

July 7, 2011

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VIA ECFS

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, S.W.
TW-A325
Washington, DC 20554

Re: Notice of Ex Parte Presentation: *In the Matter of 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

Dear Ms. Dortch:

On July 6, 2011, Dr. Leslie M. Marx, Professor of Economics at Duke University, Debbie Goldman of the Communications Workers of America (CWA), and the undersigned, on behalf of CWA, met with Jonathan Baker, Greg Rosston, and Paul LaFontaine of the Office of Strategic Planning and Policy Analysis; Renata Hesse, Senior Counsel to the Chairman for Transactions; Paul Murray, Patrick DeGraba, Susan Singer, Catherine Matraves, and Elliott Maenner of the Wireless Telecommunications Bureau; and Jim Bird, Virginia Metallo, and Joel Rabinovitz of the Office of General Counsel.

In this meeting, Dr. Marx discussed the findings of her Economic Report on the Proposed Acquisition of T-Mobile USA, Inc. by AT&T Inc. *See* Comments of Communications Workers of America, WT Docket No. 11-65 (filed May 31, 2011) (Exhibit B) (“Marx Report”) (attached to this letter). In particular, Dr. Marx explained why local markets are the relevant geographic markets for evaluating this transaction. She stated that consumers search for mobile telephony/broadband services in their local area; geographic price discrimination is feasible and occurs in practice; such discrimination is both unlikely to be defeated by arbitrage and is likely to be profitable; and service quality and capacity constraints vary across geographic areas. *See* Marx Report at 3-7. During this discussion, to demonstrate an example of price discrimination that takes place on a geographic basis, Dr. Marx showed Commission staff a mailing that she recently received at her home from Verizon Wireless, offering her a \$50 price discount that was tied to a specific phone number. A copy of this mailing is attached to this letter with Dr. Marx’s home address redacted.

July 7, 2011

Page 2

Dr. Marx also explained why it would be a mistake for the Commission to depart from its prior precedent and evaluate this transaction using a national geographic market. Among other things, she noted that a national market analysis would not reflect the reality of the competition among numerous service providers that occurs at the local level. To illustrate such competition, Dr. Marx played a Leap Wireless commercial targeting T-Mobile customers that aired last weekend in the Washington, DC market. While CWA does not have a downloaded version of this commercial, it may be found on the Internet at: http://www.youtube.com/watch?v=k4qSaH3y21o&feature=player_embedded.

In addition, Dr. Marx discussed why the Commission should continue employing a spectrum screen and urged the Commission to expand the spectrum that is included in that screen. Specifically, she explained why the screen should include at least 181 MHz of BRS/EBS spectrum, 90 MHz of MSS spectrum, and 25 MHz of WCS spectrum. *See* Marx Report at 9-12. Dr. Marx then reviewed her calculations on how the spectrum screen would apply to the AT&T/T-Mobile merger. In particular, she noted that were the Commission to include 181 MHz of BRS/EBS spectrum and 25 MHz of WCS spectrum in the screen but exclude all 90 MHz of MSS spectrum, the spectrum holdings of AT&T and T-Mobile would only exceed the screen in 10 CMAs. She then stated that if the 90 MHz of MSS spectrum was also to be added to the screen, it would flag zero CMAs. *See* Marx Report at 13. Dr. Marx also pointed out how the spectrum holdings of AT&T and T-Mobile vary widely across CMAs, *see* Marx Report at 16 (Figure 2), thus reinforcing the conclusion that this transaction should be evaluated using a local geographic market, rather than a national one.

Finally, Dr. Marx disputed the argument set forth by some in this proceeding that postpaid retail wireless services constitute a relevant product market. *See, e.g.*, Sprint Nextel Corporation Petition to Deny, WT Docket No. 11-65 (filed May 31, 2011), Attachment A (Economic Analysis of the Merger of AT&T and T-Mobile, Joint Declaration of Steven C. Salop, Stanley M. Besen, Stephen D. Kletter, Serge X. Moresi, and John R. Woodbury of Charles River Associates). Dr. Marx noted that the line between “prepaid” and “postpaid” was becoming blurred from the standpoint of the consumer and that demand substitution existed between the two methods of payment for wireless services. Moreover, she explained that even if one were to define postpaid retail wireless services as a separate product market, the transaction was unlikely to produce significant competitive effects in that market due to supply substitution (*i.e.*, the ability of providers of prepaid services to switch to postpaid services).

In accordance with the Commission rules, this letter is being filed electronically with your office for inclusion in the public record.

July 7, 2011
Page 3

If there are any questions regarding this matter, please contact the undersigned at 202-457-7503.

Respectfully submitted,



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Attachments

**ECONOMIC REPORT
ON THE PROPOSED
ACQUISITION OF T-MOBILE USA, INC. BY AT&T INC.**

**BY
LESLIE M. MARX
Professor of Economics, Duke University
and Former Chief Economist, Federal Communications Commission**

May 31, 2011

Table of contents

A. Executive Summary.....	1
B. Introduction.....	2
C. Relevant geographic markets are likely local	2
C.1. Standards for defining relevant markets.....	3
C.2. Geographic markets for mobile telephone service should be based on customer location	3
C.3. Geographic discrimination is feasible and occurs in practice	4
C.4. Geographic discrimination would not be defeated by arbitrage.....	6
C.5. Differential pricing between metropolitan areas likely is profitable	7
D. FCC spectrum screens to be applied to the merger should be broadly inclusive	8
D.1. Updated spectrum screens	11
D.2. Application of updated spectrum screens.....	12
D.3. Existing and potential competitors alleviate concerns	17
D.4. Further evaluation of spectrum screens	20
D.4.1. County-based application of the screen is conservative	20
D.4.2. Lack of CMA-wide availability of spectrum may reduce ATT-TMO's effective spectrum.....	21
D.4.3. Effects on investment need to be considered.....	21
D.4.4. Possible metrics for additional case-by-case analysis	21
D.5. Implementation of HHI-based screens	22
E. Traditional share-based screens may not accurately reflect competitive effects	23
E.1. Potential for entry and expansion	24
E.1.1. RPP versus CPP reduces barriers to entry and expansion	24
E.1.2. Policies that reduce switching costs promote competition.....	25
E.1.3. Policies that encourage new entrants promote competition	26
E.2. Role of innovative activity	26
Appendix	27
Detail of AWS availability by spectrum holder.....	27

List of figures

Figure 1: U.S. CMAs where ATT-TMO's spectrum holdings would be above and below the updated spectrum screen	14
Figure 2: ATT-TMO's spectrum holdings and CMA population	16
Figure 3: Population-weighted share of spectrum holdings (based on all AWS and attributable BRS spectrum)	18
Figure 4: Share of U.S. population in CMAs with a given number of spectrum owners	19

List of tables

Table 1: Number of CMAs where ATT-TMO's spectrum holdings would be above the spectrum screen	13
Table 2: CMAs where the spectrum screen including WCS and MSS spectrum is reached	15

A. Executive Summary

- (1) I have been asked by the Communications Workers of America (CWA) to offer my opinions about appropriate methods of analysis for several competition issues that will certainly arise during the review of the proposed acquisition of T-Mobile USA, Inc. by AT&T Inc. (“the merger” or “the transaction”). I am not offering an opinion on the merits of the merger itself.
- (2) I present three main conclusions in the three main sections of this report (Sections C, D, and E).
 1. Relevant geographic markets are likely local.
 2. Federal Communications Commission spectrum screens applied to the merger should be more inclusive than those applied during the evaluation of previous transactions.
 3. Traditional share-based screens may not accurately reflect competitive effects.
- (3) In Section C, I discuss the relevant geographic markets for the evaluation of the merger. I discuss how relevant markets would likely be local, based both on consumer demand and firm cost considerations. In particular, a hypothetical monopolist would likely engage in price discrimination by geographic area in response to differences in consumer demand and the local nature of capacity constraints (which are an aspect of firm costs).
- (4) In Section D, I discuss the role of spectrum screens and the appropriate screen to be applied to the transaction. The screen applied by AT&T Inc. (“ATT”) and T-Mobile USA, Inc. (“TMO”) in their Public Interest Statement was quite conservative. At a minimum, the WCS and MSS spectrum should be added to the screen for this transaction. In addition, the remaining unavailable AWS spectrum should probably be added as well, depending on when that spectrum becomes available and what time horizon the Federal Communications Commission and the U.S. Department of Justice (“the Agencies”) consider relevant. With this updated spectrum screen, there are no more than 31 Cellular Market Areas (CMAs) where the combined company’s spectrum holdings exceed the screen. For many of these, there are factors that reduce concerns of competitive harm. I identify a number of analyses that the Agencies might consider in order to evaluate whether these CMAs (or others) present a concern.
- (5) In Section E, I discuss reasons why traditional share-based concerns may not be as relevant in the evaluation of this transaction. There are factors that lead one to expect that new entry and expansion could (in a relatively short span of time) generate meaningful competition. In addition, the importance of innovative activity in the industry minimizes the market power associated with having a large market share under the current generation of technology.

