to innovative new handsets and other consumer devices than do other carriers.⁹⁶ The prominent example is the iPhone. This earlier access may result from formal or informal exclusivity arrangements. As the FCC has noted, “handset manufacturers generally employ [exclusive handset arrangements] with providers that have larger customer bases and extensive network penetration.”⁹⁷

105. Because of their larger customer bases, all of the national carriers are able to offer more handset models than the regional fringe players. The Commission has reported that AT&T

⁹³ Share based on data compiled from wireless carrier annual reports, 10-Ks, and press releases.

⁹⁴ The resellers may be protected in the short run if their contracts involve fixed prices for an unlimited number of voice and data minutes.

⁹⁵ *America Móvil Board of Directors*, America Móvil, available at: <<http://www.americamovil.com/amx/en/cm/about/board.html?p=28&s=36>> (last visited May 20, 2011).

⁹⁶ Declaration of Fared Adib, Attachment E ¶ 11 (“Adib Decl.”).

⁹⁷ *14th CMRS Competition Report* ¶ 317.

and Verizon offered 25 and 17 smartphones, respectively, in December 2009.⁹⁸ Sprint offered 19 and T-Mobile offered 17 smartphones during the same period.⁹⁹ In contrast, the comparable figures for US Cellular, MetroPCS, and Leap Wireless were 11, 2, and 0.¹⁰⁰ The Commission also noted that “Recent analyst reports... identify access to handsets as an increasing challenge faced by mid-sized and small providers.”¹⁰¹

106. AT&T’s larger subscriber base also gives it an advantage in bidding for the exclusive right to distribute an innovative handset model. The per-unit cost of acquiring such exclusive rights is higher for Sprint than for AT&T because Sprint has a smaller number of customers over which to spread the total cost. This bidding disadvantage would increase if the merger were approved because it would provide AT&T with an even larger customer base. It would also reinforce AT&T’s interest in denying Sprint access to the new technology in order to protect AT&T’s larger subscriber base.¹⁰² In these circumstances, other things equal, demand for Sprint’s service would decline and AT&T and Verizon would be able to further raise their prices while increasing their market shares.

107. While exclusives are sometimes efficient, the increased bidding advantage for exclusives that AT&T would acquire as a result of the merger is not a cognizable efficiency benefit. These exclusives involve paying the handset manufacturer a premium for denying access to the handset to Sprint, not for making it available to AT&T’s customers. Exclusives

⁹⁸ *Id.* ¶ 308, Chart 43.

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ *Id.* ¶ 299.

¹⁰² Adib Decl. ¶ 9.

may be a way for AT&T to purchase market power by limiting the access of its competitors to new handsets.

C. Impact on the Cost and Availability of New Technologies

108. Because the merger would eliminate T-Mobile as a purchaser of new technology products that compete with those of AT&T and Verizon, the procurement costs of Sprint, the smaller carriers and entrants may rise, or the availability of new technology products may decline. This effect could apply to network infrastructure equipment, innovative new handsets, and other equipment.

109. An important factor in determining the value of a particular spectrum band is the availability of network equipment to prospective users of that band. Bazelon has noted that “[a]ny new wireless technology requires network equipment and devices. Spectrum users must find suppliers for both. The compatibility of existing infrastructure, hardware and software with the radio frequencies within a band is a critical determinant of its value because research and development is costly, time consuming and risky. Often a more mature band already has equipment available to use the spectrum.”¹⁰³

110. Part of the value of a particular spectrum band depends upon extensive development, testing, and production of network equipment, chipsets, radio devices and other components designed exclusively for that particular band. Costs fall as original equipment manufacturers, chipset vendors, handset manufacturers and other parties in the global supply

¹⁰³ Coleman Bazelon, The Brattle Group, Inc., *The Economic Basis of Spectrum Value: Pairing AWS-3 with the 1755 MHz Band is More Valuable than Pairing it with Frequencies from the 1690 MHz Band*, at 7 (Apr. 11, 2011), available at: <http://www.brattle.com/_documents/UploadLibrary/Upload938.pdf>.

chain invest in the infrastructure and operations necessary to develop radio and network technology specific to the band. This “ecosystem” of development and investment in plant, equipment, and logistical support generates positive externalities that benefit all spectrum licensees in the band.¹⁰⁴

111. Absent the merger of AT&T and T-Mobile, all of the national wireless carriers, with the possible exception of Verizon, likely would seek spectrum in “new” bands, for which the research and development costs for new network equipment have not yet been incurred. Thus, these carriers would share in the costs of developing the ecosystem. To the extent that the merger enables AT&T to reduce its needs for additional spectrum capacity, AT&T may be able to delay, or avoid entirely, the need to contribute to the costs of developing this equipment.¹⁰⁵

112. This analysis also has implications for the evaluation of AT&T’s efficiency claims. The “savings” in development costs gained by AT&T would involve cost-shifting to Sprint, not an efficient reduction in social resource costs. These costs would still need to be paid, just not by AT&T. This cost shifting would, of course, further weaken Sprint and the other carriers. If they are unable to absorb these costs, their access to new equipment would be

¹⁰⁴ Adib Decl. ¶ 12.

¹⁰⁵ Wireless network expert Steven Stravitz notes that instead of the proposed merger, “AT&T should pursue new technologies and strategies to use its vast spectrum holdings more efficiently, and thus manage the growing traffic on its network, just as its competitors do. If the proposed acquisition of T-Mobile were authorized, it would only further delay AT&T’s implementation of efficiency measures and encourage AT&T to continue to use conventional technology. . . .” Declaration of Steven Stravitz, Attachment G ¶ 69 (“Stravitz Decl.”). Stravitz further observes that “AT&T’s proposed acquisition of T-Mobile will perpetuate AT&T’s inefficient spectrum use. Rather than encouraging investment in new, innovative, and more efficient technologies, the proposed T-Mobile acquisition would permit AT&T to keep subscribers tied to older and less efficient technologies, delay innovative new facilities-based investment, and continue to maintain a large inventory of unused spectrum.” *Id.* at ¶ 10.

delayed or lower quality and less innovative equipment would be developed for them. In either case, the ability of Sprint to act as a competitive constraint on the behavior of AT&T and Verizon would be reduced. This makes it less likely that any AT&T cost-reductions would be passed on to consumers.

113. The collective market share of the carriers other than Verizon and AT&T would fall by almost one-third as a result of the merger, from 36% before the merger down to 24% after the merger. Absent the merger, there would be demand by these carriers for innovative handsets and other new equipment to compete with AT&T's offerings.¹⁰⁶ After the merger, that demand would be reduced as T-Mobile used AT&T equipment and infrastructure. Without T-Mobile as a purchaser, the manufacturers of these new models may lose critical mass and, therefore, may be less likely to offer innovative products that Sprint and others can use to compete with AT&T.

D. Impact on Network Effects and Innovation Competition

114. The wireless market is subject to very significant economies of scale in production. Provision of wireless service involves high capital costs and low marginal costs. Sprint and T-Mobile today already are competitively disadvantaged by these economies of scale. These disadvantages are particularly significant for dynamic competition and innovation.

115. AT&T and Verizon today account for a disproportionate share of wireless profits, partly as a result of the scale economies. Although Verizon and AT&T together serve about 64% of overall wireless subscribers, they account for about 79% of operating profits.¹⁰⁷ These

¹⁰⁶ Adib Decl. ¶¶ 16-17.

¹⁰⁷ Based on data compiled from wireless carrier annual reports, 10-Ks, and press releases.

higher profits provide earnings with which to invest in network infrastructure, handset exclusives, and other investments, thus limiting the need to obtain funds from the external capital market.

116. The ability to finance internally reduces a firm's effective cost of investment. As discussed in the economic literature, imperfectly informed lenders concerned about borrowers' adverse selection and adverse incentives (moral hazard) have the incentive to limit their willingness to finance investment with debt finance, either by increasing the cost of such loans or denying credit.¹⁰⁸ This leads firms to utilize more internal funds to finance new capital investment. If a firm is forced to rely too heavily on outside funds, the result is more limited borrowing capacity and/or higher costs of borrowed funds. The firm also may be forced to hold more cash to deal with potential delays in financing.

117. These financing constraints can be significant. For example, Moody's credit rating for Sprint is Ba3 versus an A2 rating for AT&T and an A3 rating for Verizon.¹⁰⁹ Sprint's ratio of EBITDA to its interest expense (4.0) is much lower than those of AT&T (13.0) and Verizon (12.3), indicating greater default risk.¹¹⁰ As a result, AT&T and Verizon have much lower interest rates on their intermediate debt, 3.8% and 3.9%, respectively, versus 6.2% for

¹⁰⁸ See, e.g., Joseph E. Stiglitz and Andrew Weiss, "Credit Rationing in Markets with Imperfect Information," 71 *AMERICAN ECONOMIC REVIEW* 393 (1981); see also Stewart C. Myers and N. Majluf, "Corporate Financing And Investment Decisions When Firms Have Information That Investors Do Not Have," 13 *JOURNAL OF FINANCIAL ECONOMICS* 187 (1984). In his Declaration, Sprint Treasurer Gregory D. Block notes that "Sprint is far more constrained than AT&T and Verizon in its ability to use internal funds because of its lower relative cash-flow generation. Since AT&T and Verizon generate a disproportionately greater amount of internal funds than Sprint, Sprint has to rely more on external financing for capital expenditures and innovation investments." Declaration of Gregory D. Block, Attachment I ¶¶ 3-4 ("Block Decl.").

¹⁰⁹ Block Decl. ¶ 4.

¹¹⁰ *Id.*

Sprint.¹¹¹ Sprint has total borrowings of about [begin confidential information] [REDACTED] [end confidential information].¹¹² If the merger were to increase Sprint's borrowing costs by 250 basis points, Sprint's annual interest costs would rise by over [begin confidential information] [REDACTED] [end confidential information] per year. This is [begin confidential information] [REDACTED] [end confidential information] of Sprint's wireless capital investment in 2010.¹¹³ Moreover, a low EBITDA/Interest ratio would lead lenders to be wary of lending additional funds to Sprint, except at a still higher interest rate. Finally, these figures do not account for Sprint's need for significantly greater cash holdings as reserves to repay interest and insure against financing delays.¹¹⁴

118. This combination of economies of scale plus financing advantages can create a vicious cycle that can entrench the dominance of leading firms in a high investment industry like wireless. The more profitable leading firms have the ability to invest disproportionately more than the smaller firms. As a result, the leading firms can increase their lead over time, other things equal. This, in turn, further increases their market shares and profit advantage and can

¹¹¹ Bloomberg Data, May 4, 2011. Cited only for purposes of this factual statement. Sprint disclaims and does not endorse or adopt said report, including any statements, opinions or analysis therein.

¹¹² Block Decl. ¶ 4.

¹¹³ Sprint 2010 10-K at F-33.

¹¹⁴ In this regard, Block notes that “[a] greater reliance on external funding would increase Sprint's borrowing costs Sprint would also have to hold more cash as reserves to service debt and to weather market volatility.” Block Decl. ¶ 7. Indeed, Block estimates that if Sprint had been in the same cash or cash equivalent position relative to its short term borrowings as AT&T and Verizon, it would have held \$2.5 billion less cash or cash equivalents in 2008, \$3.4 billion less in 2009, and \$3.7 billion less in 2010. *Id.*

thus increase the already disproportionate ability of the two ILECs to invest in exclusive handset contracts and spectrum.¹¹⁵

119. This dynamic process has always placed pressure on Sprint to maintain the pace of innovation and new capital investment at a rate that enables them to match or exceed AT&T's and Verizon's investment in new technologies that offer innovative wireless features and functions. Sprint has compensated for these disadvantages by maintaining a culture of innovation. Sprint's innovations include having the first all-digital voice network, the first nationwide 3G network, the first 4G network from a national carrier, and the first unlimited 4G plan, even as it has relied on more expensive external financing.

120. The impact of the financing dynamic has been very striking. The EBITDA for AT&T and Verizon was 79% of industry EBITDA in 2010, versus 52% in 2005. AT&T and Verizon's combined spending on capital expenditures and spectrum since 2008 were \$42.8 billion vs. \$14.5 billion for Sprint and T-Mobile.¹¹⁶

121. This analysis should not be interpreted to suggest that the wireless market is a natural duopoly, or even a natural monopoly. To the contrary, the primary vehicle for the growth of Verizon and AT&T, both in wireless and wireline, has been mergers. The current AT&T is a

¹¹⁵ This cycle is described in greater detail in the Block Declaration. Block notes in particular that “[a] lower market share would likely lead to decreased revenues and a decline in our internal funds for investment. This would increase Sprint's reliance on external capital sources. A greater reliance on external funding would increase Sprint's borrowing costs, expose it to deeper market volatility, and reduce its ability to finance capital expenditures and innovations to maintain its national network.” *Id.*

¹¹⁶ *US Wireless 411*, UBS Investment Research at 36, 41 (Mar. 30, 2011); *see also US Wireless 411*, UBS Investment Research at 49 (Nov. 30, 2006). Cited only for purposes of this factual statement. Sprint disclaims and does not endorse or adopt said report, including any statements, opinions or analysis therein.

result of numerous asset consolidations. It consists of the wireless assets of Comcast Cellular (1999), Ameritech (1999), the old AT&T Wireless entity (2004), the Cingular assets (2006), Dobson Communications (2007), Edge (2008), and Centennial (2009).¹¹⁷ Verizon Wireless is composed of assets from Bell Atlantic, combined with NYNEX (1995), Vodafone (2000), GTE (2000), and ALLTEL (2009).¹¹⁸

122. AT&T's acquisition of T-Mobile would exacerbate the financing asymmetries and the resulting network effects. The share of wireless industry operating profits accounted for by AT&T and Verizon would rise from 79% to 88%.¹¹⁹ When this effect is added to the impact of the higher costs and other disadvantages that the acquisition likely would impose on Sprint and the regional fringe carriers, the merger could tip today's market from one in which Verizon and AT&T are constrained to some extent by two smaller national competitors to one where an ILEC duopoly is substantially less constrained by one – now marginalized – national competitor. That outcome is likely to lead to reduced innovation as well as higher prices.

¹¹⁷ The dates for the various mergers that created the current AT&T can be found under M&A/Private Placements in CapitalIQ. Until 2005, Cingular was a joint venture between BellSouth and SBC. SBC acquired BellSouth in 2005. SBC changed its name to AT&T after acquiring the original AT&T in 2005.

¹¹⁸ Investor Relations, Company Info, Company Profile, Corporate History, *The History of Verizon Communications*, Verizon, available at: <<http://www22.verizon.com/investor/corporatehistory.htm>> (last visited May 29, 2011). Of course, several of these acquisitions also substantially expanded the local exchange footprint of AT&T and Verizon. Thus, the current AT&T grew by merger to include the local exchange assets of the one-time stand-alone LECs BellSouth, SBC, Ameritech, the old AT&T, and Centennial. Verizon's local exchange footprint grew by merger to include the local exchange assets of NYNEX, Bell Atlantic, and GTE in particular. Thus, these mergers provided by AT&T and Verizon with a broader scope to use special access and channel termination rates that now allow them to disadvantage their wireless rivals.

¹¹⁹ These figures are based on data compiled from wireless carrier annual reports, 10-Ks, and press releases.

123. In short, the increase in concentration and the reduction in competition after the merger would not be the natural result of beneficial market forces. The cause of this entrenched ILEC duopoly would be yet another ILEC acquisition, not superior skill, foresight or industry. The merger would raise Sprint's costs and lead to its marginalization. It would eliminate the possibility that Sprint and T-Mobile could overcome their disadvantages, either individually or by combining forces in some way to become stronger national players.

V. UNILATERAL EFFECTS

124. There are several reasons why the proposed merger of AT&T and T-Mobile raises unilateral effects concerns: the loss of T-Mobile as a significant competitor; a reduction in the competitive constraint imposed by Sprint; the weak constraints that have always been imposed by the regional fringe; and the fact that entry is unlikely. Below we present some preliminary quantitative analysis of measures of upward pricing pressure.

A. Loss of T-Mobile as a Significant Competitor

125. The merger would remove T-Mobile as an independent national competitor.¹²⁰ The merger also would eliminate the T-Mobile products that are preferred by new subscribers. By gaining control over T-Mobile, AT&T would gain the incentive to raise both T-Mobile's and AT&T's prices unilaterally. AT&T suggests that it would maintain the T-Mobile price plans for current T-Mobile subscribers. Nonetheless, the T-Mobile products would not be available to new subscribers. AT&T also would have the incentive to try to induce current T-Mobile subscribers to switch to more expensive AT&T plans.

¹²⁰ Carney Decl. ¶¶ 12-16 (discussing T-Mobile's competitive significance).

126. AT&T’s Application attempts to portray T-Mobile as a carrier whose elimination from the market would have little or no competitive significance. For example, AT&T claims that “[a]s a standalone company . . . T-Mobile USA would continue to face substantial commercial and spectrum-related challenges.”¹²¹

127. Although T-Mobile recently has faced a higher churn rate, it still serves more than four times the number of subscribers than the next largest carrier, MetroPCS. Moreover, it has a valuable brand name and other substantial assets, and shortly before its proposed merger with AT&T was announced, T-Mobile provided a highly optimistic picture of its prospects to investors.¹²² For example, it pointed to its large subscriber base, its substantial spectrum holdings, and its “strong and future proven technology platform.”¹²³ It also stated that it had “[e]nough spectrum for medium-term,”¹²⁴ that it was “ready to capture data market share,”¹²⁵ and that it had a plan to achieve \$1.8 billion in savings by 2013.¹²⁶ It stated that it had “America’s largest 4G network and now fastest in the Top 100 markets,”¹²⁷ and that its “HSPA+ platform provides [a] cost effective and technically flexible path to LTE.”¹²⁸ In T-Mobile’s own words, it

¹²¹ Application at 13.

¹²² See, e.g., Presentation by Deutsche Telekom and T-Mobile USA, Inc. to Analysts (Jan. 20, 2011), available at: <http://www.download-telekom.de/dt/StaticPage/97/67/90/tmo-invday11.pdf_976790.pdf>.

¹²³ *Id.* at 5.

¹²⁴ *Id.* at 7.

¹²⁵ *Id.* at 18.

¹²⁶ *Id.* at 20.

¹²⁷ *Id.* at 34.

¹²⁸ *Id.* at 39.

was on a “path for moving from challenged to challenger.”¹²⁹ T-Mobile’s heightened competitive influence resulting from these actions would be eliminated by the merger.

128. Moreover, it is important to note that T-Mobile’s current difficulties are a fairly recent development. As it noted in its investor presentation, for example, it had grown rapidly between 2001 and 2008.¹³⁰ Despite its performance in the last two years, it could hardly be said that T-Mobile was on an irreversible decline to competitive insignificance. This claim is all the more untenable in light of AT&T’s claims that MetroPCS and Cincinnati Bell are formidable competitors despite their very small market shares. Moreover, Sprint fortunes also had declined, but now even AT&T itself has noted Sprint’s “resurgence,” and it pointed to the fact that it “has reversed recent trends.”¹³¹ In contrast, the AT&T/T-Mobile merger may lead to an irreversible decline for Sprint and a less competitive wireless market.

129. There have been numerous instances where T-Mobile initiated or contributed to aggressive price movements or the introduction of innovative equipment. For example, in 2008, in response to an announcement by Verizon, T-Mobile announced flat rate plans for unlimited calls in the United States, which, according to a press report, “rais[ed] investor concerns that a price war could break out.”¹³² In 2008, T-Mobile was the first carrier to offer a mobile phone

¹²⁹ *Id.* at 28.

¹³⁰ *Id.* at 15 (“T-Mobile revenues stalled in 2008 after 7 years of rapid growth.”).

¹³¹ Application at 79-80.

¹³² Sinead Carew, *Unlimited mobile plans spark price war concerns*, REUTERS (Feb. 19, 2008), available at: <<http://www.reuters.com/assets/print?aid=USN1930076320080219>>.

that used the Android operating system.¹³³ In 2010, T-Mobile reduced the price of the Samsung Galaxy Tablet, which began a round of price cutting for the device.¹³⁴ Even more significantly, it announced the introduction of “the nation’s fastest 3G wireless network on its latest mobile broadband devices.”¹³⁵ Until the merger was announced, T-Mobile had been targeting AT&T in its advertising.¹³⁶

130. The Commission itself has noted the impact of T-Mobile’s past pricing moves.

For example, it noted:

In an effort to reduce churn, T-Mobile introduced a lower-priced version of its unlimited national voice plan in the first quarter of 2009 With the subsequent launch of its new “Even More” plans in October 2009, T-Mobile reset prices on tiered offerings at significant discounts to its legacy plans, and brought its pricing structure more closely in line with that of Sprint Nextel, the least expensive nationwide service provider.¹³⁷

¹³³ Press Release, T-Mobile USA, Inc., *T-Mobile Unveils the T-Mobile G1 – the First Phone Powered by Android* (Sept. 23, 2008), available at: <http://www.t-mobile.com/company/PressReleases_Article.aspx?assetName=Prs_Prs_20080923&title=T-Mobile%20Unveils%20the%20T-Mobile%20G1%20%E2%80%93%20the%20First%20Phone%20Powered%20by%20Android>.

¹³⁴ Donald Melanson, *T-Mobile drops Samsung Galaxy Tab to \$350 on-contract*, ENGADGET (Dec. 15, 2010), available at: <<http://www.engadget.com/2010/12/15/t-mobile-drops-samsung-galaxy-tab-to-350-on-contract/>>. See also Chris Ziegler, *Sprint drops Galaxy Tab down to \$300, undercuts everyone but US Cellular*, ENGADGET (Jan. 12, 2011), available at: <<http://www.engadget.com/2011/01/12/sprint-drops-galaxy-tab-down-to-300-undercuts-everyone-but-us/>>; Ben Bowers, *T-Mobile expected to cut Galaxy Tab pricing to \$249.99 (update: drop is official!)*, ENGADGET (Jan. 26, 2011), available at: <<http://www.engadget.com/2011/01/26/t-mobile-expected-to-cut-galaxy-tab-pricing-again-to-249-99/>>.

¹³⁵ Press Release, T-Mobile USA, Inc., *T-Mobile to Rollout the Nation’s Fastest 3G Wireless Network with HSPA+ to More than 100 Metropolitan Areas in 2010* (Mar. 24, 2010), available at: <<http://newsroom.t-mobile.com/articles/t-mobile-HSPA-3G-network>>.

¹³⁶ Video Release, T-Mobile USA, Inc., “Step Up to Nationwide 4G with T-Mobile,” available at: <<http://www.youtube.com/watch?v=W22JccSTDtk&feature=BFa&list=SPE3D764A5AFBFB9D6&index=>>> (last visited May 25, 2011).

¹³⁷ *14th CMRS Competition Report* ¶ 91.

131. The Commission further noted: “T-Mobile’s price changes appear to have prompted Verizon Wireless and AT&T to narrow the price premium on unlimited service offerings” although it also noted that the unlimited price plans of Verizon Wireless and AT&T “remained the most expensive in the industry, even following the price changes.”¹³⁸ Based on this experience, it would hardly be reasonable for the Commission to conclude that other carriers, much less carriers from the fringe, “already fill – or could easily move to fill – the competitive role T-Mobile USA occupies today.”¹³⁹

132. There also are likely to be significant unilateral effects concerns in the corporate and governmental account market. T-Mobile is a significant player in that market and the regional fringe firms are not.¹⁴⁰ According to Sprint, T-Mobile frequently bids on corporate opportunities targeted by Sprint.¹⁴¹ The fringe firms would face significant impediments to expansion into the corporate market because they lack national coverage and have high roaming costs.

B. Insufficient Competitive Constraints from Sprint

133. Sprint would be unlikely to be able to constrain the post-merger price increases by AT&T. As discussed in Section IV, Sprint and the fringe carriers have higher costs than AT&T and Verizon and face other disadvantages. They have higher costs in part because they are dependent on Verizon or AT&T for essential inputs, such as roaming, special access, and

¹³⁸ *Id.* ¶¶ 91-92.

¹³⁹ Application at 70.

¹⁴⁰ Dupree Decl. ¶15.

¹⁴¹ *Id.*

exchange access to their switched wireline networks.¹⁴² Sprint and the fringe carriers also lack scale economies and face higher financing costs. Moreover, the merger would have various exclusionary effects on these carriers regarding roaming and backhaul costs, bidding for handsets, and purchasing infrastructure equipment and technology for new spectrum. The result of these exclusionary effects would be to entrench and expand the ILECs' current advantages. As a result, Sprint would be less likely to constrain AT&T's post-merger price increases.

C. Insufficient Competitive Constraints from the Regional Fringe Competitors

134. The regional competitors also would be unlikely to constrain the post-merger price increases by AT&T for postpaid retail service and corporate and governmental accounts.¹⁴³ Each has limited coverage and higher costs. MetroPCS and Leap focus on a significantly differentiated prepaid product rather than the postpaid service that is the focus of AT&T and T-Mobile.¹⁴⁴ Sprint does not take account of the pricing of the regional carriers in setting its own prices.¹⁴⁵ We also understand that the regional carriers rarely participate in the corporate/governmental account market. The merger also would lead to further cost increases and reduced access to new technologies for these carriers.

135. According to AT&T, the fringe firms are a major constraint on its behavior. AT&T claims that “other providers already fill – or could easily move to fill – the competitive

¹⁴² Wireline access charges are regulated, but they still place Sprint and the other carriers at a cost disadvantage. Sprint has estimated that these fees far exceed the ILECs' costs. AT&T and Verizon subscribers roam less and these carriers pay much of their own special access and wireline access costs to themselves. *See* Schieber Decl. ¶¶ 5, 10, 13.

¹⁴³ Carney Decl. ¶¶ 8-11.

¹⁴⁴ MetroPCS 2010 10-K at 6. Leap Wireless 2010 10-K at 2.

¹⁴⁵ Souder Decl. ¶ 6.

role T-Mobile USA occupies today.”¹⁴⁶ AT&T’s claims substantially overstate the competitive significance of MetroPCS, Leap, and other carriers. MetroPCS and Leap have historically offered only prepaid service and would face significant impediments to offering postpaid service. For example, entry would require development of systems for performing credit checks. Moreover, these carriers would need to obtain access to the wide range of smartphones that postpaid subscribers demand, access that they do not have currently.

136. The fringe collectively is very small. At the end of 2010, MetroPCS, US Cellular, and Leap together had only about 60% of the number of subscribers served by T-Mobile.¹⁴⁷ The regional firms also have licenses that cover a substantially smaller percentage of the U.S. population than the four national carriers and some have built facilities that cover far smaller percentages of the populations that they are licensed to serve. For example, T-Mobile has licenses that cover a population of 289 million, which is well over twice the licensed population of 124 million covered by MetroPCS, the regional carrier with the next largest coverage. Moreover, the network of MetroPCS covers only 105 million subscribers.¹⁴⁸ One implication of this is that the regional carriers are far more dependent on roaming than are the national carriers. Indeed, in his earlier Declaration for Verizon, Professor Carlton also suggested that carriers with less extensive geographic networks face market disadvantages.¹⁴⁹ The regional carriers also lack

¹⁴⁶ Application at 70.

¹⁴⁷ See Table 2.

¹⁴⁸ *US Wireless 411*, UBS Investment Research at 11-12 (Mar. 30, 2011). Cited only for purposes of this factual statement. Sprint disclaims and does not endorse or adopt said report, including any statements, opinions or analysis therein.

valuable national brand names.¹⁵⁰ Finally the fringe lacks a track record of repositioning that would provide assurance that they would become effective competitive constraints after the merger in the postpaid and corporate and governmental account markets.¹⁵¹

137. MetroPCS has recently begun to offer prepaid 4G service with smartphones. However, MetroPCS offers Long Term Evolution (“LTE”) coverage in only 14 cities.¹⁵² MetroPCS noted in its latest annual report that it may not be able to increase its 4G offerings beyond those 14 markets.¹⁵³ Further, because of its limited spectrum, MetroPCS’s LTE service offers speeds comparable to 3G service rather than true 4G service.¹⁵⁴ In addition, MetroPCS lacks nationwide coverage, which is desired by customers, and so must rely heavily on roaming relationships. Outside of its home area, its package of features is severely degraded.¹⁵⁵ Finally, its handsets are expensive and inferior to those of T-Mobile.¹⁵⁶

¹⁴⁹ Carlton ALLTEL Decl. ¶35 (“...firms with more extensive geographic networks have achieved more rapid growth than regional firms, presumably a reflection of their ability to better realize efficiencies and to provide higher quality services”).

¹⁵⁰ See Declaration of Dennis W. Carlton and Hal S. Sider, attached to Joint Applications of MCI WorldCom, Inc., and Sprint Corporation for Consent to Transfer Control, CC Docket 99-333, ¶10 (Feb. 18, 2000) (discussing the importance of brand names).

¹⁵¹ Guidelines at 28.

¹⁵² See MetroPCS Coverage Map, *available at*: <<http://www.metropcs.com/coverage/>> (last visited May 19, 2011).

¹⁵³ MetroPCS 2010 10-K at 37.

¹⁵⁴ Mike Dano, *MetroPCS to skip 3G with LTE rollout?*, FIERCEWIRELESS (Aug. 3, 2010), *available at*: <<http://www.fiercewireless.com/story/metropcs-skip-3g-lte-rollout/2010-08-03>>.

¹⁵⁵ In its “Extended Home Areas,” web surfing and email only are “available in some areas.” Coverage, *Coverage Map*, MetroPCS, *available at*: <<http://www.metropcs.com/coverage/>> (last visited May 12, 2011). In significant geographic areas, only “TravelTalk” services are available at an additional roaming charge of \$0.19 per minute. MetroPCS also offers 30-minute TravelTalk roaming bundles for an additional \$5 per month, but these allow only 30 minutes of

138. As evidence of the competitive influence of MetroPCS and Leap, AT&T points to the fact that MetroPCS charged \$60 for a plan that would cost about \$115 from AT&T and about \$120 from Verizon, and MetroPCS targets AT&T in its advertising.¹⁵⁷ It similarly observes that Leap charged a price of about half of what AT&T and Verizon charged.¹⁵⁸ Yet, despite these efforts, MetroPCS achieved a 2010 national market share of only 2.9% and Leap achieved a share of only 2.0%.¹⁵⁹ In contrast, T-Mobile's 2010 market share was 11.3%, more than double the combined share of these two prepaid fringe players.

139. AT&T also overstates the impact of the fringe in another way. AT&T argues that the low-cost prepaid carriers such as MetroPCS and Leap “have expanded rapidly” and provide an “increasingly important market dynamic.”¹⁶⁰ In fact, the market shares of MetroPCS and Leap have not grown very much in the past two years. The market share of MetroPCS in the first quarter of 2009 was 2.3%. Despite all the growth touted by AT&T, the market share of MetroPCS grew only to 2.8% by the fourth quarter of 2010. Similarly, Leap's market share rose

roaming in TravelTalk areas. Plans, *MetroPCS Rate Plans*, MetroPCS, available at: <<http://www.metropcs.com/plans/default.aspx?tab=family>> (last visited May 13, 2011).

¹⁵⁶ MetroPCS offers the Samsung's Craft, which retails for \$349 and the Galaxy Indulge, which retails for \$399 with subsidies of \$50-100. The resulting price of \$299 is significantly higher than T-Mobile's \$129 price for a superior phone, the Samsung Galaxy. *Phones*, MetroPCS, available at: <<http://www.metropcs.com/shop/phonelist.aspx>> (last visited May 12, 2011). Shop, *Phones*, *Samsung Galaxy S 4G*, T-Mobile, available at: <http://www.t-mobile.com/shop/phones/Cell-Phone-Detail.aspx?cell-phone=Samsung-Galaxy-S-4G&Wt.z_searchCategory=Site+Search+Summary&Wt.z_searchZone=Products&WT.z_searchTerm=Galaxy+S&WT.z_searchProduct=Galaxy+S%99+4G+>> (last visited May 11, 2011).

¹⁵⁷ Christopher Decl. ¶ 51.

¹⁵⁸ *Id.* ¶ 52.

¹⁵⁹ *See* Table 2.

¹⁶⁰ Christopher Decl. ¶ 8.

from 1.6% to 1.9% during the same period. Of course, it is easier for carriers to achieve double-digit growth when their initial market shares are so low. Moreover, US Cellular's market share actually fell from 2.4% to 2.1%.

140. At the same time, AT&T argues that despite T-Mobile's larger market share, AT&T does not "focus" on T-Mobile. According to AT&T, this is because T-Mobile mainly competes on price and does not have a "strong differentiating network claim," and because T-Mobile does not win customers "away from AT&T on a *net basis*."¹⁶¹ However, the fact that T-Mobile is not highly differentiated and its wins from AT&T do not exceed its losses to AT&T fails to show that T-Mobile is a more distant competitor of AT&T than the fringe carriers. Nor does a lack of wins on *net basis* show that the diversion ratio between AT&T and T-Mobile is low.

D. Insufficient Competitive Constraints from Verizon

141. It also is unlikely that competition from Verizon would prevent the exercise of market power by AT&T. Verizon would lack the incentive to constrain AT&T, and vice versa. As discussed in more detail in the section on coordinated effects, Verizon and AT&T are similarly situated wireless competitors, relative to Sprint and T-Mobile. Both firms have common interests. First, they both have very high market shares. They also have high prices and high margins that they would like to protect. Second, as ILECs, they lack the incentive to encourage consumers to "cut the cord." Third, they are dependent on one another for backhaul outside of their home regions, a mutual threat that can facilitate coordination. Thus, it likely

¹⁶¹ *Id.* ¶ 27 (emphasis supplied).

would make more economic sense for Verizon to accommodate and match AT&T's price increases, and more generally to increase its efforts to coordinate with AT&T.

E. Insufficient Competitive Constraints from Entry

142. New entry also would not be sufficient to prevent a reduction in competition and consumer welfare harm from the merger. AT&T suggests that LightSquared, Clearwire, and Cox Communications are recent entrants with substantial spectrum holdings. However, as discussed above, LightSquared's entry is subject to continuing uncertainty with respect to the effect of its operations on GPS transmissions and Clearwire's operations are complicated by the regulatory structure of the BRS-EBS band.

143. AT&T has identified Cox as an aggressive wireless competitor and claimed that Cox was "conducting trials of 4G LTE technology on its own AWS and 700 MHz spectrum" ¹⁶² However, Cox recently announced that it is abandoning plans to expand its network, is decommissioning its existing network, and will use the Sprint network to provide its branded mobile service. ¹⁶³

144. Moreover, the merger would raise barriers to entry. The higher cost of network infrastructure equipment noted earlier also would apply to entrants, as would the need for roaming and backhaul services. Some of the entrants also would suffer from the dynamic network effects already discussed. Moreover, the merger would result in the loss of T-Mobile as an advocate for more spectrum and may reduce AT&T's interest in obtaining more spectrum, as

¹⁶² Application at 92.

¹⁶³ Stephen Lawson, *Cox to Close Its Own Cell Network, Use Sprint*, IDG NEWS SERVICE (May 24, 2011), available at: <<http://www.cio.com/article/print/682885>>.

well. In either case, this would increase the likelihood that future spectrum auctions would be delayed.

F. Upward Pricing Pressure Analysis for All-Wireless Service

145. In this section, we discuss and calculate several different measures of upward pricing pressure in an all-wireless market, based on the information currently available to us. Although the results are illustrative, these measures, taken together, indicate that potentially serious unilateral effects concerns would result from the proposed merger.

146. As part of the evaluation of unilateral effect concerns, the 2010 Merger Guidelines call for analysis of upward pricing pressure (“UPP”). As stated there:

Adverse unilateral price effects can arise when the merger gives the merged entity an incentive to raise the price of a product previously sold by one merging firm and thereby divert sales to products previously sold by the other merging firm, boosting the profits on the latter products. Taking as given other prices and product offerings, that boost to profits is equal to the value to the merged firm of the sales diverted to those products. The value of sales diverted to a product is equal to the number of units diverted to that product multiplied by the margin between price and incremental cost on that product. In some cases, where sufficient information is available, the Agencies assess the value of diverted sales, which can serve as an indicator of the upward pricing pressure on the first product resulting from the merger.¹⁶⁴

147. The “value of diverted sales” is a measure of *gross* upward pricing pressure, that is, one that does not take claimed efficiency benefits into account. In an article written when he was the Deputy Assistant Attorney General for Economics in the Antitrust Division of the Department of Justice, Carl Shapiro referred to the proportional value of diverted sales measure

¹⁶⁴ Guidelines at 21.

as the Gross Upward Pricing Pressure Index (GUPPI).¹⁶⁵ There is a separate GUPPI for each of the merging firms.

148. Shapiro reports that it is the current practice of the Antitrust Division to regard GUPPI levels below 5% as normally not raising unilateral effects concerns.¹⁶⁶ However, we would not expect that “safe harbor” to apply here. First, none of our scenarios leads to T-Mobile’s and AT&T’s GUPPIs both being less than 5%. Second, and more generally, the proposed merger would lead to cost-raising exclusionary effects on Sprint and the smaller fringe competitors. Those merger-specific exclusionary effects lead to further upward pricing pressure that is not accounted for by the GUPPIs.¹⁶⁷ This means that the GUPPIs systematically underestimate the actual upward pricing pressure from the merger.

149. Professor Carlton briefly discusses upward pricing pressure but he does not present the results of any GUPPI calculations.¹⁶⁸ Moreover, neither AT&T nor Professor Carlton

¹⁶⁵ See Carl Shapiro, *The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years*, 77 ANTITRUST LAW JOURNAL 701, 726 (2010) (“For this purpose, the value of diverted sales is measured in proportion to the lost revenues attributable to the reduction in unit sales resulting from the price increase. Those lost revenues equal the reduction in the number of units sold of that product multiplied by that product’s price.”).

¹⁶⁶ Carl Shapiro, Deputy Asst. Attorney General for Economics, Antitrust Div., U.S. Dept. of Justice, *Update from the Antitrust Division: Remarks as Prepared for the American Bar Association Section of Antitrust Law Fall Forum*, at 24 (Nov. 18, 2010) (“Current Division practice is to treat the value of diverted sales as proportionately small if it is no more than 5% of the lost revenues. Put differently, unilateral price effects for a given product are unlikely if the gross upward pricing pressure index for that product is less than 5%.”), *available at*: <http://www.justice.gov/atr/public/speeches/264295.pdf>.

¹⁶⁷ These cost-raising effects would have the same type of impact on prices as would AT&T acquiring a (partially controlling) financial interest in Sprint and the other competitors. Therefore, they can be thought of as increasing concentration further and producing additional upward pricing pressure.