B. Introduction

- (6) I have been asked by the Communications Workers of America (CWA) to offer my opinions about appropriate methods of analysis for several competition issues that will certainly arise during the review of the proposed acquisition of T-Mobile USA, Inc. by AT&T Inc. (“the merger” or “the transaction”). My opinions are based on my own training and experience, including my experience serving as Chief Economist of the Federal Communications Commission, as well as on a limited and preliminary review of publicly available data.
- (7) I have not been asked to undertake a complete analysis of the likely procompetitive or anticompetitive effects of the proposed merger. Nor do I have access to the data or information that would be required to conduct such a review. Therefore, I am not offering an opinion on the merits of the merger itself. Rather, the views expressed here should be regarded as suggested guidance for the investigation being conducted by the Federal Communications Commission (FCC) and the U.S. Department of Justice (DOJ) (collectively “the Agencies”) reviewing the merger.
- (8) I have specifically been asked to address the following questions:
 - a. Are relevant markets for mobile telephony/broadband service in the United States likely to be local or national?
 - b. How should spectrum ownership screens be applied to evaluate markets for mobile telephony/broadband service?
 - c. Do traditional share-based screens accurately reflect competitive effects in the markets for mobile telephony/broadband service?

C. Relevant geographic markets are likely local

- (9) The *Horizontal Merger Guidelines* issued jointly by the U.S. Department of Justice and the Federal Trade Commission identify two purposes for identifying relevant markets. Market definition “helps specify the line of commerce and section of the country in which the competitive concern arises” and “allows the Agencies to identify market participants and measure market shares and market concentration.”¹ The Federal Communications Commission has typically used market definition for similar purposes, e.g., for purposes of applying spectrum ownership screens as discussed below.

¹ U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines*, issued August 19, 2010 (hereafter “*Merger Guidelines*”), at Section 4. <http://www.justice.gov/atr/public/guidelines/hmg-2010.html>.

C.1. Standards for defining relevant markets

- (10) Roughly speaking, a relevant market should be broad enough so that an attempted exercise of market power within the market has some chance of success, but not so broad so as to obscure important local aspects of competition and possible harm. This concept is captured well in the hypothetical monopolist paradigm for defining markets described in the *Merger Guidelines* and is the approach that I adopt for purposes of this report. That is, I have considered whether a hypothetical monopolist of mobile telephony/broadband services in a candidate market would likely impose at least a small but significant and nontransitory increase in price (“a SSNIP”).² The *Merger Guidelines* make it clear that one should also consider whether a hypothetical monopolist would likely choose a reduced service quality instead of, or in addition to, a price increase, or, equivalently, whether the monopolist would likely impose a SSNIP in quality-adjusted prices.³
- (11) In thinking about geographic market definition for mobile telephony/broadband services, I have considered whether a hypothetical monopolist could discriminate on the basis of customer location. As the *Merger Guidelines* note, when such discrimination is possible, a region forms a relevant market if a hypothetical monopolist “would impose at least a SSNIP on some customers in the region.”⁴ As previously noted, it is appropriate to also consider the possibility of a local service quality reduction or a local SSNIP in quality-adjusted prices when implementing this test. In considering whether price discrimination would be feasible, I consider the two necessary elements identified in the *Merger Guidelines*: (1) whether the hypothetical monopolist could price differently to different customers; and (2) whether an attempt to price discriminate would be defeated by arbitrage.⁵

C.2. Geographic markets for mobile telephone service should be based on customer location

- (12) My understanding of mobile telephony/broadband services markets leads me to believe that relevant markets for analysis of the merger are likely local and not national, under the approach described in the *Merger Guidelines*. Specifically, I believe that a hypothetical monopolist could discriminate on the basis of customer location, at least between metropolitan areas (if not on a finer geographic scale), with respect to price and quality. In the remainder of this section, I identify a number of factors that lead me to this conclusion.

² *Merger Guidelines* at Section 4.1.1.

³ “Market definition focuses solely on demand substitution factors, i.e., on customers’ ability and willingness to substitute away from one product to another in response to a price increase or a corresponding non-price change such as a reduction in product quality or service.” (Emphasis added.) *Merger Guidelines* at Section 4.

⁴ *Merger Guidelines* at Section 4.2.2.

⁵ *Merger Guidelines* at Sections 3 and 4.2.2.

- (13) The factors that I identify here suggest that analysis of competitive effects also demands consideration of economic forces that operate at a local level. Similarly, to the extent that the Agencies identify competitive problems, it may be appropriate to tailor local remedies given the factors that I discuss here.
- (14) My conclusion that mobile telephony/broadband services markets are likely local and not national might at first glance seem to be at odds with certain features of the merging parties' service offerings, including their broad geographic coverage and their offering of service plans that provide national coverage at a uniform price. However, these features are not directly relevant for the central question of geographic market definition based on customer location—namely whether a localized price increase or service quality reduction would be feasible and profitable to a local monopoly seller. This is the proper question, even when these services include national coverage.
- (15) The situation here has certain parallels to the proposed merger of the DISH and DirecTV satellite television systems that was reviewed by the Agencies in 2002. The merging parties provided national satellite television service (an "MVPD" service). Nevertheless, the Department of Justice found "numerous local geographic markets for MVPD service, each consisting of a community whose members face the same competitive choices," and the Federal Communications Commission concluded that "the relevant geographic market for MVPD service is local."⁶ While the parallels are not exact (mobile telephony/broadband service, unlike MVPD service, may be used away from one's residence, however, the majority of use still occurs in region), the same considerations that led the Agencies to infer local markets in that merger of national providers also apply in the present case.
- (16) My opinion about geographic markets rests on several observations, which I will discuss in turn. First, it is possible to price mobile telephony/broadband services differentially between broadly defined local regions such as metropolitan areas. Second, differential pricing is unlikely to be defeated by arbitrage. Third, differential pricing likely is profitable. In each case, I consider quality competition and discrimination as well as price competition and discrimination.

C.3. Geographic discrimination is feasible and occurs in practice

- (17) Providers of mobile telephony/broadband services can and do discriminate on price and service quality between customers in different geographic areas. Even if many customers have a preference for service that provides national coverage, that service is still priced differentially at the local level. Price discrimination likely occurs primarily through the use of direct mail promotions targeted at local areas and promotions specific to local distribution outlets or billing

⁶ Compl. at ¶31, *United States v. EchoStar Commc's. Corp.*, No. 1:02CV02138 (Dist. Ct. D.C. Oct. 31, 2002), available at <http://www.justice.gov/atr/cases/f200400/200409.htm>; H'rg. Designation Order at ¶125, *Matter of App. of EchoStar Commc's. Corp.*, F.C.C. 02-284 (Oct. 18, 2002), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-02-284A1.pdf.

zip codes.⁷ “Local online offers” associated with a specific zip code are also used.⁸ Local promotions based on customer zip code are feasible and common.

- (18) Providers also discriminate on the basis of quality or equivalently on the basis of quality-adjusted prices. The quality of mobile telephony/broadband service offered by a firm in a given local area depends upon a set of interrelated factors.⁹ The level of service quality depends on a firm’s deployed level of network infrastructure, the amount of spectrum the firm owns, and the effectiveness with which the firm utilizes this spectrum, which is affected by the generation of technology used by the firm and the level of network traffic. The determinants of quality interact on a local level. For example, high volumes of traffic in one local area can affect the quality of service experienced by all customers in that local area without necessarily affecting service to customers in other geographic areas. Because of these local effects, there is a sense in which the providers of mobile telephony/broadband services are offering services that differ in quality across geographic areas.
- (19) For example, Verizon Wireless reports its network reliability studies on a regional basis, including results for 5 regions in the Midwest Area, 5 regions in the Northeast Area, 6 regions in the South Area, and 5 regions in the West Area.¹⁰
- (20) AT&T recently released local dropped-call rates for Houston, as part of its defense against complaints about its service in that area, as reported in the local press reports, which also noted plans to upgrade service in response to competitive pressures:

AT&T says the Houston dropped-call rate is less than any other carrier's national rate. AT&T also said it spent \$825 million from 2008 to 2010 on its wired and wireless communications services in the Houston area, and plans extensive

⁷ See the Declaration of David Christopher at ¶13.

⁸ The phrase “local online offers” is used on the website of ATT Wireless. (<http://www.wireless.att.com/cell-phone-service/welcome/index.jsp>, accessed 5/20/2011) Verizon Wireless requires a zip code in order to receive “exclusive online offers, promotions and the latest information on products and services from Verizon Wireless.” (<http://www.verizonwireless.com/b2c/LNPCControllerServlet>, accessed 5/20/2011)

⁹ Miguel Angel Campo-Rembado and Arun Sundararajan (2004), “Competition in Wireless Telecommunications,” working paper, New York University, pp.1–2: “First, wireless service quality depends on a set of inter-related technological choices, rather than being a simple, directly chosen strategic variable. Firms can influence quality by varying their deployed level of network infrastructure; this is a ‘short-run’ variable to some extent, and firms are continually investing in additions and upgrades to their networks. Additionally, at a fixed level of network infrastructure, quality is influenced by a pair of related technological choices – the amount of spectrum the firm owns, and the effectiveness of utilization of this spectrum by the type (generation) of technology used by the firm. These tend to be ‘long-run’ choices: a shift to a new generation of transmission technology is a multi-billion dollar undertaking, requiring an overhaul of the firm’s network infrastructure and simultaneous upgrades in consumer hardware; firms are also often restricted by regulatory constraints on spectrum availability and trading. A second distinguishing feature of the wireless industry is the presence of [a] specific kind of negative usage externality. An increase in network traffic increases the fraction of traffic to an [sic] transmission tower that cannot be carried (and is therefore ‘lost’), and service quality, measured as a function of this loss rate, is therefore endogenously affected by the equilibrium market shares of competing providers.”

¹⁰ <http://aboutus.vzw.com/bestnetwork/reliability.html>, accessed May 22, 2011.

upgrades in 2011. Typically, carriers do not release local dropped-call and spending numbers, but AT&T faces competitive pressure with the start of general sales on Thursday of the Verizon version of Apple's iPhone. AT&T had exclusivity on the device until this year.¹¹

- (21) Consumers consider local service quality when choosing among competing providers. As described in the FCC's Fourteenth CMRS Competition Report, consumers tend to purchase their plans from providers that serve their local areas.¹² ATT concurs with this view.¹³ It is natural to think that consumers would have little value for a service plan that did not offer adequate coverage and quality in the key places from which a consumer would likely access the service, including at home, at work, and while commuting.
- (22) Because local improvements in service quality primarily affect customers who live and work nearby, investments in local service quality and coverage are a form of quality competition for customers that operates at a local level. A provider is more likely to invest in quality improvements for a given metropolitan area or other local area when it faces competition for local customers living and residing in that area. For example, a provider is more likely to invest in new cell towers or other infrastructure improvements that reduce dropped calls in an area to the extent that these investments are likely to attract new service subscribers in the area. Such improvements likely generate much smaller expected benefits to subscribers living far away from the location, who can take advantage of the quality improvement only if they happen to travel to the area.

C.4. Geographic discrimination would not be defeated by arbitrage

- (23) Customers are unable to effectively arbitrage geographic differences in price or quality. In the case of service quality, this is a natural consequence of the local nature of quality, which is tied to the location where customers use their service. There is no way for a customer using services in one city or town to "import" quality improvements to a network made elsewhere.
- (24) Customers conceivably could arbitrage geographic pricing differences, but in practice this is unlikely. When purchasing new service, a customer typically must provide a billing address and zip code. Providers can discriminate based on this information. A customer would need to provide a billing address in another location to take advantage of pricing specific to that location. Even then, the customer might need to travel to the other location to conduct the transaction, and this

¹¹ "AT&T says dropped calls especially rare locally," *Houston Chronicle*, February 8, 2011, <http://www.chron.com/disp/story.mpl/business/7419074.html>.

¹² FCC, "Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, including Commercial Mobile Services: Fourteenth Report" May 20, 2010, FCC 10-81 (hereafter, Fourteenth CMRS Competition Report), at ¶24.

¹³ See the Declaration of David Christopher at ¶63.

alone may be costly. Providers may be able to verify that billing addresses are correct through credit bureau reports or other sources of data.

- (25) Furthermore, service plans usually establish an ongoing relationship between the customer and the provider for purposes of billing, handset replacement, upgrades, and renewals. The need to transfer this relationship likely discourages attempts to transfer service from one customer to another, especially between customers with no other relationship who reside in different geographic areas. The formal transfer of a service plan would require the cooperation of the provider. Informal transfers that are not disclosed to the provider would generally require identification of a willing counterparty outside of the geographic area and might involve risk and loss of full benefits relative to contracting with the provider directly. For example, resolving billing disputes might be more complicated when the bill is in someone else's name. Similarly, the counterparty might incur some risk or inconvenience associated with informally selling a plan attached to his or her own name and address to a distant third party. These costs and risks likely are too substantial to overcome the benefits associated with anything less than substantial pricing differences.

C.5. Differential pricing between metropolitan areas likely is profitable

- (26) It is natural that providers would have an incentive to engage in price discrimination based on local markets. On the demand side, price discrimination by local geographic area would allow providers to take into account the different demand characteristics of consumers in different geographic areas, including those driven by differences in the substitutability of rival offerings in the local geographic area and any quality differences.¹⁴ On the cost side, there are cost-based incentives for local price and quality discrimination associated with the local nature of capacity constraints. In a geographic area where a provider is close to its capacity for providing a target level of quality, adding customers in that geographic area comes at a higher cost, relative to adding customers in areas where capacity constraints are less binding, because the customers are likely to increase the burden on the infrastructure primarily in their local area. Adding customers in an area where a provider is close to its capacity constraint comes at the additional cost of potentially degrading service to existing customers in the local area. Therefore, providers have less incentive to price aggressively through promotions if it is more costly for them to expand their business in a local area.

¹⁴ Providers' offerings are in some ways differentiated, and some providers operate only on the local or regional level, and so the availability of close substitutes for customers within a geographic area can differ by area.

D. FCC spectrum screens to be applied to the merger should be broadly inclusive

- (27) The FCC has relied on a combination of spectrum screens (described below) and HHI-based screens using subscriber shares (see Section D.5) in identifying markets of potential concern. Although the Agencies may want to consider whether other share measures better reflect competitive effects for this transaction, I follow the FCC in focusing on capacity and subscriber shares, where spectrum holdings are taken as the proxy for capacity.
- (28) Wireless communication is delivered over the airwaves on distinct electromagnetic frequencies, which the FCC has partitioned into spectrum bands for the purposes of licensing them for use by wireless communications providers. Spectrum is a necessary input for wireless communications. For the kinds of mobile telephony/broadband services relevant for this transaction, licenses for the spectrum used are typically owned or leased by the service provider. A spectrum license allows access to a particular band of spectrum, which is defined by its size in MHz and its location in the electromagnetic spectrum, over a particular geographic area.
- (29) Spectrum is an important contributor to the available capacity for a mobile telephony/broadband service provider. The amount of spectrum, measured in MHz, that is held by a provider can be viewed as a proxy for the capacity of that provider.
- (30) Historically, the FCC has taken the approach of viewing spectrum holdings as a proxy for capacity, using “spectrum screens” as one component of their analysis of the competitiveness of markets for mobile telephony/broadband services. A spectrum screen for mobile telephony/broadband services is a benchmark amount of spectrum, denominated in MHz, that is typically taken to be approximately one-third of the spectrum relevant for the provision of mobile telephony/broadband services. Markets where a provider holds less than this benchmark amount of spectrum would be viewed as less likely to be subject to adverse effects based on the market power of that provider. Markets where a provider holds more than this benchmark amount of spectrum would be viewed as potentially warranting closer scrutiny.
- (31) Over time, the FCC has consistently viewed approximately one-third of the relevant spectrum as the level for the screen. In using (and continuing to use) the one-third threshold, the FCC is presumably balancing the potentially concerning aspects of market concentration with the reality that markets with large fixed costs, such as those for mobile telephony/broadband services, tend to have a large minimum efficient scale, i.e., sufficiently large providers can provide service more efficiently than smaller ones. Although the spectrum share is clearly not the whole story when evaluating competitive effects, in the calculations I offer below, I follow the FCC in using the one-third threshold. In addition, I follow the FCC in treating spectrum as homogeneous for the purposes of the screen.

- (32) The spectrum used as the baseline for the calculation of the spectrum screen for mobile telephone/broadband services should include all spectrum relevant for the provision of those services. Which spectrum is relevant? Certainly all spectrum currently used to provide those services should be included. In addition, for the purposes of evaluating the competitive effects of a merger, one would typically consider not just current competitors but also potential future competitors who might enter within some reasonable time frame, typically within a small number of years.¹⁵ Thus, the screen should include spectrum that could be used by these potential future competitors. In order to be used to provide a competitive service, the spectrum must, at a minimum, be designated for that use and placed in the hands of the firms who would provide the service. In addition, in some cases spectrum is allocated, e.g., through an auction, to a service provider even though another entity is still using that spectrum. In these cases, there may be a delay before the spectrum is “available” while the incumbent clears out of the spectrum, perhaps by relocating its operations to an alternative spectrum band.
- (33) This suggests that spectrum should definitely be included in the calculation of the screen if (1) it has already been designated for the appropriate use, (2) it is already in the hands of mobile telephony/broadband providers or it is reasonable to expect that it will be in their hands in a reasonable time frame, and (3) it is available for use by the provider. For example, one would want to include unencumbered spectrum already designated for the relevant use and scheduled to be auctioned by the FCC within a reasonable time frame. Spectrum not satisfying these conditions may or may not be appropriate to include. It is probably not appropriate to include spectrum that has not yet been designated for the appropriate use, unless it is likely to be so designated and placed in the hands of providers in a reasonable time frame. For the case of spectrum involving more complex availability issues, a case-by-case analysis may be more appropriate.
- (34) Prior to *AT&T-Dobson*,¹⁶ the FCC used a spectrum screen of 70MHz, which was roughly one-third of the spectrum allocated for the relevant wireless services at the time, including Cellular,¹⁷ SMR,¹⁸ and PCS¹⁹ spectrum. Starting with *AT&T-Dobson*, the FCC used a spectrum screen of 95 MHz based on the above spectrum plus the “700MHz” spectrum, which was auctioned in 2008.²⁰

¹⁵ The FCC has in the past used two years as the relevant time horizon (FCC, *Verizon-ALLTEL Order* at ¶62). The use of this time horizon was supported by the 1997 version of the *Horizontal Merger Guidelines*, which said: “The Agency generally will consider timely only those committed entry alternatives that can be achieved within two years from initial planning to significant market impact.” (U.S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, Revised: April 8, 1997, at Section 3.2, <http://www.justice.gov/atr/public/guidelines/hmg.htm#32>) However, the two-year horizon is no longer supported by the *Merger Guidelines* following the 2010 revision, which mentions only entry that is “rapid enough” (*Merger Guidelines* at Section 9.1). Given the substantial investment required to launch a new mobile telephony/broadband service, a somewhat longer time horizon might be more appropriate in this case.