¹⁶⁸ Carlton Decl. ¶¶ 137-41.

provide any of the data for the merging parties that could be used to calculate the GUPPIs or any of the other UPP measures under the assumptions that he claims are appropriate. Nonetheless, we have carried out a preliminary UPP analysis for all-wireless service to gauge the magnitude of potential unilateral effects based on the limited information that we currently have. Since we lack access to information from AT&T and T-Mobile, our analysis should be regarded as illustrative rather than definitive. We will continue to refine this analysis as more information becomes available.

150. In this report, we provide several measures of upward pricing pressure for all-wireless service.

- a. First, we estimate the all-wireless “single-price” GUPPI for each merging firm. This is the measure mentioned explicitly in the Merger Guidelines. It evaluates the gross upward pressure on the prices of one of the merging firm, holding constant the prices of all the other firms, including the merger partner. The post-merger intra-firm feedback effects between the prices of the two merging firms thus are not taken into account.¹⁶⁹
- b. Second, we estimate the “simultaneous-price” all-wireless GUPPI for each merging firm. The simultaneous-price GUPPI assumes that the merged firm

¹⁶⁹ See Carl Shapiro, *Unilateral Effects Calculations*, Unpublished Manuscript at 6 (2011) (“the equilibrium price increase for product 1 ... is larger ... because the price of product 2 will also rise (without any efficiencies) and because of feedback effects between the two prices.”). Similar feedback effects also arise with efficiencies.

would set the prices of AT&T and T-Mobile products simultaneously.¹⁷⁰ It thus takes into account the post-merger intra-firm price feedback effects between the prices of the merging firms. For example, a price increase of AT&T products would increase the incentive to raise the prices of T-Mobile products, and vice versa. However, the simultaneous-price GUPPI does not include any feedback effects from price responses by the non-merging firms.

- c. Third, we estimate the all-wireless “compensating marginal cost reduction” (CMCR) for each merging firm.¹⁷¹ Efficiencies that take the form of post-merger reductions in the merged firm’s marginal costs of serving AT&T and T-Mobile subscribers could create downward pressure on AT&T and T-Mobile prices. The GUPPIs do not take into account the downward pricing pressure from cost reductions. To address that issue with a simple index, the CMCRs measure the marginal cost reductions for each of the two merging firms that would have to occur simultaneously for the net pricing pressure to be zero for each of the merging firms’ products post-merger.

151. The GUPPIs are not the only factors that are relevant for evaluating the likelihood and magnitude of adverse unilateral effects. For example, the GUPPIs do not take into account the additional upward pricing pressure caused by the pricing responses of non-merging firms. In

¹⁷⁰ The simultaneous-price GUPPI is equal to twice the price increase for the case with linear demand derived in Jerry Hausman, Serge Moresi, and Mark Rainey, *Unilateral Effects of Mergers with General Linear Demand*, 111 *ECONOMICS LETTERS* 119 (2011).

¹⁷¹ See Gregory Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of Differentiated Products*, 44 *JOURNAL OF INDUSTRIAL ECONOMICS* 409 (1996).

addition, the GUPPIs do not take into account entry and repositioning, efficiencies, or other factors. The CMCRs measure the magnitude of potential adverse unilateral effects in terms of the amount of cost savings that would be necessary to offset those potential adverse unilateral effects. Because they are focused on unilateral effects, the GUPPIs and CMCRs do not take into account potential parallel accommodating conduct or other forms of coordination. Significantly in this case, the GUPPIs and CMCRs also do not take into account the adverse impact of the cost-raising exclusionary conduct. However, despite these limitations, the GUPPIs and CMCRs can provide some useful information to decision makers.¹⁷²

152. The all-wireless single-price GUPPI is the product of three factors: the all-wireless diversion ratio from one merging firm to the other; the percentage price-incremental cost margin of the other merging firm; and the ratio of the two firms' prices.¹⁷³ The "simultaneous-price" GUPPI also requires estimates of the market shares of the merging firms. In addition, market shares are used to estimate what have been called "proportional" diversion ratios. The CMCR also utilizes this same set of factors. We discuss our estimates of these factors and then report the estimates of the GUPPIs and CMCRs for an all-wireless market.

¹⁷² Similarly, the HHI does not take every competitive issue into account.

¹⁷³ Formally, $GUPPI_1 = DR_{12} \times M_2 \times P_2/P_1$, where DR_{12} is the diversion ratio from the product of firm-1 to the product of firm-2, M_2 is the percentage margin of firm-2 and P_2/P_1 is the product price ratio of the two firms.

1. Diversion Ratios

153. Professor Carlton provides no empirical evidence to support his implicit claim that the diversion ratios between AT&T and T-Mobile are low.¹⁷⁴ For example, AT&T does not provide AT&T/T-Mobile win/loss data from surveys, porting data, or other quantitative indicators of diversion.¹⁷⁵ In the absence of these data, we have estimated proportional diversion ratios based on the all-wireless market shares. Under the assumption that total subscribership is not affected by the change in the price of one carrier, and thus that all the customers lost by the merging firm when they increase price would be recaptured by other carriers, the proportional diversion ratios are 34.6% from T-Mobile to AT&T and 16.3% from AT&T to T-Mobile.¹⁷⁶ If we were to assume instead that some percentage of the subscribers lost by the merging firm when it raises price would cease purchasing wireless service altogether, rather than substitute to (and be recaptured by) another carrier, the diversion ratios would be reduced by that percentage. In this initial analysis, we estimate the GUPPIs for a range of recapture rates: 100%, 80%, and 60%. The resulting proportional diversion ratios are summarized in Table 7.

¹⁷⁴ Carlton Decl. ¶ 145 (“[C]oncerns about unilateral effects are greatest when the merging firms produce products that are close substitutes. However, the differences in subscriber characteristics . . . indicate that AT&T and T-Mobile USA are not especially close substitutes . . .”).

¹⁷⁵ We expect that AT&T has such information. **[begin highly confidential information]** [REDACTED] **[end highly confidential information]** In his work for Verizon on the ALLTEL acquisition, Professor Carton engaged in diversion analysis based on porting data. Carlton ALLTEL Decl. ¶43, Table 1.

¹⁷⁶ Using the market shares of 30.7% for AT&T and 11.3% for T-Mobile, the T-Mobile diversion ratio to AT&T would be $DR = 30.7/(100-11.3) = 34.6\%$. The AT&T diversion ratio to T-Mobile would be $DR = 11.3/(100-30.7) = 16.3\%$.

154. These proportional diversion ratios assume that market shares are a proxy for the relative closeness of substitution among the carriers. We will be able to update our analysis if and when we receive additional information on subscriber substitution, particularly for the postpaid market.¹⁷⁷

2. Margins

155. Wireless service is a business characterized by high fixed costs and low marginal costs in the short and medium term. Therefore, the margin of price over variable cost is very high. However, according to Professor Carlton, AT&T and T-Mobile face congestion problems. Professor Carlton suggests that the AT&T and T-Mobile margins should take into account that the marginal cost of small incremental volume changes would be far above average variable cost.¹⁷⁸ Professor Carlton also suggests that the AT&T network is highly congested and would require significant investment to increase capacity. His assumption about the T-Mobile network is less clear.¹⁷⁹ Professor Carlton does not, however, provide any quantitative estimates of AT&T's or T-Mobile's current level of congestion or the margins that he believes would be appropriate, either on a national or local basis.

¹⁷⁷ Although porting data are not perfect measures, those data can be useful in gauging diversion ratios.

¹⁷⁸ Carlton Decl. ¶ 142 (“The use of accounting data on average variable costs instead of economic data on marginal costs will overstate the profitability of diverted sales and thus overstates the ‘upward pricing pressure’ from the proposed transaction.”).

¹⁷⁹ *Id.* ¶ 129.

156. Professor Carlton's suggestions raise several other specific questions.
- a. First, he does not indicate whether he believes that AT&T's network is highly congested throughout the country or only in certain local areas. If congestion is localized, there could be highly significant upward pricing pressure in some areas but none in others. If there is significant upward pricing pressure in a number of significant local areas, then those local pressures could lead to national upward pricing pressure.
 - b. Second, it is not clear whether Professor Carlton is referring to current levels of congestion or congestion that will occur at some point in the future. If AT&T currently has sufficient capacity but will face congestion in the future, the merger could lead to significant upward pricing pressure during the interim. Thus, it is relevant to know when the congestion constraints would become severe.
 - c. Third, the congestion claim raises questions about the actions that AT&T has undertaken, and would undertake, to relieve congestion in the absence of the merger, a factor that Professor Carlton does not consider in his analysis but which could be useful in determining the appropriate margin. The same issues would apply to T-Mobile's network, although T-Mobile suggested in its January 2011 Investor Presentation that it had sufficient spectrum for the medium term.¹⁸⁰

¹⁸⁰ Presentation by Deutsche Telekom and T-Mobile USA, Inc. to Analysts, at 7 (Jan. 20, 2011), *available at*: <http://www.download-telekom.de/dt/StaticPage/97/67/90/tmo-invday11.pdf_976790.pdf>.

157. To take account of these various possibilities, we have estimated the GUPPIs under two alternative margin assumptions. We use one margin estimate equal to the AT&T EBITDA of 40.7%, as reported in its recent investor presentation regarding the acquisition.¹⁸¹ We use another less conservative margin estimate of 70%. These margins implicitly reflect different assumptions about the average level of capacity utilization on the AT&T and T-Mobile networks and the margins earned on different categories of service.¹⁸² As with the diversion ratios, these assumptions can be refined in subsequent analysis with further information from AT&T and T-Mobile.

3. Price Ratios

158. For the all-wireless price ratio, we utilize the average prices of \$49.68 for AT&T and \$46.00 for T-Mobile, as reported in their respective 10-K reports. These ARPUs imply an AT&T/T-Mobile price ratio of approximately 1.08.

4. Subscriber-Based Market Shares

159. AT&T's all-wireless subscriber market share for 2010 was 30.7% and T-Mobile's market share was 11.3%. We follow the Commission's usual practice of attributing reseller subscribers to facilities-based carriers.

¹⁸¹ AT&T Investor Presentation, *AT&T + T-Mobile: A World-Class Platform for the Future of Mobile Broadband*, at 29 (Mar. 21, 2011), available at: <http://www.att.com/Common/about_us/pdf/INV_PRES_3-21-11_FINAL.pdf>.

¹⁸² We assume that these margins are weighted to include the margins on wholesale sales to resellers. We use the same margin for AT&T and T-Mobile. If AT&T's network was highly congested but T-Mobile's was not, then it might be more appropriate to use different margins for each, for example, 70% for T-Mobile and 40.7% for AT&T.

5. Gross Upward Pricing Pressure Indices: Results

160. We have estimated several UPP variants—single-price GUPPIs; simultaneous-price GUPPIs, and CMCRs. For each measure, we have calculated the individual values for AT&T and T-Mobile. The GUPPIs measure only the first-round price effects. They do not take into account the additional upward pricing pressure caused by the pricing responses of non-merging firms. Moreover, the GUPPIs and CMCRs do not account for the effects of the cost increases that would be experienced by Sprint and the regional carriers, nor do they account for potential coordinated effects.

161. The results for the 40.7% and 70% margins are tabulated separately in Table 7. The GUPPIs and CMCRs obviously are larger for the assumed 70% margin. Taken together, these results indicate potentially serious unilateral effects concerns from the merger.

a. 70% Margin

162. In this scenario, both the T-Mobile and the AT&T single-price GUPPIs significantly exceed 5%. For example, for the case of an 80% recapture rate, the T-Mobile single-price GUPPI is 20.9% and the AT&T GUPPI is 8.5%. The simultaneous-price GUPPIs are even larger. The T-Mobile GUPPI is 24.6% and the AT&T GUPPI is 11.2%.

163. The CMCRs also are quite large. In order to prevent price increases, the T-Mobile and AT&T marginal costs would need to be reduced by the merger by 81.1% and 38.0%, respectively.

b. 40.7% Margin

164. In this scenario, the GUPPIs are lower than in the 70% margin scenario. For example, for the case of an 80% recapture rate, the T-Mobile single-price GUPPI is 12.2%. The comparable AT&T single-price GUPPI is 4.9%. The simultaneous-price GUPPIs both exceed 5%. The T-Mobile simultaneous-price GUPPI is 14.3% and the AT&T simultaneous-price GUPPI is 6.5%.

165. The CMCRs also remain substantial even in this case. In order to prevent price increases, the T-Mobile and AT&T marginal costs would need to be reduced by the merger by 23.9% and 11.2%, respectively.

* * *

166. Although merely illustrative, these results raise concerns. They support the view from the other unilateral effects analyses that it is likely that the merger would lead to significant adverse unilateral effects. Even when the margin is only 40.7%, the GUPPIs and CMCRs are high. Only the AT&T single-price GUPPI is in the 5% range.

167. Professor Carlton asserts that the standard UPP framework does not account for certain efficiency gains that would lead to offsetting downward pricing pressures. Professor Carlton opines that “the standard UPP framework also does not readily account for the expansion in capacity that will result from a merger.”¹⁸³ He goes on to say that “the proposed transaction will expand capacity and lower the cost of serving new customers, creating incentives for the

¹⁸³ Carlton Decl. ¶ 143.

merged firm to increase output.”¹⁸⁴ In fact, Professor Carlton does not attempt to quantify the effects of upward and downward pricing pressures against one another. He simply *assumes* that costs will fall, prices will fall, and output will rise, ignoring the adverse effects of the upward pricing pressure.¹⁸⁵

168. The Guidelines evaluate any downward pricing pressure in the context of its efficiencies analysis. We do the same. We analyze AT&T’s efficiency claims regarding lower costs and increased capacity in detail in Section VII. We conclude that AT&T’s claimed efficiency benefits likely are overstated and most if not all may not even be cognizable under the Guidelines. First, AT&T does not show that the bulk of its claimed efficiency benefits are merger-specific. Second, the magnitude of the efficiencies cannot be verified with the information supplied by AT&T.

169. It is unlikely that AT&T’s remaining cognizable, merger-specific efficiencies from this transaction (if any) would outweigh the harmful competitive effects for two reasons.

¹⁸⁴ *Id.*

¹⁸⁵ Professor Carlton also is too quick to equate an increase in capacity with lower prices for another reason, even putting aside the adverse impact of the elimination of T-Mobile on price competition. Assume, as Professor Carlton does, that AT&T increases capacity in highly congested areas, and that the quality of its service rises, for example, in terms of fewer dropped calls. In that situation, AT&T might have the incentive to raise its nominal price but lower its quality-adjusted price in those areas. However, because AT&T charges a uniform national price, the analysis necessarily becomes more complicated. With a uniform price constraint, the incentive for an increase in the uniform nominal price also will translate into higher *quality-adjusted* and nominal prices in other less congested markets. Output and consumer welfare in those other markets would be reduced. As a result, it is not clear that overall output, or more importantly, that overall consumer welfare would increase. Because most areas are not capacity constrained, the likelihood that the merger harms consumer welfare is higher.

- a. First, the GUPPIs and CMCRs estimated here significantly understate the likely harmful price effects of the merger, as noted earlier. These GUPPIs and CMCRs do not take into account several reinforcing effects: (a) the additional upward pricing pressure caused by the exclusionary, cost-raising effects on Sprint and the smaller regional competitors; and (b) the increased likelihood of adverse coordinated effects caused by the merger, as analyzed in the next section of this report. The GUPPIs also do not take into account the additional upward pricing pressure caused by the pricing responses of non-merging firms. These effects will significantly exacerbate upward pricing pressure discussed above.¹⁸⁶
- b. Second, AT&T's claimed benefits can only be significant in areas that face serious congestion problems, and only if and when those congestion problems occur. In contrast, the harms from eliminating T-Mobile as an independent national competitor will apply nationally from the moment that the merger is consummated.

VI. COORDINATED EFFECTS

170. The Merger Guidelines distinguish between unilateral and coordinated effects. The Guidelines make the additional point that a merger may present both types of effects and that the line between them may be blurred.¹⁸⁷ The Guidelines also stress the breadth of the types

¹⁸⁶ As discussed earlier, repositioning by the regional fringe firms that sell prepaid service is unlikely to significantly mitigate these effects.

¹⁸⁷ In its overview discussion of unilateral and coordinated effects, the *Merger Guidelines* state that, “[i]n any given case, either or both types of effects may be present, and the distinction between them may be blurred.” Guidelines at 2.

of conduct that may lead to coordinated effects. In this regard, Professor Carlton’s discussion of coordinated effects focuses only on “the likelihood that a firm will deviate from coordinated pricing and output decisions because their actions will be detected and punished by rivals.”¹⁸⁸ This fits into the Guideline’s category of coordination by “common understanding.” Professor Carlton apparently does not consider what the Guidelines call “parallel accommodating conduct.”¹⁸⁹

171. Our preliminary analysis suggests that the merger likely would facilitate more successful coordination between AT&T and Verizon, through both parallel accommodating conduct and a common understanding. In our analysis of parallel accommodating conduct, we do not assume that AT&T and Verizon would engage in overt collusion after the merger, or even that they would coordinate perfectly. Rather, they each would better be able to set prices and other competitive instruments after the merger in anticipation of more accommodating behavior by the other.

A. Parallel Accommodating Conduct and Effects

172. As discussed earlier, unilateral price increases provide an incentive for competitors to respond by raising their own prices. However, parallel accommodating conduct goes further than these unilateral feedback effects.¹⁹⁰ The Guidelines explicitly identify these parallel accommodating effects as a form of coordination. As stated in the Guidelines,

¹⁸⁸ Carlton Decl. ¶ 146.

¹⁸⁹ Guidelines at 24.

¹⁹⁰ Pricing responses by rivals should be included in either unilateral effects analysis or coordinated effects analysis, depending on whether the rivals are responding based on their own

Coordinated interaction alternatively can involve parallel accommodating conduct not pursuant to a prior understanding. Parallel accommodating conduct includes situations in which each rival's response to competitive moves made by others is individually rational, and not motivated by retaliation or deterrence nor intended to sustain an agreed-upon market outcome, but nevertheless emboldens price increases and weakens competitive incentives to reduce prices or offer customers better terms.¹⁹¹

For example, parallel accommodating conduct could involve Verizon having the incentive to accommodate AT&T by raising its own retail and wholesale rates in parallel with AT&T price increases, and vice versa, in addition to its own unilateral incentives to raise prices.¹⁹²

173. Professor Carlton does not discuss the potential for parallel accommodating conduct and effects. However, the proposed merger raises considerable risk of parallel accommodating conduct and effects for several reasons. First, the fact that AT&T would remove the current low priced T-Mobile plans for new subscribers would increase the incentives and ability of AT&T and Verizon to coordinate their prices. Second, the elimination of T-Mobile as a low-priced national competitor challenging the leaders would enable AT&T and Verizon each to be more confident that the other would accommodate and match its price increases. Third, the barriers to expansion facing the smaller carriers, including the likelihood that the merger would

unilateral incentives or through parallel accommodating conduct. However, this distinction may be blurred in practice.

¹⁹¹ Guidelines at 24-25.

¹⁹² There can be a concern of coordinated effects through parallel accommodating conduct even in the absence of unilateral effects concerns. For example, even if claimed efficiencies were sufficient to eliminate the merged firm's incentive to raise price unilaterally, the merger could nonetheless induce AT&T or Verizon to initiate a price increase because each would anticipate that the other is now more likely to follow and match the price increase than it was pre-merger. This type of parallel accommodating conduct is formally analyzed in economics literature on dynamic oligopoly. *See, e.g., Eric Maskin and Jean Tirole, A Theory of Dynamic Oligopoly, II: Price Competition, Kinked Demand Curves, and Edgeworth Cycles*, 56 *ECONOMETRICA* 571 (1988).

raise the costs of Sprint and the regional fringe carriers, would increase the incentive and ability of AT&T and Verizon to coordinate their prices.

B. Common Understanding

174. Another type of coordinated conduct involves a common understanding by the coordinating firms of their mutual oligopolistic interdependence. Here, firms understand the mutual benefits of coordination and recognize that deviations likely will be detected and responded to. As stated in the Merger Guidelines, “[c]oordinated interaction also can involve a similar common understanding that is not explicitly negotiated but would be enforced by the detection and punishment of deviations that would undermine the coordinated interaction.”¹⁹³

175. In his discussion, Professor Carlton lists a number of factors that he suggests would make such coordinated effects less likely. These include: (1) the fact that wireless firms “have highly diverse business strategies;” (2) the complexity of wireless pricing; (3) “the rapid and on-going changes in wireless technology;” and (4) “differences in the geographic coverage of wireless networks.”¹⁹⁴

176. We disagree with Professor Carlton’s analysis. Professor Carlton seems to be focusing on coordination among all the carriers – AT&T, Verizon, Sprint, and the regional fringe firms. In contrast, we focus on coordination solely between AT&T and Verizon (accounting for 75-80% of the market) and particularly in postpaid sales. Moreover, because the merger would

¹⁹³ Guidelines at 24.

¹⁹⁴ Carlton Decl. ¶¶ 149-152.

raise Sprint's costs and so reduce Sprint's ability to compete, Sprint in effect would end up involuntarily supporting the coordination.¹⁹⁵

177. Neither Sprint nor the regional carriers would be likely to deter coordination between AT&T and Verizon. First, the regional fringe carriers face impediments to disrupting coordination for sales to postpaid retail subscribers and large corporate and governmental accounts. They lack nationwide coverage and are more dependent on higher cost roaming agreements. They also do not specialize in high-end data products or smartphones and are only slowly entering this segment. For the same reasons, as well as their business focus, they also are less well equipped to offer nationwide contracts to large corporate and governmental entities. Second, Sprint and the regional fringe carriers would face higher special access and roaming costs as a result of the merger, suffer inferior access to network infrastructure equipment, and face longer term network effects disadvantages in investment. Entry similarly is unlikely to deter coordination between AT&T and Verizon.

C. Impact of the Merger on the Likelihood of Coordination

178. The Guidelines explain that a merger may “diminish competition by enabling or encouraging post-merger coordinated interaction.”¹⁹⁶ The post-merger market would be more vulnerable to coordination, particularly in postpaid sales.

¹⁹⁵ Baker, *supra* n.81 at 190.

¹⁹⁶ Guidelines at 24.

179. The wireless service market would be vulnerable to coordination after the merger for several reasons:

- a. First, AT&T and Verizon would control more than 82% of retail postpaid service, likely a dominant fraction of corporate sales, and would account for more than 78% of revenues in the all-wireless market.
- b. Second, postpaid prices are transparent and the buyer concentration is very low. Demand is not lumpy.¹⁹⁷ Corporate/government prices are less transparent but AT&T and Verizon would face repeated competitive interactions for such customers.
- c. Third, there are barriers to entry and expansion because Sprint, the regional fringe firms, and entrants depend on AT&T and Verizon for essential inputs, have higher effective costs of backhaul, roaming, wireline access, and face scale economy disadvantages in investment and innovation competition.
- d. Fourth, AT&T and Verizon are similarly situated. Both carriers are ILECs with wireline as well as wireless service, which gives them common incentives to deter in-region consumers from “cutting the cord.” Because they provide special access to

¹⁹⁷ A reseller like TracFone potentially is a lumpy purchaser and so AT&T and Verizon may continue to have the incentive to compete for this contract. However, this is unlikely to deter parallel accommodating conduct or other coordination with respect to postpaid customers, or for corporate and governmental accounts. TracFone’s product is different and its market share is small. In addition, TracFone’s ability to play AT&T off of Verizon is limited to some extent by fact that its current subscribers already have either GSM or CDMA handsets. Finally, as noted earlier, the independence of TracFone from AT&T is unclear in light of the presence of two AT&T employees on the Board of TracFone’s parent corporation. *America Móvil Board of Directors*, America Móvil, available at: <<http://www.americamovil.com/amx/en/cm/about/board.html?p=28&s=36>> (last visited May 20, 2011).

one another, each can hold the other hostage by threatening the other with higher access rates or less timely provisioning of services.

180. The acquisition of T-Mobile by AT&T would *increase* the vulnerability of the market to successful coordination:

- a. First, the merger would increase AT&T's market share of subscribers from 30.7% to 42.0%, which would both increase its incentive to coordinate with Verizon and its vulnerability to broad based punishment.
- b. Second, the merger would eliminate T-Mobile, which is a low priced competitor and which is AT&T's only national GSM competitor. T-Mobile has been a maverick in the past and has targeted AT&T in the 4G competition.¹⁹⁸ More recently, T-Mobile has faced challenges. However, two months before the announcement of its acquisition by AT&T, T-Mobile announced its commitment to becoming a vibrant challenger in the wireless market.¹⁹⁹
- c. Third, the merger would increase the costs of Sprint and the regional carriers, and disadvantage them going-forward. By reducing the competitive constraints provided by Sprint and the regional carriers, AT&T and Verizon would have a greater incentive and ability to coordinate. Moreover, if AT&T and Verizon coordinate in

¹⁹⁸ For example, T-Mobile developed its HSPA+ network early. It also was the first carrier to offer Android phones. As the low price carrier, T-Mobile presence is likely to have reduced the prices of the other national carriers.

¹⁹⁹ Presentation by Deutsche Telekom and T-Mobile USA, Inc. to Analysts, at 7, 19, 22, 28 (Jan. 20, 2011), *available at*: <http://www.download-telekom.de/dt/StaticPage/97/67/90/tmo-invdav11.pdf_976790.pdf>.

the retail market, each would gain unilateral incentives to raise roaming rates and backhaul costs to Sprint and the regional fringe. These factors also would affect potential entrants.

- d. Finally, AT&T and Verizon's mutual dependence and ability to make mutual hostages threats would increase. By combining T-Mobile with AT&T, Verizon's ability to threaten AT&T by raising the price of special access would increase. That threat could serve to cement an understanding on retail prices. Because the merger also would reduce the competitive constraints from independent providers of backhaul, the mutual interdependence of AT&T and Verizon would increase.

181. As indicated above, we are not assuming that AT&T and Verizon would engage in explicit price fixing after the merger, or even that they would coordinate perfectly. For example, we anticipate that AT&T and Verizon would still compete for handset exclusives. Instead, we are suggesting that, after the merger, each would better be able to set prices and other non-price terms in anticipation of more accommodating responses by the other than before the merger. They also may have a higher likelihood of a successful common understanding of the benefits of coordination and the likelihood of detection and punishment for deviations.

182. These coordinated effects concerns reinforce the unilateral effects and exclusionary effects concerns discussed above. Coordination through either parallel accommodating conduct or common understanding would increase the overall upward pricing pressure from the merger. As a result, cognizable and merger-specific efficiency benefits would need to be even larger to overcome this upward pricing pressure. As discussed next, AT&T's efficiency claims are unlikely to satisfy this exacting standard.

VII. AT&T’S EFFICIENCY BENEFIT CLAIMS

183. In its Application, AT&T makes two main efficiency claims. First, it claims that the merger would permit it to relieve alleged capacity constraints on its GSM and UMTS networks. Second, it claims that it would be able to deploy LTE service to 97% of the U.S. population by some unspecified date, as compared to what it represents as only 80% in 2013 absent the merger. According to AT&T, this benefit would be realized by “transition[ing] T-Mobile’s USA’s HSPA services off of its AWS spectrum in many markets and devot[ing] that spectrum to the deployment of LTE services”²⁰⁰

184. AT&T fails to establish that these claimed efficiencies are cognizable under the standards set out by the Commission and the Merger Guidelines. The fact that the merger increases AT&T’s profits does not make the merger efficient or consumer welfare enhancing. First, AT&T does not show that the bulk of its claimed efficiency benefits are merger-specific.²⁰¹ If practical alternatives would achieve some of the benefits, only the incremental benefits are merger-specific. If the merger would merely accelerate the achievement of these benefits, only

²⁰⁰ Application at 8. AT&T also claims that it can attain efficiencies associated with channel control and channel pooling. Wireless network expert, Steven Stravitz, discusses these in more detail. *See* Stravitz Decl. ¶¶ 33-35.

²⁰¹ According to the Commission, “the claimed benefit ‘must be likely to be accomplished as a result of the merger but unlikely to be realized by other means that entail fewer anticompetitive effects.’” *See Applications of AT&T Inc. and Centennial Communications Corp. For Consent to Transfer Control of Licenses, Authorizations, and Spectrum Leasing Arrangements*, Memorandum Opinion and Order, 24 FCC Rcd 13915, ¶ 90 (2009) (“AT&T-Centennial Merger Order”). The Guidelines similarly credit “only those efficiencies likely to be accomplished with the proposed merger and unlikely to be accomplished in the absence of either the proposed merger or another means having comparable anticompetitive effects.” Guidelines at 30.

the value of the reduced delay would be a merger-specific efficiency.²⁰² Second, based on the information submitted by AT&T, the magnitude of the claimed efficiencies cannot be verified.²⁰³ Third, a significant portion of the claimed benefits appear to occur far in the future while the competitive harms are large and more immediate.²⁰⁴ Thus, it appears that the efficiency benefits are unlikely to be sufficient to outweigh the competitive harms.²⁰⁵

A. AT&T's Capacity Constraint Claims

185. AT&T contends that it will face substantial spectrum constraints sometime in the near future. However, it provides none of the underlying data to allow the Commission to determine whether its claim of “spectrum exhaust” is plausible. Moreover, AT&T does not provide information on the breadth and timing of the claimed spectrum exhaust and its impact on

²⁰² See Guidelines at 30, n.13 (“If a merger affects not whether but only when an efficiency would be achieved, only the timing advantage is a merger-specific efficiency.”).

²⁰³ See *id.* at 30 (“[I]t is incumbent upon the merging firms to substantiate efficiency claims so that the Agencies can verify by reasonable means the likelihood and magnitude of each asserted efficiency, how and when each would be achieved (and any costs of doing so), how each would enhance the merged firm’s ability and incentive to compete, and why each would be merger-specific.”).

²⁰⁴ See AT&T-Centennial Merger Order ¶ 90 (“[B]enefits that are to occur only in the distant future may be discounted or dismissed because, among other things, predictions about the more distant future are inherently more speculative than predictions about events that are expected to occur closer to the present.”); see also Guidelines at 31, n.15 (“Delayed benefits from efficiencies (due to delay in the achievement of, or the realization of customer benefits from, the efficiencies) will be given less weight because they are less proximate and more difficult to predict.”).

²⁰⁵ See AT&T-Centennial Merger Order ¶ 91 (“[W]here potential harms appear ‘both substantial and likely, a demonstration of claimed benefits also must reveal a higher degree of magnitude and likelihood than we would otherwise demand.’”). See also Guidelines at 31 (“[T]he greater the potential adverse competitive effect of a merger, the greater must be the cognizable efficiencies, and the more they must be passed through to customers Efficiencies almost never justify a merger to monopoly or near-monopoly.”).

service quality. In addition, it seems clear that there are many geographic areas in which there is sufficient capacity, even by AT&T's own reckoning.²⁰⁶

186. Moreover, AT&T's assertions of "spectrum exhaust" seem to assume that it can do nothing absent the merger to alleviate some or much of those alleged spectrum constraints. If there are practical alternatives for relieving some or all of these constraints, only the benefits not otherwise achievable should be treated as merger-specific and cognizable.²⁰⁷

187. AT&T does not explain in detail its plans to expand capacity absent the merger and how those plans have been altered by the merger. It does not explain (or provide sufficient data and analysis to show) why other practical alternatives could not have provided some or all of the capacity expansion it claims for the merger. For example, AT&T claims that, in order to increase capacity on its current network, it must wait until its GSM subscribers migrate to the more spectrally efficient UMTS band. It does not explain why it would not be practical to use

²⁰⁶ Stravitz discusses in far more detail the shortcomings of AT&T's claimed "evidence" on its capacity constraints. He notes that there is nothing in AT&T's analysis that "explains whether capacity constraints exist anywhere on AT&T's network and, if constraints do exist, whether those constraints are national in scope or highly localized, whether they are chronic and persistent or intermittent and temporal, or whether they are large and meaningful or small and relatively inconsequential. In addition, AT&T does not provide information in the Application to indicate whether the claimed congestion in its network is in its radio access network, transmission and backhaul network, core network, or in all parts of its network." Stravitz Decl. ¶ 12; *see also id.* ¶ 14 ("Relative to its competitors, AT&T's data network is performing better in some markets and worse in others, based on a review of 151,766 empirical field tests conducted across the hundred most populous U.S. markets during approximately the last six months by an industry-leading independent, third-party competitive test provider.").

²⁰⁷ *See id.* ¶ 69 (noting that, instead of the proposed merger, "AT&T should pursue new technologies and strategies to use its vast spectrum holdings more efficiently, and thus manage the growing traffic on its network, just as its competitors do."); *see also id.* ¶ 41-67 (describing potential alternative strategies).

incentives, promotions, or other means to achieve more rapid migration.²⁰⁸ Indeed, AT&T has proposed to migrate *T-Mobile subscribers* from AWS to the UMTS spectrum.²⁰⁹

188. Moreover, AT&T does not explain why it would be impractical to use its substantial AWS and 700 MHz holdings of spectrum to alleviate the claimed capacity shortage. This spectrum is not being utilized currently. Taking into account all its spectrum holdings, it is not clear that AT&T is spectrum constrained.²¹⁰ In fact, AT&T made public statements in 2010

²⁰⁸ For example, T-Mobile’s CTO noted that it has been “aggressively” migrating its GSM customers to the more spectrally efficient AWS. Transcript of Briefing by Deutsche Telekom and T-Mobile USA, Inc. to Analysts, at 6 (Jan. 20, 2011), *available at*: <<http://www.telecom.de/dtag/cms/contentblob/dt/en/979218/blobBinary/transcript+20012011.pdf>> (“Deutsche Telekom Briefing”). *See also* Stravitz Decl. ¶ 22 (“The Application does not indicate why AT&T has been unsuccessful in migrating GSM users to newer, more efficient generations of network technology. AT&T’s business decision not to migrate subscribers from GSM to UMTS devices more actively has created an unnecessary need to reserve substantial spectrum for less efficient uses. AT&T acknowledges that its UMTS technology covers approximately 260 million people. Yet, AT&T still sells and supports handsets configured to support only less efficient 2G data capability. AT&T could improve the efficiency of network use by aggressively marketing and subsidizing more UMTS/HSPA+ handsets and by discouraging sales of additional devices that use 2G data. This material improvement in efficiency could be accomplished at a far smaller cost than the proposed transaction with T-Mobile.”).

²⁰⁹ It also is not clear that this is efficient.

²¹⁰ As recently as January of this year, AT&T stated that “[w]e were having some serious capacity constraints in key markets, and we really saw the backlogs clear. And we spent the last 45 days literally just bringing capacity online in a rather dramatic fashion” Question and Answer Session, *AT&T’s CEO Discusses Q4 2010 Results - Earnings Call Transcript*, (Jan. 27, 2011), *available at*: <<http://seekingalpha.com/article/249133-at-t-s-ceo-discusses-q4-2010-results-earnings-call-transcript?part=qanda>>. *See also* Stravitz Decl. ¶ 4 (“With extensive capital resources at its ready disposal, a wealth of largely untapped capacity-enhancing solutions and vast quantities of wholly unused spectrum, AT&T is exceptionally well-equipped to handle increases in data traffic. To the extent that AT&T has any real constraints on its ability to deploy wireless broadband operations, these constraints would appear to be the direct and proximate result of its own business and technical decisions.”).

about its substantial spectrum holdings.²¹¹

189. AT&T also could relieve its capacity limitations by creating more efficient spectrum platforms and the purchasing or leasing of new spectrum and more rapid development of that spectrum. This is a practical alternative. For example, Sprint is currently pursuing its “Network Vision” strategy that will expand the efficiency of Sprint’s spectrum use as well as exploring uses for Clearwire’s spectrum.²¹² AT&T offers no reason why such alternatives are not practical for it, particularly compared to the \$39 billion purchase price for T-Mobile.

190. AT&T claims that the merger would allow for more rapid cell splitting by utilizing T-Mobile’s cell sites.²¹³ It claims that there is insufficient room on many existing

²¹¹ See, e.g., Kevin Fitchard, *AT&T, VZW respond to Clearwire’s 4G spectrum taunts*, CONNECTED PLANET (Mar. 18, 2010) (quoting AT&T’s Senior Vice President of Architecture and Planning – Kris Rinne – as saying, “You need to make sure you count all of our spectrum when you make...comparisons.”), *available at*: <<http://connectedplanetonline.com/3g4g/news/att-vzw-respond-clearwire-spectrum-taunts-0318/>>; *see also id.* (“If AT&T fills up its 700 MHz band, it has plenty of unused Advanced Wireless Service (AWS) spectrum to fall back on. And if that band, too, were to become full, AT&T has one of the country’s largest portfolios of cellular and PCS spectrum. That spectrum is all being used right now for 2G and 3G services, but as LTE demand grows, it makes perfect sense to convert high-speed packet access (HSPA) channels and GSM channels to LTE, which can much more efficiently deliver data capacity, Rinne said.”); *id.* (“[AT&T] will have the opportunity to re-utilize this spectrum in the future,” [Rinne] said.”).

²¹² See Sprint 2010 10-K at 25 (“Consolidating and optimizing the use of Sprint’s 800 MHz, 1.9 GHz and potentially other spectrum (such as the 2.5 GHz owned by Clearwire) into multi-mode stations should allow Sprint to repurpose spectrum to enhance coverage, particularly around the in-building experience. The multi-mode technology also utilizes software-based solutions with interchangeable hardware to provide greater network flexibility, which allows for opportunities to evaluate new 4G technologies to better utilize Sprint’s available spectrum.”).

²¹³ In addition, Stravitz indicates that AT&T’s claimed cell splitting efficiencies have not been substantiated. He notes that ““without the call and data traffic information for the cell sites in areas where AT&T claims to be experiencing network congestion, neither the Commission nor other parties in this proceeding can evaluate – much less validate – whether integrating

towers for its radios. However, a number of independently operated tower companies have stated that they have capacity available for new base stations in markets throughout the country. One recent article reported that “AT&T and other wireless operators could double the amount of capacity they supply with current spectrum by investing more in new wireless equipment on existing cell towers.”²¹⁴ The article quoted the CEO of American Tower, one of the nation’s leading tower companies, as saying that “[o]ur tower sites are about 50% loaded on average.”²¹⁵ Moreover, even where towers are currently at capacity, they usually can be modified to accommodate additional equipment.²¹⁶ American Tower also has stated that “[w]e believe that of our towers that are currently at or near full structural capacity, the vast majority can be upgraded or augmented to meet future tenant demand, with relatively modest capital investment.”²¹⁷

T-Mobile’s cell sites into AT&T’s network would provide a real capacity increase during the hours when AT&T asserts that demand exceeds its network capacity.” Stravitz Decl. ¶30.

²¹⁴ Spencer Ante and Amy Schatz, *Skepticism Greets AT&T Theory: Telecom Giant Says T-Mobile Deal Will Improve Network Quality, but Experts See Other Options*, WALL ST. J. at B1 (Apr. 4, 2011), available at: <<http://online.wsj.com/article/SB10001424052748703806304576236683511907142.html>>.

²¹⁵ *Id.*

²¹⁶ *Id.*

²¹⁷ American Tower Corp., Annual Report (Form 10-K) at 4 (Feb. 28, 2011). As another alternative, AT&T could deploy software-defined radio technology in its network of base stations to permit more flexible and more efficient use of its existing spectrum. Sprint is deploying such technology at its cell sites under its “Network Vision” project, which was announced a few months ago. The project, which will cost approximately \$3-5 billion and take three to five years to complete, will allow Sprint to consolidate multiple technologies into a single platform capable of using Sprint’s entire spectrum. AT&T could deploy similar technology to address its purported capacity constraints.

191. It also may have been practical for AT&T to purchase or share T-Mobile’s towers. At its January 20, 2011 investor conference, Deutsche Telekom’s CEO expressed interest in tower-sharing arrangements, stating that “[w]e are among other options . . . ready to consider a potential sale of . . . non-strategic core assets, for example, the U.S. tower portfolio.”²¹⁸

192. Another potentially practical alternative is for AT&T to build new cell sites. At a capital cost of \$300,000 per site, AT&T could build about 30,000 towers for \$10 billion, about one-quarter of what it is paying for T-Mobile.²¹⁹ AT&T claims that the approval process for cell site construction is very lengthy. However, delays in the approval process can be solved (and apparently are being solved) by Commission action.²²⁰ They cannot justify eliminating a major national competitor.²²¹

²¹⁸ Deutsche Telekom Briefing at 4. *See* Stravitz Decl. ¶¶ 46, 51-52 (discussing in greater detail the practicality of site sharing).

²¹⁹ This estimate of the capital expenditures required for the construction of a cell site is used by the Commission in a recent report. *See Mobile Broadband: The Benefits of Additional Spectrum*, OBI Technical Paper No. 6, Federal Communications Commission Omnibus Broadband Initiative, at 24-25 (Oct. 2010).

²²⁰ *See Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review and to Preempt Under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance*, Declaratory Ruling, 24 FCC Rcd 13994, ¶ 32 (2009) (the Commission clarifying that it is presumptively unreasonable for the local review process to exceed (1) 90 days for the review of collocation applications; and (2) 150 days for the review of siting applications other than collocations).

²²¹ On this score, Stravitz notes that the time required for integration of the AT&T and T-Mobile cell sites would be very lengthy, a further reason to discount the claimed savings. *See* Stravitz Decl. ¶¶ 25-26 (“According to AT&T, a network integration of that portion of the T-Mobile network that AT&T retains would require nine to twenty-four months following consummation, which, including merger review, would likely equal eighteen to forty-five months. Even taking AT&T’s estimates of the pace of network integration at face value, integration of the T-Mobile USA network requires just as much time as AT&T’s estimate of the

193. The Commission adopted this incremental approach to analyzing claims of alleged merger efficiencies in reviewing the AT&T-Cingular transaction. The Commission concluded that “while the merged entity will be able to concentrate its resources and efforts in the construction of one next-generation network, instead of two, we are not convinced that Cingular could not have achieved at least some of these same network gains by investing a portion of the \$41 billion purchase price associated with this transaction into improvements to its own network.”²²²

194. AT&T also claims that the merger would resolve any capacity constraint issues faced by T-Mobile. However, this claim of a T-Mobile near-term capacity constraint seems exaggerated. For example, Deutsche Telekom’s CEO stated that T-Mobile “currently own[s] 54 megahertz of spectrum in our major markets which for the next few years put us into a position which is actually better than most of our competitors are in.”²²³

time required to simply install new cell sites on the same towers currently occupied by T-Mobile or on towers owned by tower companies and other parties with available capacity. . . . Using more typical transmitter construction estimates means that AT&T could readily invest in new transmitter locations substantially far more quickly than it could realistically hope to acquire all of the assets and operations of T-Mobile and integrate them into its network operations.”); *see id.* ¶¶ 27-30 (explaining why the claimed efficiencies from the cell site integration are unsubstantiated).

²²² *Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation for Consent to Transfer Control of Licenses and Authorizations*, Memorandum Opinion and Order, 19 FCC Rcd 21522, ¶ 225 (2004). The Commission also noted that it “cannot confirm the total savings estimated by Applicants and do not give significant weight to them in our balancing of potential public interest harms and benefits.” *Id.* ¶ 232.

²²³ Deutsche Telekom Briefing, at 2; *see also id.* at 15-16 (T-Mobile’s Chief Technology Officer stating that T-Mobile has “[s]ufficient spectrum in [the] short to medium term,” and, like all other carriers, will explore participating in FCC spectrum auctions to address long-term needs); *id.* at 2 (Deutsche Telekom CEO stating that “[i]ndependent field surveys show that real

195. Finally, AT&T's current capacity constraints, assuming that they exist, appear to have been created partially, if not largely, by its own poor planning. In particular, AT&T appears to have underestimated the data-intensive usage of the highly popular *and exclusive* iPhone as well as the data usage created by smartphones and other devices. AT&T has held the iPhone exclusive for nearly four years.²²⁴ Even if AT&T had somehow not anticipated an upsurge in usage as a result of its exclusive access to the world's most popular smartphone, one would still have expected that the increased usage would have created strong incentives for AT&T to expand the capacity of its network more rapidly. Instead, during the first three years of its iPhone exclusive (2007-2009), AT&T invested less on a per subscriber basis than the average of the other three national carriers. In 2010, AT&T finally increased its pace of investment.²²⁵ For all these reasons, AT&T has not demonstrated that the merger-specific efficiency benefits from easing capacity constraints outweigh the likely consumer welfare harms from the merger.

life data transmission speeds on our network are superior to most competitors and they are at least equivalent to LTE.”).

²²⁴ Yukari Iwatani Kane & Ting-I Tsai, *Apple Readies Verizon iPhone*, WALL ST. J. at A1 (Oct. 7, 2010), available at: <<http://online.wsj.com/article/SB10001424052748703735804575536191649347572.html>>; Press Release, Apple Inc., *AT&T and Apple Announce Simple, Affordable Service Plans for iPhone* (June 26, 2007), available at: <<http://www.apple.com/pr/library/2007/06/26plans.html>>; Press Release, Apple Inc., *iPhone 4 on Verizon Wireless Available for Pre-Order Tomorrow* (Feb. 2, 2011), available at: <<http://www.apple.com/pr/library/2011/02/02iphone.html>>.

²²⁵ For the three-year period from 2007 to 2009, AT&T made annual capital investments equivalent to \$66 per subscriber while the weighted average for all other wireless carriers was \$87 per subscriber. In 2010, AT&T made capital investments equivalent to \$96 per subscriber while the weighted average for all other carriers was \$85. *US Wireless 411*, UBS Investment Research (Mar. 30, 2011), at 13, 41; *US Wireless 411*, UBS Investment Research (Mar. 29, 2009), at 13, 51. Cited only for purposes of this factual statement. Sprint disclaims and does not endorse or adopt said report, including any statements, opinions or analysis therein.

B. AT&T's LTE Deployment Claims

196. AT&T also claims that the combined firm will be able to deploy LTE service to more consumers. AT&T claims that: “Over time...the combined company will be able to (1) migrate T-Mobile subscribers off the AWS spectrum to AT&T's UMTS bands, which merger synergies will have made less congested, (2) upgrade them to LTE service, or (3) pursue some combination of these two. . . . [T]he transaction *eventually* will enable AT&T to free-up T-Mobile's AWS spectrum for higher performing and more spectrally efficient LTE services.”²²⁶ These efficiency benefit claims are tenuous.

197. AT&T does not demonstrate that the merger would lead to a roll out of LTE services that is more rapid than would have been the case absent the merger. AT&T compares the deployment to its owned planned deployment schedule over a planning period that ends in 2013. Moreover, AT&T claims only that it would use T-Mobile's AWS spectrum to extend the reach of its LTE network “eventually.” As noted earlier, however, efficiency benefits that are vague or occur far in the future should be given less weight in the balance in light of immediate consumer harms from eliminating an important competitor.

198. In claiming these benefits, AT&T also does not take into account the costs borne by T-Mobile subscribers. In addition to the cost imposed on T-Mobile subscribers to acquire new handsets capable of operating on the newly repurposed spectrum, T-Mobile subscribers served by T-Mobile's AWS spectrum will be moved to AT&T's UMTS service that they have chosen not to purchase, apparently because they perceived it to be inferior to their T-Mobile

²²⁶ Application at 40 (emphasis supplied).

service. It follows that the effect on these subscribers involves an efficiency *harm* that must be subtracted from any proven benefits.

199. AT&T's deployment promises also raise a merger-specificity issue. AT&T has not explained why the expanded coverage of LTE could not be obtained by other practical means. For example, AT&T argues that Sprint (and other carriers) can rely on leasing or purchasing spectrum from LightSquared or Clearwire. It does not explain why it could not do the same. Moreover, as noted previously, AT&T's participation in developing this and other new spectrum along with Sprint and an independent T-Mobile could speed the development process by spreading the costs of doing so over more carriers.

200. AT&T also does not explain why it cannot use its own spectrum to roll-out LTE more broadly. AT&T claims that, absent the merger, the coverage of its LTE network will not extend to more than 80% of the U.S. population. In contrast, Sprint – which lacks the “beachfront” spectrum available to AT&T and is not relying on a merger to obtain additional spectrum – anticipates that its LTE network will reach most if not all of the U.S. population by 2013.²²⁷ In any event, there appears to be no shortage of spectrum in the rural areas in which AT&T claims only the merger would allow it to serve.²²⁸

²²⁷ See *Sprint could deploy LTE nationwide by year-end 2013*, FIERCEWIRELESS (Mar. 2, 2011), available at: <<http://www.fiercewireless.com/story/sprint-could-deploy-lte-nationwide-year-end-2013/2011-03-02>>.

²²⁸ Stravitz concludes that AT&T already has enough spectrum to reach most of the nation's population. See Stravitz Decl. ¶ 40 (“With significant, nationwide spectrum holdings already lying fallow, AT&T can deploy LTE today in various configurations to achieve nationwide coverage without acquiring T-Mobile.”); *id.* ¶ 36 (providing additional reasons explaining the flaws in AT&T's claims of inadequate spectrum for LTE expansion).

201. AT&T has not demonstrated that merger-specific efficiency benefits from expanding or speeding LTE deployment would outweigh the likely consumer welfare harms from the merger.

VIII. CONCLUSIONS

202. Our analysis indicates that, if the AT&T/T-Mobile merger were approved, it would likely be harmful to wireless consumers and competition, whether analyzed in terms of a national market or local markets. By removing T-Mobile as an independent competitor, the merger would give AT&T the unilateral incentive to raise prices and also would facilitate anticompetitive coordination between AT&T and Verizon. In addition, unlike most mergers, this transaction would have significant exclusionary effects by raising the costs of Sprint and the smaller regional competitors. These exclusionary effects would increase the likelihood of adverse unilateral and coordinated effects on consumer welfare. These effects also make it less likely that competitors would be able to constrain the pricing of AT&T and Verizon. Innovation also may be slowed as a result of the merger. Approval of the merger would move the industry toward an entrenched duopoly in which Sprint is marginalized and additional strong national competitors are less likely to emerge.

203. The only remedy that can address these harms is to prohibit the merger. In that way, T-Mobile would remain an independent national competitor that would serve as a significant challenger to Verizon and AT&T. The competitive harms that would result from approval are neither minor nor localized and cannot be cured by localized divestitures or behavioral conditions. Important dimensions of competition take place at the national level, and there would be competitive concerns in [begin NRUF/LNP confidential information] [REDACTED]

██████████ [end NRUF/LNP confidential information] that it is highly unlikely that localized remedies could restore national competition. Spectrum and subscriber divestitures would not maintain T-Mobile as a going concern with a valuable national brand name. If spectrum or other assets were divested to Verizon as part of a merger remedy, competition would not be increased. If anything, it would facilitate coordination between AT&T and Verizon. If the merger were approved, there would just be three national competitors, including one that would be substantially weakened, and a significant risk that the wireless market would revert to a duopoly.

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TABLES

Table 1: 2010 Average Revenue Per User (ARPU) for Wireless Services

Reported in dollars per month

	ARPU
Branded Postpaid Retail	
AT&T	62.57
T-Mobile	52.00
Verizon	52.92
Sprint	55.00
Average	55.62
Prepaid Retail	
Leap	37.76
MetroPCS	39.79
Average	38.78

Notes:

Verizon ARPU is a weighted average of 1st and 4th Quarters 2010.

Sources:

Wireless carrier SEC 10-K filings, annual reports, press releases, and investor presentations.

Table 2: All Wireless Subscriber Market Shares - 2010

Carrier	Wireless Subscribers	
	Reseller Attribution Rule:	
	Facilities-Based Carriers ¹	All Carriers (including Resellers) ²
AT&T	30.7%	26.5%
T-Mobile	11.3%	10.3%
Verizon	33.5%	31.2%
Sprint	17.1%	16.2%
Leap	2.0%	2.0%
MetroPCS	2.9%	2.9%
US Cellular	2.2%	2.0%
Cincinnati Bell	0.2%	0.2%
NTELOS	0.2%	0.2%
Qwest (reseller)	0.0%	0.4%
TracFone (reseller)	0.0%	6.3%
Other (resellers)	0.0%	1.9%
Total	100.0%	100.0%
HHI	2,503	2,100
Delta HHI	696	549
Post-Merger HHI	3,198	2,649

Notes:

The reported shares exclude connected devices.

¹ Reseller (i.e., Mobile Virtual Network Operator - MVNO) subscribers are attributed to the facilities-based carriers. Qwest and TracFone are resellers.

² Reseller subscribers are attributed to the resellers.

Sources:

Wireless carrier SEC 10-K filings, annual reports, press releases, and investor presentations.

Table 3: All Wireless Revenue Market Shares - 2010

Carrier	Wireless Revenue	
	Reseller Attribution Rule:	
	Facilities-Based Carriers ¹	All Carriers (including Resellers) ²
AT&T	32.2%	31.6%
T-Mobile	11.5%	11.5%
Verizon	34.6%	34.2%
Sprint	15.4%	15.4%
Leap	1.5%	1.5%
MetroPCS	2.2%	2.2%
US Cellular	2.3%	2.3%
Cincinnati Bell	0.2%	0.2%
NTELOS	0.2%	0.2%
Qwest (reseller)	0.0%	0.1%
TracFone (reseller)	0.0%	0.9%
Other (resellers)	0.0%	0.0%
Total	100.0%	100.0%
HHI	2,615	2,551
Delta HHI	741	727
Post-Merger HHI	3,356	3,279

Notes:

¹ Reseller (i.e., Mobile Virtual Network Operator - MVNO) subscribers are attributed to the facilities-based carriers. Qwest and TracFone are resellers.

² Reseller revenues are attributed to the resellers.

Sources:

Wireless carrier SEC 10-K filings, annual reports, press releases, and investor presentations.

Table 4: Wireless Postpaid and Prepaid Subscriber Shares - 2010

Carrier	Wireless Subscribers		
	Postpaid	Prepaid	
		Reseller Attribution Rule:	
	Branded Retail	Facilities-Based Carriers ¹	All Carriers (including Resellers) ²
AT&T	31.7%	27.4%	9.8%
T-Mobile	11.4%	11.1%	6.9%
Verizon	38.6%	17.0%	7.1%
Sprint	15.4%	22.5%	18.5%
Leap	0.0%	8.3%	8.3%
MetroPCS	0.0%	12.3%	12.3%
US Cellular	2.5%	1.0%	0.5%
Cincinnati Bell	0.2%	0.2%	0.2%
NTELOS	0.1%	0.2%	0.2%
Qwest (reseller)	0.0%	0.0%	1.6%
TracFone (reseller)	0.0%	0.0%	26.7%
Other (resellers)	0.0%	0.0%	7.8%
Total	100.0%	100.0%	100.0%
HHI	2,871	1,890	1,474
Delta HHI	724	607	135
Post-Merger HHI	3,595	2,496	1,609

Notes:

The reported shares exclude connected devices.

¹ Reseller (i.e., Mobile Virtual Network Operator - MVNO) subscribers are attributed to the facilities-based carriers. Qwest and TracFone are resellers.

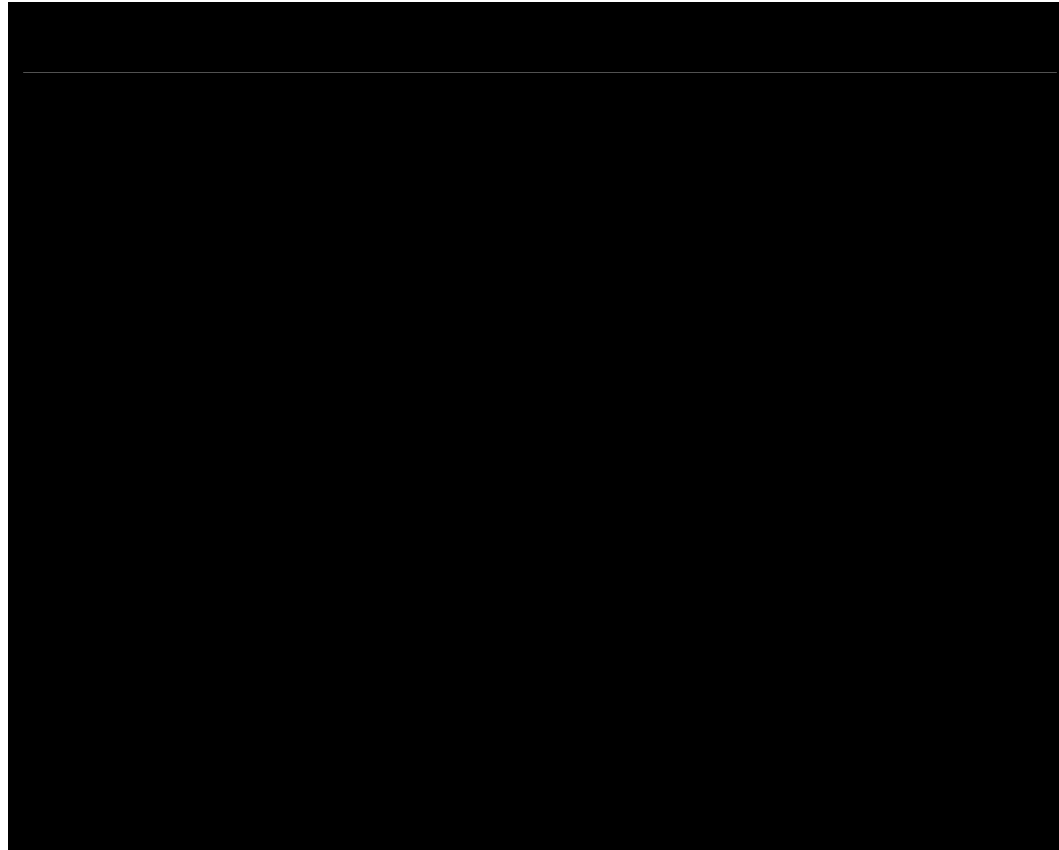
² Reseller subscribers are attributed to the resellers.

Sources:

Wireless carrier SEC 10-K filings, annual reports, press releases, and investor presentations.

Table 5a: Summary of Subscriber Screen Analysis

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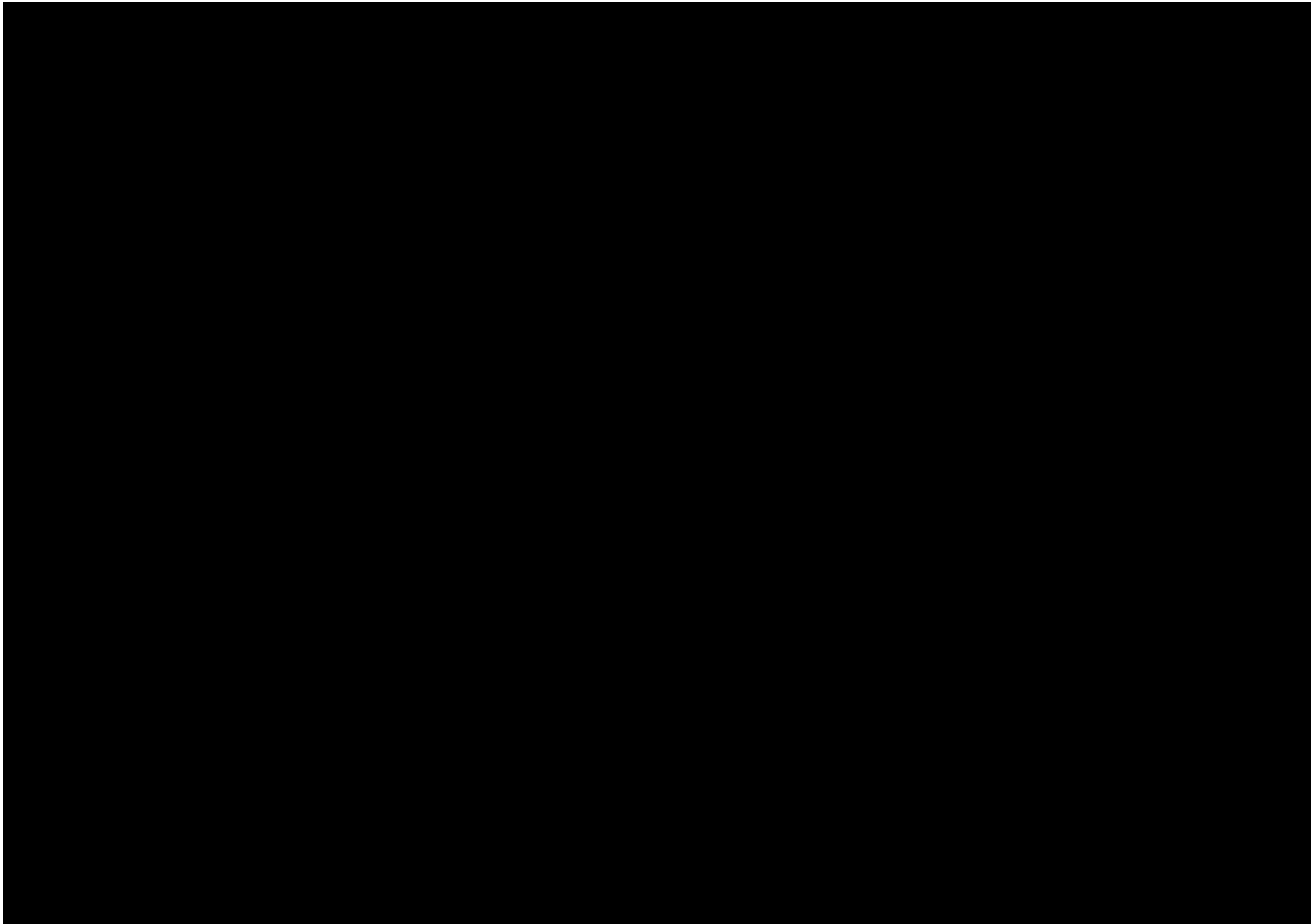


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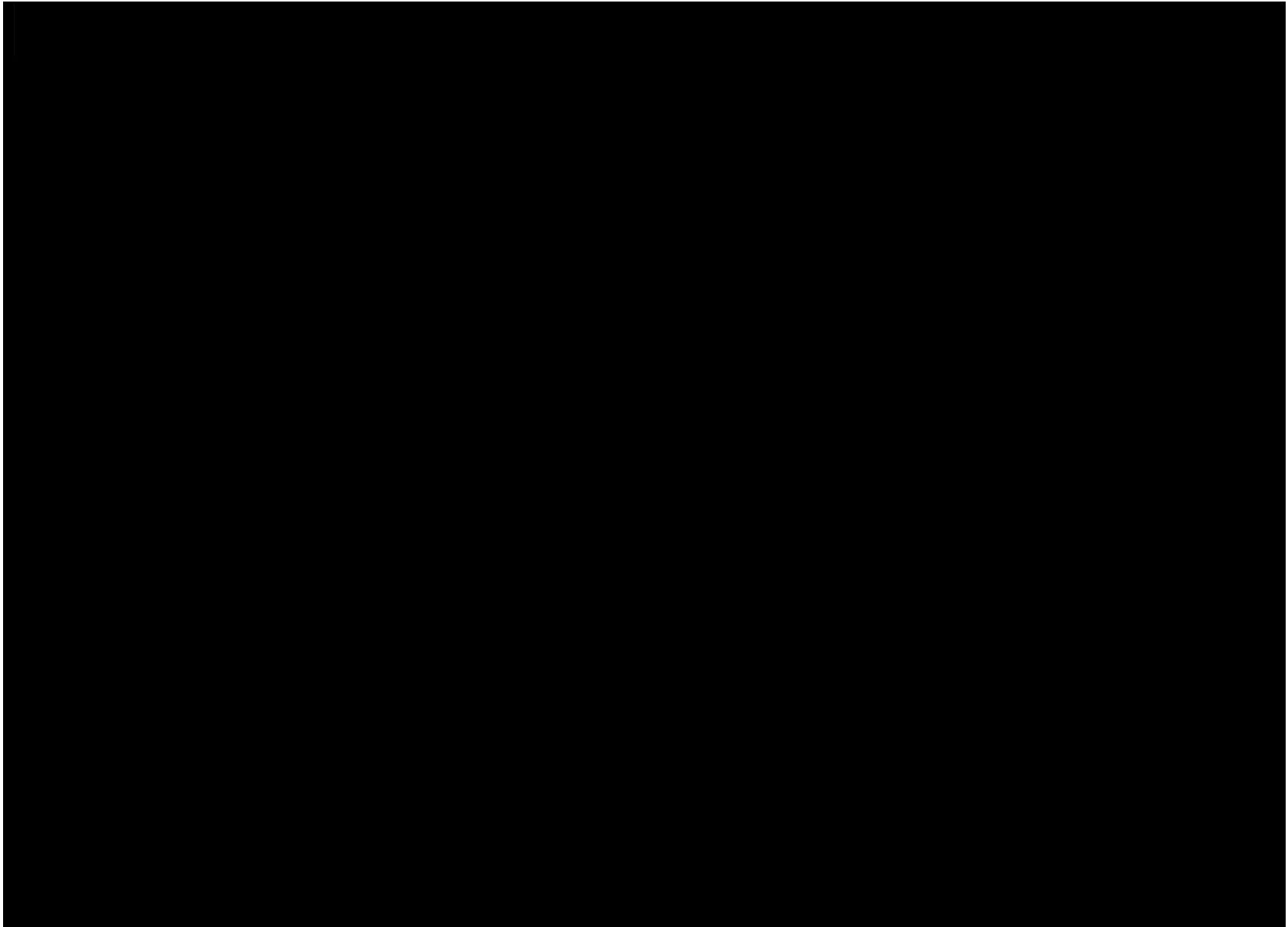
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Table 5b: Subscriber Screen Analysis by CEA

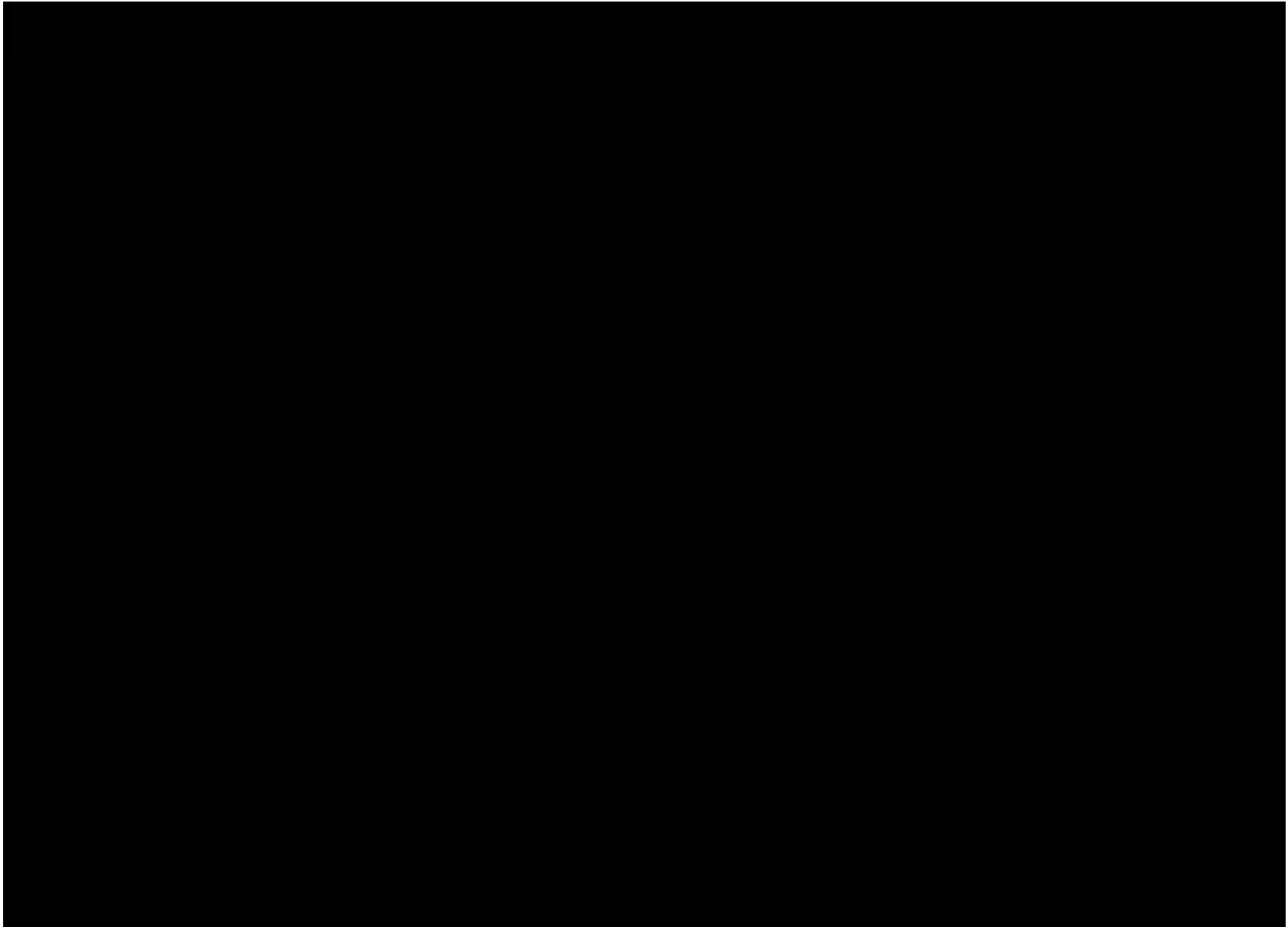
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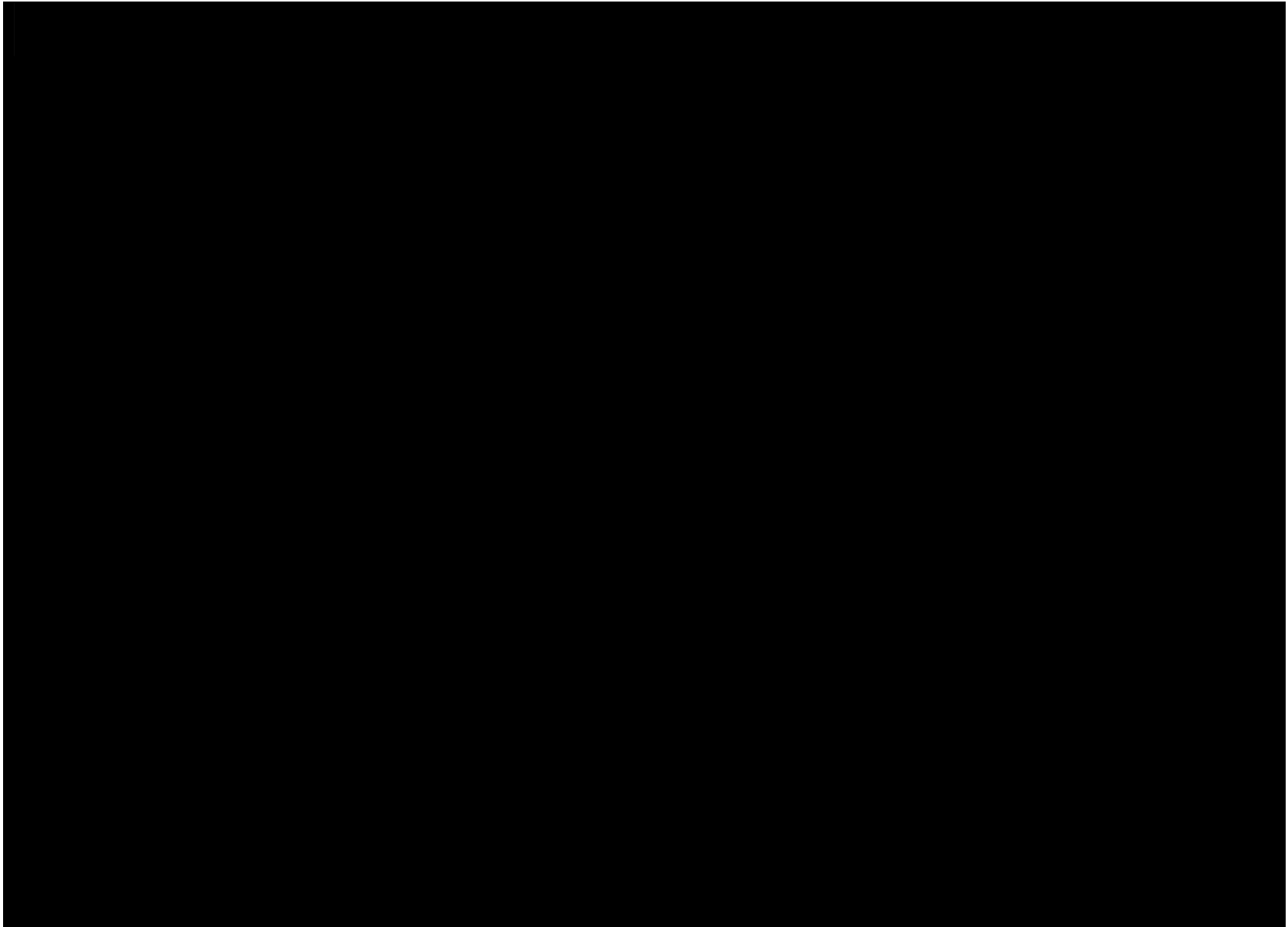
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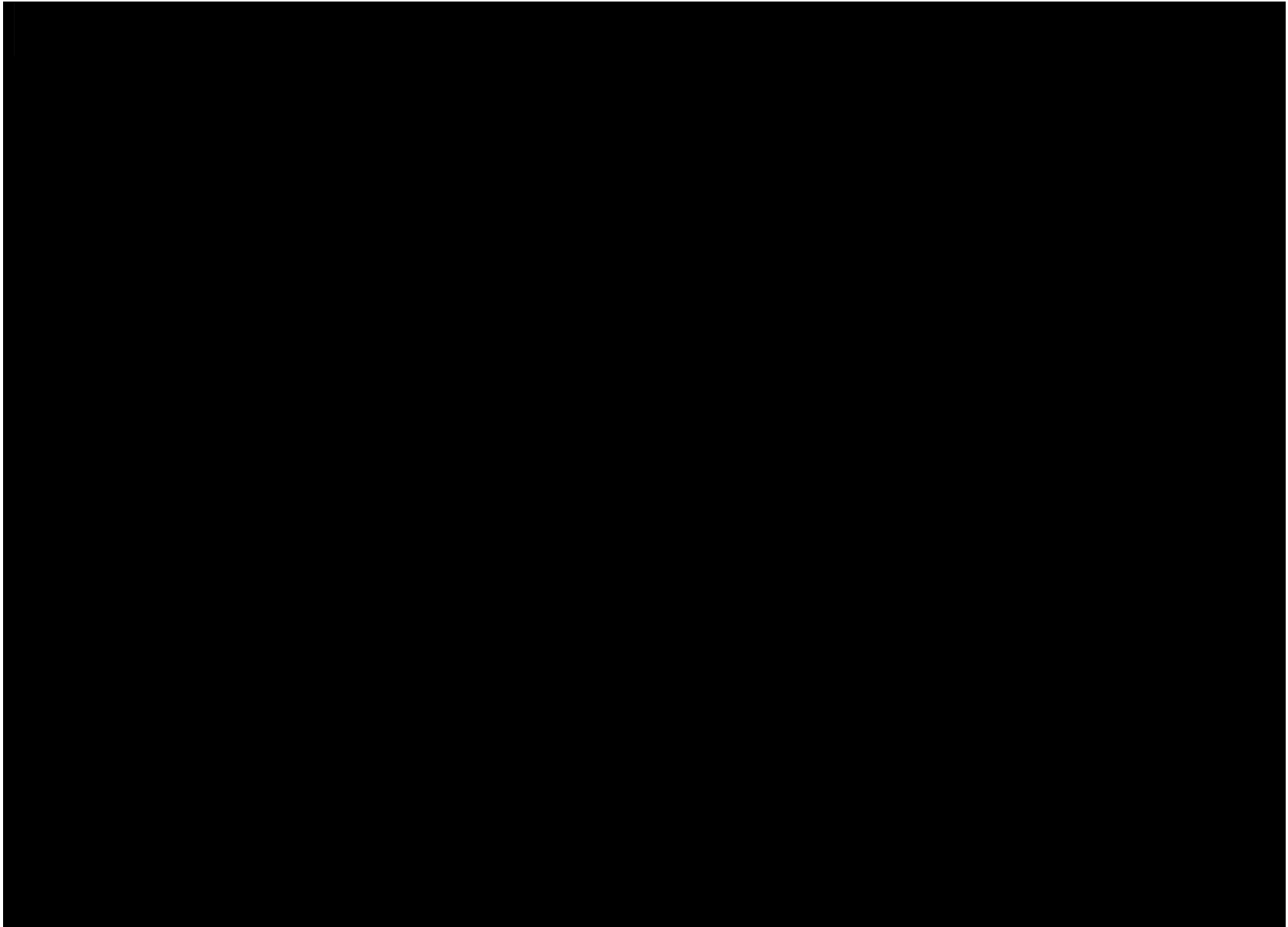
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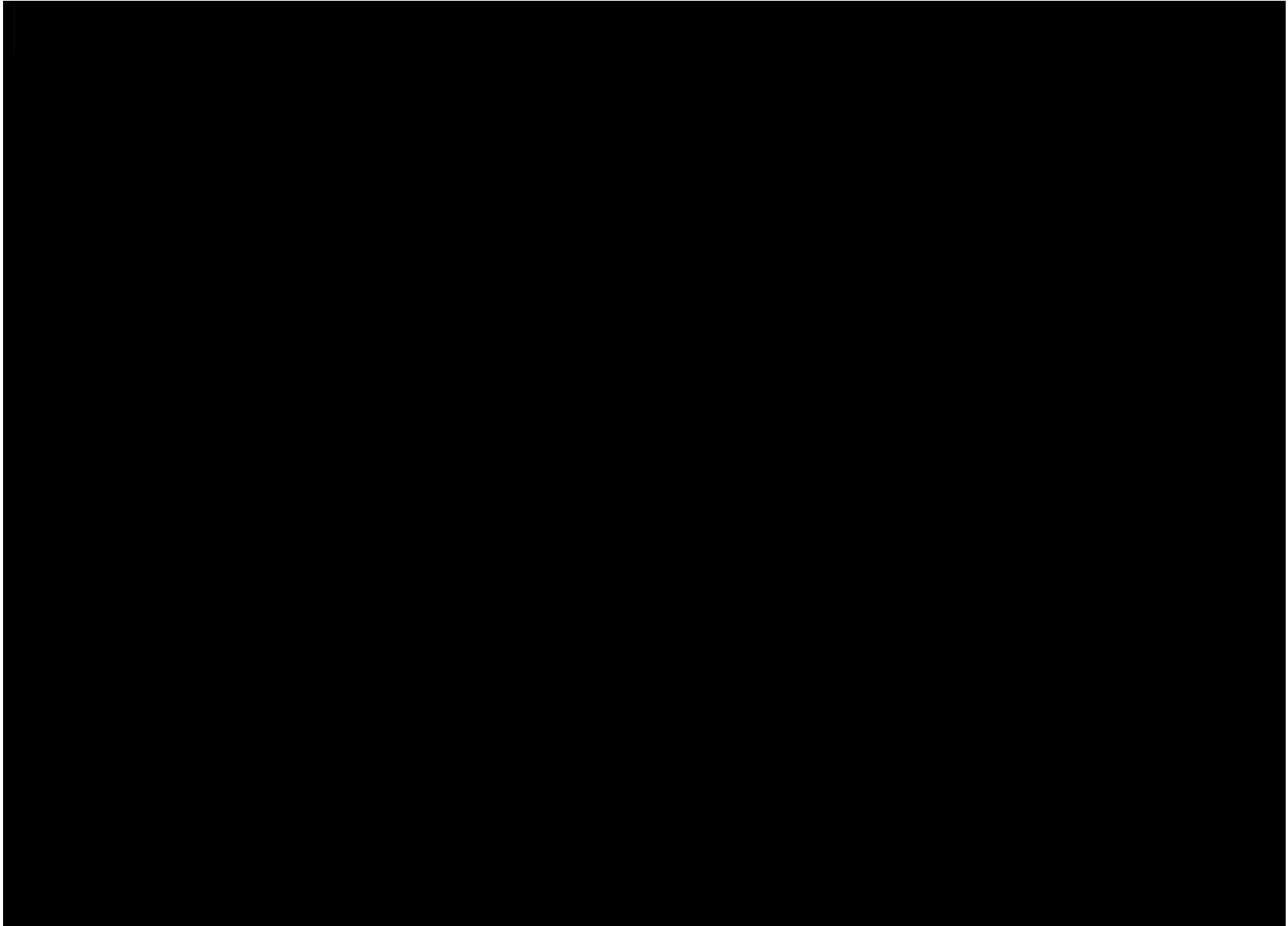
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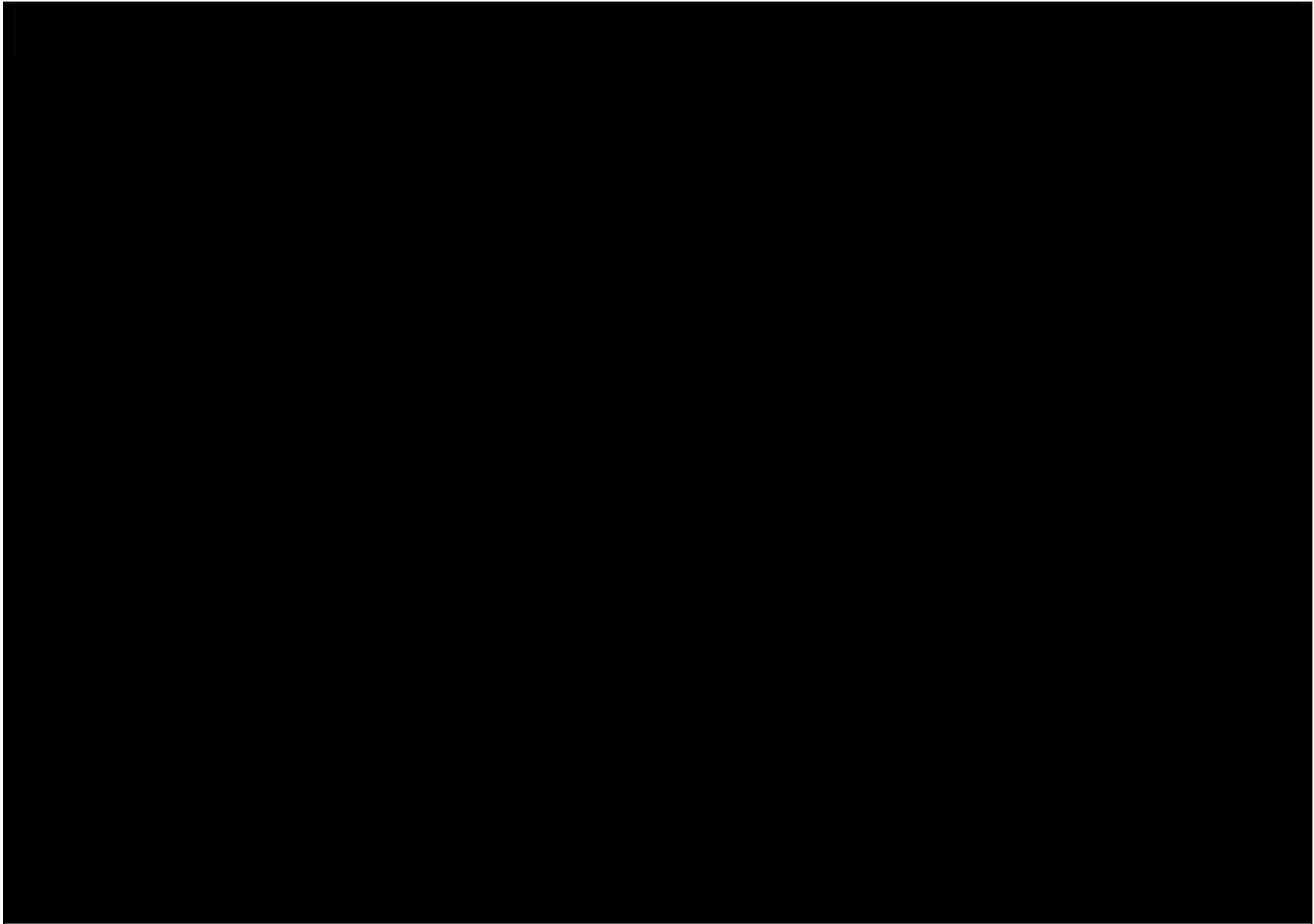