¹⁶ FCC, *AT&T-Dobson Order* at ¶17, http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-196A1.pdf.

¹⁷ 50MHz: http://wireless.fcc.gov/services/index.htm?job=service_bandplan&id=cellular.

¹⁸ 26MHz, reconfigured from June 2005 to June 2008. For spectrum amounts see http://wireless.fcc.gov/services/index.htm?job=service_bandplan&id=smsr and for reconfiguration timetable see <http://transition.fcc.gov/pshs/public-safety-spectrum/800-MHz/reconfiguration-overview.html>.

¹⁹ 130MHz: <http://wireless.fcc.gov/auctions/data/bandplans/pcsband.pdf>.

²⁰ 70MHz for lower A-E and upper C blocks: <http://wireless.fcc.gov/auctions/data/bandplans/700lower.pdf> and

At the time of *AT&T-Dobson*, AWS²¹ and BRS²² spectrum was becoming available for the provision of mobile telephony/broadband services, but because it was not uniformly available, the FCC considered it premature to include that spectrum in the screen.²³ The FCC did consider the AWS and BRS spectrum in case-by-case analyses.²⁴ At the time of *Verizon-ALLTEL*,²⁵ the screen was increased to 145MHz with the addition of AWS and BRS spectrum. (The screen was increased by 20 based on BRS and 30 based on AWS, but adjusted for markets where one or both of the spectrum blocks was not yet available.)²⁶ The most recent relocation report for the AWS spectrum states that all relocations are expected to be complete by April 2013.²⁷ It is my understanding that the process of making BRS and also EBS spectrum available is driven by the interested parties (“proponents”) and thus operates on a less-defined timeline.²⁸

- (35) It is clear from FCC decisions in which a spectrum screen was applied that, as the wireless industry evolves, it is necessary to reevaluate which spectrum should be included in the screen. In particular, relative to prior screens used by the FCC, additional spectrum that has been or will be auctioned or that has been or will be repurposed to allow the provision of services that compete with those offered by the combined ATT and TMO (ATT-TMO) should be included in the screen for the purposes of evaluating the transaction. The history of the FCC’s use of spectrum screens shows that the FCC recognizes that the appropriate spectrum screen must be adjusted upwards as more spectrum becomes available or is expected to become available for mobile telephony/broadband services. In particular, there are additional blocks of spectrum that, at this time, should be included in the screen.

<http://wireless.fcc.gov/auctions/data/bandplans/700band.pdf>.

²¹ 90 MHz: <http://wireless.fcc.gov/services/aws/data/awsbandplan.pdf>.

²² 60.5MHz transitioned to 61.5 after 2008. There are a total of 194MHz of BRS/EBS spectrum (<http://wireless.fcc.gov/services/brsebs/data/BRS-EBS-BandPlans.pdf>, http://wireless.fcc.gov/services/index.htm?job=licensing_2&id=ebs_brs). The transition timeline is available at <http://wireless.fcc.gov/services/brsebs/licensing/transition-timeline.pdf>. In some cases, only 55.5MHz of BRS spectrum were considered relevant for the spectrum screen (see p.77 of “Acquisition of T-Mobile USA, Inc. by AT&T Inc.,” Description of Transaction, Public Interest Showing and Related Demonstrations, Filed with the Federal Communications Commission, Apr. 21, 2011; see also *Verizon-ALLTEL Order* (http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-258A1.pdf) at ¶63; see also the *Sprint-Clearwire Order* (http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-259A1.pdf) at ¶70 saying “We conclude that 55.5 megahertz of BRS spectrum (i.e., all BRS spectrum except the MBS channels, BRS Channel 1, and the J and K guard bands) should be considered both suitable and available, in the markets where the transition has been completed, for purposes of our revised spectrum screen. As noted above, historically, the availability of BRS spectrum for mobile uses is dependent on the process of transitioning to the new band plan. For purposes of this transaction, we will apply that test and consider 55.5 megahertz of BRS as available for mobile telephony/broadband services where the transition has been completed.”

²³ FCC, *AT&T-Dobson Order* at ¶17.

²⁴ FCC, *AT&T-Dobson Order* at ¶17.

²⁵ FCC, *Verizon-ALLTEL Order* at ¶78.

²⁶ FCC, *Verizon-ALLTEL Order* at ¶64.

²⁷ National Telecommunications and Information Administration, Fourth Annual Progress Report, on Relocation of Federal Radio Systems from the 1710-1755 MHz Spectrum Band, March 2011, p.3, http://www.ntia.doc.gov/reports/2011/1710-1755MHZ_CSEAreport_03302011.pdf.

²⁸ See the FCC’s website on the Transition Plan for BRS & EBS Radio Services, http://wireless.fcc.gov/services/index.htm?job=licensing_2&id=ebs_brs.

D.1. Updated spectrum screens

- (36) Two spectrum bands not previously included in the spectrum screen, WCS and MSS, are now relevant for evaluating markets for mobile telephony/broadband services.
- (37) A 2010 FCC order allocates 25MHz of the WCS spectrum for mobile broadband services.²⁹ This spectrum is available and held by firms such as ATT, Sprint, NextWave, Comcast, Horizon, Broadband South, and others.³⁰ Thus, it seems clear that this spectrum should be included in the calculation of the screen.
- (38) As described in the National Broadband Plan,³¹ “The FCC first allocated spectrum for MSS in 1986. Since then, the Commission has allocated spectrum in four bands to MSS: the Little LEO Band, the L-Band, the S-Band, and the Big LEO band.”³² The last three of these MSS bands are capable of supporting broadband service; however, MSS operators were initially limited in their ability to deliver service based on ground-based towers rather than satellites.³³ In 2003, the FCC adopted rules that allowed MSS operators to deploy ground-based networks, referred to as Ancillary Terrestrial Components (ATCs), but the ATCs were restricted to “enhance coverage in areas where the satellite signal is attenuated or unavailable.”³⁴ Since then, certain MSS spectrum holders have been granted the flexibility to provide stand-alone terrestrial services,³⁵ but the National Broadband Plan recommends that this be done more systematically. Specifically, Recommendation 5.8.4 of the National Broadband Plan is that “The FCC should accelerate terrestrial deployment in 90 megahertz of Mobile Satellite Spectrum (MSS).”³⁶ A recent FCC Report and Order has already taken key steps to implement this recommendation.³⁷

²⁹ FCC Rep. and Order and Sec. Rep. and Order in the Matter of Amen. of Pt. 27 of the Commission’s Rules and Establishment of Rules and Policies, May 20, 2010, FCC 10–82 at ¶1 (http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-82A1.pdf). In total, there are 30MHz of WCS spectrum (http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=14).

³⁰ ATT and TMO’s Public Interest Statement, App. B.

³¹ Connecting America: The National Broadband Plan, 2010 (National Broadband Plan).

³² National Broadband Plan, p.87.

³³ National Broadband Plan, p.87.

³⁴ National Broadband Plan, p.87.

³⁵ National Broadband Plan, p.88.

³⁶ National Broadband Plan, p.87. As described in the National Broadband Plan, the 90MHz figure consists of 40MHz of the S-band, 40MHz of the L-band, and 10MHz of the Big LEO band.

³⁷ FCC Report and Order in the Matter of Fixed & Mobile Servs. in the Mobile Satellite Serv. Bands, Apr. 6, 2011, FCC 11–57, at ¶1, http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0415/FCC-11-57A1.pdf. In the L-Band, LightSquared is licensed for MSS operation in portions of the 66MHz 1.5/1.6 GHz L-Band (Order and Authorization in the Matter of LightSquared Subsidiary LLC, Jan. 26, 2011, DA 11-133, fn 2, http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-11-133A1.pdf). LightSquared claims it will have the use of up to 59MHz to operate its nationwide integrated 4G-LTE and satellite network once Phase 2 of its agreement with Inmarsat is executed (LightSquared Press Release, “LightSquared Delivers Notice to Inmarsat Triggering Phase 2 of Re-Banding of L-Band Spectrum in North America, Jan. 28, 2011, <http://www.lightsquared.com/press-room/press-releases/lightsquared-delivers-notice-to-inmarsat-triggering-phase-2-of-re-banding-of-l-band-spectrum-in-north-america/>). In the Big LEO band, Globalstar has the use of 19.275MHz for ATCs (FCC Order of Modification in the Matter of Globalstar Licensee LLC, October 10, 2008, FCC 08-238).