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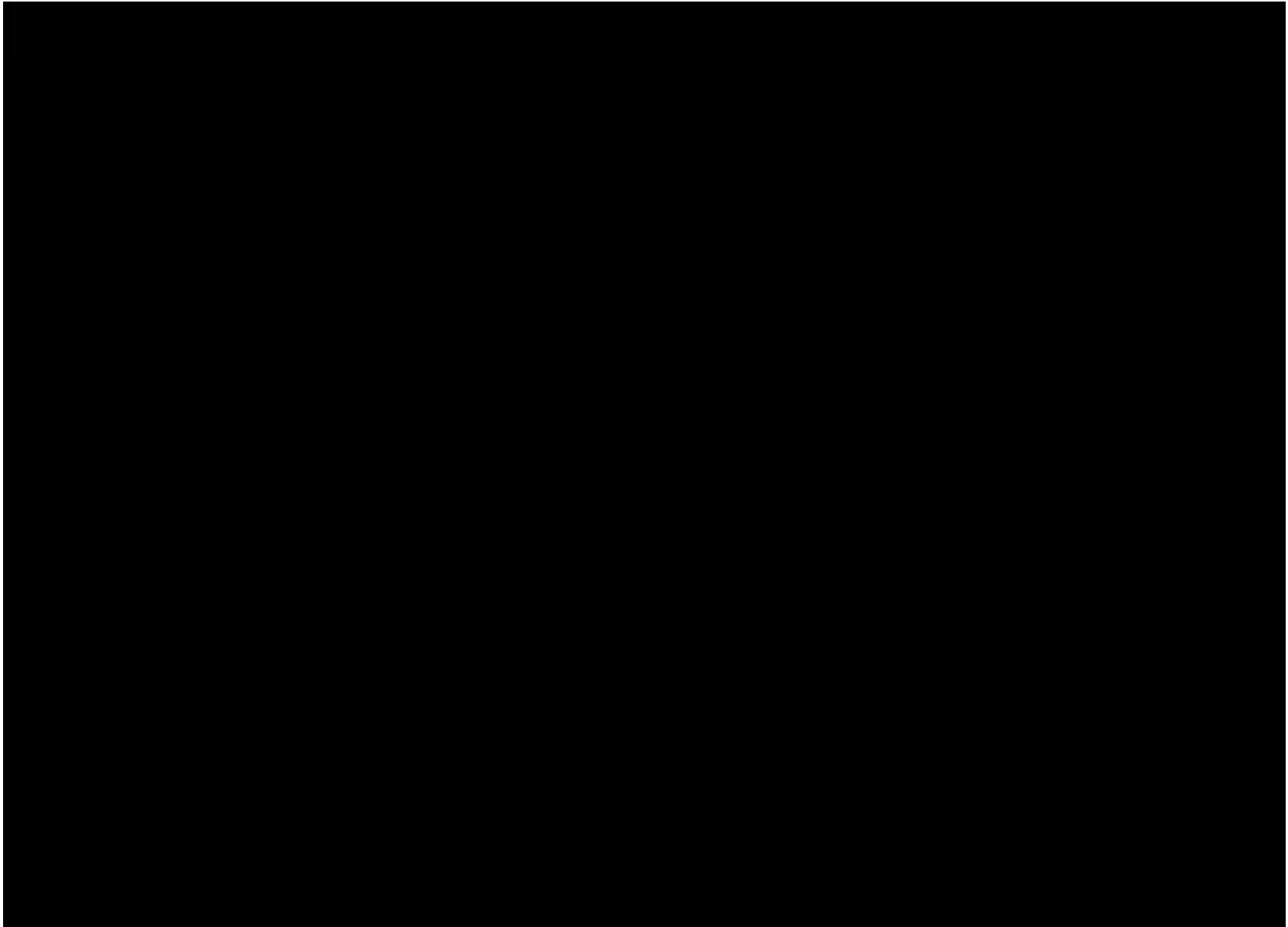
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Table 5c: Subscriber Screen Analysis by CMA

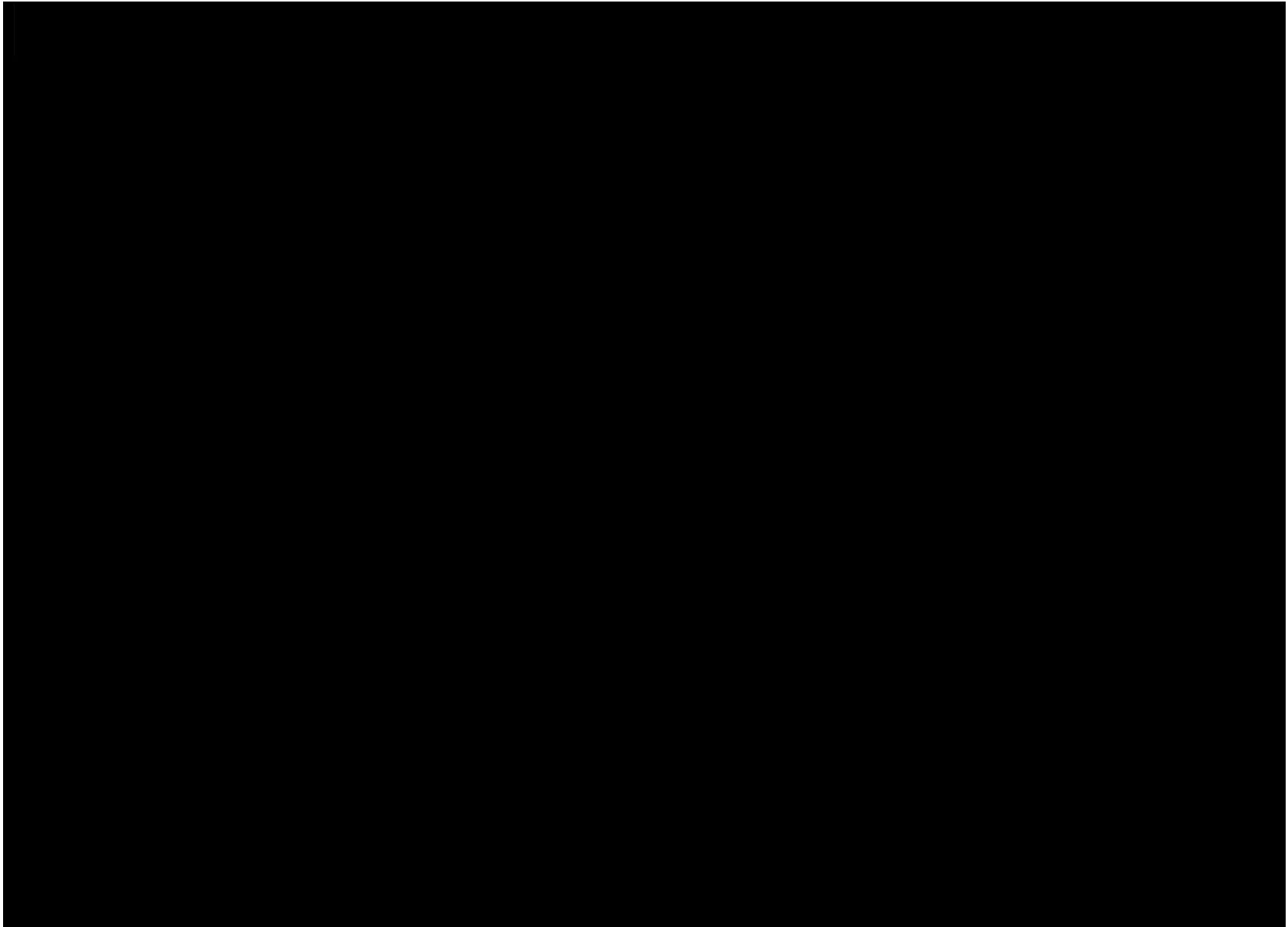
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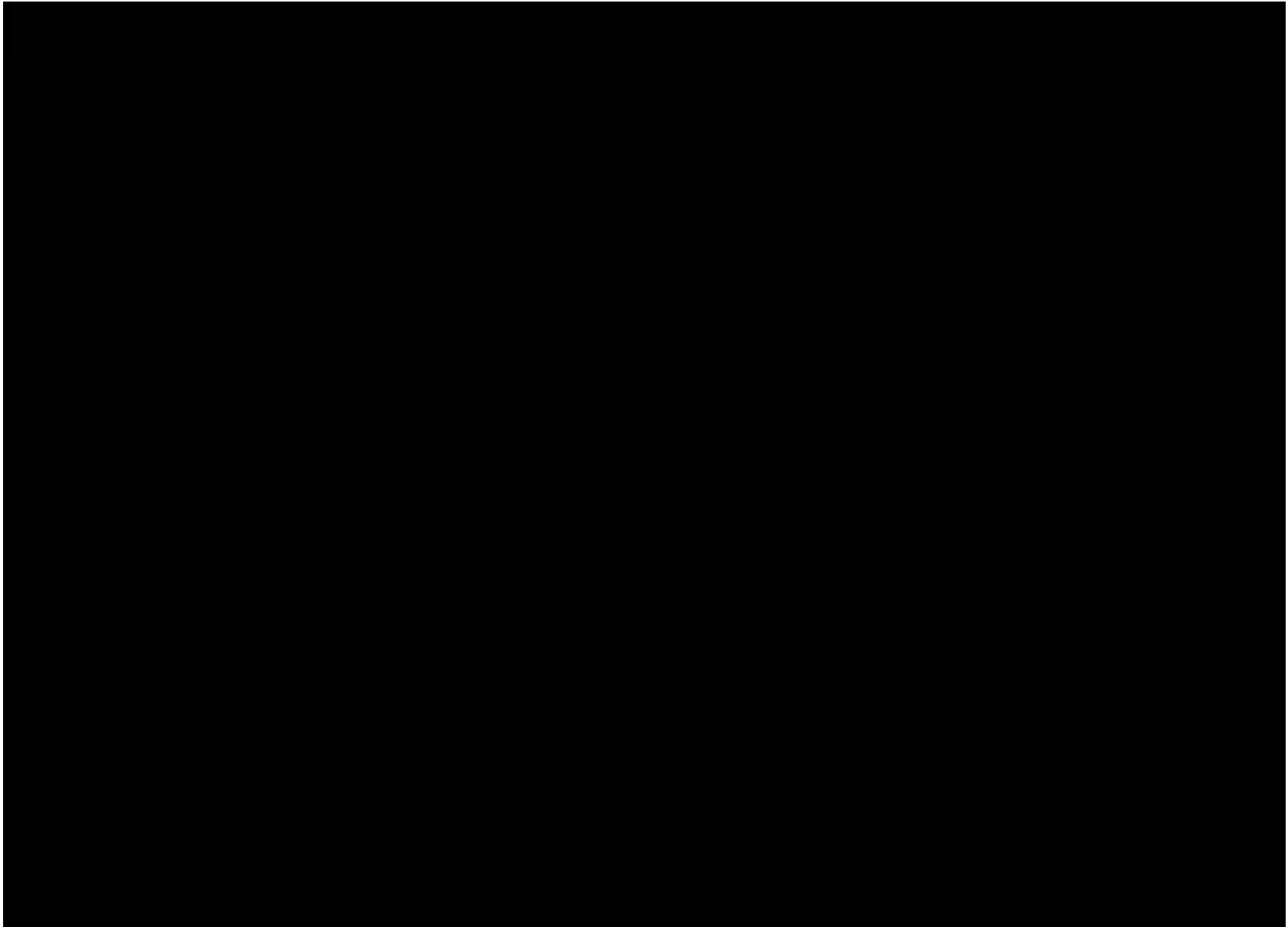
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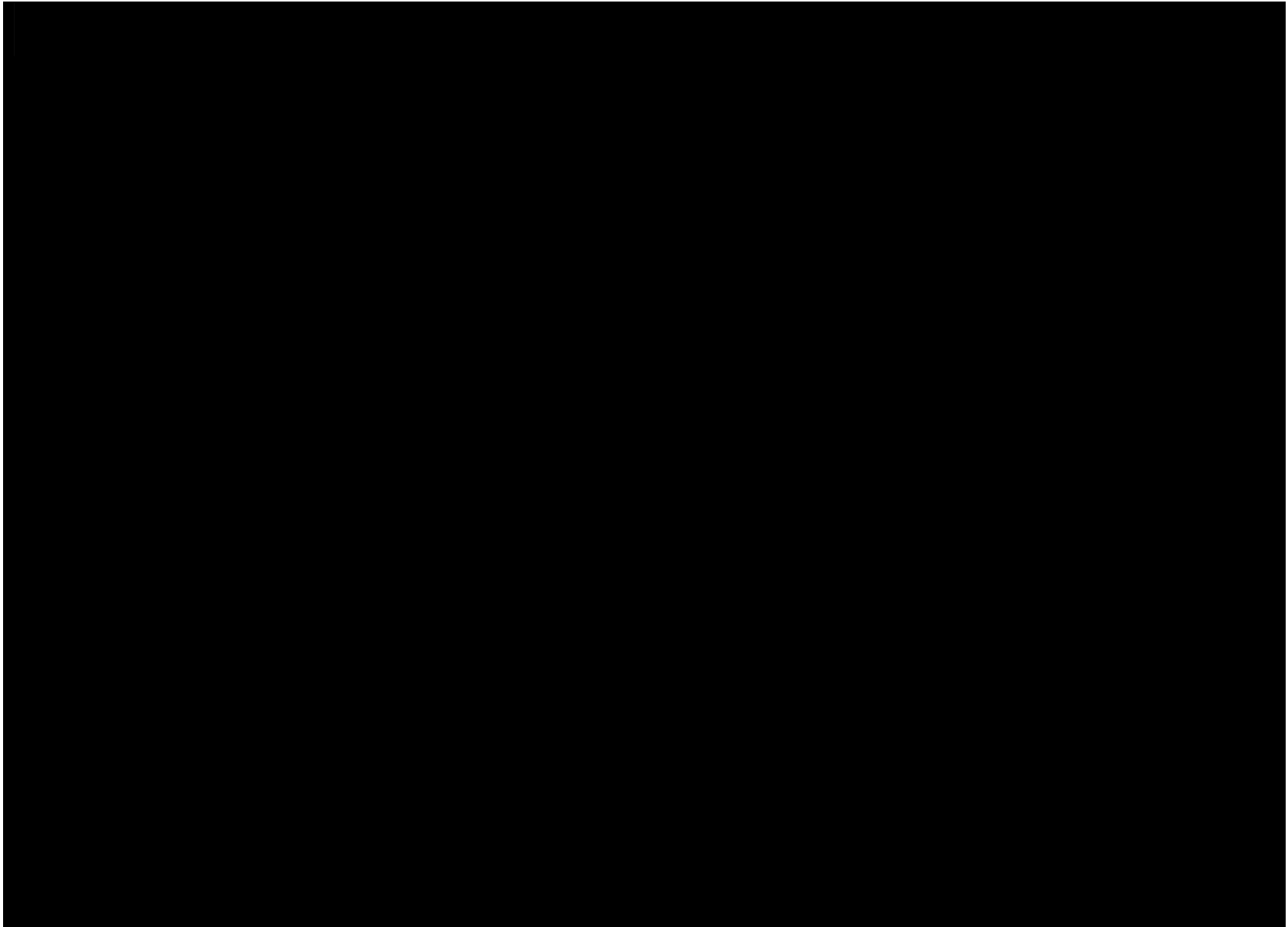
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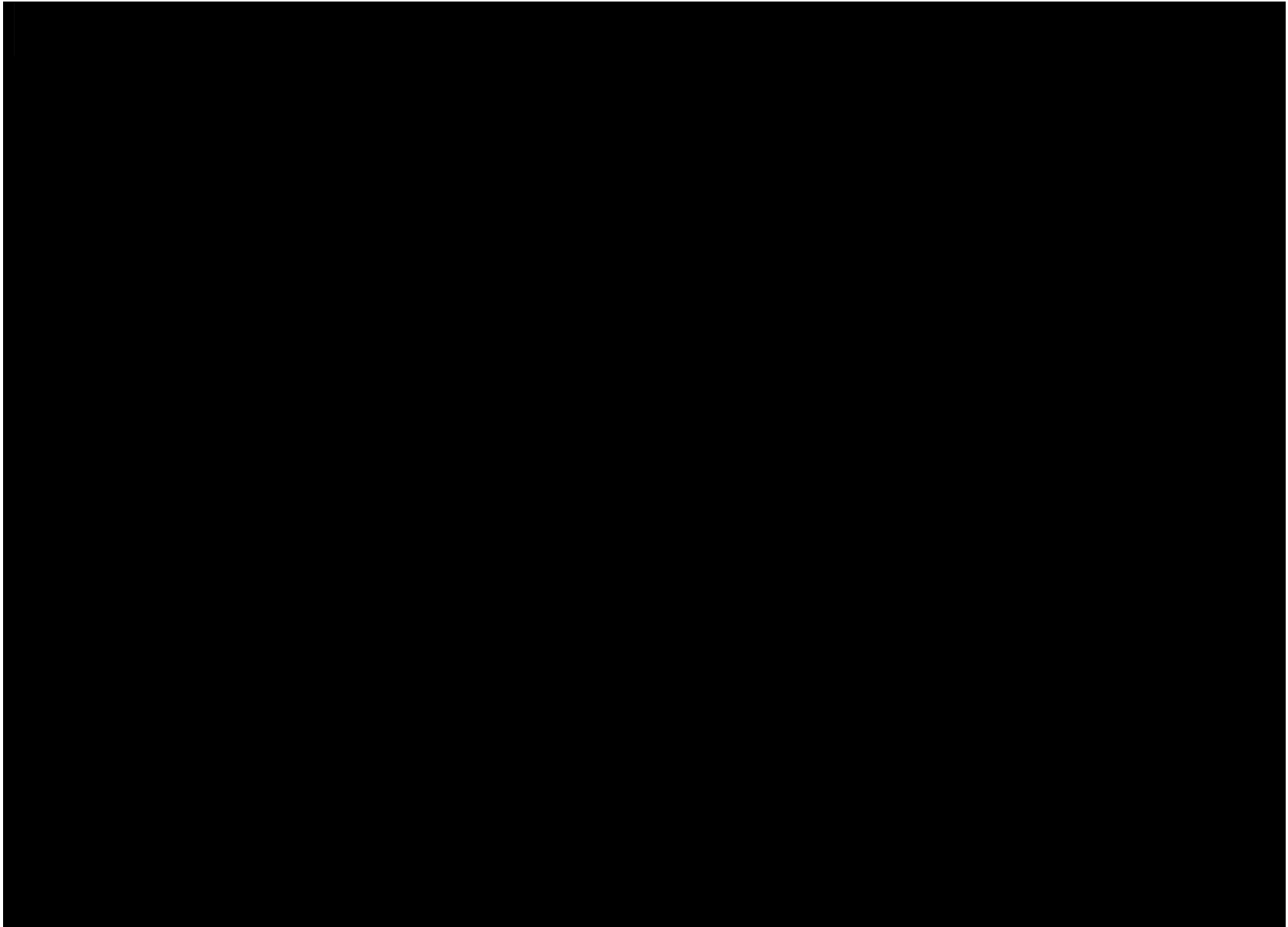
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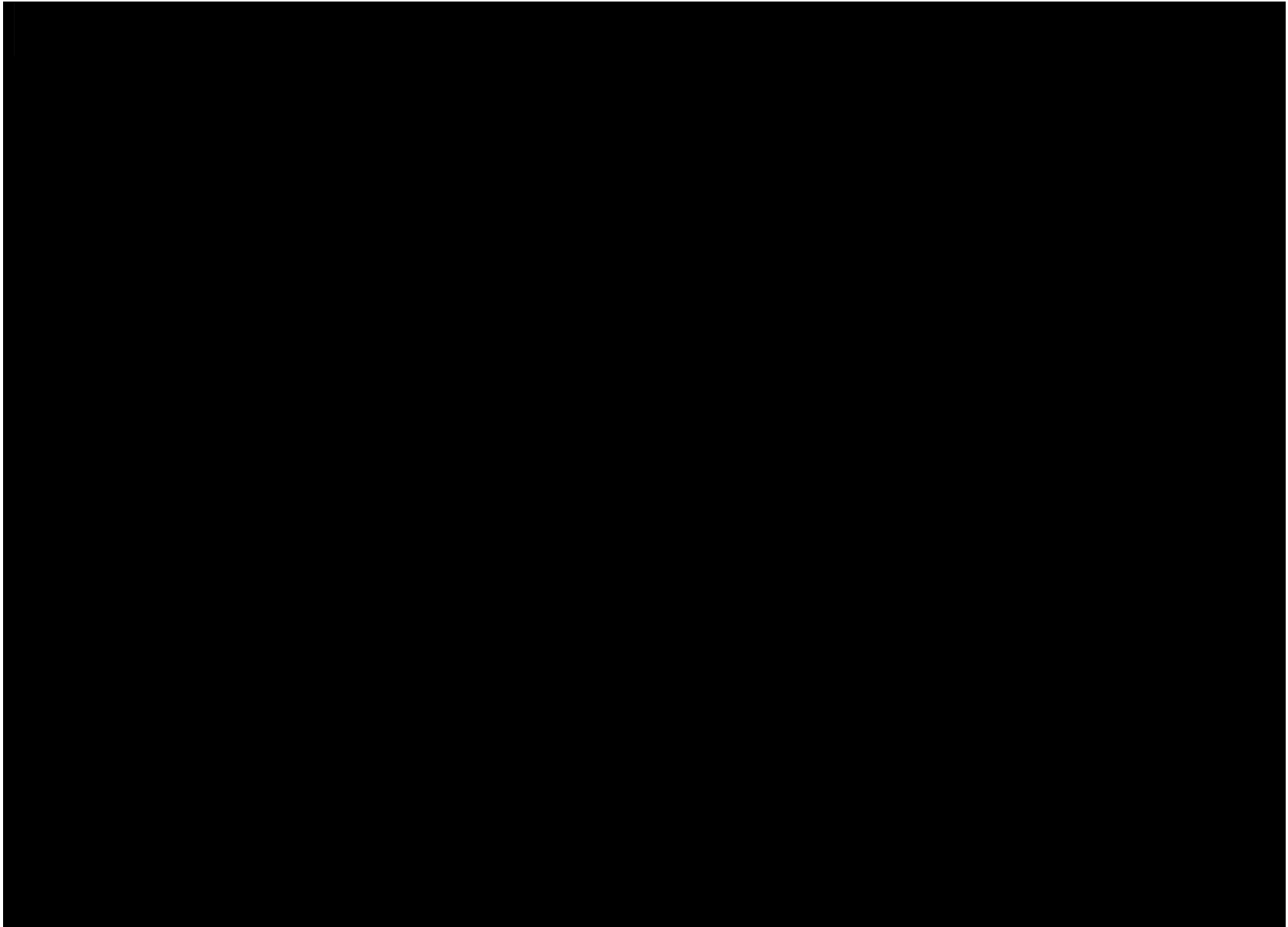
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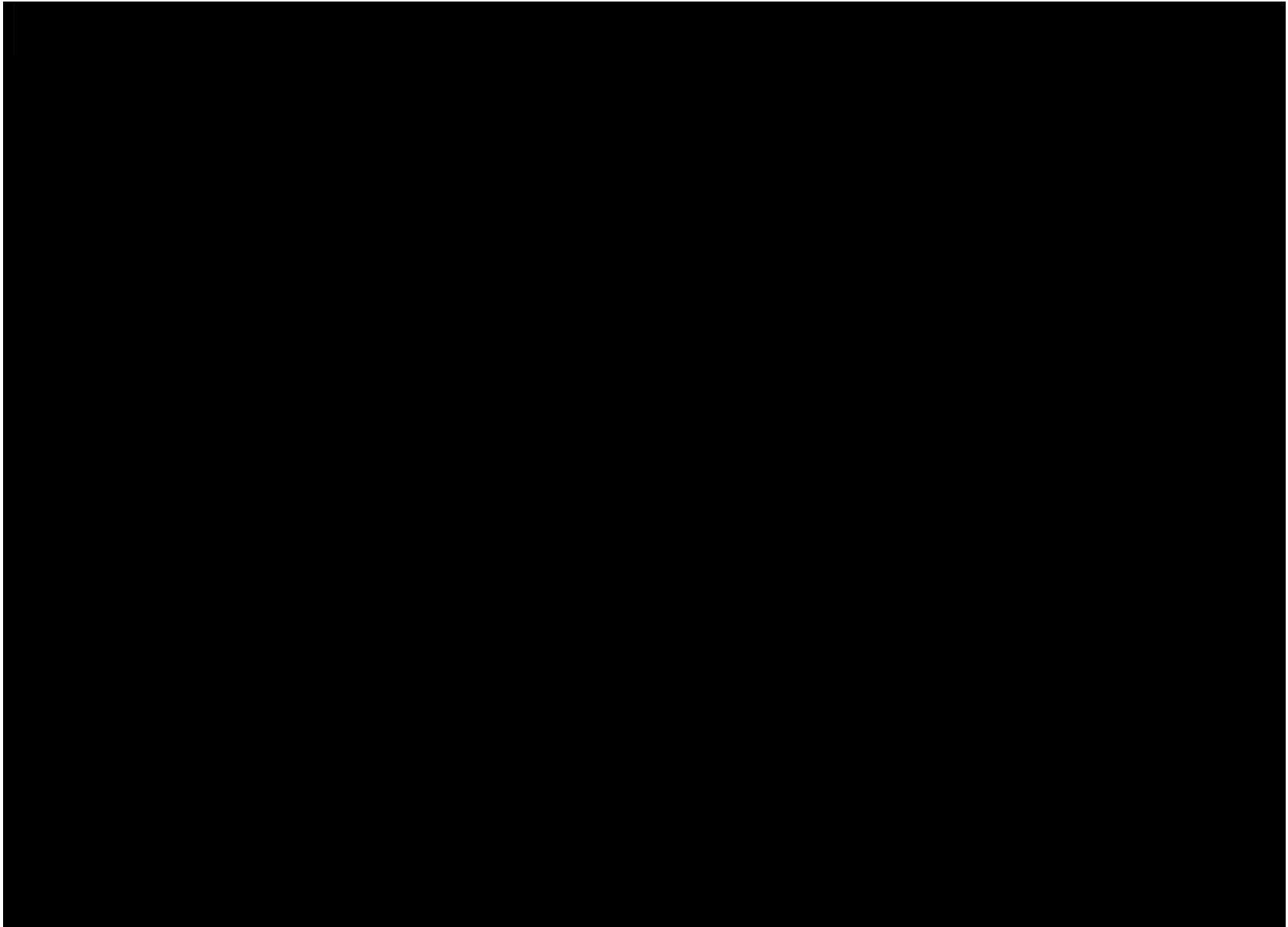
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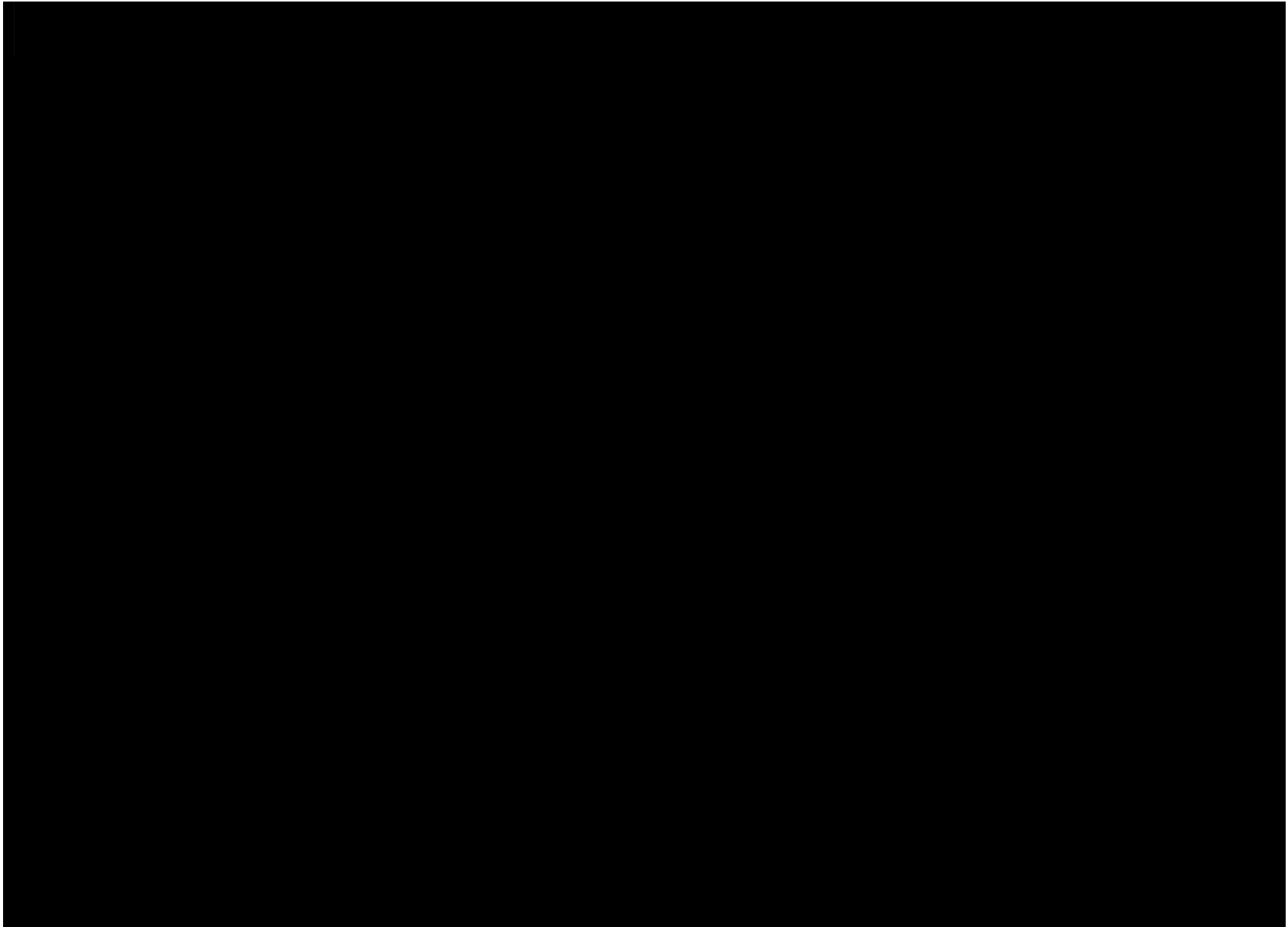
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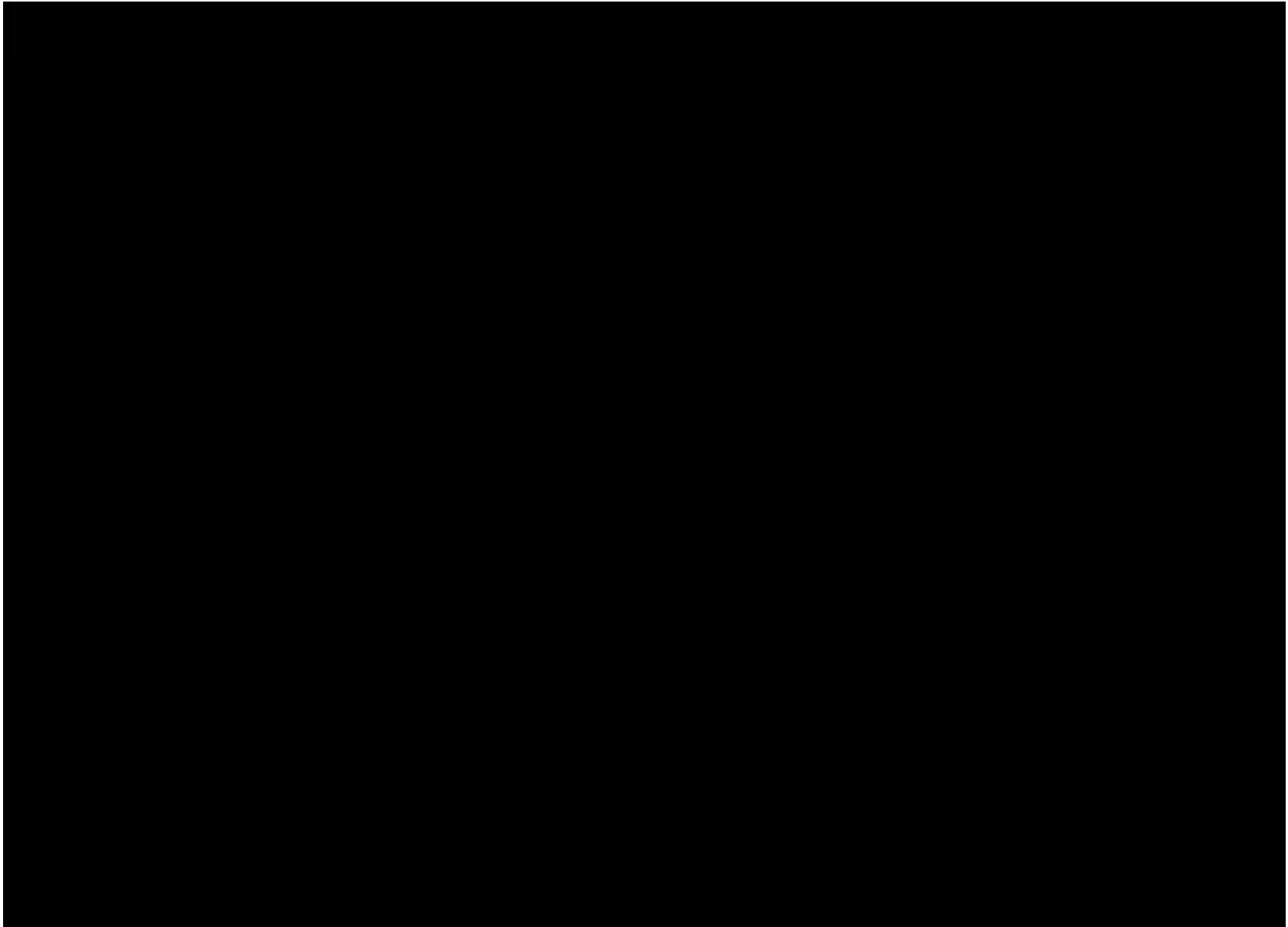
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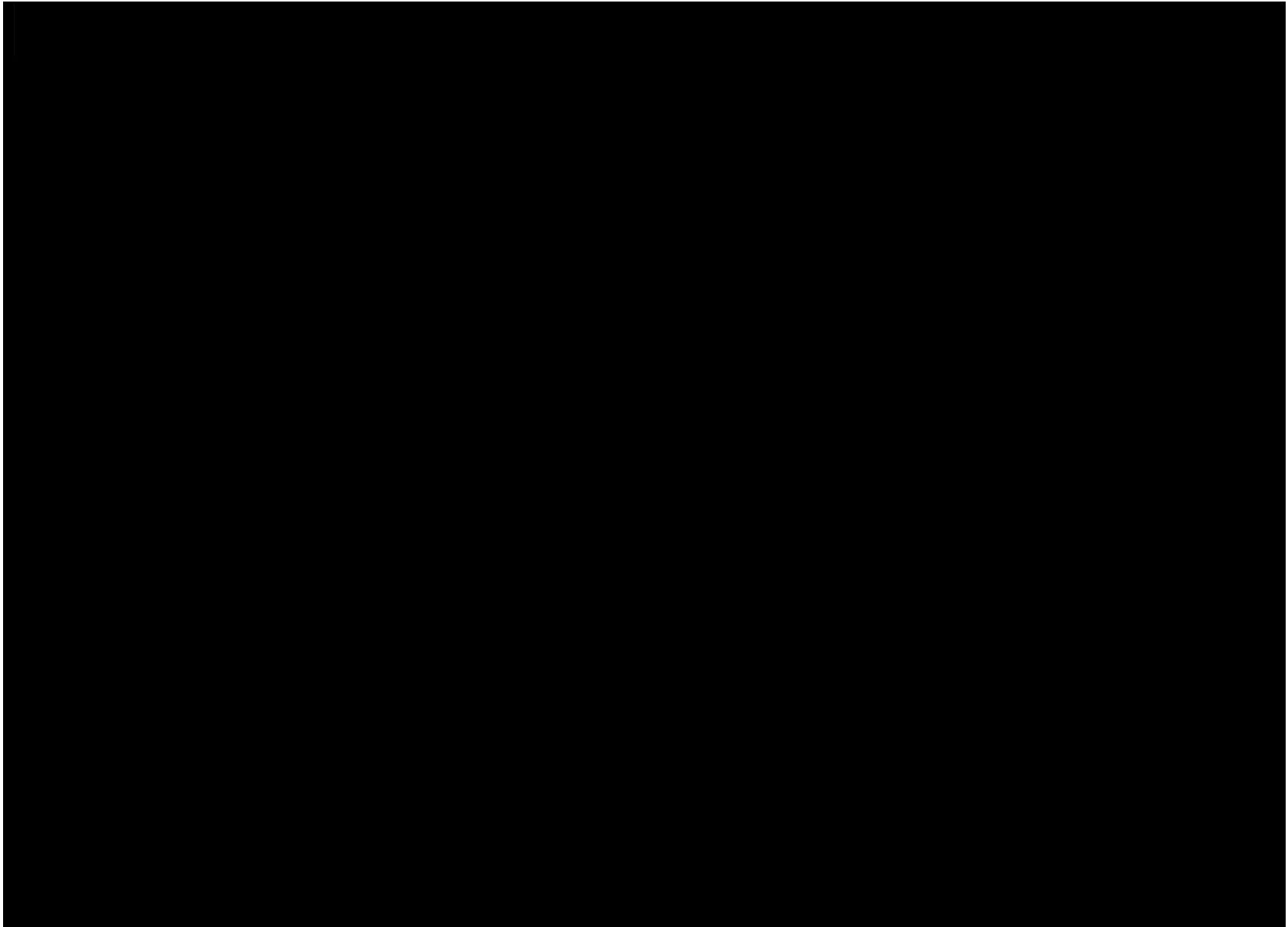
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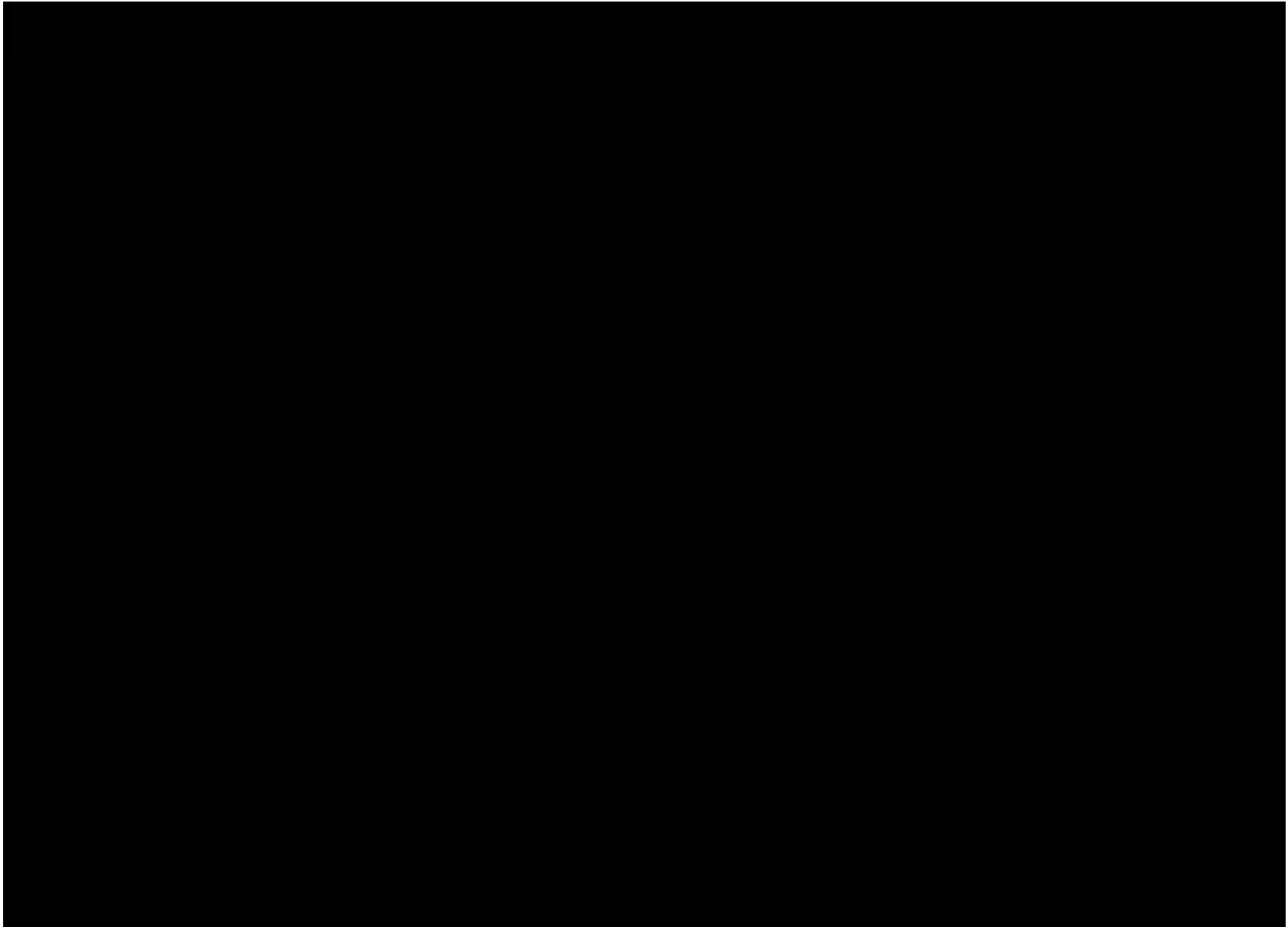
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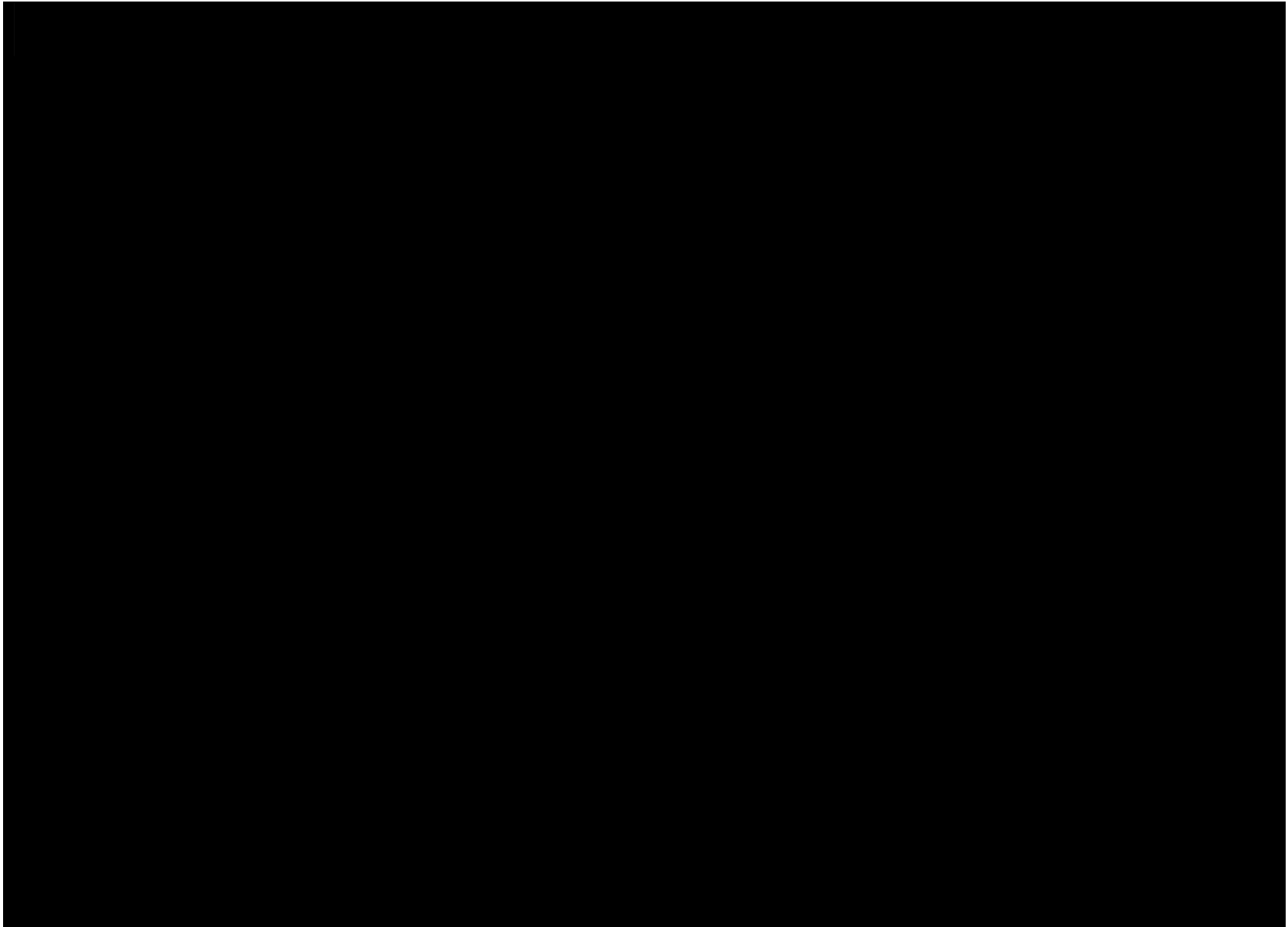
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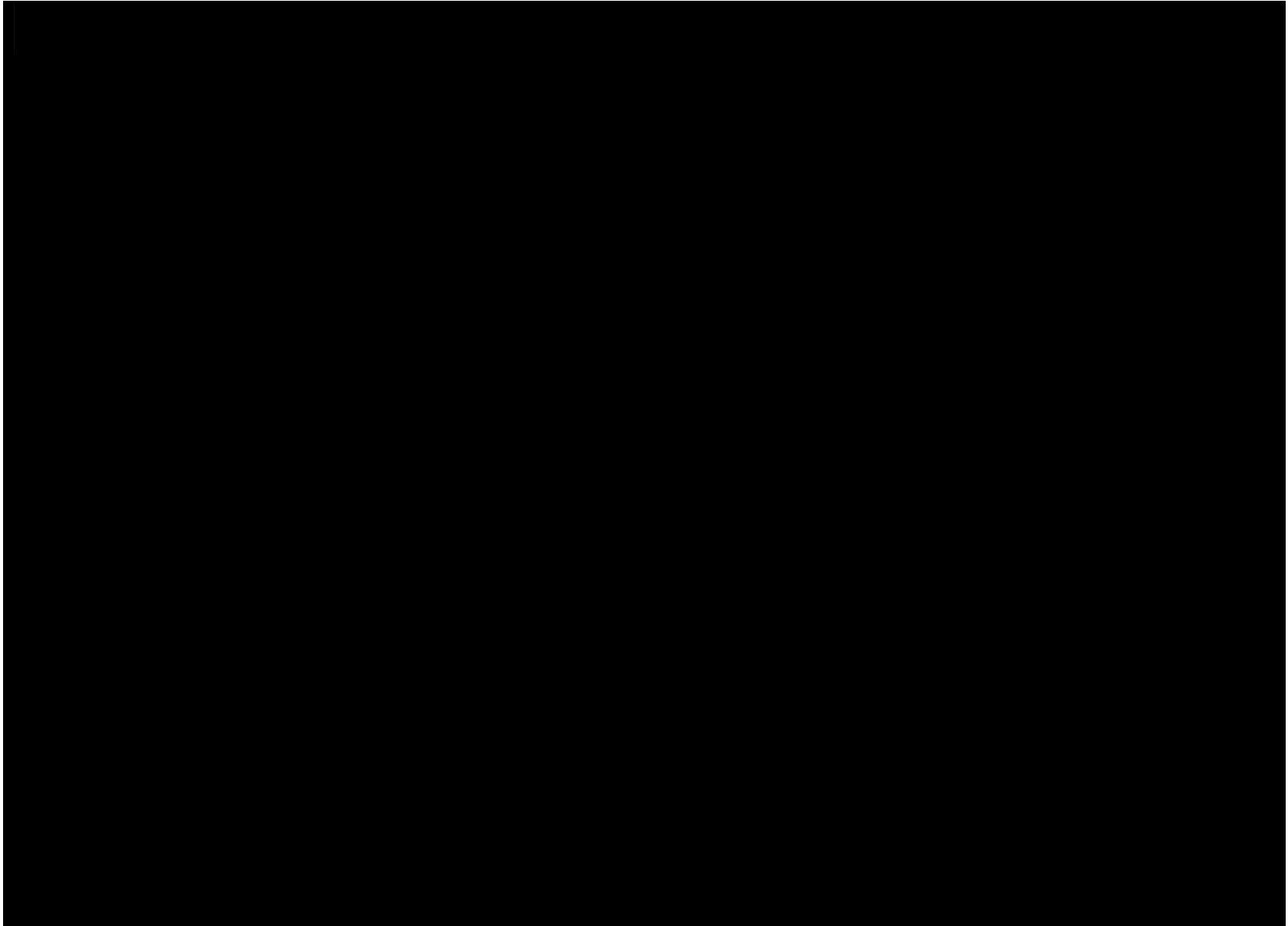
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[end NRUF/LNP confidential information]

Table 6: Book Value of Spectrum License Holdings By Carrier - 2010

	Book Value ¹		Spectrum License Holdings
	\$ in Billions	Share	
Verizon Wireless	73	39%	700MHz, Cellular, PCS, AWS
AT&T ²	52	28%	700MHz, Cellular, PCS, AWS
Sprint Nextel	20	11%	SMR, PCS
T-Mobile	15	8%	PCS, AWS
MetroPCS	3	1%	700MHz, PCS, AWS
US Cellular	1	1%	700MHz, Cellular, PCS, AWS
Leap	2	1%	PCS, AWS
Clearwire	4	2%	BRS, EBS
LightSquared ³	4	2%	MSS
Other ⁴	14	8%	All except MSS
	189	100%	
HHI		2,454	
Delta HHI		449	
Post-Merger HHI		2,902	

Notes:

¹ As reported in company annual reports and press releases.

² AT&T's reported spectrum holdings account for the AT&T's agreement to purchase nearly \$2 billion of spectrum from Qualcomm that was announced in December 2010.

³ The spectrum value reported for LightSquared was estimated based on valuations reported in the trade press.

⁴ The spectrum value reported for Other was estimated by multiplying the relevant MHz-Pop for Other (based on data reported in the FCC's 14th Report) by average Dollars Per MHz-Pop for the non-national carriers.

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Sources:

Verizon Wireless, Annual Report, 2010, pages 34 and 43.

AT&T Wireless, Annual Report, 2010, pages 46 and 60.

Sprint Nextel, Annual Report, 2010, pages F-16 and 41.

Press Release, "T-Mobile USA Reports Third Quarter 2010 Results," November 4, 2010, page 11.

MetroPCS, Annual Report, 2010, pages F-2 and F-10.

LEAP Annual Report, 2010, pages 88 and 108-109.

Clearwire, Annual Report, 2010, pages 3, 50, and 54.

US Cellular, Annual Report, 2010, page 22.

Deutsche Telekom, Annual Report, 2010, page 143.

"LightSquared Accelerates Access to L-Band Satellite Spectrum," The Deal Advisor, February 4, 2011.

"Nokia Siemens Networks Wins \$7B Contract to Build Harbinger's LTE Network," gigaom.com, July 20, 2010.

Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, Fourteenth Report, 25 FCC Rcd 11407 (2010), Table 26.

"AT&T Agrees to Acquire Wireless Spectrum from Qualcomm," Qualcomm Press Release, December 20, 2010.

"LightSquared: Can it live up to its wholesale aspirations?" Fierce Broadband Wireless, July 28, 2010.

Table 7: GUPPI and CMCR Results Using Proportional Diversion – All Wireless Market

	Margin = 70%			Margin = 40.7%		
	60%	80%	100%	60%	80%	100%
Recapture Rate						
Diversion Ratios						
From AT&T to T-Mobile	9.8%	13.0%	16.3%	9.8%	13.0%	16.3%
From T-Mobile to AT&T	20.8%	27.7%	34.6%	20.8%	27.7%	34.6%
Single-Price GUPPIs						
AT&T	6.3%	8.5%	10.6%	3.7%	4.9%	6.1%
T-Mobile	15.7%	20.9%	26.2%	9.1%	12.2%	15.2%
Simultaneous GUPPIs						
AT&T	7.8%	11.2%	15.1%	4.5%	6.5%	8.8%
T-Mobile	17.6%	24.6%	32.3%	10.2%	14.3%	18.8%
CMCRs						
AT&T	26.4%	38.0%	51.3%	7.8%	11.2%	15.1%
T-Mobile	58.3%	81.1%	106.4%	17.1%	23.9%	31.3%

Notes:

GUPPI = Gross Upward Pricing Pressure Index.

CMCR = Compensating Marginal Cost Reduction.

The following all wireless market inputs were used for the above analysis:

Carrier	ARPU	Subscriber Share
AT&T	\$ 49.68	30.7%
T-Mobile	\$ 46.00	11.3%

Sources:

Wireless carrier SEC 10-K filings, annual reports, press releases, and investor presentations.

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I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 28, 2011

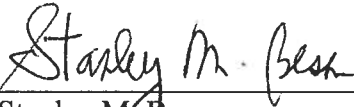
A handwritten signature in black ink, appearing to read 'S. Salop', written over a horizontal line.

Steven C. Salop
Professor of Economics and Law
Georgetown University Law Center

REDACTED – FOR PUBLIC INSPECTION

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 30, 2011

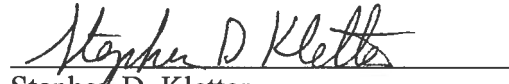
Handwritten signature of Stanley M. Besen in cursive script.

Stanley M. Besen
Senior Consultant
Charles River Associates

REDACTED – FOR PUBLIC INSPECTION

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 25, 2011

A handwritten signature in cursive script, reading "Stephen D. Kletter", is written over a horizontal line.

Stephen D. Kletter

Principal

Charles River Associates

REDACTED – FOR PUBLIC INSPECTION

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 30, 2011

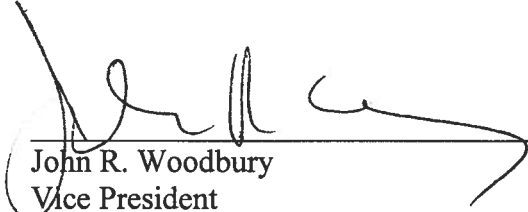


Serge X. Moresi
Vice President
Charles River Associates

REDACTED – FOR PUBLIC INSPECTION

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 30, 2011

A handwritten signature in black ink, appearing to read "John R. Woodbury", written over a horizontal line. The signature is stylized and cursive.

John R. Woodbury
Vice President
Charles River Associates

REDACTED – FOR PUBLIC INSPECTION

ATTACHMENT B

DECLARATION OF WILLIAM SOUDER

VICE PRESIDENT OF PRICING, PROFITABILITY AND OPERATIONS

SPRINT NEXTEL CORPORATION

DECLARATION OF WILLIAM SOUDER

I, Will Souder, declare as follows:

1. My name is Will Souder. I am Vice President of Pricing, Profitability and Operations for Sprint Nextel (“Sprint”). My organization creates pricing and pricing structures and makes decisions and recommendations for pricing and offers for service plans and devices, for Consumer and Business customers. Additionally, I am responsible for profitable growth and the go-to-market process.

2. I make this declaration in support of Sprint's Petition to Deny the Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations.

National Pricing For Retail Wireless Services

3. In 2007, Sprint made a decision to eliminate regional and local pricing and discounting. Sprint now sets prices and terms for its plans nationwide, without regard to conditions in local markets, and each Sprint plan has a uniform retail price throughout the country. Thus, the same plans can be purchased in New York, NY, Atlanta, GA, and Los Angeles, CA. As of April 2011, over **[begin confidential information] [REDACTED] [end confidential information]** percent of new Sprint post-paid subscribers are on a nationwide plan. Similarly, Sprint offers the same portfolio of handsets to customers throughout the country at the same prices in each sales channel.

4. Sprint will occasionally test market a different plan in select markets rather than nationwide. For example, when Sprint began offering unlimited voice, messaging, and data plans, it test-marketed the plan in San Francisco, CA, before rolling it out nationwide. However,

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where these plans are offered by Sprint, they are not offered in response to local competitive conditions. Instead, they are typically offered to test a plan on a smaller scale with the expectation that the plan will be implemented nationwide if successful. On occasion, Sprint will also offer plans in limited markets before offering the plans nationwide due to a staggered, or rolling, introduction of a new or emerging technology. In these instances, the technology is not available throughout the nation upon initial launch, therefore the plan availability tracks the staggered technology launch, without regard to local competitive conditions.

5. Sprint offers its plans and handsets through a number of distribution channels, including national retailers (Radio Shack, Best Buy, and Walmart), through telephone sales and the Internet, and through Sprint retail stores. The national distribution platforms are becoming increasingly important distribution platforms. In 2011, Sprint sold more plans through national retailers than through its own retail stores, and its telesales and internet sales increased about **[begin confidential information] ■ [end confidential information]** percent from the first quarter of 2009 through the first quarter of 2011.

6. In setting and adjusting the pricing for its service plans, Sprint closely monitors the rates offered by the other three national carriers, AT&T, Verizon, and T-Mobile. Sprint regularly tracks the service plans and pricing of the three other national wireless carriers. When changes are made by these carriers, Sprint will evaluate its own position to determine how to respond. For example, in response to AT&T's and Verizon's unlimited in-network calling plans, Sprint introduced its "Any Mobile, Anytime" plan in September 2009 as a way to stay competitive with the larger networks of AT&T and Verizon. While Sprint is aware of post-paid pricing offered by regional carriers, it does not currently use this information in the evaluation of pricing for its Sprint brand.

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7. Similarly, the other national carriers monitor and react to price changes in post-paid plans by Sprint and each other. For example, in anticipation of Sprint's "Simply Everything Plan", both AT&T and Verizon launched their own unlimited voice plans for \$99 per month in February 2008.

Pre-Paid Wireless Services

8. Sprint also provides pre-paid wireless services, which it offers through its Boost Mobile, Virgin Mobile, and Assurance Wireless brands. Pre-paid wireless services differ from post-paid services in several key respects.

9. The hallmark of pre-paid service is that customers do not have to sign a long-term contract. Pre-paid services are provided either on a pay-as-you-go basis, where subscribers purchase minutes to be used later, or through month-to-month billing arrangements, where subscribers pay a fixed fee at the beginning of the month. Post-paid services, by contrast, are offered pursuant to long-term contracts, typically two years in length.

10. Pre-paid subscribers tend to be younger and have lower incomes than post-paid subscribers. Because pre-paid services are offered without a long-term contract and the customers pay for service upfront, pre-paid carriers do not have to run credit checks on their potential subscribers.

11. Pre-paid plans also do not come with the same range of handsets as the post-paid plans offered by the four national carriers. One reason for this is that pre-paid services are sold without a long-term contract, making it economically unfeasible for pre-paid carriers to subsidize handsets to the same extent as post-paid carriers. While pre-paid providers do offer some

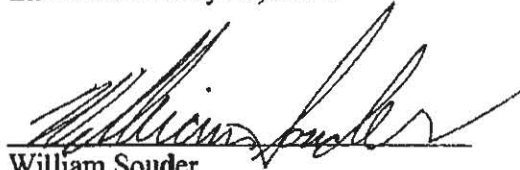
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discounts on handsets, these discounts are usually significantly smaller than the discounts offered on post-paid plans.

12. Finally, pre-paid service is less profitable for Sprint than post-paid service. For Q1 2011, the average revenue per user ("ARPU") for pre-paid service was [begin confidential information] [REDACTED] [end confidential information] whereas the post-paid ARPU was [begin confidential information] [REDACTED] [end confidential information].

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 27, 2011.



William Souder
Vice President of Pricing, Profitability and Operations
Sprint Nextel Corporation

REDACTED – FOR PUBLIC INSPECTION

ATTACHMENT C

DECLARATION OF JOHN DUPREE

SENIOR VICE PRESIDENT OF BUSINESS SALES

SPRINT NEXTEL CORPORATION

DECLARATION OF JOHN DUPREE

I, John Dupree, declare as follows:

1. I am John Dupree. I am the Senior Vice President of Business Sales for the Business Markets Group for Sprint Nextel Corporation ("Sprint"). In this capacity, I am responsible for mobile wireless communications sales to all of Sprint's business and government customers.

2. I make this declaration in support of Sprint's Petition to Deny the Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations.

Business Markets Group Overview

3. Sprint separates its corporate and government accounts into four segments: (1) "Enterprise;" (2) "General Business;" (3) "Federal Government;" and (4) "Public Sector." "Enterprise" accounts consist of the 1,000 largest accounts (essentially Fortune 1,000 companies) plus 300 other large companies whose accounts Sprint believes have the potential to become a top 1,000 account. "General Business" captures all other private corporate accounts. "Federal Government" accounts consist of accounts with the various branches, agencies, and departments of the federal government. "Public Sector" accounts consist of accounts with state and local governments, as well as quasi-governmental organizations.

4. A Sprint corporate account can consist of both corporate-liable, where the account-holder company pays for the service, or individual-liable, where the employees get company-negotiated rates, but are responsible for paying for the service themselves.

5. Sprint's Business Markets Group has about [begin confidential information] [end confidential information] employees, with [begin confidential information] [end confidential information] employees dedicated to its Federal Government segment. Business Markets Group employees have various responsibilities within our organization from “client executives” who are responsible for the entire account relationship for very large accounts; to “account managers” who call on the account in its entirety on a national basis; to “transaction representatives” (also called account executives or remote account managers) who call on specific entities within the larger national account and sell the national contract to these local facilities; to sales people who perform outbound sales calls on smaller businesses.

6. For Enterprise accounts, Sprint uses a team-based sales approach comprised of one or more account executives to oversee the client relationship and a local representative support team to provide day-to-day support. The General Business and Mid-Market accounts usually have one account manager to handle sales, negotiations, and support for the account.

Product and Service Offering

7. In most circumstances, business customers demand nationwide service or a combination of nationwide and international service. Nationwide footprints are essential for business customers for several reasons. First, employees have to travel outside their local home base and require a dependable, reliable network that will provide coverage regardless of where they travel. Second, many businesses are national or multi-regional in scope and have multiple locations throughout the country. While there may be some exceptions for very small local businesses, such as a local sheriff's office or a small landscaping company, these accounts constitute a small percentage of corporate business.

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8. Pricing is uniform across a specific customer's account. Any given business customer is offered a set of national rate plans for all of its locations, and every line of service sold to that customer is subject to the same rate plans. For ease of convenience, business customers also require the availability of national billing.

9. Business customers also demand the newest and most innovative handsets and mobile applications. As smartphone usage grows, new applications that enhance mobile productivity are becoming increasingly important to business customers, who want to maximize their employees' efficiency. Furthermore, nationwide availability of handsets is critical, so business customers can offer a uniform selection of handsets company-wide.

Pricing

10. Sprint uses three tiers of pricing for corporate and government accounts: (1) "rack" or list rates (essentially business rate plans that are only available to tax-ID carrying businesses of any size); (2) "sales-empowered" discounts; and (3) "special pricing." Rack rates are standard, non-discounted rates that are available to business customers and are available with terms & conditions specific to business customers. Rack rates are primarily used for small accounts (accounts with less than 25 lines) and for accounts where the customer does not request any discounts. Sales-empowered pricing refers to a set list of pre-approved discounts that account managers can offer business and government customers. **[begin confidential information]** [REDACTED] **[end confidential information]** are offered discounts from the sales-empowered rates. Sales-empowered discounts range from **[begin confidential information]** [REDACTED] **[end confidential information]** percent off of rack rates and require sales manager approvals.

11. Special pricing is a customized offer that Sprint may make [begin confidential information] [REDACTED]. [end confidential information] Special pricing is very common, particularly for Enterprise accounts. The pricing assessment takes into account various factors, including the plans and prices of other bidders (if known) and the potential volume of sales. Special pricing often consists of an entirely different pricing methodology for the particular customer's needs and offers discounts ranging from [begin confidential information] [REDACTED] [end confidential information] percent off of rack rates, although some special pricing plans are [begin confidential information] [REDACTED] [REDACTED]. [end confidential information]

Request for Proposal Process

12. A substantial portion of Sprint's corporate account business comes through a formal Request for Proposal ("RFP") process or a similar competitive bidding process where a business or government agency will solicit offers for providing wireless service. This is particularly true for Enterprise accounts and Federal government accounts.

13. A competitive bidding process can be formal or not and can take the form of a full-fledged formal RFP; or it can take the place of a competitive threat/response; or it can take the form of an unsolicited bid on behalf of Sprint. The larger the account, the more customary it is to obtain mobile communications services, or to renew a mobile communications contract, through a formal RFP. Most business customers require RFPs periodically; large corporate accounts in particular, like Sprint's Enterprise accounts, tend to renegotiate their wireless services as often as every one to three years. Depending on the complexity of the requested

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services and the formality of the bidding process, an RFP process can take anywhere from one month to over a year.

14. Incumbent service providers can have an advantage in retaining a corporate or government account, but customers constantly invite competing bids to ensure their existing providers maintain competitive rates.

Competition

15. AT&T, Verizon, Sprint, and T-Mobile are by far the most important competitors for corporate and federal accounts. Sprint sees each of the other three national carriers competing at many accounts. While it is possible that a smaller carrier such as U.S. Cellular or MetroPCS will compete for an account, this is a very rare occurrence.

16. T-Mobile is usually an aggressive price leader and often forms the low-price benchmark for Sprint, AT&T and Verizon. Even where Sprint wins the account, it may need to offer a lower price to win that business as a result of competition from T-Mobile for that account.

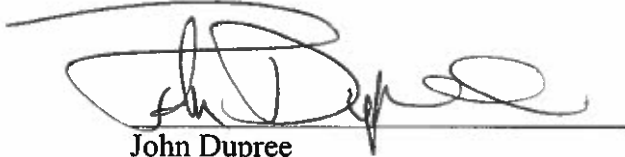
17. T-Mobile and AT&T are the only two national wireless providers with networks using the Global System for Mobile Communication ("GSM") standard, which gives them a distinct advantage when competing for business customers with international service needs. Therefore, T-Mobile is a particularly close competitor of AT&T for such accounts.

18. In the last year, T-Mobile has been aggressively pursuing additional business from federal accounts. T-Mobile has bid for accounts that it previously did not bid for, and has recruited employees from Sprint to expand its position in this market segment.

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I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 25, 2011

A handwritten signature in black ink, appearing to read "John Dupree", written over a horizontal line.

John Dupree
Senior Vice President of Business Sales
Sprint Nextel Corporation

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ATTACHMENT D

DECLARATION OF PAUL W. SCHIEBER, JR.

SENIOR VICE PRESIDENT OF ROAMING AND ACCESS PLANNING

SPRINT NEXTEL CORPORATION

DECLARATION OF PAUL SCHIEBER

I, Paul Schieber, declare as follows:

1. I am Paul Schieber, Vice President of Roaming and Access Planning for Sprint Nextel Corporation ("Sprint").

2. I have responsibility for all of Sprint's domestic switched and special access and roaming relationships. In addition, I have responsibility for Sprint's domestic and international roaming relationships. In these roles, my team determines which providers of access and roaming service we will use at Sprint, negotiate pricing and terms associated with that service, and verify and pay the related bills.

3. I make this declaration in support of Sprint's Petition to Deny the Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations.

Network Input Costs

4. Sprint incurs substantial costs for roaming, special access services, and switched access in order to provide service to its customers. Sprint negotiates roaming agreements with other carriers that allow Sprint's wireless subscribers to use the networks of another carrier in areas that the Sprint network does not reach, ensuring that Sprint customers have broad and continuous coverage. Special access services involve the "last mile" connections and local transport links that connect two defined points on a network. For wireless carriers, special access fees result from the leasing of dedicated lines for backhaul to connect cell sites to a carrier's network switches. For 2010, Sprint's domestic roaming and special access costs totaled **[begin confidential information]** [REDACTED] **[end confidential information]** In 2010, Sprint

also incurred [begin confidential information] [REDACTED] [end confidential information] of switched access costs, which are regulated fees for access to the wireline network of another carrier. Because of their large network footprints and legacy as wireline telephone companies, Verizon and AT&T have substantial cost-structure advantages for these inputs and derive large revenues from providing roaming, special access, and switched access.

Roaming Costs

5. Verizon and AT&T have large wireless network footprints and maintain legacy landline incumbent local exchange carrier footprints. Because of their large networks, Verizon and AT&T have a higher percentage of in-network calls than other carriers and have less need for roaming on other carriers' networks. This gives AT&T and Verizon a substantial roaming-cost advantage over Sprint, T-Mobile, and other carriers. At the same time, these large footprints provide AT&T and Verizon the opportunity to realize revenue from other carriers who require roaming services over their networks.