- (39) Given the steps already taken by the FCC and the urgency indicated by the National Broadband Plan, 90MHz of MSS spectrum is either already or soon will be deployed for the provision of mobile broadband services. In addition, the spectrum is already in the hands of service providers, including LightSquared, Inmarsat, Globalstar, Iridium, DBSD (ICO), and TerreStar, and is being used to offer service.³⁸ Given these conditions, it also seems clear that 90MHz of MSS spectrum should be included in the screen.
- (40) Including 25MHz of WCS spectrum and 90MHz of MSS spectrum brings the one-third spectrum screen up to 183MHz, with adjustments for markets where it is reasonable to expect that the AWS and/or BRS spectrum will continue to be unavailable over the appropriate time frame. In my opinion, a spectrum screen of 183MHz (adjusted for the unavailability of certain AWS and BRS spectrum in certain markets) is the minimal spectrum screen appropriate for the review of this transaction.
- (41) ATT and TMO argue in their Public Interest Statement that the FCC “should include *all* 194 MHz of BRS/EBS spectrum (not just the 55.5 MHz it has considered before) because the BRS/EBS transition is complete in most areas of the country, and because Clearwire and its partners (including Sprint and Time Warner Cable) are making widespread use of WiMAX service throughout the country, now passing more than 100 million people.”³⁹ I agree that all this spectrum should be included if the FCC expects that it will be deployed within the appropriate time frame for mobile telephony/broadband services. If the full 194MHz of BRS/EBS spectrum is included, then the one-third spectrum screen increases to 228MHz, again with adjustments for markets where it is reasonable to expect that the AWS spectrum will continue to be unavailable.

D.2. Application of updated spectrum screens

- (42) Appendix C of ATT and TMO’s Public Interest Statement identifies the Cellular Market Areas (CMAs) in which the “current spectrum screen” (as specified in ATT and TMO’s Appendix A) would be exceeded by the combined ATT-TMO.⁴⁰ As discussed above, I believe the “current spectrum screen” used by ATT and TMO is not appropriate for this transaction because it is too low. As shown below, I use data provided in the appendices of ATT and TMO’s Public Interest Statement to calculate the CMAs exceeding the updated screen of 183MHz (both adjusted for

(http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-238A1.pdf). And in the S-Band, DBSD (ICO) and TerreStar have a combined 40MHz (DBSD: http://www.ico.com/_about/corpstruct/; and TerreStar: FCC Order and Authorization in the Matter of TerreStar Networks Inc., Jan. 13, 2010, DA 10–60 (http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-10-60A1.pdf).

³⁸ National Broadband Plan, p.88, especially Exhibit 5-G showing “Broadband Capable MSS Bands” with licensees and subscribers.

³⁹ ATT and TMO’s Public Interest Statement, p.77.

⁴⁰ For a map showing the CMAs, see <http://wireless.fcc.gov/auctions/data/maps/CMA.pdf>.

unavailable AWS and BRS as in Appendix A of the Public Interest Statement, and assuming that spectrum is or will be available within the appropriate time frame).

- (43) In case the expectation is that all 194MHz of BRS/EBS spectrum will be deployed for mobile telephony/broadband services within the time frame, I have also calculated the CMAs exceeding the screen for that case.
- (44) The table below is based on Cellular, SMR, PCS, 700MHz, MSS, and WCS spectrum, as well as AWS and BRS/EBS spectrum (as indicated). I focus on the 50 U.S. states plus the District of Columbia. Consistent with ATT and TMO’s Public Interest Statement, I identify CMAs where ATT and TMO would have combined holdings above the spectrum screen in at least one county within the CMA. See Section D.4.1 for further discussion of this criterion.

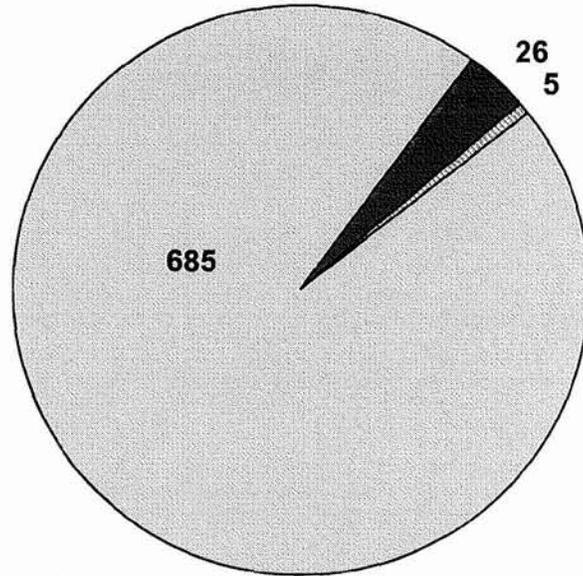
Table 1: Number of CMAs where ATT-TMO’s spectrum holdings would be above the spectrum screen

		Adjusted for current AWS/BRS availability*	All spectrum, regardless of current AWS/BRS availability
BRS/EBS Spectrum Included	Attributable BRS Only	26	31 (prior 26 +5)
	All BRS/EBS	0	0

* Includes BRS and AWS spectrum holdings only for those countries listed as "BRS Available" and "AWS Available," respectively, as reported in ATT and TMO’s Public Interest Statement, Appendix A.

- (45) Table 1 shows that zero, 26, or 31 CMAs are identified by the screen, depending upon whether or not one includes currently unavailable AWS spectrum, and depending on which BRS/EBS spectrum is included. Because ATT and TMO hold AWS spectrum that is currently unavailable, 5 additional CMAs are identified by the screen that includes the currently unavailable spectrum. In all cases, ATT and TMO are individually below the screen.
- (46) As illustrated in Figure 1, the CMAs identified by the screen represent a small fraction of the total number of CMAs in the United States.

Figure 1: U.S. CMAs where ATT-TMO's spectrum holdings would be above and below the updated spectrum screen



- CMAs above the screen based on available spectrum
- ▨ Additional CMAs above the screen based on all spectrum
- CMAs below the screen

(47) Table 2 shows additional details about the 31 CMAs identified in Table 1.

Table 2: CMAs where the spectrum screen including WCS and MSS spectrum is reached

CMA #	Name	No. Competitors	Population	AWS available in all counties within the CMA	BRS available in all counties within the CMA	Unallocated spectrum (%)	
Screen based on Cellular, SMR, PCS, 700MHz, MSS, WCS, and either available or all AWS and attributable BRS spectrum							
1	7	San Francisco-Oakland, CA	13	4,353,975	yes	yes	0.8%
2	10	Houston, TX	13	5,610,431	no	yes	0.1%
3	12	Miami-Ft. Lauderdale, FL	14	4,322,338	yes	yes	2.6%
4	17	Atlanta, GA	14	4,895,431	yes	yes	0.1%
5	19	Denver-Boulder, CO	15	2,797,524	yes	yes	0.4%
6	27	San Jose, CA	13	1,807,547	yes	yes	0.1%
7	35	Sacramento, CA	13	1,966,433	yes	yes	0.3%
8	39	Salt Lake City-Ogden, UT	14	1,651,567	yes	yes	0.4%
9	51	Jacksonville, FL	13	1,338,606	yes	yes	0.2%
10	60	Orlando, FL	13	1,791,071	yes	yes	0.3%
11	72	West Palm Beach-Boca Raton, FL	13	1,290,971	yes	yes	3.5%
12	111	Vallejo-Fairfield-Napa, CA	12	545,409	yes	no	0.1%
13	117	Colorado Springs, CO	15	639,964	yes	yes	0.4%
14	137	Melbourne-Titusville-Palm Bay, FL	14	535,907	yes	yes	0.3%
15	146	Daytona Beach, FL	15	494,300	yes	yes	0.3%
16	234	Athens, GA	16	242,645	yes	yes	0.2%
17	270	Bellingham, WA	12	201,856	yes	yes	3.6%
18	345	California 10 – Sierra	14	101,029	no	yes	0.1%
19	346	California 11 - El Dorado	16	178,471	yes	yes	0.0%
20	371	Georgia 1 – Whitfield	14	303,984	yes	yes	0.1%
21	372	Georgia 2 – Dawson	14	463,537	yes	yes	0.7%
22	488	Minnesota 7 – Chippewa	12	176,553	yes	yes	0.9%
23	598	Oklahoma 3 – Grant	14	229,765	yes	yes	2.5%
24	649	Tennessee 7 – Bledsoe	14	317,163	yes	yes	0.3%
25	667	Texas 16 – Burlison	16	381,676	yes	yes	0.9%
26	695	Washington 3 – Ferry	14	62,329	no	yes	0.5%