6. Sprint incurs substantial roaming expenses annually to ensure that its customers have service in areas where Sprint's network does not reach. In 2010, Sprint's total domestic carrier-to-carrier payments for roaming were [begin confidential information] [REDACTED] [end confidential information]. In 2010, Sprint's per subscriber domestic roaming cost for its 27 million CDMA post-paid subscribers was [begin confidential information] [REDACTED] [end confidential information] per month, representing [begin confidential information] [REDACTED] [end confidential information] in monthly ARPU for these subscribers. Out of its total 2010 roaming costs, Sprint paid over [begin confidential information] [REDACTED] [end confidential information] to Verizon.

7. AT&T and T-Mobile are currently the only national carriers with networks operating on the Global System for Mobile Communication ("GSM") standard. Post-acquisition, AT&T will control the only national GSM network. As a consequence, any existing regional or foreign GSM carrier or new entrant wishing to secure nationwide roaming services will have to contract with AT&T.

International Roaming

8. Outside the United States, the most popular standard for wireless networks is the GSM standard. The GSM standard was originally developed by the European Telecommunications Standards Institute (ETSI) to provide a common cellular telephone system across Europe. GSM and successor technologies have been widely adopted outside the United States, particularly in Europe. Sprint's network does not employ the GSM standard or any of its successor standards. Rather, Sprint's 2G and 3G networks are based on CDMA and iDEN technology.

9. Sprint has a difficult time obtaining roaming agreements with foreign GSM carriers on financially attractive terms. Sprint holds relatively little leverage in negotiating with foreign carriers for GSM roaming because it cannot offer the same volume of roaming calls as carriers with larger subscriber bases, and it cannot offer reciprocal service in the United States because its networks run on the CDMA and iDEN standards.

Backhaul/Special Access

10. Sprint and other wireless carriers require backhaul services that involve "special access" (i.e. dedicated circuits) to link cell sites to their switches and other parts of their networks. More than 90% of special access sold to other carriers, including backhaul services, is

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provided by incumbent wireline telephone LECs, primarily AT&T and Verizon. Most of the remaining backhaul is purchased from fiber owners such as tw telecom and Level 3, cables companies such as Comcast, and other providers such as FiberTower. Sprint incurs substantial expenses annually in special access that put it at a competitive disadvantage compared to AT&T and Verizon. Because they own most of the available backhaul assets, AT&T and Verizon can obtain much of their backhaul at cost. At the same time, both companies generate billions of dollars in revenue annually from providing special access to other carriers.

11. In 2010, Sprint incurred special access expenses in connection with its wireless service of approximately **[begin confidential information]** [REDACTED] **[end confidential information]** of these payments going to Verizon or AT&T. Sprint's monthly special access cost per wireless subscriber in 2010 was **[begin confidential information]** [REDACTED] **[end confidential information]** In 2010, the special access fees incurred by Sprint accounted for about 30 percent of cell tower operating expenses.

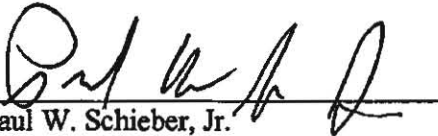
12. In some areas, fiber owners, cable companies, and others own backhaul assets and serve as alternative special access providers to AT&T and Verizon. If T-Mobile were eliminated as a purchaser of special access services from alternative providers, this would substantially reduce the alternative providers' base of business and could cause some to stop providing special access. This would likely increase the number of areas where wireless carriers would have to solely rely on AT&T and Verizon for special access services, and could lead to higher prices charged by the remaining alternative providers.

Inter-Carrier Compensation and Switched Access

13. Wireline carriers impose a regulated price on wireless traffic for access to switched wireline networks. The switched access function is necessary to connect calls originating or terminating on the wireline network. In 2010, Sprint incurred [begin confidential information] [REDACTED] [end confidential information] in switched access costs related to its wireless and wireline services. Because Verizon and AT&T own large legacy wireline networks, and because of asymmetry that does not allow wireless carriers to collect switched access charges on wireline traffic, AT&T and Verizon have more favorable switched access cost structures than Sprint.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 26, 2011.



Paul W. Schieber, Jr.
Vice President of Roaming and Access Planning
Sprint Nextel Corporation

REDACTED – FOR PUBLIC INSPECTION

ATTACHMENT E

DECLARATION OF FARED A. ADIB

CHIEF AND VICE PRESIDENT, PRODUCTION DEVELOPMENT AND PLATFORMS

SPRINT NEXTEL CORPORATION

DECLARATION OF FARED A. ADIB

I, Fared A. Adib, declare as follows:

1. I am Fared A. Adib. I am Chief and Vice President, Product Development and Platforms for Sprint Nextel Corporation ("Sprint"). My responsibilities include product strategy, planning and portfolio development, and vendor management.

2. I make this declaration in support of Sprint's Petition to Deny the Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations.

3. As handsets have evolved, they have become an increasingly important driver of competition and customer demand in the wireless industry. Today many customers choose a wireless carrier based on smartphone/handset selection. Sprint, T-Mobile, Verizon, and AT&T procure handsets from original equipment manufacturers ("OEMs") and offer them to consumers nationwide rather than by region. For example, Sprint's HTC EVO 4G can be purchased on the Sprint website and in Sprint stores throughout the country.

Handset Development

4. Developing new handsets requires integration of carrier and OEM technologies including hardware, operating systems, user interfaces, applications, and wireless networks. To be operable, handsets must be built with specific chipsets, transmitters, and antennas that correspond to a carrier's network and spectrum bands. In addition, handsets must be rigorously tested on a carrier's network before they are introduced. Carriers work closely with handset manufacturers to develop new features and functionality that differentiate the new devices from those already on the market, to design user interfaces unique to a carrier, to ensure that the

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handset appropriately reflects the brand, and to ensure that the services, design, and features offered by the carrier will function appropriately on the handset. Sprint deploys specific capabilities such as Sprint TV, Sprint Navigation, Sprint ID, and Sprint Zone that are integrated with its devices and differentiate Sprint's product set from others in the market.

5. Sprint typically begins working with prospective handset manufacturers about one year in advance of bringing a handset to market. The parties will work together on issues such as network compatibility, timing, and cost, as well as design and component specifications, such as specifications for chipsets, processors, displays, cameras, and memory. The development of new handset technology can be a lengthy process that requires large front-end investments. For example, Apple spent an estimated \$150 million in developing the first generation iPhone. Development of the iPhone began in 2005 and the device was not released until 2007.

6. Given the expense of developing new handsets, OEMs commonly require volume commitments from carriers in order to spread out research-and-development ("R&D") and production costs over a large volume of unit sales. For example, Sprint has made volume commitments with several handset manufacturers, including Research In Motion ("RIM") and others, that required one million unit commitments to secure an exclusive product.

7. Given these volume commitments, carriers with smaller subscriber bases are at a significant disadvantage in attracting OEMs to develop new devices or technology for their networks. Although Sprint has the third largest subscriber base in the country, it faces difficulties in attracting developers of the best handsets. For example, due likely to its smaller size relative to AT&T and Verizon, Sprint has been unable to secure the Apple iPhone. Apple launched the iPhone with AT&T under an exclusive arrangement in 2007. Apple next gave Verizon a "time-to-market" advantage for the iPhone in 2011 most likely because Verizon had

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the largest subscriber base in the U.S. and therefore, the ability to move a great volume of handsets. I believe that considerations of resource requirements and volume potential led Apple to give priority to AT&T and Verizon, the two providers who were able to offer access to the most subscribers.

8. The largest carriers are also able to secure a more consistent supply of handsets. From time to time, there are shortages of handset components, as evidenced by the shortage of displays after the recent natural disasters and aftermath in Japan. During these shortages, manufacturers will typically use available components to first build handsets for their largest customers, such as AT&T. The merger will increase AT&T's scale and thus its ability to pressure manufacturers to give it priority over other carriers because manufacturers will be unwilling to risk losing future AT&T business. This could lead to substantial supply disruptions and create customer-satisfaction issues for Sprint.

9. If AT&T acquires T-Mobile, Sprint would become even less attractive to handset manufacturers because it would be even smaller relative to AT&T. Its vast subscriber base would allow AT&T to make large volume commitments to OEMs simply to "lock up" new devices and keep them out of competing carriers' portfolios. In addition, during periods of supply shortages, AT&T would be allocated a greater percentage of the limited number of handsets being produced, leaving even less for the firms waiting behind it.

10. Many cutting edge smartphones are introduced under exclusivity arrangements or time-to-market advantages that national carriers negotiate with OEMs. During these periods of exclusivity, OEMs will provide handsets with certain unique features to only select carriers. Exclusivity arrangements benefit the wireless carriers because offering a unique, high-demand

handset (such as the iPhone) can give a carrier a significant competitive advantage over rival companies.

11. Due to their scale advantages, AT&T and Verizon are able to gain exclusive access to the latest and greatest handsets, and also achieve greater time-to-market advantages. Sprint is also able to secure exclusivity agreements with certain manufacturers, but these agreements tend to cover fewer handsets. The proposed merger would exacerbate AT&T's and Verizon's scale advantages, making it more difficult for Sprint to compete nationally on handset selection.

Technological Compatibility and Manufacturer Prioritization

12. Size and scale drive several aspects of handset production that result in time-to-market and cost advantages for the largest carriers. Different spectrum bands require different device configurations and hardware to function properly. For example RF drivers, which are necessary for a handset to send and receive signals, must be calibrated to specific spectrum bands. Components manufacturers, such as Qualcomm and Texas Instruments, often prioritize production, first manufacturing components configured to the spectrum frequency standards that apply to the most widely used bands, and then later making components for bands used by smaller carriers. Handset ecosystem support, including the provision of parts, testing equipment, and applications, is developed and offered more rapidly for the wireless standards used by carriers with the greatest volume potential. The largest carriers therefore tend to obtain early access to the handsets with the latest features. Finally, the largest carriers benefit from lower cost structures throughout the supply chain due to their scale and ability to drive greater volume. This means that AT&T and Verizon, who have the greatest scale, enjoy greater cost and time-to-

market advantages than other carriers. The proposed merger would enhance these advantages for AT&T.

National Carriers Drive Handset Innovation

13. Given the costs of new product development and the volume commitments that the handset manufacturers require, the four national carriers – AT&T, Verizon, Sprint, and T-Mobile – are the only carriers that drive handset innovation to any meaningful extent. While regional carriers now offer some smartphones, OEMs developing handsets with the latest technology tend to design them for the large national carriers because they have the ability to sell the most phones, thus enabling R&D costs to be spread over a large number of units.

14. It was AT&T, a national carrier, that first sold the iPhone, and it was the other three national carriers who directly responded by working with OEMs to develop and introduce advanced smartphones of their own. Verizon partnered with BlackBerry to introduce the exclusive touch screen Storm in 2008, and later introduced the high-end Motorola Droid in 2009. T-Mobile collaborated with Google and HTC to introduce the G1 Android phone, and Sprint launched the Samsung Instinct in 2008, as well as the Palm Pre in 2009 and HTC EVO 4G in 2010.

15. While Regional carriers are now beneficiaries of the evolution of the smartphone, they are not the catalysts of handset innovation. Regional carriers offer a smaller selection of smartphones than the national carriers. In addition, devices offered by regional carriers are typically lower-tier brands, older or lower quality models, or are later versions of devices or technology previously brought to market by national carriers. For example, Cellular South began offering the Motorola Milestone in June 2010. The device is essentially a follow-on

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version of the Motorola Droid, launched by Verizon more than a year earlier in 2009. Both Cricket and MetroPCS offer lower-tier brands of smartphones, such as smartphones manufactured by Huawei and Kyocera. While MetroPCS also offers the Samsung Galaxy Indulge, that model has less impressive hardware specifications than the Samsung models offered by national carriers, such as T-Mobile's Samsung Galaxy S 4G, or Sprint's Samsung Epic 4G. To illustrate a few differences: (i) the Epic 4G's 4-inch screen is larger than the Indulge's 3.5-inch screen and has a higher resolution; (ii) unlike the Indulge, the Epic 4G has a Super AMOLED display; and (iii) the Epic 4G sports two cameras with a 5 megapixel primary camera, while the Indulge has only one 3 megapixel camera. The high-end Epic was released in August 2010 while the Indulge was not released by MetroPCS until February 2011. Sprint also places a much greater subsidy on the Epic, with a contract price of \$149.99 compared to MetroPCS's \$299.

T-Mobile and Sprint are Drivers of Handset Innovation

16. T-Mobile and Sprint have been important drivers of handset innovation. Along with Google, HTC, and others, they were founding members of the Open Handset Alliance (the "Alliance"), the consortium responsible for the development of the Android operating system. T-Mobile worked closely with Google and HTC to introduce the first Android phone, the G1, in 2008. Sprint followed shortly thereafter with the 2009 release of its own Android phone, the HTC Hero. Since then, the Android platform has become the leading smartphone operating system, now running on over 34 percent of smartphones in the United States. T-Mobile and Sprint are the only U.S. wireless carriers that are members of the Alliance. While other carriers now sell Android handsets, including U.S. Cellular, Cellular South, Leap, and MetroPCS, none

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of them is a member of the Alliance or responsible for the introduction of the Android operating system.

17. T-Mobile has also played an important role in past innovation successes. In 2002, T-Mobile launched the Danger Sidekick, one of the first consumer-oriented email, web, and messaging phones. That same year, T-Mobile also became the first U.S. carrier to offer the BlackBerry.

18. If AT&T and T-Mobile merge, there will be fewer national carriers to drive handset innovation. Sprint's ability to partner with OEMs in the creation of new devices will be diminished because manufacturers will be drawn to the much larger subscriber bases of AT&T and Verizon. AT&T and Verizon will each have a subscriber base more than twice the size of Sprint's. Further, AT&T and Verizon will have greater ability to negotiate longer exclusivity periods and to secure better time-to-market advantages over Sprint and the regional carriers.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 26, 2011.



Fared A. Adib
Chief and Vice President, Product Development and Platforms
Sprint Nextel Corporation

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ATTACHMENT F

DECLARATION OF JOHN CARNEY

SENIOR VICE PRESIDENT OF CONSUMER MARKETING

SPRINT NEXTEL CORPORATION

DECLARATION OF JOHN CARNEY

I, John Carney, declare as follows:

1. I am John Carney, Senior Vice President of Consumer Marketing for Sprint Nextel Corporation ("Sprint").

2. I am responsible for consumer marketing and strategy for all of Sprint's post-paid and pre-paid brands, which include Sprint, Nextel, Boost, Assurance, and Virgin. My primary responsibilities include acquisition marketing, customer base marketing and retention, market research, planning, strategy, and product marketing. I have 25 years of experience in telecommunications sales, sales management, marketing, and general management. I have worked in the wireless segment of telecommunications since 1996. I was employed by T-Mobile for ten years from 1996 until 2006, then Affinity Mobile from 2007 to 2009, and have worked at Sprint since 2009. I hold an undergraduate degree in marketing from the University of Illinois and an MBA from Northwestern University.

3. I make this declaration in support of Sprint's Petition to Deny the Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations.

National Retail Branding

4. Each of the national carriers—Verizon, AT&T, T-Mobile, and Sprint—compete based on, among other things, national brand attributes such as network quality, network scope, product positioning, innovation, value, and customer service. In the post-paid market, Sprint has differentiated its Sprint brand nationally as standing for fast and reliable wireless service and strong value for consumers. Verizon positions itself as the carrier with the best nationwide

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network quality, as evidenced by its "Can You Hear Me Now?" and "Rule the Air" advertising campaigns. AT&T positions itself in the national market as a product leader, distinguishing itself as the only wireless carrier to offer the iPhone until 2011, and claiming to have America's fastest broadband network. T-Mobile has differentiated itself with superior customer service, low-cost value propositions, and most recently, its HSPA+ network.

5. Sprint focuses on positioning its Sprint brand against AT&T, Verizon, and T-Mobile, the other national carriers. While Sprint is aware of some of the activities of the smaller post-paid carriers, such as U.S. Cellular and Cellular South, those carriers do not influence how the Sprint post-paid brand is managed, and the Sprint brand does not target them in its advertising. For example, U.S. Cellular, a regional carrier with operations centered around the Chicago area, was one of the first post-paid carriers to offer an unlimited voice plan. But to my knowledge, none of the national carriers responded with similar plans to compete against U.S. Cellular. The vast majority of marketing among the Big Four carriers is now conducted nationally, and Sprint's advertising and marketing, apart from occasional "test market" trials, is almost entirely national.

6. The market for post-paid wireless services is a mature market that has low absolute growth in total post-paid decisions and is close to saturation. This means that post-paid carriers gain nearly all new customers by luring them away from other carriers.

Pre-Paid Services

7. In addition to its post-paid Sprint brand, Sprint operates several pre-paid brands: Boost Mobile, Assurance Wireless, and Virgin Mobile. Pre-paid services have grown in popularity recently. Pre-paid and post-paid wireless services are distinct offerings, and pre-paid

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firms have little to no influence on how the four national carriers market their post-paid services. For instance, MetroPCS and Leap recently lowered their prices for unlimited services to \$40 and \$35 respectively, but I am unaware of any of the national carriers reacting with similar price reductions in their post-paid offerings.

8. Pre-paid providers tend to operate in only select regions of the country and do not have nationwide mobile wireless networks. Not even the two largest independent facilities-based pre-paid carriers in the United States, MetroPCS and Leap, own true nationwide footprints. They instead rely on roaming agreements to extend their coverage outside of their limited home markets. Thus, while MetroPCS claims to be rolling out LTE service, its lack of a nationwide footprint, combined with its modest spectrum holdings, will inhibit MetroPCS's ability to grow its LTE services beyond its home markets.

9. Independent pre-paid providers like MetroPCS and Leap also lack the national brand power to compete effectively with the four national carriers. In addition to having less consumer recognition for their brands, they do not market nationally and thus do not enjoy the national carriers' scale advantages in mass media purchasing. Their brand image is also hampered because they lack access to many of the most current, innovative handsets that the national carriers are able to offer by virtue of their scale.

10. While MetroPCS and Leap have had some success in their home markets, as a general matter their subscriber bases consist of younger and lower income individuals. This customer segment yields lower average revenue per user and has a much higher churn rate. Growth in prepaid with Sprint has been fueled by subsidies from the Universal Services Fund (“USF”) Low Income Program. In fact in 2010 roughly **[begin confidential information]** [REDACTED] **[end confidential information]** percent of Sprint's prepaid net additions came from Assurance

Wireless, which is the Sprint USF program. Sprint does not expect this kind of growth to continue much beyond 2011 due to the fact that it is very tied to new state launches that show high initial demand between launch and 6 months; demand then drops off precipitously over time. Assurance will complete the vast majority of its new state launches in 2011.

11. In addition, while regional pre-paid carriers' shares of gross new subscribers have increased in recent years, this growth is tempered by the higher churn rates for pre-paid services compared to post-paid services. The comparatively high churn rate in the pre-paid market is due in large part to pre-paid subscribers' lower income and the lack of long term contracts. Sprint estimates that MetroPCS and Cricket have churn rates between **[begin confidential information]**  **[end confidential information]** per month, while Sprint's post-paid churn rate is approximately **[begin confidential information]**  **[end confidential information]** percent per month, and AT&T's and Verizon's post-paid churn rates are estimated to be near **[begin confidential information]**  **[end confidential information]** percent per month.

T-Mobile is an Aggressive National Competitor

12. T-Mobile is an aggressive competitor in the wireless marketplace, and I believe it would continue to be one if it is not acquired by AT&T. T-Mobile promotes itself as a strong value proposition to consumers, touting its low prices, high quality network and handsets, and award-winning customer service. Recently, T-Mobile introduced a \$79.99 unlimited voice and data plan that is significantly cheaper than similar plans offered by AT&T and Verizon. T-Mobile advertises that its HSPA+ network is the largest "4G" network in the country. T-Mobile also has a history of innovation. In 2002, it was the first U.S. carrier to offer the BlackBerry, the precursor to the modern smartphone, with both voice and data service, and also introduced the

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Danger Sidekick, a more consumer-oriented e-mail, web, and messaging phone. More recently, it introduced the first Android phone in 2008, and has been a leader in implementing WiFi calling capabilities on its handsets. T-Mobile also introduced T-Mobile @Home, a landline replacement service that allows customers to make calls with their existing phones over a broadband connection.

13. T-Mobile has routinely earned recognition as having the best customer service among wireless carriers, winning the J.D. Powers award for the best customer service for the last two years and ten times in total. In addition, Consumers Union, the publisher of Consumer Reports, recently reported to Congress that "consumers surveyed by Consumer Reports are consistently less satisfied with the service they get from AT&T than T-Mobile."¹

14. In January of 2011, T-Mobile announced an aggressive "Challenger" strategy to gain market share and revitalize the company. T-Mobile's recent national marketing efforts demonstrate its commitment to this challenger role and highlight T-Mobile's position as a strong national competitor.

15. T-Mobile ran an aggressive advertising campaign against AT&T and Verizon, seeking to win subscribers from these firms. This campaign highlights T-Mobile's high speed "4G" HSPA+ network and states its "4G" network provides greater speeds than iPhone 4 users can achieve on AT&T's or Verizon's networks. Several T-Mobile commercials mock the speed of AT&T's network. The advertisements also promote T-Mobile's high-end smartphone offerings that compete with the iPhone, including the myTouch 4G. Thus, T-Mobile has

¹ Press Release, Consumers Union, Consumers Union Warns Congress AT&T/T-Mobile Merger Means Higher Prices, Less Satisfied Customers (Apr. 12, 2011), *available at* <http://www.consumersunion.org/pub/2011/04/017625print.html>.

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positioned itself to take share away from Verizon and AT&T, who focus on the "high-end" consumer segment of the post-paid market.

16. AT&T and Verizon compete aggressively for T-Mobile and Sprint customers. After T-Mobile began advertising its HSPA+ network as "4G," AT&T followed suit, marketing its own HSPA+ network as having "4G speeds," and claiming that it covered 97% of Americans. Further, both Verizon and AT&T use their legacy as wireline telephone companies to market bundles of wireless, wireline, and television services, presenting a competitive advantage over Sprint and T-Mobile, who lack such integrated operations.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 26, 2011.


John Carney
Senior Vice President of Consumer Marketing
Sprint Nextel Corporation

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ATTACHMENT G

**DECLARATION OF STEVEN STRAVITZ
CHIEF EXECUTIVE OFFICER AND MANAGING DIRECTOR
SPECTRUM MANAGEMENT CONSULTING**

SPRINT NEXTEL CORPORATION

DECLARATION OF STEVEN STRAVITZ

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I. QUALIFICATIONS

I, Steven Stravitz, hereby declare the following:

1. I am Chief Executive Officer and Managing Director of Spectrum Management Consulting. In this role, I provide telecommunication technology and regulatory advice and analysis to clients around the world as an outside subject matter expert. For mobile network operators, I specialize in the analysis of issues regarding the impact of technologies as well as the economics of wireless networking and spectrum issues. With more than twenty-two years of experience in the wireless telecommunications industry, I have significant expertise in most cellular access technologies, including GSM, UMTS, CDMA, EV-DO, WiMAX, and LTE, as well as core network technologies, network- and device-centric applications, and network operations.

2. I previously served for a total of more than ten years, including as an officer for more than four years, at LCC International, an engineering services company with expertise in radio frequency mobile engineering, deployment, and outsourcing services, where I held senior management roles including Vice President of Marketing, Vice President of Strategic Planning, Vice President of Business Development, and Vice President of Outsourcing Services. I also co-founded and served in executive roles of multiple wireless startup companies, including serving as CEO of ac-Cellerate, LLC, a start-up focused on enabling spectrum transition through combined business and engineering services, and Executive Vice President of WirelessHome, a developer of technology for broadband wireless equipment. I began my telecommunications career in 1989 with Alpha Industries, currently known as Skyworks, a company that makes advanced components for telecommunications and military applications. I hold a Bachelor of

Science in Electrical Engineering from Rutgers University and a Masters in Business Administration from The George Washington University.

3. In this declaration, I outline my professional analysis and interpretation of the Application filed by AT&T Inc. (“AT&T”) and Deutsche Telekom AG (“DT”) (collectively, the “Applicants”) for the transfer of control of licenses associated with AT&T’s proposed acquisition of T-Mobile USA, Inc. (“T-Mobile”). In my professional opinion, the Application fails on multiple accounts to provide adequate data to substantiate its claims of spectrum efficiency. Indeed, AT&T has numerous measures that it could undertake that would achieve as much or more benefit, and at less cost, than acquiring one of its main rivals that has led the industry in innovation, pricing, and deployment.

4. My analysis demonstrates that AT&T has no material technical constraints on its ability to deploy wireless broadband operations at its planned scale in the United States using the many means available to it other than acquiring T-Mobile. Every wireless operator in the United States faces an increase in data traffic relative to traditional voice traffic. In this respect, however, AT&T is no different than other operators. With extensive capital resources at its ready disposal, a wealth of largely untapped capacity-enhancing solutions and vast quantities of wholly unused spectrum, AT&T is exceptionally well-equipped to handle increases in data traffic. To the extent that AT&T has any real constraints on its ability to deploy wireless broadband operations, these constraints would appear to be the direct and proximate result of its own business and technical decisions.

5. AT&T’s Application wholly ignores the many alternatives available to address what AT&T claims are its “unique” capacity challenges. My analysis is based on my review and Spectrum Management Consulting’s review of the Application that took place under my

direction. In addition to the Application, my analysis has also included review of and noted information from other sources, including AT&T's presentations to investors and analysts. Additional sources are referenced in this document wherever context requires.

II. EXECUTIVE SUMMARY

6. Mobile networks are complex, multi-dimensional operations that depend on ongoing and disciplined planning, deployment, and optimization to operate efficiently. Unlike static, point-to-point networks, mobile networks using cellular technologies are ever-changing, driven not only by the evolution of wireless technologies, but also by external factors, such as the capabilities of devices being used, the usage patterns of subscribers, the operation of nearby sites and devices, clutter such as buildings, natural topographical features, and foliage. For this reason, effective planning and operation of mobile networks is particularly challenging and requires ongoing engineering rigor and capital investment to maintain strong network performance and match capacity with end user demand.

7. The Application does not provide adequate data to substantiate its claims of purported network and spectrum challenges, much less verify its purported benefits. *AT&T uses only roughly half of its licensed spectrum.* Yet AT&T does not provide technically compelling reasons for idling these resources, inappropriately justifies the transaction as the cure to spectrum capacity limits, and does not provide data needed to reject many readily available spectrum and capacity management alternatives that can address Applicants' capacity challenges at a cost far below \$39 billion. Instead of embracing best practices in mobile network management along with the next-generation architecture of networks based on smaller cell sites, AT&T proposes to remedy its capacity challenges and prepare its network for the next generation of data services by consolidating its network with that of a competitor.

8. **Part A** of this analysis demonstrates that AT&T’s stated capacity problems are not unique to AT&T. Some of AT&T’s competitors are managing a similar volume of voice and data traffic per subscriber on their networks, with better customer satisfaction and network performance. **Part B** shows that AT&T’s claimed benefits from the proposed T-Mobile acquisition are speculative, not readily verifiable, or not specific to the acquisition. **Part C** shows that, like many of its competitors, AT&T likely faces congestion in only some parts of its network – in some cities, particularly in its data network. Rather than proposing the acquisition of another national network as a solution, AT&T needs to pursue targeted solutions to its highly localized problems supported by smart engineering and management decisions more aggressively. These solutions fall into three categories:

- ***Deploy Existing Spectrum:*** With 44% of its spectrum holdings unused or under-utilized, AT&T can significantly increase its network capacity by using its idle spectrum holdings.
- ***Deploy More Efficient Technologies:*** By introducing more spectrally efficient technologies such as LTE in its network, and migrating its data users from spectrally inefficient technologies such as GSM, AT&T can gain significant capacity within its current spectrum holdings.
- ***Deploy Dense, Heterogeneous Networks:*** AT&T can exponentially increase the reuse of its spectrum by aggressively deploying new micro cell sites such as Distributed Antenna Systems (“DAS”), femto cells, and pico / relay-cells.

9. AT&T does not need to pursue integration with another network such as T-Mobile’s as a cure for AT&T’s capacity requirements. AT&T could far more efficiently, quickly, and cost-effectively solve its purported capacity problems by investing in technologies, deployment plans, network architectures, and business strategies geared towards use of its existing spectrum holdings more efficiently. In doing so, AT&T could better manage the growing traffic on its network, just as its competitors do. This approach does not require any great technological leap. Well established techniques and sound network management practices

would allow AT&T to achieve lasting efficiency gains more rapidly and less disruptively than the proposed acquisition.

10. On the contrary, AT&T's proposed acquisition of T-Mobile will perpetuate AT&T's inefficient spectrum use. Rather than encouraging investment in new, innovative, and more efficient technologies, the proposed T-Mobile acquisition would permit AT&T to keep subscribers tied to older and less efficient technologies, delay innovative new facilities-based investment, and continue to maintain a large inventory of unused spectrum.

PART A

AT&T's stated capacity problems are not unique; some of AT&T's competitors are managing a similar volume of voice and data traffic per subscriber on their networks, with superior customer satisfaction and network performance.¹

III. AT&T'S CLAIMED CAPACITY PROBLEMS ARE SPECIFIC TO ITS DATA NETWORK AND ARE NOT UNIQUE TO AT&T

11. AT&T has claimed that it has been experiencing high growth in data traffic over the last four years. While AT&T's purported 8000% increase in data traffic from 2007-2010² appears significant at face value, no baseline for comparison or amount of data transmitted per mobile user has been provided to substantiate this claim or enable analysis of the relative efficiency of AT&T's network in supporting it. As is typical throughout its Application, AT&T offers no explanation for how it arrived at this statistic. AT&T appears to have simply summed all data traffic on its network, at any location, at an annualized level, and on a national scale. In

¹ See *ACSI: Customer Satisfaction Turns Positive Despite Drop for Information Services*, Press Release, American Customer Satisfaction Index (May 17, 2011), available at: <http://www.theacsi.org/images/stories/images/news/11may_press.pdf> (“ACSI Press Release”).

² Public Interest Statement, attached to Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 11-65, at 2 (April 21, 2011) (“Application”).

doing so, AT&T did not account for variations in data consumption by user handset types, user profiles, or user consumption patterns. Nor did AT&T account for geographic variations between urban, rural, and suburban areas. And, of course, AT&T's claim does not capture critical monthly, daily, weekly, or even hourly fluctuations in data traffic.

12. *As a result, AT&T's statistic does not indicate to the Commission whether AT&T's network is taxed at any given point in time or at any particular location.* AT&T assigns a highly specific value to a unit of measure that is vague and without reference or context, which causes it to be devoid of meaning. Nothing in AT&T's statistic explains whether capacity constraints exist anywhere on AT&T's network and, if constraints do exist, whether those constraints are national in scope or highly localized, whether they are chronic and persistent or intermittent and temporal, or whether they are large and meaningful or small and relatively inconsequential. In addition, AT&T does not provide information in the Application to indicate whether the claimed congestion in its network is in its radio access network, transmission and backhaul network, core network, or in all parts of its network.

13. Mobile networks are designed to handle traffic during the busiest hour of the day. Traffic engineering is based on probabilistic models that predict a network's ability to handle a particular level of peak traffic with a level of certainty. Therefore, the monthly or annual traffic usage provided by AT&T in its Application is an ambiguous reference from a traffic engineering point of view. Just as mobile network operators have done for many years with voice traffic, using 'nights and weekends' plans to shape usage, data demand can also be shaped to bring down peak demand without changing the total traffic carried on the network. Using better demand shaping supported by smarter business decisions, AT&T would be able to handle more data traffic per month without changing the total capacity of its mobile network. For example,

the graph below shows representative traffic profiles of three different cell sites in a representative, hypothetical network. While all three sites have to be designed to handle different peak traffic levels, total data traffic during the 24-hour period is the same on each site.

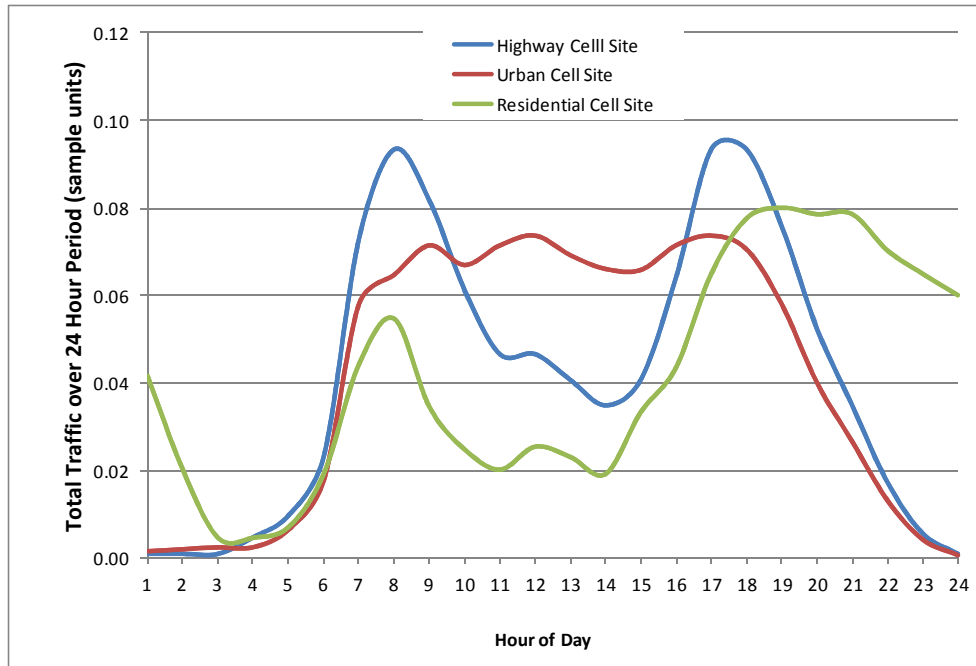


Figure 1: Representative traffic pattern of three cell sites by hour. All three cell sites are handling the same amount of total traffic during a 24-hour period, but have different traffic peaks, and hence are designed differently.

14. AT&T’s experience as a wireless data service provider appears to be wholly unremarkable. The wireless marketplace has seen widespread, substantial growth in data traffic; however, AT&T’s assertion that their network is “uniquely strained by the exponential growth in data usage” is incorrect. The demands on AT&T’s mobile data network are similar to those of its competitors. Relative to its competitors, AT&T’s data network is performing better in some markets and worse in others, based on a review of 151,766 empirical field tests conducted across the hundred most populous U.S. markets during approximately the last six months by an industry-leading independent, third-party competitive test provider. Based on over one million field test results collected during more than 900 market drive tests conducted since 2007, AT&T

– along with the overall wireless industry – has continued to improve in mobile data network speed, connection success, and connection reliability, with the last six months offering some of the most dramatic improvements. In short, the data from an industry-leading independent third-party competitive test provider does not support AT&T’s assertion that it is experiencing unique capacity demands or network-capacity problems as compared to other mobile network operators.

15. While AT&T’s competitors face similar growth in demand for and usage of their data services, they have proven able to manage that growth by investing in many innovative techniques to meet the growing demand for services. Part C elaborates on some of the methods, tools, and techniques available to a mobile network operator in order to address challenges caused by growth in mobile data usage. For example, as illustrated in the table below, Verizon Wireless has similar broadband-capable spectrum holdings to those of AT&T while Verizon Wireless supports a similarly sized subscriber base to AT&T. Verizon is also widely regarded as having superior network performance to AT&T.³ AT&T has not provided any information in its Application to support its claims that it faces data usage demands that are different from what its competitors face or that it cannot deploy network improvements and investments to meet customer data demand.

³ See ACSI Press Release (indicating that in the latest ACSI report, Verizon and Sprint tie for the highest level of customer satisfaction among the national wireless carriers, while AT&T “show[s] a large deterioration in customer satisfaction” and places last among these carriers).

	Total Spectrum (nationwide population weighted)	Total Subscribers ⁴	Spectrum per Subscriber (megahertz per million subscribers)
Verizon	88 MHz	94.1 million	0.94
AT&T	99 MHz ⁵	86.2 million	1.15

Figure 2: Comparison spectrum holdings of Verizon Wireless and AT&T Mobility on a per subscriber basis

16. While mobile *data* usage has continued to grow dramatically, all major mobile network operators, including AT&T, are experiencing stagnating or slightly declining *voice* usage on their networks on a per subscriber basis. During the period from 2007 to 2010, average monthly voice usage on a per subscriber basis for national mobile network operators has declined from 723 minutes to 635 minutes.⁶ This decrease in voice usage strongly suggests that older technologies such as GSM, which predominantly support voice customers, are not under capacity constraints. The continued shift in usage away from voice to data should allow AT&T to repurpose its GSM spectrum more aggressively so that AT&T can use some of the spectrum

⁴ The number of “total subscribers” *excludes* connected devices. In addition, while making comparisons at a local market level, population density will be taken into account; however, on the national level, given similarities in coverage of Verizon’s and AT&T’s wireless networks, comparing subscribers on a per MHz basis is a fair comparison.

⁵ The 99MHz of spectrum attributed to AT&T on a nationwide, population-weighted basis excludes Qualcomm’s 700 MHz spectrum that AT&T proposes to acquire as well as AT&T’s proposal to acquire nearly two dozen additional 700 MHz spectrum licenses. For information on AT&T’s latest spectrum acquisitions, *see, e.g.*, Mike Dano, *AT&T looking to buy even more 700 MHz spectrum for LTE*, FIERCE WIRELESS (May 24, 2011), *available at*: <<http://www.fierce-wireless.com/story/att-looking-buy-even-more-700-mhz-spectrum-lte/2011-05-24>>.

⁶ Semi-Annual Wireless Industry Survey, CTIA- The Wireless Association (2011), *available at*: http://files.ctia.org/pdf/CTIA_Survey_Year_End_2010_Graphics.pdf (“CTIA Survey”)

currently dedicated to GSM for more spectrally efficient technologies such as UMTS/HSPA+ and LTE.

IV. AT&T HAS DEVICE PORTFOLIOS THAT LIMIT ITS ABILITY TO USE THE NETWORK EFFICIENTLY

17. AT&T continues to make strategic device introduction decisions that limit the use of new technologies, thus limiting AT&T's ability to build a ready user base for its new network and slowing the transition of spectrum it currently uses for older technologies to more efficient technologies. For instance, AT&T continues to subsidize and sell on its website GSM phones such as the Samsung SGH-A107 and ZTE R225, which use 2G data technologies such as EDGE and GPRS,⁷ thus limiting the ability to take advantage of more spectrally efficient technologies like UMTS/HSPA+ and LTE.