Average No. Competitors (weighted by Pop)	13.61	
Total Population		36,700,482

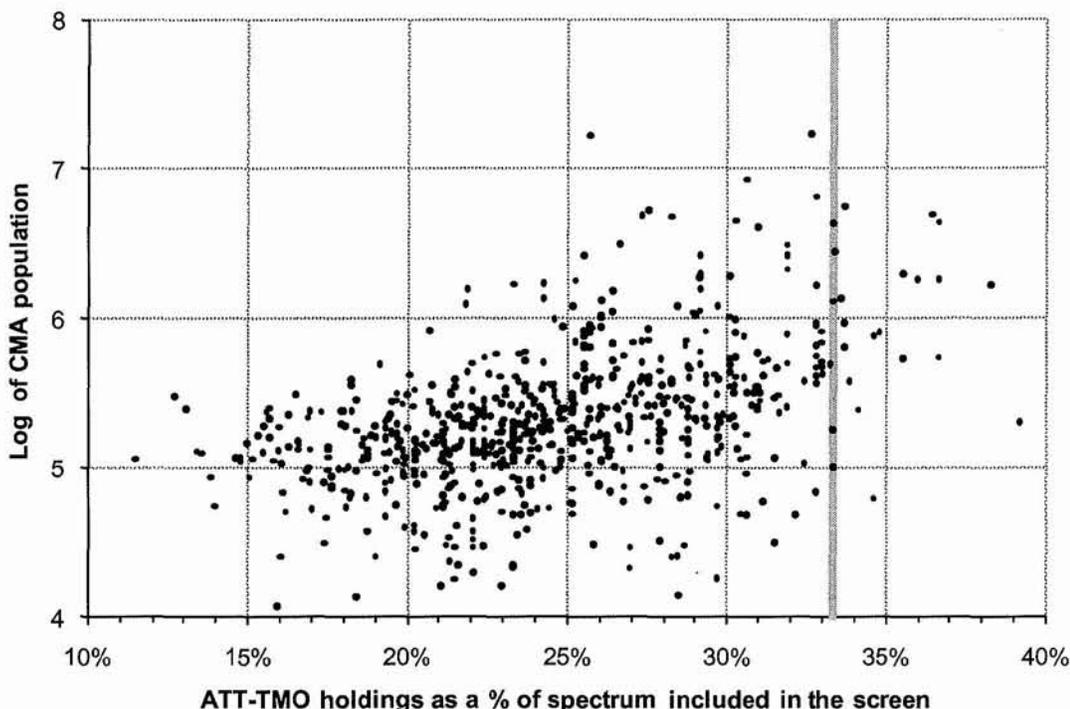
Additional CMAs where screen is reached when considering all AWS and attributable BRS spectrum							
27	73	Oxnard-Simi Valley-Ventura, CA	12	810,359	yes	no	0.3%
28	74	Fresno, CA	15	924,691	yes	yes	0.0%
29	81	El Paso, TX	14	762,563	yes	yes	0.5%
30	322	Arizona 5 – Gila	14	423,896	yes	yes	0.3%
31	343	California 8 – Tehama	12	111,425	yes	yes	0.0%

Average No. Competitors (weighted by Pop)	13.64	
Total Population		39,733,416

Note: The number of competitors counts ATT and TMO as a single firm and counts Sprint and Clearwire as a single firm.
 Source: Author's calculations based on information in Appendix B, ATT and TMO's Public Interest Statement

- (48) To see the relation between the CMAs being identified by the screens above and the population in the CMAs, consider the figure below, which shows a scatter plot of ATT-TMO’s share of the base level of spectrum (defined as the spectrum screen of 183 MHz times three) in each CMA vs. the logarithm of the population in the CMA. A vertical bar positioned at the standard one-third spectrum screen is shown on the graph.

Figure 2: ATT-TMO’s spectrum holdings and CMA population



Source: Author’s calculations based on information in Appendix B, ATT and TMO’s Public Interest Statement.

- (49) As one can see from Figure 2, relative to the total number of CMAs, only a small number of CMAs are indicated as a potential concern using this screen (those to the right of the vertical bar), and those CMAs tend not to be among the smallest ones in terms of population. In addition, it is clear from the figure that, for the vast majority of CMAs, ATT-TMO’s spectrum holdings are well below this spectrum screen. In fact, for the majority of CMAs, ATT-TMO’s spectrum holdings would be below 25% of the base level of spectrum.⁴¹
- (50) The spectrum screens applied to generate Table 1 are, as the name suggests, intended as screens. Below I discuss various facts and analyses that might be used to evaluate whether the CMAs

⁴¹ ATT-TMO’s spectrum holdings would be below a 25% screen in 394 CMAs, which is 55% of the 716 CMAs in the 50 U.S. states plus the District of Columbia.

identified in Table 2, and potentially other CMAs, are locations where the transaction might create concern or whether these factors might mitigate any concerns.

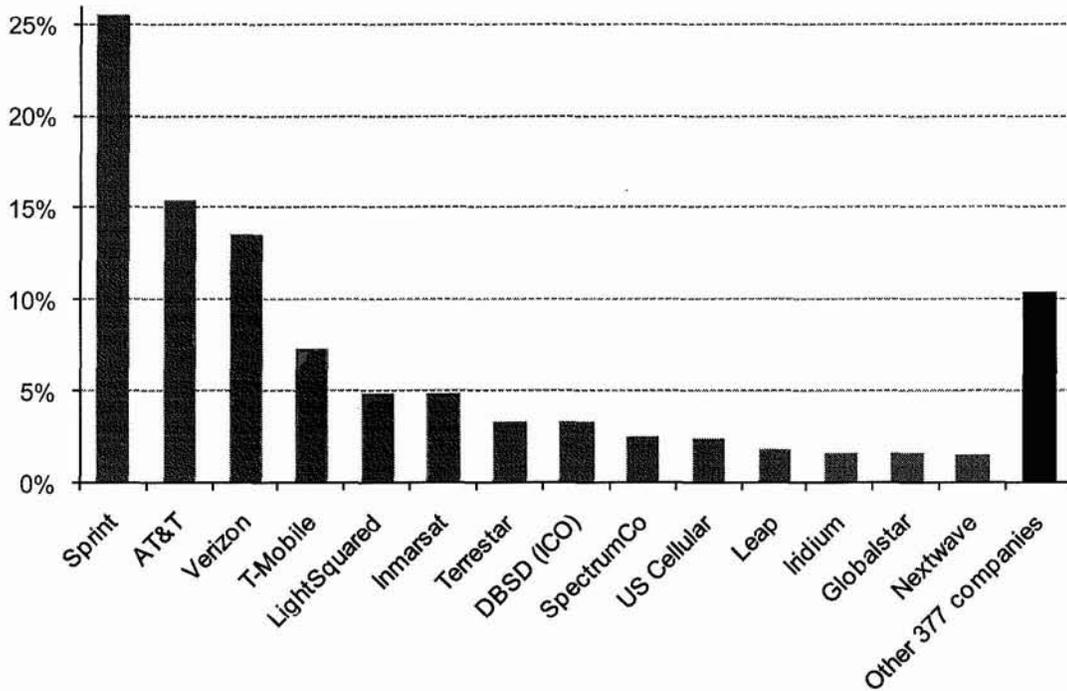
D.3. Existing and potential competitors alleviate concerns

- (51) A key point apparent from Table 2 is that the number of spectrum holders in the identified CMAs is large. As shown in the table, the average number of spectrum holders for the CMAs identified by the screens shown there is approximately 14, with a minimum of 12. The large number of potential competitors in each of the CMAs identified in Table 2 helps to mitigate any concern that comes with ATT-TMO's holdings exceeding the spectrum screen. Those other spectrum owners represent potential competition to ATT-TMO and a source of discipline on the pricing and other attributes of ATT-TMO's offerings.
- (52) ATT-TMO, Sprint, and Verizon hold spectrum in all CMAs, and DISH holds spectrum in 653 CMAs (out of 716).⁴² Thus, these four spectrum owners are present in 91% of CMAs, thus covering 76% of the U.S. population. In addition, SpectrumCo, the next-most-widely present company, holds spectrum in 476 CMAs (66% of CMAs covering 81% of the U.S. population).⁴³ The inclusion of MSS spectrum in the set of relevant spectrum for the provision of mobile telephony/broadband services increases the number of relevant spectrum holders in each CMA by 6, with the addition of DBSD (ICO), Globalstar, Inmarsat, Iridium, LightSquared, and TerreStar.
- (53) Figure 3 shows the population-weighted share of spectrum holdings for all of the spectrum holders in Appendix B (based on all AWS and BRS spectrum), where Sprint holdings include Clearwire spectrum. The figure shows that in addition to the four largest operators, there are 10 companies holding a share of population-weighted U.S. spectrum between 1.5% and 4.9%, and many regional operators whose smaller shares may not appropriately reflect their competitive importance in local markets.

⁴² As described in the FCC's *Sprint-Clearwire Order*, Sprint has 51% ownership of the recreated Clearwire. Because Sprint might be able to use its control of Clearwire to ensure that there is not significant rivalry between itself and Clearwire, I view Sprint and Clearwire as a single entity for the purposes of this section.

⁴³ Although there is ownership overlap between SpectrumCo and some other holders of spectrum—including Comcast, which owns 10 to 15MHz of WCS spectrum in 149 CMAs (accounting for 25% of the U.S. population)—at the time SpectrumCo purchased its spectrum in the AWS auction (SpectrumCo only owns spectrum in the AWS band), Time Warner, which does not have independent spectrum holdings, had a share of 28.50% in SpectrumCo. Because of the relative complexity of the governance of the SpectrumCo joint venture and because of the fact that Time Warner is a significant stakeholder with no other independent spectrum holdings, I treat SpectrumCo as a separate competitive entity.