18. AT&T does not sufficiently promote the migration of users from legacy network technologies to higher capacity, more spectrally efficient networks. For example, AT&T has yet to develop its flagship smartphone – the Apple iPhone 4 – to take advantage of the HSPA+ technology. Instead, AT&T's most popular smartphone device – the best-selling device on AT&T's network “by far” – can only take advantage of slower, and less spectrally efficient, HSPA 7.2 technology.⁸ As a result, even the newest iPhone on AT&T's network uses 15% more radio resources than a HSPA+ device would use. For every one million subscribers AT&T moves from HSPA 7.2 to HSPA+, AT&T would have capacity to add another 150,000 customers

⁷ See Shop, Wireless, Packages & Deals, *Cell Phone Deals and Packages*, AT&T Wireless, available at: <<http://www.wireless.att.com/cell-phone-service/packages/packages-list.jsp?wtSlotClick=1-004YXE-0-1&WT.svl=title>> (last visited May 24, 2011).

⁸ See Technology News, *iPhone 4 is the best-selling device (“by far”) for both Verizon and AT&T* (May 9, 2011), TECHNOLOGY NEWS, available at: <<http://www.technologynews.com/2011/05/09/iphone-4-is-the-best-selling-device-%E2%80%9Cby-far%E2%80%9D-for-both-verizon-and-att/>>.

with similar usage profiles. As illustrated in the figure below, AT&T could provide significant capacity relief in a number of major metropolitan markets if its most popular smartphone utilized HSPA+ technology.

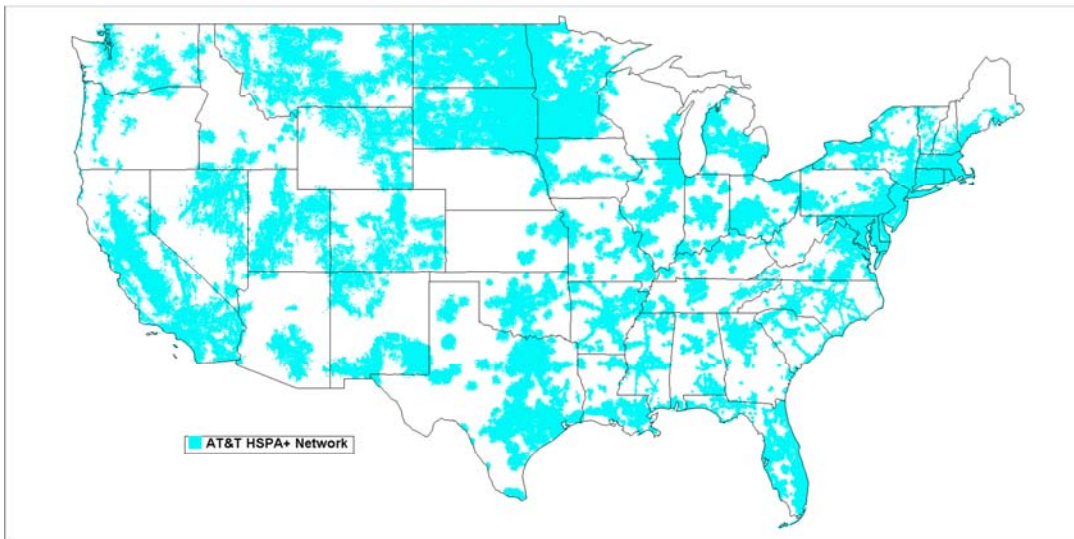


Figure 3: AT&T's HSPA+ Network Coverage. While service is available in most major metropolitan markets, AT&T's iPhone users cannot take advantage of the superior throughput of this network today. *American Roamer, LLC is the creator and copyright holder of the coverage mapping data used in this analysis.*

Stated differently, the full potential of HSPA+ speed is unavailable to help relieve capacity constraints for AT&T's most important, data-hungry customers. Moving even a fraction of AT&T's customers from HSPA 7.2 to HSPA+ would produce material efficiency gains. And moving AT&T's customers from these older technologies to current-generation LTE would produce even more meaningful gains. Unfortunately, however, not only has AT&T not taken advantage of moving more customers from HSPA 7.2 to current-generation HSPA+ technology, AT&T is currently not preparing to move customers from outdated technologies to current-generation LTE technologies that are more efficient. As AT&T moves towards its LTE launch later this year, it has yet to adequately "pre-seed" the market with LTE-ready devices that could

deliver an immediate network capacity offload when AT&T eventually deploys and activates its LTE network. Pre-seeding, a common industry practice, is a process by which mobile network operators introduce devices capable of running on a more advanced, yet-to-be-launched, network, that are still compatible with existing networks. In doing so, mobile network operators establish an installed user base that is ready to take advantage of the newest network when it is launched. As of May 27, 2011, AT&T does not offer any LTE-enabled data-connection device out of its expansive device offerings.⁹ In contrast, T-Mobile, in anticipation of its HSPA+ network launch on May 24, 2010, launched a HSPA+ capable dongle on March 14, 2010.

19. If it were behaving as a prudent steward of its spectrum resources, AT&T would already be pre-seeding the market with LTE/HSPA+ devices as a means of ensuring the timely transition of data traffic from its older-generation networks to its far more efficient next generation systems. The opportunity to pre-seed the market exists today. Qualcomm released its MDM9200 multimode 3G/4G device chipset in the fourth quarter of 2009¹⁰, and this chipset has been available in Android phones since the first quarter of 2011. Unlike the majority of devices that AT&T currently deploys, devices with Qualcomm's MDM9200 chipset will be able to take advantage of the most advanced capabilities in AT&T's network through support of UMTS, HSPA+, and LTE, thus allowing for a more efficient use of AT&T's spectrum. AT&T's practice of not providing end users with equipment capable of taking advantage of advanced technology does not support efficient spectrum management. While delaying investment in deploying

⁹ See Shop, Wireless, Cell Phones and Devices, *Cell Phones & Mobile Devices*, AT&T Wireless, available at: <<http://www.wireless.att.com/cell-phone-service/cell-phones/index.jsp>> (last visited May 27, 2011).

¹⁰ See Press Release, Qualcomm (Nov. 12, 2009), available at: <<http://www.qualcomm.com/news/releases/2009/11/12/qualcomm-now-sampling-industry-s-first-dual-carrier-hspa-and-multi-mode-3gl>>.

capacity-enhancing technologies for end-users may help AT&T maintain a low Cost per Gross Addition (“CPGA”), the decision is at odds with its purported interest in increasing network capacity as rapidly as possible.

V. AT&T’S CLAIM TO NEED MORE SPECTRUM TO SUPPORT THREE WIRELESS TECHNOLOGIES, WHILE BEING A COMMON INDUSTRY CHALLENGE FACED BY ALL MOBILE NETWORK OPERATORS, IGNORES AT&T’S DECISION NOT TO PROACTIVELY MIGRATE USERS TO NEWER TECHNOLOGIES

20. All of AT&T’s national competitors are supporting multiple generations of technologies on their networks, and many of them have launched next generation networks based on advanced, OFDM-based technologies such as WiMAX and LTE. Verizon has deployed CDMA, EV-DO, and LTE networks, and Sprint supports CDMA, iDEN, EV-DO and WiMAX subscribers on its network. AT&T, by comparison, is currently only supporting GSM, UMTS, and HSPA+ subscribers on its network, with plans to launch LTE. Unlike Verizon and Sprint, moreover, AT&T has had the added advantage of evolving its network through related technologies, which has already provided it with inherent advantages in terms of the ability to readily overlay new technology on existing sites and utilize existing core network elements and network management systems. Sprint and Verizon are managing technologies that have no backward compatibility (*e.g.*, CDMA and iDEN in the case of Sprint) and that have totally separate core network elements and network management platforms. To summarize, AT&T is managing a single Third Generation Partnership Project (“3GPP”) family of technologies that include LTE, HSPA+, UMTS/HSPA and GSM whereas many of AT&T’s competitors face far more complex network management and evolution challenges. If other operators with a more differentiated system set have managed diversity on their networks, AT&T’s can reasonably be expected to do the same in support of their 3GPP GSM, UMTS, and HSPA+ technologies.

21. As an operator with a UMTS/HSPA+ network, AT&T should have an easier path of migration to LTE compared to Verizon Wireless, an operator with a network based on CDMA technology, due to the similarities in bandwidth size and network architectures between UMTS and LTE. Both UMTS/HSPA+ and 5 MHz x 5 MHz LTE operate on a 5 MHz channel per uplink/downlink direction. Thus, it is easier to re-tune AT&T's UMTS/HSPA network to LTE, with greater spectrum utilization and relatively lower risk of incurring interference between legacy and new networks.¹¹ In addition, auxiliary equipment, such as external filters, can be reused with LTE 5x5. 3GPP standards specify the use of a Serving Gateway to allow seamless interconnections between legacy 3GPP technologies such as UMTS and HSPA. Finally, many of the Evolved Packet Core ("EPC") components are software upgradable from UMTS/HSPA+ to LTE.

22. Support for legacy generations of network technologies is a commercial decision that every operator makes based on usage patterns, network reliability, operating costs, spectral efficiency, and the customer experience. All carriers provide deadlines for the transition of subscribers from legacy networks and offer incentives to move to new, more efficient devices, supported by the latest network technology. These incentives come in the form of subsidized or free mobile device upgrades, discounted services, and flexible contract terms. The Application does not indicate why AT&T has been unsuccessful in migrating GSM users to newer, more efficient generations of network technology. AT&T's business decision not to migrate subscribers from GSM to UMTS devices more actively has created an unnecessary need to

¹¹ For the PCS bands, consecutive CDMA/EVDO frequency assignments are spaced by 50 kHz and 1.2 MHz guard bands are maintained between frequency blocks, resulting in eleven 1.25 MHz carriers in a 15 MHz x 15 MHz PCS block and three 1.25 MHz carriers in a 5 MHz x 5MHz PCS block. Implementing a 5 MHz or 10 MHz LTE carrier will have implications on the number of CDMA/EVDO carriers that will need to be vacated.

reserve substantial spectrum for less efficient uses. AT&T acknowledges that its UMTS technology covers approximately 260 million people.¹² Yet, AT&T still sells and supports handsets configured to support only less efficient 2G data capability. AT&T could improve the efficiency of network use by aggressively marketing and subsidizing more UMTS/HSPA+ handsets and by discouraging sales of additional devices that use 2G data. This material improvement in efficiency could be accomplished at a far smaller cost than the proposed transaction with T-Mobile. Even, for example, if AT&T was to upgrade the handsets of just 1% of its subscriber base, the cost would be less than \$300M – or less than seven-tenths of one percent of the cost of the proposed T-Mobile acquisition.¹³ Migrating one million HSPA 7.2 handsets to HSPA+ handsets would allow AT&T to accommodate another 150,000 subscribers with similar usage profile.¹⁴ AT&T has previously conducted such migrations, including the evolution from its former TDMA and AMPS analog networks to its GSM network in February, 2008. Similarly, AT&T no longer offers service on its PocketNet cellular digital packet data (“CDPD”), which was shut down in 2005 after more than a decade of successful operation.

23. AT&T has been very slow in deploying the latest network equipment and software to increase capacity and enable more efficient use of substantial spectrum resources. AT&T’s current, more efficient HSPA+ footprint has not yet been rolled out nationwide, and is also not uniformly supported by more efficient backhaul infrastructure, thus leaving customers

¹² AT&T’s less efficient GSM network covers more than 300 million people. *See* Declaration of William Hogg, attached to Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 11-65, ¶¶ 18-22 (April 21, 2011) (“Hogg Decl.”).

¹³ This calculation assumes that the average cost of a smartphone handset is \$300. Data from Asymco, *available at*: <<http://www.asymco.com/>>.

¹⁴ There is a 15% spectral efficiency gain between HSPA7.2 and HSPA+. *See* ¶ 62 below for a detailed chart on spectral efficiency.

with slower data speeds even in areas covered by HSPA+ cell sites. Section XVII in Part C of this Declaration provides more details on the use of high speed backhaul network to support growing customer data traffic.

PART B

AT&T’s claimed benefits from the proposed T-Mobile acquisition are speculative, not readily verifiable, nor specific to the acquisition.

VI. AT&T’S CLAIM OF A “WELL-MATCHED CELL-GRID” WITH T-MOBILE NETWORK IS NOT SUPPORTED BY THE DATA IN THE APPLICATION

24. The Application argues that efficiencies will be gained through the integration of T-Mobile’s existing cell sites to effectively create cell splits for AT&T’s network. However, the claim that the “two network grids are remarkably complementary – T-Mobile has many sites where AT&T needs them and AT&T has many sites where T-Mobile needs them”¹⁵ is not substantiated by data. It seems highly implausible for T-Mobile to have erected sites in precisely those areas where AT&T could not physically reach despite “years of aggressive cell-splitting activities to improve capacity” by AT&T.

25. AT&T claims that it will undertake an aggressive network integration program for T-Mobile’s facilities. According to AT&T, a network integration of that portion of the T-Mobile network that AT&T retains would require nine to twenty-four months following consummation, which, including merger review, would likely equal eighteen to forty-five months. Even taking AT&T’s estimates of the pace of network integration at face value, integration of the T-Mobile network requires just as much time as AT&T’s estimate of the time required to simply install

¹⁵ Hogg Decl. at ¶ 43.

new cell sites on the same towers currently occupied by T-Mobile or on towers owned by tower companies and other parties with available capacity. AT&T has not provided significant evidence to demonstrate that it has pursued alternatives to this acquisition to establish co-location with the T-Mobile cell sites it claims it needs for cell splitting.

26. AT&T concludes that developing its own cell sites cannot possibly provide a satisfactory solution because constructing new cell sites can “literally take years” to complete.¹⁶ The process as described by AT&T – “locate a suitable and available location, arrange to acquire the site through purchase or lease, comply with regulatory requirements that necessitate extensive studies and consultation, apply for and obtain building permits and zoning approvals, contract with third-party vendors to purchase the needed equipment, construct the site and associated backhaul, and then integrate the site into the network”¹⁷ – assumes “worst case” conditions and fails to account for AT&T’s own current economies of scale. Like its competitors, AT&T relies on Master Lease Agreements with tower site and rooftop management companies that can provide ready access to portfolios of available sites locally, regionally and nationally. Studies to enable regulatory approval, which may include a NEPA Phase 1, National Historic Presentation Act screen, or radiation safety study, can often be completed in a matter of days. Furthermore, jurisdictions across the country have implemented guidelines for the zoning and permitting of wireless facilities to encourage collocation, and many now process conforming applications “over the counter” without a full zoning hearing.¹⁸ Surely AT&T also has existing

¹⁶ Application at 46.

¹⁷ *Id.*

¹⁸ AT&T further benefits from the November 2009 Declaratory Ruling in WT Docket No. 08-165 in which the Commission established a shot clock for tower-siting application review by jurisdictions. The Commission acted to accelerate “the deployment of next generation wireless

supply contracts and material logistics processes, and does not need to renegotiate these agreements on a site-by-site basis. More realistic industry averages for new site construction are from six to twelve months for tower collocations and from nine to eighteen months for rooftop installations or new tower sites. Certain site location scenarios pose challenges to operators and no doubt require more time, but, again, these scenarios are the exception, not the rule, and in any case are hardly unique to AT&T. Using more typical transmitter construction estimates means that AT&T could readily invest in new transmitter locations substantially far more quickly than it could realistically hope to acquire all of the assets and operations of T-Mobile and integrate them into its network operations.

27. If T-Mobile's cell sites do just happen to be located in precisely those areas where AT&T requires additional capacity, the Application does not provide evidence that the usage patterns and available capacity of these sites will address AT&T's capacity shortfalls. A mere visual examination of the network grids of AT&T and T-Mobile, which AT&T has not presented in its Application, does not provide sufficient data to demonstrate that the assets of the T-Mobile network are complementary and that they would serve as a natural cell split for the AT&T network. The site location and other characteristics of the site –height, orientation, gain, radiation pattern, and downtilt of the sector antennas – are the key determinants of a site's utility. AT&T has not provided evidence that it has conducted the engineering analysis necessary to draw the conclusions it has drawn in its Application. AT&T has provided no data to substantiate the claim of a good match between its networks. In any case, because the usage patterns for

networks.” *Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review and to Preempt Under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance*, Declaratory Ruling, 24 FCC Rcd 13994 (2009).

T-Mobile sites located near AT&T sites are unlikely to be materially different, combining the two locations eliminates much of the opportunity for net availability gains in congested areas. It is, of course, plausible that a new engineering design would not select the same exact site as the prospective T-Mobile site. But unless a site location aligns with AT&T's design requirements, major modification costs for changes such as antenna height and downtilting may still be incurred. Even more so, the combination of two major macro networks does not represent the optimal solution or the most advanced forward thinking and engineering design. As discussed in greater detail below, heterogeneous networks offer a blend of macro and micro cell sites that maximize coverage and minimize interference in urban environments.

28. And yet even if T-Mobile sites were to be located in a perfectly matched grid with AT&T's cellular network, had complementary traffic patterns to provide a good match with AT&T's cell sites, and were suitable in their characteristics (height, orientation, etc.), those T-Mobile sites must have unused space for equipment and antennas and an ability to instantly increase their use of backhaul, electrical power, and HVAC. AT&T recognizes that the process of integrating T-Mobile sites into the AT&T network will require it to deploy "a multi-band (700 MHz, 850 MHz, 1900 MHz, and AWS bands) antenna to the site and place AT&T's equipment on it."¹⁹ These new multiband antennas are physically larger and weigh more. Additional feedlines and/or remote RF radio heads will be required to support the newly added frequencies at the site. As a result, many of the supposedly perfectly matched T-Mobile sites that AT&T has speculated exist may not actually be able to support AT&T's proposed antennas.

29. Although it provides no support for the proposition, AT&T nonetheless argues that the proposed use of already operational cell sites will accelerate its ability to provide cell

¹⁹ Hogg Decl. at ¶ 46.

split capacity to its network. AT&T's hoped-for acceleration is unlikely to be realized in practice. The very type of measures that AT&T hopes to avoid – including the use of sites that would otherwise be excluded from separate collocation of AT&T equipment, the complex site development tasks it intends to avoid, and expansion of leasing, zoning, and backhaul activities – would likely still be needed to integrate T-Mobile's facilities into AT&T's network. Before making claims of its ability to rapidly integrate T-Mobile cell sites into its network, AT&T should provide evidence of an audit of T-Mobile's site inventory and the detailed analysis to verify the utility of these sites. AT&T also claims that "T-Mobile USA sites that AT&T could integrate represent more than *eight years* of new sites based on AT&T's 2010 rate."²⁰ This information is not pertinent to this discussion, however. AT&T's 2010 build rate reflects only AT&T's decision to invest a limited portion of its CAPEX on cell site construction. This rate does not reflect AT&T's *ability* to build a certain number of cell sites, but simply AT&T's *willingness* to build to those sites.

30. In summary, AT&T's claims that "common use of those technologies, together with their complementary spectrum holdings and well-matched cell-site grids, will produce immense synergies" is not supported by data. AT&T's claim is essentially impossible to evaluate much less validate without having access to T-Mobile's detailed network map *and* AT&T's existing base station locations. Moreover, without the call and data traffic information for the cell sites in areas where AT&T claims to be experiencing network congestion, neither the Commission nor other parties in this proceeding can evaluate – much less validate – whether integrating T-Mobile's cell sites into AT&T's network would provide a real capacity increase during the hours when AT&T asserts that demand exceeds its network capacity. In addition, it is

²⁰ Application at 46.

not clear whether there are any significant coverage gains associated with AT&T’s proposed acquisition of T-Mobile’s network. As shown in the graph below, AT&T’s proposed transaction gives AT&T *less than one percent of* additional U.S. population coverage.

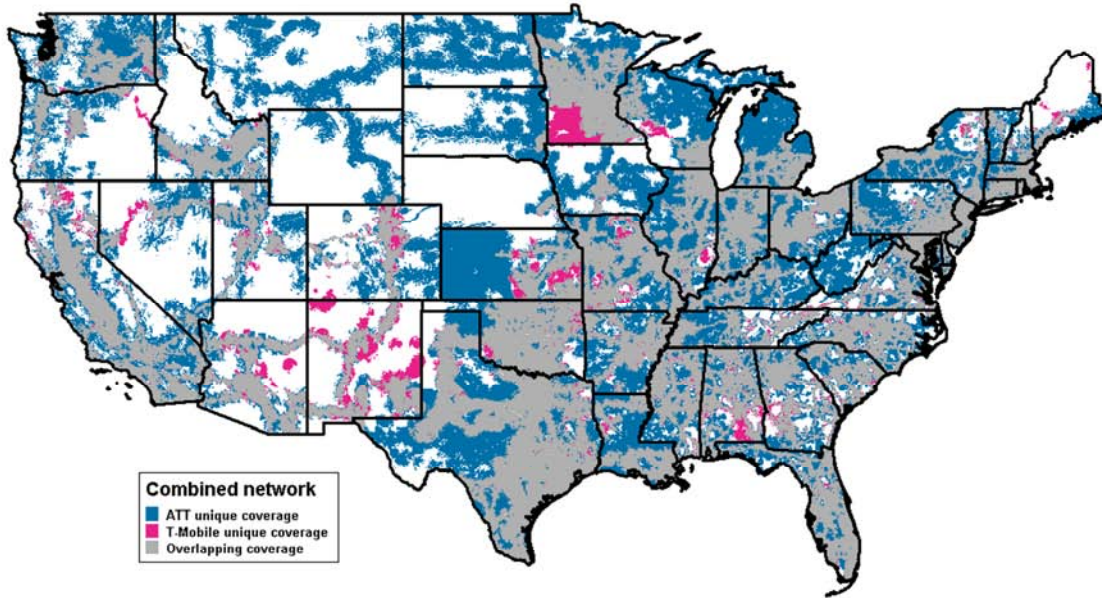


Figure 4: Combined coverage of AT&T and T-Mobile networks. *American Roamer, LLC is the creator and copyright holder of the coverage mapping data used in this analysis.*

VII. AT&T FAILS TO RECOGNIZE THE INEFFICIENCIES ASSOCIATED WITH INTEGRATING T-MOBILE CELLS SITES AND USERS

31. AT&T’s claim to “reuse radios and other equipment from decommissioned sites to enhance network coverage and performance”²¹ is not substantiated in terms of cost savings or equipment reuse. Today, T-Mobile operates 2G and 3G networks (“GSM/Edge”)²² on PCS frequencies and UMTS/HSPA on AWS frequencies. Given AT&T’s stated goals of more

²¹ Declaration of Rick L. Moore, attached to Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 11-65, ¶ 34 (April 21, 2011).

²² Edge is considered an evolutionary 3G technology by the ITU. Most in the industry phase it as a 2.75 G technology.

extensive deployment of 3G and 4G technology, reusing outdated 2G GSM equipment will likely provide little additional value to AT&T or its shareholders and none at all to consumers who remain hungry for faster devices and applications. Further, only portions of the 3G HSPA+ equipment will be reusable because AT&T intends for all future deployments in the AWS band to utilize LTE technology. AT&T makes a broad generalization regarding the ability to redeploy existing equipment, but does not provide evidence of how much T-Mobile equipment is a current release that is easily upgradeable to the latest 3G or 4G technology. In many cases, reusing existing equipment in other locations may not prove to be the most cost effective solution because an upgrade would cost more than a replacement. Furthermore, the value derived from the reuse of existing equipment is overstated. Even if brand new HSPA+ equipment is to be deployed, it typically comprises only 30-40% of the total cost to build a new site. The cost associated with the design, development, and construction of the site, along with ancillary materials, comprises a far larger portion of the site cost. As the reuse is such a small portion of cost of cell site deployment, AT&T needs to provide more information on how it has calculated efficiencies arising from reuse of older equipment.

32. AT&T also proposes to move T-Mobile's GSM and UMTS/HSPA+ customers from the existing T-Mobile networks to the AT&T GSM and UMTS/HSPA+ networks. AT&T has provided no explanation, however, how its network will be able to handle these additional customers or the compromises that will be necessary to accommodate these millions of users. T-Mobile's existing network relies on an average 26 MHz of available PCS spectrum to support T-Mobile's GSM users and 10 to 20 MHz²³ of available AWS spectrum to support T-Mobile's

²³ SMC estimate, with assumption of one to two carriers implemented in T-Mobile's network.

UMTS/HSPA+ users. Under AT&T's proposed plan, T-Mobile's 33 million users will be moved to AT&T's existing network. AT&T would also use T-Mobile's PCS spectrum on its existing network while, T-Mobile's AWS spectrum would be held for future use in deploying AT&T's LTE network. AT&T would also eliminate most of the T-Mobile cell sites. While details are not available in AT&T's application, AT&T's plan of record will likely result in even more congestion and heavier use of the spectrally inefficient GSM and UMTS/HSPA+ technologies. AT&T's plan will also result in most customers being served by fewer cell sites. The negative consequences of these changes, including increased congestion at specific cell sites, slower data speeds, and more dropped calls, will offset many of the efficiencies that AT&T claims will result from its acquisition of T-Mobile.

VIII. AT&T'S CLAIMED UTILIZATION EFFICIENCIES ARE DIFFICULT TO EVALUATE, ARE AT BEST BASED ON ONE-TIME AND SHORT-LIVED BENEFITS, AND ARE NOT APPLICABLE TO ITS DATA NETWORK

33. It is unclear whether AT&T's claimed network utilization efficiencies of 10-15% extend to the data network that represents the future of its network operations.²⁴ It appears that these purported efficiencies are only applicable to its voice network,²⁵ and, even if these gains were documented with sufficient specificity to verify that AT&T could achieve them, they do not

²⁴ Hogg Decl. at ¶ 50.

²⁵ The relationship of offered traffic load and carried traffic load on a voice network can be engineered through an Erlang B statistical measurement. The offered traffic load is the product of the call arrival rate and the mean holding time, as each voice call occupies the channel for the duration of the conversation. In keeping with the Erlang B relationship, traffic capacity of the system increases non-linearly with the number of channels available to handle voice calls. Data traffic models, however, differ substantially from voice traffic models. Data traffic is transmitted over a "shared pipe" and the scheduler performs statistical multiplexing to ensure high utilization. Further, network protocols such as TCP/IP permit the retransmission of packets that are blocked or lost due to congestion. Given the dramatic differences between voice and data traffic engineering, AT&T has not provided the data and analysis need to substantiate how channel pooling gains would apply to data networks.

represent a substantial capacity increase when viewed as a percentage of overall traffic generated from its GSM/UMTS/HSPA+ network. By establishing a baseline of voice capacity on its archaic 2G network, AT&T has set its own bar exceptionally low. AT&T further fails to quantify these measures in the context of the spectrum harvested for its UMTS networks. In the end, these gains represent a one-time measure that is applicable to a legacy 2G network from which AT&T envisions it will migrate its users to its UMTS or LTE network as opposed to a merger-specific efficiency. AT&T is claiming to get efficiency gains from the older 2G network; it should have focused on upgrading its technology and device portfolio sooner.

34. Through the use of the airport ticket counter example, AT&T would lead us to believe that massive traffic handling efficiencies will be achieved through channel pooling; however, AT&T itself admits that the gains are modest, with only 10-15% improvements in many areas and presumably less or none at all elsewhere.²⁶ AT&T's airport ticket counter example is misleading because it illustrates the channel pooling gains that can be achieved for a low number of channels. AT&T itself has acknowledged that control channel efficiencies will only be applicable for voice traffic and not for data traffic. Since AT&T claims that its data network is congested and is experiencing high traffic, it will not gain much efficiency by acquiring T-Mobile. As already noted earlier in this declaration in paragraph 16, voice usage per subscriber has been declining for the last three years.²⁷

35. While it may be feasible for AT&T to reclaim spectrum through control channel aggregation, these benefits will neither be immediate nor lasting. While the amount of spectrum

²⁶ Hogg Decl. at ¶ 52 & fn. 20.

²⁷ CTIA Survey; SMC analysis.

that may be reclaimed sounds exciting in aggregate – 4.8 to 10 MHz²⁸ – AT&T provides no data to substantiate this claim. Nor does AT&T offer an estimate of how soon or how often this degree of reclamation would prove feasible. As a practical matter, it would appear that achieving the proposed levels of reclaimed spectrum will be a time consuming process. Much of what will initially be reclaimed will be small amounts, potentially single GSM channels, scattered over the various bands in use. Considerable frequency planning will likely be needed to reorganize the freed-up spectrum into blocks usable for 3G. Therefore, AT&T will likely put the reclaimed spectrum into immediate use for GSM voice or SMS capacity relief because the more efficient alternative of reclaiming the spectrum for data usage would require more time and money, which will perpetuate the cycle of investment in inefficient 2G GSM technology.

IX. AT&T’S CLAIM THAT IT NEEDS TO ACQUIRE T-MOBILE TO DEPLOY A NATIONWIDE LTE NETWORK IS BASED ON ERRONEOUS ASSUMPTIONS

36. In its Application, AT&T announces that it needs access to an unencumbered “contiguous 20 MHz” everywhere in the United States regardless of population density and asserts that its proposed acquisition of T-Mobile will satisfy this ostensible need. As explained below, AT&T probably does not need a “contiguous 20 MHz” anywhere, but it almost certainly does not need a “contiguous 20 MHz” everywhere. Even if AT&T needed a “contiguous 20 MHz” of spectrum everywhere regardless of population density or demand, AT&T already holds at least a “contiguous 20 MHz” of unencumbered spectrum for approximately 70% of the United States population prior to its proposed acquisition of T-Mobile. *See* Figure 6. Finally, while AT&T does not plainly define the term “contiguous 20 MHz” in its Application, I have assumed AT&T to mean one ten megahertz uplink paired with one ten megahertz downlink for a total of

²⁸ Hogg Decl. at ¶ 48.

20 MHz of “contiguous” spectrum; however, even if an unencumbered “contiguous 20 MHz” of spectrum actually means a total of 40 MHz of spectrum (*i.e.*, a 20 MHz uplink paired with a 20 MHz downlink), then AT&T’s acquisition of T-Mobile’s spectrum would not achieve that goal. As shown in Figure 5, the acquisition of T-Mobile would reach that level in only a handful of mostly rural counties. *See* Figure 5.

37. As a threshold matter, AT&T’s argument that it can only deploy the more efficient, fourth generation (“4G”) LTE technology with a minimum of 20 MHz of contiguous spectrum²⁹ is false. What remains unclear is AT&T’s usage of the term “contiguous 20MHz of spectrum.”³⁰ Industry nomenclature would define this as a 20 MHz x 20 MHz channel (*i.e.*, twenty megahertz for the base-to-mobile or downlink transmission and twenty megahertz for the mobile-to-base or uplink transmission). By industry definition, the additional amount of 20 MHz x 20 MHz contiguous spectrum gained by acquiring T-Mobile would be very limited (see below Figure 5).

²⁹ Contiguous spectrum means the ability to aggregate adjacent channels without gaps.

³⁰ Application at 5.

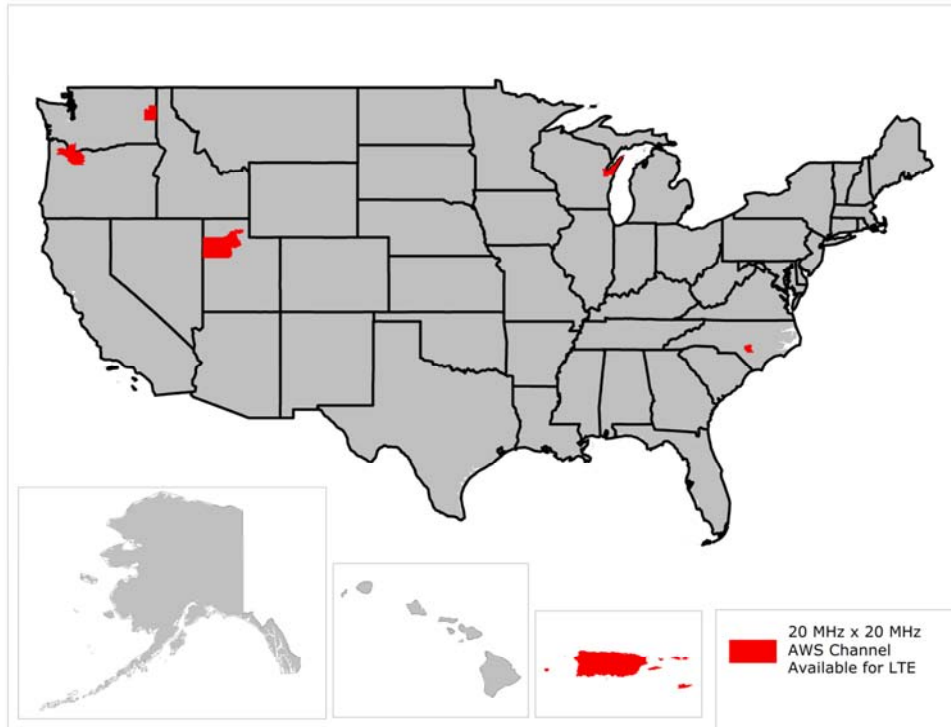


Figure 5: Additional 20 MHz x 20 MHz AWS Spectrum Obtained with T-Mobile Acquisition. *American Roamer, LLC is the creator and copyright holder of the coverage mapping data used in this analysis.*

38. AT&T’s use of term “contiguous 20MHz of spectrum”³¹ obfuscates the amount of spectrum it already holds, largely unused spectrum that provides a readily-deployable 10 MHz x 10 MHz channel. As seen in *Figure 6* below, AT&T already has capacity to cover more than 70% of the U.S. population with twenty megahertz (10 MHz + 10 MHz) of spectrum. Furthermore, LTE can be deployed on configurations smaller than 10 MHz x 10 MHz, for example on a 5 MHz x 5 MHz configuration. LTE supports scalable carrier bandwidths of 1.4, 3, 5, 10, 15, and 20 MHz.³²

³¹ *Id.*

³² LTE Release 8 Standards.

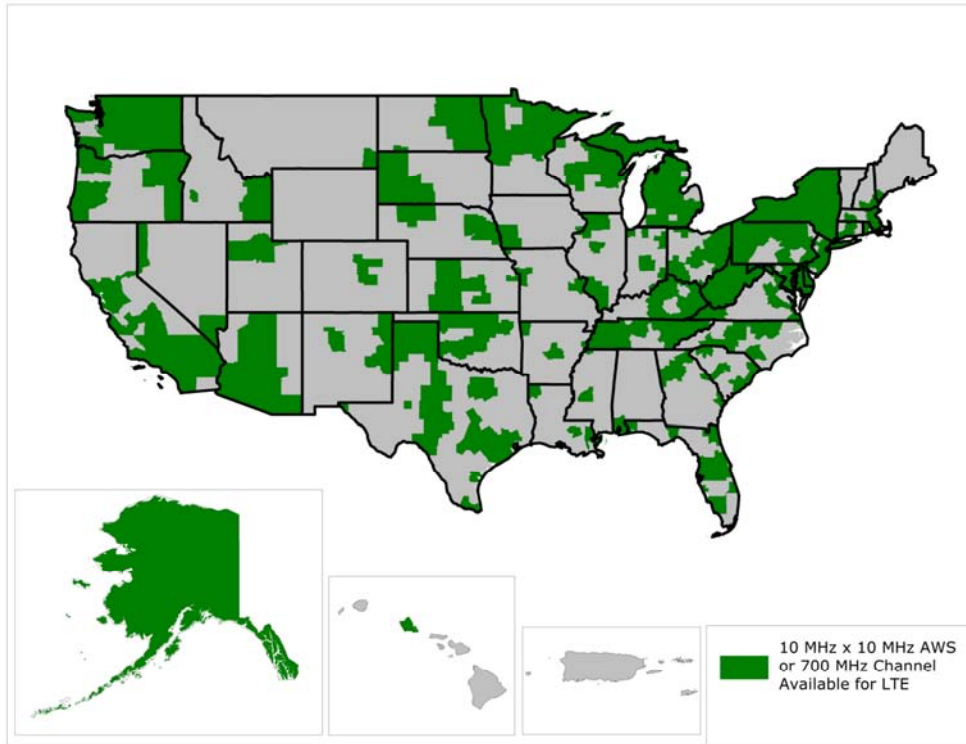


Figure 6: Current AT&T 10 MHz x 10 MHz Channel Coverage Reserved for LTE. *American Roamer, LLC is the creator and copyright holder of the coverage mapping data used in this analysis.*

39. Through the proposed acquisition, AT&T apparently seeks to gain access to additional spectrum needed to launch LTE in a 10 MHz x 10 MHz configuration for improved speed and spectral efficiency.³³ While a 10 MHz x 10 MHz configuration would certainly provide additional network capacity over alternative configurations using less spectrum, it is nonetheless possible for AT&T to initially launch service to greater than 95% of the population using its 700 MHz and AWS spectrum and through careful engineering, programmatic network expansion, and capacity management to provide a consistent user experience across the markets

³³ Application at 5.

it serves.³⁴ While a 10 MHz x 10 MHz configuration is desirable for highly-dense urban areas, other configurations can provide similar peak data speeds per user due to lower population densities in those areas. When operators deploy infrastructure, they develop deployment plans, including spectrum configurations, based on real-world conditions. To support its purported need for additional spectrum everywhere across the United States, however, AT&T essentially assumes that every area in the United States has a common level of population density and a common level of user demand. Similarly, AT&T relies upon theoretical peak user speed achievable in a test environment. Sound network engineering dictates that AT&T focus not on theoretical levels achievable in a test environment, but instead focus on designing network infrastructure for the best user experience in any particular location. In a real-world scenario, an LTE subscriber in New York City could very well experience lower average throughput while served by a 10 MHz x 10 MHz LTE network than a subscriber in rural Iowa served by 5 MHz x 5 MHz LTE network because of the lower user density in rural Iowa.

40. With significant nationwide spectrum holdings already lying fallow, AT&T can deploy LTE today in various configurations to achieve nearly nationwide coverage without acquiring T-Mobile. Although AT&T argues that it can only deploy LTE on 700 MHz and AWS spectrum, LTE standards approved by the 3GPP indicate that LTE can also be deployed on PCS (“LTE Band 2”) and cellular band spectrum (“LTE Band 5”). In fact, AT&T can deploy a 10 MHz x 10 MHz configuration to almost 70% of the most densely populated areas in the U.S. with its current 700 MHz or AWS spectrum holdings. Finally, AT&T’s claim that the acquisition of T-Mobile is necessary for AT&T to cover 97 percent of the U.S. population with

³⁴ Analysis of AT&T’s AWS and 700 MHz spectrum holdings indicates that it has sufficient spectrum to deploy one or more 5 MHz x 5 MHz carrier covering more than 295 million people.

LTE service is untrue. AT&T has already declared its intent to deploy LTE service starting in mid-2011, and is facing competitive pressures to accelerate its deployment from competitors with true 4G networks such as Verizon Wireless' LTE network and Sprint Nextel's WiMAX offering. With coverage already of 97% of the U.S. population today on its combined 2G and 3G network, AT&T could achieve this level of deployment by overlaying LTE coverage on its existing network to reach 97% of U.S. population. The process of overlaying equipment on existing cell sites merely involves installation of new equipment and saves on the cost and time required to build the physical infrastructure of a new site, not to mention time required to obtain necessary legal clearances.

PART C

Like many of its competitors, AT&T is facing congestion in some parts of its network – in some cities, particularly on its data network. More aggressively pursuing targeted, market-specific local solutions to its problems supported by smart engineering and management decisions offers a faster, more cost effective technical solution to AT&T's purported capacity constraints than acquiring another national network.

41. There are many economically viable and focused engineering solutions available to mobile network operators that can relieve substantial congestion on their networks. However, AT&T has not fully employed the full range of widely-available solutions to help address the significant growth in mobile data demand. Although AT&T claims that it has attempted to deploy some of these solutions on a limited basis, it fails to provide data to demonstrate their impact on its network performance or to explain why it cannot accelerate its use of these alternative technologies.

42. As the analysis conducted by Spectrum Management Consulting shows, in summary format in Figure 7 below, AT&T does not need to acquire T-Mobile to resolve its

claimed capacity and spectrum constraints. AT&T can meet its forecasted capacity demand using three levers, none of which require any T-Mobile assets. AT&T's demand forecast of data volume increasing by 8 to 10 times that of 2010 levels by 2015,³⁵ depicts an approximate six-fold increase in data traffic during the period from 2011-2015.³⁶ The execution of the three levers would increase AT&T's average downlink capacity in Mbps by over 600% by the year 2015, as modeled for the Los Angeles market, without the need to acquire additional spectrum or a significant national competitor. The resulting capacity gain represents only the downlink portion of traffic, widely regarded as 80% of total traffic,³⁷ hence providing ample gains to meet the demand forecast.

³⁵ Application at 4.

³⁶ *Id.*

³⁷ *Data Usage Forecast*, CISCO ARTICLES (Feb. 12, 2011), available at: <<http://www.ciscoarticles.com/3G-Wireless-Networks/Data-Usage-Forecast.html>>.

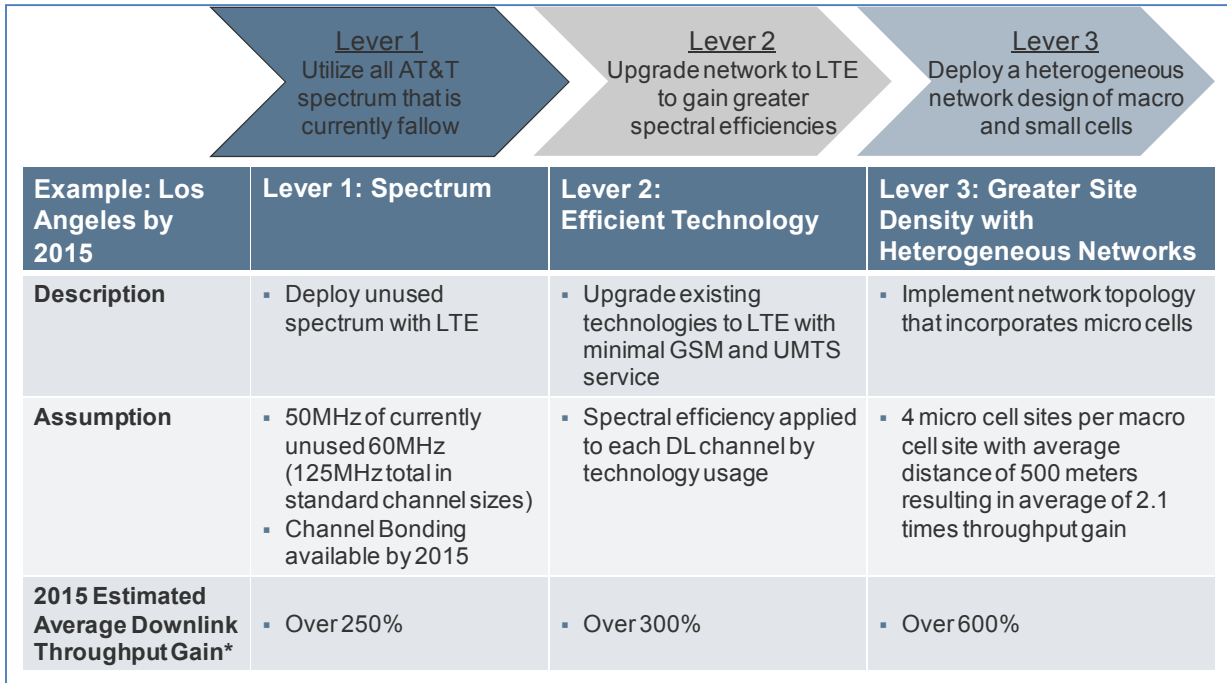


Figure 7: Calculated throughput gains in AT&T's Los Angeles market based on application of three widely recognized capacity-gain measures

* Downlink represents 80% of traffic mix / capacity demand

43. The remaining sub-sections of this Part C outline specific solutions that are available and the extent to which AT&T appears to have employed them.

X. DEPLOYMENT OF NEW CELL SITES, SPLITTING EXISTING SITES

44. One of the stated goals of AT&T's acquisition of T-Mobile is to split the traffic on one existing site across two sites. This traffic-splitting exercise can be done either by increasing the number of antennas and sectors on a single site, for example, from three sectors to six sectors, deploying a new site on an existing tower or building, or by constructing a new site altogether. For example, the benefit of increasing the number of sectors on a typical site from three to six can improve the throughput of a cell site, and therefore the effective coverage area,

by a factor of 1.7. While AT&T alludes to the ostensible difficulty of splitting a cell site,³⁸ AT&T provides no data to indicate why it has or has not been able to successfully pursue any of the cell split strategies in specific, constrained areas.

45. AT&T also claims it has installed thousands of cell sites, but its current capacity issues would indicate that it has failed to deploy sites aggressively enough to resolve the problems that AT&T's design choices and business model have created for itself. On the other hand, entities like Clearwire were able to add 10,000 sites in 2010.³⁹ AT&T, however, admits it has not been able to deploy its 2010 plan of record. A&T has not offered any clear evidence on *why* it was unable to meet its plan of record for network expansion. Also, the problems AT&T faces in the San Francisco Bay Area should not be held as a proxy to illustrate AT&T's claims of zoning difficulties, because problems in the dense, topographically diverse terrain of San Francisco are hardly typical of national site builds.⁴⁰

46. If needed, AT&T can achieve the same cell site splits it claims would result from a T-Mobile takeover by entering into a number of arrangements short of a takeover of one or more of its competitors, such as a tower-sharing agreement with T-Mobile or any other mobile network operator, or a lease agreement with one of the tower companies. Such agreements would allow AT&T to gain immediate access to thousands of sites, including both traditional towers and rooftop locations prevalent in dense, urban areas. AT&T's claim that it is unable to access these towers lacks any hard data and fails to account for the industry's vast tower

³⁸ Hogg Decl. at ¶ 69.

³⁹ Dan Meyer, *Clearwire posts strong Q4 wholesale growth, cost conservation remains intact*, RCR WIRELESS (Feb. 17, 2011), available at: <<http://www.rcrwireless.com/ARTICLE/20110217/CARRIERS/110219933/clearwire-posts-strong-q4-wholesale-growth-cost-conservation-remains>>.

⁴⁰ Hogg Decl. at ¶ 70.

inventory. Even if a tower is fully loaded, measures can be undertaken to reinforce it and open additional space on it. Total available tower capacity in the U.S. is estimated to be over 250,000⁴¹ and AT&T is estimated to utilize less than 25% of available sites. Spending \$39 billion to gain access to T-Mobile sites is a very high cost to pay for tower capacity. Even if some fraction of T-Mobile's cell site locations were uniquely matched in AT&T's areas of need, a tower-sharing arrangement with T-Mobile in congested areas such as San Francisco could address site-location issues far less intrusively and far less disruptively to competition than the proposed acquisition.

XI. DEPLOYMENT OF SMALLER CELL-SITES TO GREATLY INCREASE SPECTRUM RE-USE AND AVAILABLE CAPACITY

47. Although AT&T's Application makes references to the evolving cellular network architecture, especially the advent of heterogeneous networks, it does not explain why it is not sufficient for AT&T to evolve its network beyond today's macro cell based architecture. It is unclear whether AT&T has been unusually slow to adopt these new features on its network and is thus experiencing what it claims to be a capacity constraint.⁴² The goal of LTE is to not only improve spectral efficiency through new antenna technologies such as Multiple Input Multiple Output ("MIMO") and beamforming, as well as higher modulation and coding schemes, but also to improve the performance of wireless networks by changing the network topology. Thus, LTE aims to improve the spectral efficiency per unit area covered. Using a mix of macro cells, micro cells with smaller network footprint (sometimes called pico / relay cells), and femto cells is an

⁴¹ *Wireless Quick Facts*, CTIA, available at: <<http://www.ctia.org/advocacy/research/index.cfm/aid/10323>>.

⁴² Application at 1.

effective way to relieve capacity constraints.⁴³ These smaller cell sites are often complemented by other means of providing additional spectrum re-use and enhanced capacity in targeted areas. DAS and smaller, compact radio technologies such as Alcatel Lucent's lightRadio⁴⁴ are also very cost-effective ways to reduce capacity constraints on carriers' networks. These techniques also have an added advantage of providing better indoor coverage when compared to macro cell-sites.

48. These technologies and innovations are the fundamental philosophies and operating principles of the mobile network industry itself. The ability to increase the reuse of spectrum compared to the more inefficient broadcast approaches used for decades, leads to more capacity on a per area basis. Also having cell sites closer to users allows the system to use a higher modulation and coding scheme, improving the spectral efficiency of the network on a per channel basis. The cellular industry is defining how these heterogeneous networks will work by focusing on advanced techniques for managing and controlling interference in future releases of mobile communications standards. These standards are expected to be defined by 2012 in LTE Release 10, with certified commercial products ready for implementation the year after. *These improvements in cellular technology and standards are expected to be realized long before AT&T has claimed it will begin realizing improvements from the T-Mobile acquisition.*⁴⁵

49. Moreover, heterogeneous networks not only represent an important tool to increase network capacity, but also are likely to prove essential to achieving a consistent end-

⁴³ While LTE has been designed for supporting Heterogeneous Networks, UMTS/HSPA+ technologies also support these techniques to improve spectral efficiency and coverage of a network

⁴⁴ See Features, *lightRadio*, Alcatel-Lucent, available at: <www.alcatel-lucent.com/lightradio> (last visited May 28, 2011).

⁴⁵ Based on conservative estimates of the complete FCC and DOJ reviews of 12 months plus 9 months to begin site integration synergies.

user experience. If AT&T does not embrace the use of heterogeneous networks, then its users will continue to experience variable throughput as they are mobile. By implementing small cells within the network to complement the macro network, the user experience will become more uniform. Analysis performed by Qualcomm⁴⁶ in a mixed deployment of macro cells and pico / relay cells has demonstrated that throughput per user improves 2.5 times on both uplink and downlink for median cases while it improves 2.1 times on downlink and 1.5 times on uplink at the edge of the cell site. These improvements were made possible because some users experienced higher modulations by being closer to the smaller cells, while fewer users were on the macro network and the devices being served by the small cells are likely to be at lower power levels thereby decreasing the level of interference to others.

50. Finally, AT&T's focus on increasing its macro cell density through the acquisition is ill-conceived and against the growing trend of utilizing small cell site-based network architectures. AT&T claims that the cell splits resulting from the proposed transaction will effectively double the amount of network traffic that can be carried using existing spectrum in the areas served by those cell sites. In making this claim, AT&T ignores the diminishing returns resulting from continued cell splitting of macro cell sites, a cellular architecture inherently non-optimal for serving areas of high traffic density.⁴⁷ In the most congested markets, where capacity is needed most, the addition of new macro cells will not result in a doubling of traffic capacity unless perfect conditions exist to manage the interference among nearby cells.

⁴⁶ LTE Advanced: Heterogeneous Networks, Qualcomm, *available at*: <http://www.qualcomm.com/videos/lte-advanced-heterogeneous-networks>.

⁴⁷ Presentation by Kris Rinne, *Building the Nation's Most Advanced Mobile Broadband Experience*, AT&T Industry Analyst Conference (May 11, 2011), *available at*: http://www.att.com/Common/about_us/downloads/building_the_nations_most_advanced_mobile_broadband_experience.pdf ("Rinne Presentation").

The gains in capacity by increasing the density of cell sites are offset by losses due to interference and operational challenges when cell radii decrease below 300-400 meters.⁴⁸

Average cell radius in an urban environment is approximately 800 meters and decreasing with the growth and consolidation of mobile networks.⁴⁹ Without access to detailed capacity plans for the integrated network, the proposed “effective doubling” of capacity AT&T asserts may be more wishful thinking than reality.⁵⁰

XII. INCREASING CAPACITY AND COVERAGE USING RADIO ACCESS NETWORK (RAN) SHARING

51. AT&T can achieve its stated goal of dramatically increasing site density and traffic capacity through a multi-operator Radio Access Network (“RAN”) sharing arrangement with one or more network operators, including T-Mobile. RAN sharing is technically feasible and has had demonstrated success in international markets. ABI Research’s report on Multi-Operator RAN Sharing finds that the worldwide combined OPEX and CAPEX savings from active infrastructure sharing could amount to as much as \$60 billion over the next five year period.⁵¹ The study finds that operators could enjoy at least 40% cost savings in addition to those available from passive site sharing. Some examples of successful RAN sharing are:

- Orange and T-Mobile have created a joint venture named Everything Everywhere to enable RAN sharing in the UK market; and
- Tele2 and Telenor have also implemented RAN sharing for LTE in Sweden.

52. RAN sharing can be either passive or active. Passive sharing generally includes shared use of the site structure, *i.e.*, the tower or rooftop, cell site cabinet, power, and HVAC

⁴⁸ SMC Analysis based on study of dense urban cellular networks.

⁴⁹ *Id.*

⁵⁰ Application at 34.

⁵¹ See ABI Research Report on Multi-Operator RAN Sharing.

environmental. By comparison, active sharing achieves a tighter integration of cell site assets through shared use of the antenna system, base station equipment, and backhaul connection. In essence an active RAN sharing arrangement is similar to AT&T's proposed use of existing T-Mobile cell sites but without the anti-competitive harms resulting from the merger. Specific advantages of RAN sharing include:

- Immediately accessing existing sites for expanding coverage and/or capacity;
- Selectively accessing sites and introducing additional network capacity based on prioritized needs; and
- Achieving similar CAPEX and OPEX advantages as the proposed network integration.⁵²

XIII. OFFLOADING ADDITIONAL DATA USAGE FROM THE CELLULAR NETWORK TO ALTERNATIVE NETWORKS USING WI-FI

53. With its purchase of Wayport, AT&T increased its dominant ownership of public Wi-Fi hotspots. AT&T's Application claims ownership of 24,000 Wi-Fi hotspots. This total, however, is just one hotspot for every 4,000 AT&T subscribers, meaning that an extremely small percentage of AT&T's data traffic is likely being carried via the highly-efficient and low-cost Wi-Fi network.

54. While AT&T has trumpeted the creation of Wi-Fi "Hot Zones" in areas such as New York's Times Square and San Francisco's Embarcadero shopping complex, it has been slow to make such capabilities and capacity broadly available. Densely-used areas such as Washington, D.C.'s National Mall and New Orleans' French Quarter still lack any substantial Wi-Fi coverage.

⁵² *Id.*

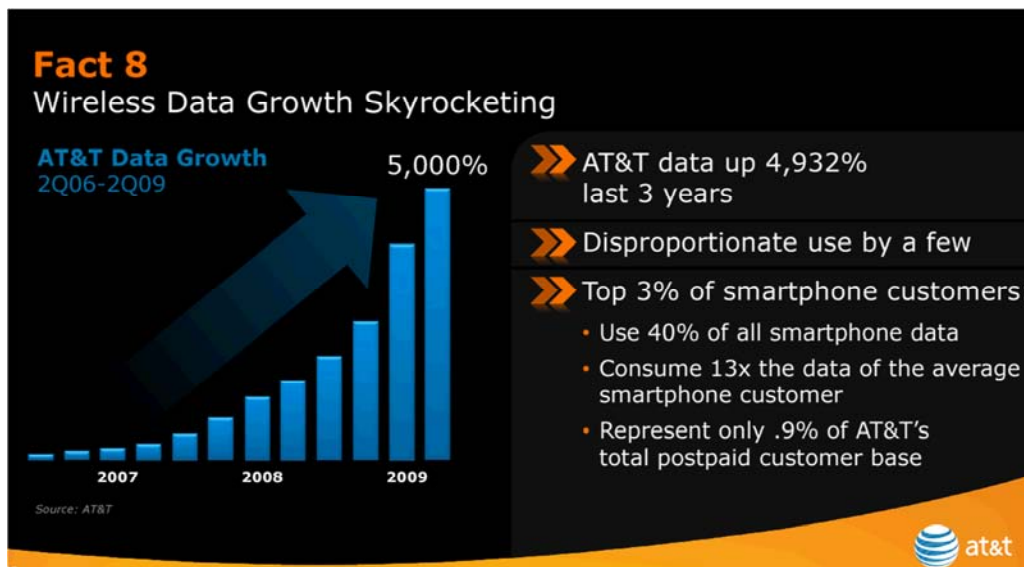


Figure 8: Slide from AT&T explaining how a small number of users on their network generate most data traffic on their network

55. The CTIA-IT September 2009 Keynote Address by AT&T highlighted the disproportionate impact of a few users on the cellular network. The top 3% of smartphone users generate 40% of all smartphone data.⁵³ These users are generating 13 times the data of an average smartphone user and represent only 0.9% of all users, voice and data combined. There are a number of techniques that can be applied to limit or create a fairer environment, including data usage policy management, improved fairness algorithms and pricing differentials. Also, offloading these high data users onto Wi-Fi networks would benefit all the users on the mobile network and would also create a better experience for the high data users.

⁵³ Mark Sullivan, *AT&T Wireless CEO Hints at 'Managing' iPhone Data Usage*, COMPUTER WORLD (Oct. 8, 2009), available at: <http://www.computerworld.com/s/article/9139151/AT_T_Wireless_CEO_Hints_at_Managing_iPhone_Data_Usage>.

XIV. USE OF IN-BUILDING WIRELESS SYSTEMS TO ENABLE IMPROVED COVERAGE AND OFFLOAD CAPACITY DEMANDS

56. In-building Wireless Systems, primarily enabled by Distributed Antenna Systems, have been widely available for more than eight years and are widely deployed in facilities ranging from stadiums and college campuses to airports and train stations. In areas of dense usage, these solutions are an effective and efficient means of offloading demand from the macro cellular network. AT&T's application does mention that it has "deployed indoor and outdoor distributed antenna systems ('DAS')...to offload traffic from AT&T's mobile broadband network and relieve congestion,"⁵⁴ but it goes no further in discussing the extent to which these systems have been deployed, or if further deployments are planned.

XV. USING CUSTOMERS' INFRASTRUCTURE TO INCREASE AVAILABLE CAPACITY AND OFFLOAD TRAFFIC FROM CARRIER'S NETWORK

57. Much of a user's total data traffic is generated in areas where alternatives exist to using AT&T network to carry that data traffic. Mobile users generate much of their data traffic from within the home or office. According to a recent Cisco study⁵⁵, the combined percentage of time, and thereby traffic, the average user devotes to using mobile Internet at home and in the office is 65%. In other words, just 35% of the total traffic generated by a user is "on the move."

⁵⁴ Application at 27.

⁵⁵ Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010–2015 at 10 (Feb. 1, 2011), *available at*: http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf ("Global Mobile Data Traffic Forecast Update"). While Cisco tends to be more aggressive with its forecasts of data growth, this forecast nonetheless illustrates that at home usage comprises a significant portion of a user's overall usage. Further, while the estimate is based on time, the data usage share is proportional to time as the types of applications a given user would utilize at home are no less bandwidth intensive than applications utilized while "on the move".

This data suggests that by utilizing techniques to “offload” user traffic to alternative technologies, enormous gains can be achieved in available network capacity and quality.

A. Home-Based Wi-Fi Networks

58. The use of Wi-Fi access points in the homes is widespread. These networks provide an efficient and secure method of traffic offload so long as users activate the Wi-Fi connection feature of their data device (*i.e.*, configure and associate with their home network). AT&T could implement network and device management features to take more advantage of home-based Wi-Fi networks.

B. Femto Cells (Personal Home-Based and Enterprise-Based Cell Sites)

59. In its filing, AT&T recognizes the benefits that very small cell architectures, including femto cells, can produce. Femto cells connect to an existing broadband connection such as DSL to improve network performance in home-based or enterprise-based environments. Femto cells reuse existing spectrum to carry both voice and data traffic. While AT&T recognizes the potential benefits of femto cells, it oddly claims that “these are designed to address in-home coverage issues more so than to increase network capacity,”⁵⁶ despite generally understood benefits of femto cells for capacity relief.⁵⁷ AT&T’s decision to categorize femto cells as a coverage solution is short sighted and is artificially limiting adoption. Instead, AT&T should substantially ramp up its efforts to deploy femto cells to meet both coverage and capacity demands.

⁵⁶ Hogg Decl. at ¶ 73.

⁵⁷ The Femto Forum, an industry organization comprised of mobile operators, telecom hardware and software vendors, and content providers, whose mission is to advance the development and adoption of small cells via femtocells, claims that a femtocell “enables capacity equivalent to a full 3G network sector at very low transmit powers.” *See* Femto Forum website, *available at*: <<http://www.femtoforum.org>>.

60. The potential benefit of femto cells to offload data traffic generated by users within the home or office is substantial. Cisco has estimated that through 2015, more than 20% of smartphone generated traffic can be offloaded through femto cells⁵⁸ and that further growth of this offloading is limited only by the availability of a broadband connection in the home.

XVI. USING NEW, ADVANCED NETWORK, AND TECHNOLOGICAL FEATURES

61. Wireless carriers have many new technologies available that can help with making their network more efficient. These technologies are very cost-effective alternatives to buying additional spectrum. However, carriers have to be proactive in upgrading their network infrastructure to support these technologies and willing to invest in their network to keep it at the forefront of technological and standards evolution. AT&T can deploy Smart Antennas / MIMO carriers and implement increased sectorization (six-sector cell sites) to increase capacity in its existing network.

62. AT&T can also ensure that both its network and devices are more up-to-date in terms of the technology versions they support. As mentioned earlier, AT&T's flagship smartphone device, the iPhone 4, only supports HSPA 7.2 and does not support HSPA+. And, as the chart below suggests, HSPA+ is a more spectrally efficient technology than legacy GSM and UMTS technologies, and its increased use would improve the overall efficiency of the AT&T network if more of AT&T's devices were compatible with the HSPA+ standard.

⁵⁸ Global Mobile Data Traffic Forecast Update at 11.

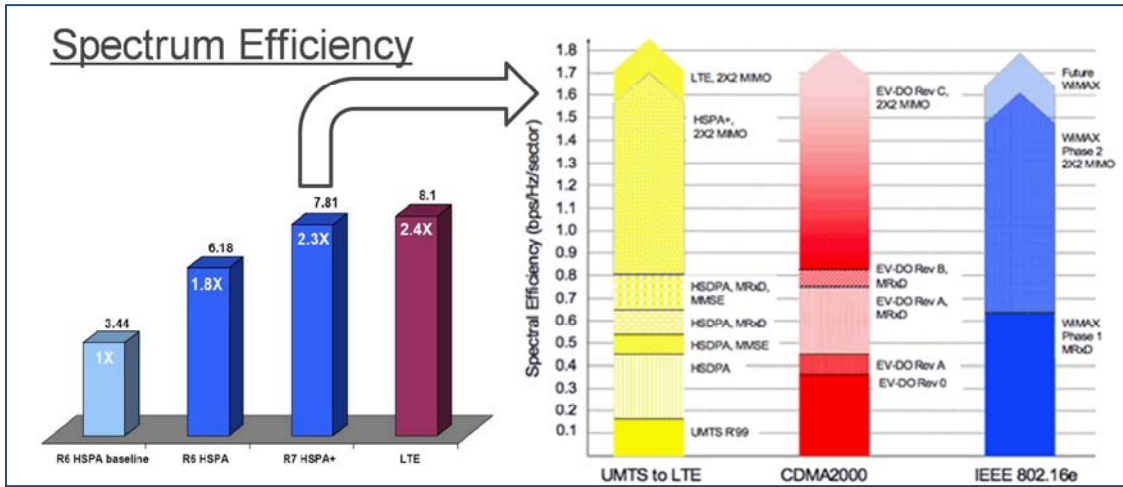


Figure 9: Spectrum efficiency of various 3G and 4G technologies.

63. There are also technologies in the LTE standards roadmap that will become available for AT&T to use well before demand on its yet-to-be-deployed LTE network increases. Carrier aggregation (also known as “channel bonding”) and related spectrum bonding techniques will be available in LTE Release 10, enabling AT&T to deploy LTE in additional spectrum bands including the 700 MHz spectrum that it has agreed to purchase from Qualcomm, subject to FCC approval.

64. The Application also does not account for the evolution of capabilities that are becoming available in LTE Advanced, also known as Release 10 or LTE-A. LTE-A will become available shortly after AT&T’s LTE network launch. These techniques include higher-order MIMO and carrier aggregation across multiple component carriers, which will further improve the spectral efficiency per link. With Release 10 and through the use of higher order MIMO configurations, AT&T could realize on the order of a *50% improvement* in spectral efficiency (e.g., a spectral efficiency of 2.4 bps/Hz for Release 10 using 2x2 MIMO, versus a spectral

efficiency of 1.6 bps/Hz for Release 8). This increase in spectral efficiency is nearly equivalent to the increase that AT&T will realize in upgrading from HSPA+ to LTE.

65. There are a number of features included in LTE Advanced that will improve overall network efficiency. The technology components being identified as Study Items include:

- MIMO up to 8x8 in DL and 4x4 in Uplink and enhanced beamforming for Downlink and Single user MIMO for UL;
- Coordinated multiple point transmission and reception (“CoMP”) to improve performance on the cell edge;
- Relay nodes in band or outer band;
- Carrier aggregation (or channel bonding) (Release 10);
- Autonomous component carrier selection for uncoordinated small cell deployment; and
- New reference signal for closed-loop spatial multiplexing.

66. AT&T is also already leading the way in 3GPP Working Items in RAN 4 with regards to carrier aggregation,⁵⁹ presumably to support its planned use of the spectrum it expects to gain from its acquisition of Qualcomm’s spectrum in the 700 MHz band. These working items will become part of the standard and enable AT&T to aggregate larger channels in separate bands and gain the performance as if they were all one continuous channel. AT&T will effectively create additional LTE capacity, independent of the proposed T-Mobile acquisition.

XVII. INCREASE AVAILABLE BANDWIDTH IN BACKHAUL/TRANSMISSION NETWORK

67. The mobile network consists of many parts and hence contains more than one point for potential congestion. While the Application has focused primarily on the challenges faced in its air interface or RAN, the transmission network connecting the cell sites to its core

⁵⁹ See *Active 3GPP Work Items for group: R4, 3GPP, available at: <<http://www.3gpp.org/ftp/Specs/html-info/TSG-WG--R4--wis.htm>>*. Currently more than 18 Work Items are related to carrier aggregation for LTE Release 10.

network and the Internet is just as important. Often, mobile network operators are able to boost their network performance simply by upgrading the capacity available in the backhaul network.⁶⁰ AT&T, with the vast transmission network assets it owns, is capable of adding more capacity to its cellular backhaul network but has not taken proactive steps in this direction. Although it is unclear how many of AT&T's cell sites have today, or will have in the future, enhanced Ethernet connections, AT&T plans to carry only two thirds of its traffic on enhanced Ethernet by the end of 2011.⁶¹

XVIII. CONCLUSION

68. The conclusion of my analysis is that the Commission should reject AT&T's argument that the proposed integration of AT&T's network with that of T-Mobile is the best and only cure for AT&T's claimed capacity crunch. AT&T claims that significant benefits such as access to new sites otherwise not available to it, more efficient use of available spectrum, increased network coverage, and enhanced ability to offer 4G services are impossible to substantiate given the limited data and analysis in AT&T's Application. My analysis and

⁶⁰ AT&T, for example, indicates in the Application that they have deployed HSPA+ to all of its UMTS sites. See Hogg Decl. at ¶ 22. However, AT&T's website acknowledges that "4G speeds require a 4G device and are delivered when HSPA+ technology is combined with enhanced backhaul. 4G speeds are available in select cities with availability increasing with ongoing backhaul deployment." See Answer Center, *Just how fast is AT&T 4G?*, AT&T Wireless, available at: <http://www.wireless.att.com/answer-center/main.jsp?t=solutionTab&ft=&ps=solutionPanels&locale=&_dyncharset=UTF-8&solutionId=KB115947> (last visited May 27, 2011). AT&T's website also indicates that "AT&T is constantly deploying upgraded backhaul to deliver 4G speeds. By the end of 2011, we expect approximately 2/3 of our mobile broadband traffic to be delivered over our enhanced network." See Answer Center, *Where and when will 4G from AT&T be available to me?*, AT&T Wireless, available at: <http://www.wireless.att.com/answer-center/main.jsp?t=solutionTab&ft=&ps=solutionPanels&locale=&_dyncharset=UTF-8&solutionId=KB115948> (last visited May 27, 2011). AT&T could increase the usability and performance of their HSPA+ network by expediting the roll-out of their enhanced backhaul network.

⁶¹ Rinne Presentation at 19.

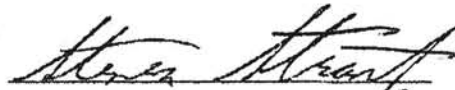
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experience suggests that these claims are highly unlikely to occur. Yet even if I were to take AT&T's claims at face value, these supposed benefits will be short term, one-time gains that will not have a material impact on AT&T's preexisting ability to meet its own capacity needs over the long term.

69. AT&T should pursue new technologies and strategies to use its vast spectrum holdings more efficiently, and thus manage the growing traffic on its network, just as its competitors do. If the proposed acquisition of T-Mobile were authorized, it would only further delay AT&T's implementation of efficiency measures and encourage AT&T to continue to use conventional technology, applied with diminishing returns, to address rapidly increasing capacity needs. Approving the merger will perpetuate the inefficient use of spectrum that AT&T has been pursuing by choosing to keep its subscribers on older technologies and retaining unused spectrum.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Executed on May 29, 2011.



Steven Stravitz
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ATTACHMENT H

DECLARATION OF SCOTT KALINOSKI

WHOLESALES SALES DIRECTOR

SPRINT NEXTEL CORPORATION

DECLARATION OF SCOTT KALINOSKI

I, Scott Kalinoski, hereby declare as follows:

I. BIOGRAPHICAL INFORMATION

1. My name is Scott Kalinoski and I currently hold the position of Wholesale Sales Director at Sprint Nextel Corporation (“Sprint”), managing sales and support to customers from the cable segment of the communications industry. I am responsible for marketing and selling Sprint’s wireless and wireline network services to cable operators, enabling these operators to repackage these services and sell them to their own customer base. I have been at Sprint for over fifteen years, holding various operations and sales positions primarily within Sprint’s Wholesale organization. Prior to my time at Sprint, I worked at Cincinnati Bell Telephone as a Network Planner. I earned a Bachelor of Science degree in electrical engineering from Purdue University and a Masters of Business Administration degree from the University of Cincinnati.

II. COX COMMUNICATIONS IS A REGIONAL MOBILE VIRTUAL NETWORK OPERATOR, RELYING EXCLUSIVELY ON SPRINT’S 3G NETWORK

2. In April 2008, Sprint and Cox Communications (“Cox”), the nation’s third-largest cable operator, entered into a wholesale agreement for the provision of mobile wireless service. Pursuant to this agreement, Cox has become a “Mobile Virtual Network Operator” (“MVNO”) in areas within its cable service footprint, relying on Sprint’s 3G Code Division Multiple Access (“CDMA”) network. As an MVNO, Cox purchases wireless capacity from Sprint and resells mobile wireless service to customers under its own brand, performing all marketing, billing, collections, and customer service for those subscribers. Cox launched its mobile wireless offerings in November 2010, and today it provides this service to a number of markets within its

cable footprint. Cox currently has no facilities-based wireless operations, and is providing mobile wireless service exclusively as an MVNO under its agreement with Sprint. In addition to its MVNO operations, Cox holds licenses in certain markets using its licensed Advanced Wireless Services (“AWS”) spectrum (1710-1755 MHz/2110-2155 MHz). On May 24, 2011, Cox announced publicly that it was terminating an effort to build out this AWS spectrum.¹ According to Cox, it made this decision because the MVNO model provides a more cost-efficient means of rapidly delivering its wireless offerings to additional markets.² While Cox holds Lower 700 MHz band licenses in certain markets, it is my understanding that it has not built out this spectrum. Thus, at least for the near term and perhaps much longer, Cox will serve its wireless customers exclusively as an MVNO utilizing Sprint’s 3G mobile network.

3. As an MVNO utilizing Sprint’s 3G network, Cox in my view is not a direct competitor to Sprint. Cox’s wireless business is dependent on Sprint’s 3G network, and Sprint receives additional revenue for each additional subscriber gained by Cox. Thus, Cox has only a limited ability to compete against Sprint.³ In addition, as indicated above, Cox offers MVNO

¹ See *Cox Wireless to abandon 3G network build in favor of Sprint Nextel wholesale agreement*, RCR WIRELESS NEWS (May 24, 2011) available at: <<http://www.rcrwireless.com/article/20110524/CARRIERS/110529966/-1/cox-wireless-to-abandon-3g-network-build-in-favor-of-sprint-nextel>>.

² *Id.*

³ In its Commercial Mobile Radio Service (“CMRS”) competition reports, the Federal Communications Commission “Commission”) has stated that “because MVNOs purchase their mobile wireless services in wholesale contracts from facilities-based providers, the ability of MVNOs to compete against their host facilities-based provider is limited.” *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Fourteenth Report, 25 FCC Rcd 11407, ¶ 32 (2010). In these CMRS competition reports, the Commission does not count MVNOs as separate competitors from their underlying facilities-based providers in its analysis of market structure. *Id.*

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service to the public only within its cable service footprint, which passes approximately ten percent of all U.S. households. Thus, Cox is only a regional provider of mobile wireless service, rather than a national provider.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 28, 2011

Scott Kalinoski
Scott Kalinoski

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ATTACHMENT I

DECLARATION OF GREGORY D. BLOCK

TREASURER

SPRINT NEXTEL CORPORATION

DECLARATION OF GREGORY D. BLOCK

I, Gregory D. Block, declare as follows:

1. I am Gregory D. Block, Treasurer for Sprint Nextel Corporation ("Sprint").
2. I make this declaration in support of Sprint's Petition to Deny the Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations.
3. There are several advantages to funding research and development and capital expenditures through internal funds rather than external sources, such as loans and bond offerings. Sprint is far more constrained than AT&T and Verizon in its ability to use internal funds because of its lower relative cash-flow generation.
4. Since AT&T and Verizon generate a disproportionately greater amount of internal funds than Sprint, Sprint has to rely more on external financing for capital expenditures and innovation investments. Currently, Sprint has total borrowings of **[begin confidential information]** [REDACTED] **[end confidential information]**. Sprint's greater reliance on external financing means that Sprint has lower credit ratings and pays higher interest rates on its debt than AT&T and Verizon. Currently, the Moody's credit rating for Sprint is Ba3, compared to A2 for AT&T and A3 for Verizon. In addition, Sprint's ratio of earnings before interest, taxes, depreciation, and amortization ("EBITDA") to interest expense is lower than AT&T's and Verizon's. Within the capital markets, this is considered to indicate that Sprint represents a higher credit risk than AT&T or Verizon. Sprint's EBITDA-to-interest-expense ratio is 4.0, whereas AT&T's is 13.0 and Verizon's is 12.3. As a result, Sprint has higher relative borrowing costs and a more limited borrowing capacity than AT&T and Verizon.

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5. Given Sprint's lower credit rating, the company must turn to the high-yield market for its debt offerings. AT&T and Verizon, on the other hand, can turn to the investment-grade debt markets. Because Sprint borrows in the high-yield market, its borrowing costs are higher than AT&T's and Verizon's.

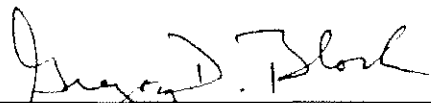
6. The high-yield markets are much more susceptible to interruption compared to investment-grade markets, especially during times of crisis when companies need the most support. During the financial crisis of 2008, while the volume of new bond issuances came down, the investment-grade market was rarely interrupted. On the other hand, both the new issuance volume and the active days of issuance dropped significantly for the high-yield bond market. For instance, there were only 77 days of market activity for issuing new high-yield bonds.

7. If AT&T acquires T-Mobile, and Sprint's costs increase and market share decreases, the above-described financing disadvantages would be exacerbated. A lower market share would likely lead to decreased revenues and a decline in our internal funds for investment. This would increase Sprint's reliance on external capital sources. A greater reliance on external funding would increase Sprint's borrowing costs, expose it to deeper market volatility, and reduce its ability to finance capital expenditures and innovations to maintain its national network. Sprint would also have to hold more cash as reserves to service debt and to weather market volatility. If Sprint had been able to hold the same cash and cash equivalents as a percentage of short-term borrowings as AT&T and Verizon, it would have held \$2.5 billion less cash and cash equivalents for 2008, \$3.4 billion less for 2009, and \$3.7 billion less for 2010.

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I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 27, 2011

A handwritten signature in black ink, appearing to read "Gregory D. Block", written over a horizontal line.

Gregory D. Block

Treasurer

Sprint Nextel Corporation