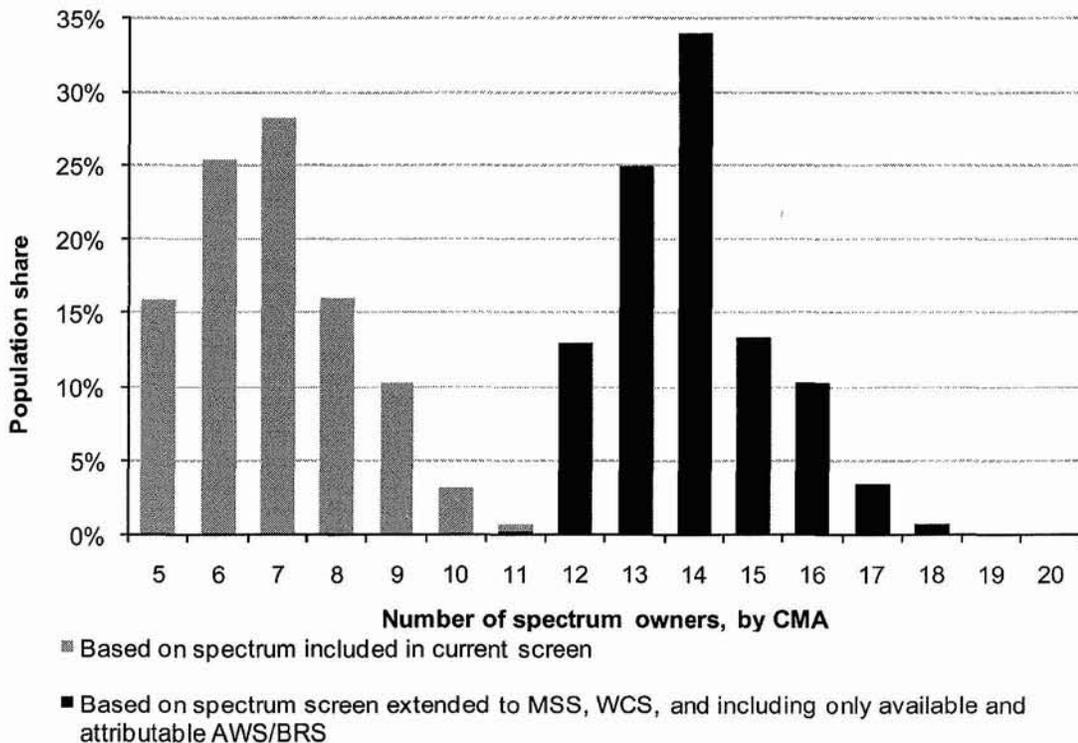
Figure 3: Population-weighted share of spectrum holdings (based on all AWS and attributable BRS spectrum)



Source: Author's calculations based on information in Appendix B, ATT and TMO's Public Interest Statement.

- (54) Figure 4 shows the share of U.S. population living in CMAs with different numbers of post-transaction spectrum owners. This number varies depending on the spectrum considered. The figure contrasts the screen applied by the FCC in the past and in ATT and TMO's Public Interest Statement with the one that I have argued is more appropriate.

Figure 4: Share of U.S. population in CMAs with a given number of spectrum owners



Note: The number of competitors counts ATT and TMO as a single firm and counts Sprint and Clearwire as a single firm.
 Source: Author's calculations based on information in Appendix B, ATT and TMO's Public Interest Statement.

- (55) This figure shows that even if one limits attention to spectrum bands that have already been recognized as providing competition in mobile telephony/broadband services, all of the U.S. population lives where there will be 5 or more spectrum owners following the transaction. Approximately 60% of the population lives in CMAs where there will be 7 or more spectrum owners, and about 30% of the population lives in CMAs where there will be 8 or more spectrum owners. With the more expansive view of which spectrum might be used to provide competition in mobile telephony/broadband services, the entire population faces at least 11 spectrum owners, most (62%) face at least 14, and about a third (28%) face at least 15.
- (56) It does not appear that any of the larger regional providers have a significant presence in the CMAs identified by the screen.⁴⁴ However, it may be significant to the evaluation of competitive effects that Clearwire's 4G mobile broadband service is currently offered in 11 of the CMAs

⁴⁴ Regional competitors would include US Cellular, Cellular South, Cincinnati Bell, nTelos, Atlantic Tele-Networks, and others according to the Declaration of Carlton et al. at ¶75. A review of the listed providers' websites suggests they do not serve (facilities-based services) the identified markets. See <http://www.uscellular.com/coverage-map/voice-and-data-maps.html>, <https://www.cellularsouth.com/coverage/apcoverage.html>, <http://www.cincinnati-bell.com/>, and <http://nteloswireless.com/stores/>.

identified by the screen.⁴⁵ These include San Francisco-Oakland, Houston, Miami-Ft. Lauderdale, Atlanta, Denver-Boulder, Sacramento, Salt Lake City-Ogden, Jacksonville, Orlando, Daytona Beach, and Bellingham, WA, which represent 80% of the population of 26 CMAs exceeding the first screen and 74% of the population of the 31 CMAs exceeding the second screen. This potentially important new source of competition may alleviate competitive concerns in those markets.

D.4. Further evaluation of spectrum screens

- (57) In this section, I discuss facts and analysis beyond the number of existing and potential competitors discussed in Section D.3 that might be used to evaluate whether the CMAs identified in Table 2, and potentially other CMAs, are locations where the transaction might create concern.

D.4.1. County-based application of the screen is conservative

- (58) As mentioned above, Table 2 takes the approach of identifying a CMA as one where ATT-TMO would be above the spectrum screen if there is any county in the CMA where ATT-TMO's spectrum holdings would exceed the screen. This assumption might cause an entire CMA to be identified as "above the screen" when only a small share of the population of the CMA lives in areas where ATT-TMO's holdings exceed the screen.
- (59) For example, ATT and TMO's application of the lower spectrum screen in their Public Interest Statement identified Nashville (CMA 46) as a CMA where ATT-TMO's spectrum holdings would exceed the screen. However, in five out of eight of the counties in the CMA, representing one-third of the population, their spectrum holdings would be below the screen.⁴⁶
- (60) As another example, ATT and TMO's application of the lower spectrum screen identifies Arkansas 12—Ouachita (CMA 335). Although that CMA is identified as exceeding the spectrum screen, an examination of spectrum holdings at a county level reveals that the screen would be exceeded in only one of the CMA's ten counties, representing only 7% of the population of the CMA.

⁴⁵ See <http://www.clearwire.com/company/our-company> for a list of 70 markets in which Clearwire currently offers 4G service, including San Francisco, Houston, Miami, Atlanta, Denver, Sacramento, Salt Lake City, Jacksonville, Orlando, Daytona Beach, and Bellingham, WA (accessed May 25, 2011).

⁴⁶ ATT and TMO's Public Interest Statement, Appendix A (pp. 6–7) and App. C (p.1). County-level population figures are estimates for July 2010 from the U.S. Census Bureau (available at <http://www.census.gov/popest/counties/tables/CO-PEST2010-totals.csv>, downloaded May 20, 2011).

D.4.2. Lack of CMA-wide availability of spectrum may reduce ATT-TMO's effective spectrum

- (61) As shown in Table 2, for some of the CMAs identified, some AWS spectrum, including some held by ATT-TMO, may not have full usefulness because of the existence of counties in the CMA where that spectrum is not available. In these cases, ATT-TMO's effective capacity in the CMA may be less than one would expect if all of ATT-TMO's AWS spectrum in the CMA were available. This effect potentially reduces the competitive effects of the transaction in these CMAs.
- (62) See the appendix for more details of AWS availability by spectrum owner.

D.4.3. Effects on investment need to be considered

- (63) One CMA where ATT-TMO's spectrum holdings exceed the screen of Table 2 is Houston. A closer look at Houston reveals some issues that need to be taken into account before taking the opinion that the transaction is a concern in this CMA.
- (64) A recent press release relating to ATT's wireless service in Houston reports that ATT has "invested more than \$825 million in our Houston area wireless and wireline networks from 2008 through 2010" and indicates that ATT is planning to invest heavily in its Houston infrastructure in 2011 to enable 4G speeds and increase wireless network capacity.⁴⁷ It might be that it is ATT's significant market share in Houston that gives ATT the incentive to invest so that it can offer more profitable services to its existing customers, or the investment might be a response by ATT to competitive pressure in the market. In either case, it is not clear that consumers in Houston would be well served by some disposition of TMO's spectrum holdings other than having them come under the control of ATT. Competition authorities would need to think carefully about the consequences for investment of removing from ATT the additional capacity that would be contributed by TMO.

D.4.4. Possible metrics for additional case-by-case analysis

- (65) For a more in-depth analysis of certain CMAs, one might consider comparing various possible metrics of the competitiveness of markets in CMAs of concern versus other CMAs or nationwide rates. For example, a high customer switching rate may indicate a high level of competition in a market.⁴⁸ A low dropped call rate might reflect aggressive investment in quality as a result of competition.⁴⁹ To the extent that high customer switching rates or high levels of investment,

⁴⁷ ATT News Release, "AT&T Building Most Advanced Mobile Broadband Experience in Houston, Announces 2011 Network Upgrade Plans," Feb. 8, 2011, available at <http://www.att.com/gen/press-room?pid=19033&cdvn=news&newsarticleid=31584&mapcode=wireless-networks-general|wireless>.

⁴⁸ The FCC requirement of local number portability potentially may facilitate the collection of customer switching data.

⁴⁹ ATT puts forth its low dropped call rate for Houston as a marker of the quality of its Houston service. (AT&T News Release, "AT&T Building Most Advanced Mobile Broadband Experience in Houston, Announces 2011 Network

particularly for ATT, indicate that ATT is constrained by competitive pressure within a particular CMA, then the transaction creates less of a concern for that CMA.

D.5. Implementation of HHI-based screens

- (66) The FCC has relied on a combination of spectrum screens and HHI-based screens in identifying markets of concern. The FCC's HHI-based screens typically use subscriber shares to measure market shares. For example, in *Verizon-ALLTEL*, the FCC identified markets for further case-by-case analysis by looking for those that exceeded the spectrum screen *and* where "the HHI would be greater than 2800 and the change in HHI will be 100 or greater, or the change in HHI would be 250 or greater, regardless of the level of the HHI."⁵⁰
- (67) The FCC's HHI screen differs from the HHI ranges and increments identified in the *Merger Guidelines*.⁵¹ These differences are appropriate, because the FCC takes into account the specific technological and economic characteristics of markets for mobile telephony/broadband services when identifying concentration levels potentially of concern. In particular, the FCC has made an effort to consider the scale economies related to the fixed costs associated with providing mobile telephony/broadband services in determining what it views as the relevant concentration thresholds.⁵² If the minimum efficient scale is large relative to potential demand, then concentration is less of a concern because the price reductions associated with having fewer firms each operating at a larger, more cost-effective scale may outweigh any price increases associated with the reduced rivalry that can come with higher concentration. For these reasons, one would expect, and not necessarily be concerned by, higher concentration in geographic areas with lower population or other factors tending to reduce demand for mobile telephony/broadband services in the geographic area or with lower population density or other factors tending to increase the costs of providing adequate coverage.⁵³
- (68) Further investigations that the FCC would consider based on subscriber shares are appropriate and may reduce concerns related to some of the CMAs identified in Table 2.

Upgrade Plans," Feb. 8, 2011, available at <http://www.att.com/gen/press-room?pid=19033&cdvn=news&newsarticleid=31584&mapcode=wireless-networks-general|wireless>).

⁵⁰ FCC, *Verizon-ALLTEL Order* at ¶78.

⁵¹ The *Merger Guidelines* suggest that in looking for markets where the transaction would "potentially raise significant competitive concerns and often warrant scrutiny," one would look for markets with a postmerger HHI between 1500 and 2500 and an increase of more than 100 or markets with an HHI greater than 2500 and an increase between 100 and 200. Where the transaction would result in a postmerger HHI greater than 2500 and an increase greater than 200 points, the transaction "will be presumed to be likely to enhance market power." (*Merger Guidelines* at Section 5.3)

⁵² FCC, Twelfth CMRS Competition Report at ¶53. (http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-28A1.pdf).

⁵³ As described in the FCC's Twelfth CMRS Competition Report at ¶54, relevant demand and cost factors also potentially include per-capita income, urbanization, the age distribution of the population, and the size and composition of the business sector.

- (69) I do not have access to data on firms' subscriber shares in the different CMAs, but the data provided in Appendix B of ATT and TMO's Public Interest Statement provides information on the spectrum holdings, and to the extent that spectrum holdings proxy for capacity, those spectrum holdings provide information about capacity shares in the various markets. As a measure of the "potential HHI" if all firms' output were in proportion to their spectrum holdings, I consider the HHIs calculated based on spectrum shares of existing spectrum holders (i.e., I exclude still unlicensed/unallocated spectrum but include MSS, WSC, and all AWS and attributable BRS spectrum).
- (70) None of the CMAs identified in Table 2 has a post-transaction potential HHI greater than 2800, and so all pass the first of the FCC's HHI screens. In fact, all 716 U.S. CMAs have a post-transaction HHI less than 2500. However, all of the CMAs identified in Table 2 have a change in potential HHI greater than 250, and so fail the second of the FCC's HHI screens.
- (71) An examination of HHI's based on subscriber shares would likely be more informative about the extent of possible competitive effects in the CMAs identified in Table 2.

E. Traditional share-based screens may not accurately reflect competitive effects

- (72) Share-based screens can be informative as to competitive effects, but other considerations are also relevant. As described in the FCC's Fourteenth CMRS Competition Report: "Shares of subscribers and measures of concentration are not synonymous with market power – the ability to charge prices above the competitive level for a sustained period of time. High market concentration may be a reasonable proxy for significant market power when a reduction in the number of competitors or an increase in their shares of subscribers result in significantly fewer constraints on the market power of the remaining firms. However, market concentration, by itself, is an imperfect indicator of market power."⁵⁴
- (73) Factors that constrain market power include the potential for significant new entry into the market and the presence of innovative activity with the potential to undercut the market power of established firms.⁵⁵ Traditional share-based screens may identify individual markets as potentially of concern when a proper accounting of the potential for entry and future competition and the role of innovative activity significantly lessens that concern.

⁵⁴ FCC, Fourteenth CMRS Competition Report at ¶55.

⁵⁵ See, e.g., FCC, Fourteenth CMRS Competition Report at ¶55.

E.1. Potential for entry and expansion

- (74) Successful entry into a mobile telephony/broadband services market requires that a provider be able to build up a critical mass of customers sufficient to cover initial investments (fixed costs) in a reasonable amount of time. There are features of the mobile telephony/broadband services markets in the United States that make them more accessible to new entrants than in certain other countries.
- (75) A key consideration faced by potential entrants in mobile telephony/broadband services is that a minimum level of network infrastructure in a geographic area is required in order to provide a marketable service in area. Aspects of the U.S. markets aid firms in their ability to achieve a customer base that is sufficient to support that minimum level of infrastructure, thus putting the entrant in a position to achieve long-run viability. In Section E.1.1, I discuss how the payment regime in the United States of “Receiving Party Pays” (RPP) facilitates entry and expansion by smaller providers relative to the alternative of “Calling Party Pays” (CPP). In Section E.1.2, I discuss some changes in the U.S. market that have reduced switching costs for mobile wireless customers. In Section E.1.3, I discuss policies that encourage competition from new entrants.

E.1.1. RPP versus CPP reduces barriers to entry and expansion

- (76) Mobile wireless providers in the United States operate under the paradigm of Receiving Party Pays (RPP) instead of the Calling Party Pays (CPP) paradigm, which is used for mobile wireless service in most other countries and which is used in the United States for wireline-to-wireline calls (where part of the per-minute price the caller pays on a long-distance call is paid out as an “access charge” to the receiving party’s network).
- (77) RPP is likely to make U.S. local mobile telephony markets more competitive, more easily contestable by new entrants, and less prone to anticompetitive exploitation of large customer bases—say, due to first-mover advantage or a merger.
- (78) Under the CPP regime, a firm with many subscribers can offer end-users plans with relatively inexpensive on-net calls. These plans are particularly attractive because of the incumbent’s large market share, which means many calls are on-net. To counteract incumbent’s “tariff-mediated network externalities” and attract subscribers, small firms/entrants must offer inexpensive calls both on-net and off-net. However, the off-net calls create “access deficits” because the small firms must pay into the incumbent’s “terminating access” monopoly (over a large number of subscribers). These payments far exceed the incumbent’s payment to its competitor’s terminating monopoly over few subscribers. In this way, CPP regimes create a type of barrier to entry and expansion not present in RPP regimes.

- (79) Economists and industry experts have recognized the benefits associated with RPP as compared to CPP. For instance, Stephen Littlechild (both an economist and an industry expert) wrote that: “Evidence from RPP countries is consistent with RPP solving market power problems. CPP is almost certainly less efficient than RPP. ... If the aim is efficient resource allocation, undistorted by excessive termination charges and subsidized handsets, to be achieved by competition rather than price controls, then RPP is preferable to CPP.”⁵⁶
- (80) In conclusion, the RPP regime in the U.S. mobile wireless industry is likely to provide spectrum holders that are planning to expand/launch new services with a better ability to challenge incumbents than the one enjoyed by entrants in the rest of the world.

E.1.2. Policies that reduce switching costs promote competition

- (81) As described in Klemperer (1995, p.515), “consumer switching costs give firms a degree of market power over their repeat-purchases, and mean that firms’ current market shares are important determinants of their future profits.”⁵⁷ Conversely, a reduction in switching costs reduces the market power that firms have.
- (82) Switching costs play a role in markets for mobile telephony/broadband service for a variety of reasons. Consumers face search costs to identify and learn about a new service provider. It may be costly for consumers to establish a billing relationship with a new provider or learn to use a new handset. Consumers incur costs if their mobile phone number changes, and consumers might be uncertain about the quality of service—particularly local-level coverage and signal strength from a new provider. The long-term nature of some contracts, including the possibility of explicit early termination fees (ETFs), creates switching costs, as well as network effects associated with reduced pricing for in-plan calls.
- (83) The FCC has given attention to the reduction of switching costs among mobile wireless customers. Changes that have reduced switching costs in markets for mobile telephony/broadband service include the introduction of number portability and the voluntary commitment by providers to prorate early termination fees.
- (84) As described by the FCC, “Local number portability (LNP) refers to the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers when switching from one telecommunications carrier to another. Prior to the Commission’s actions to require local number portability, the cost and inconvenience to consumers of changing to a new telephone number was considered a significant barrier to switching, reducing the

⁵⁶ Stephen C. Littlechild, “Mobile Termination Charges: Calling Party Pays versus Receiving Party Pays,” *Cambridge Working Papers in Economics*, University of Cambridge (2004).

⁵⁷ Paul Klemperer, “Competition when Consumers have Switching Costs: An Overview with Applications to Industrial Organization, Macroeconomics, and International Trade,” *Review of Economic Studies* 62, (1995): 515–39.

likelihood a consumer would move to a new service provider and thus impeding competition. Now that consumers can retain their telephone numbers within a given geographic area, this switching cost has been significantly reduced as a consideration in determining whether or not to change mobile wireless service providers.”⁵⁸

- (85) The FCC has given attention to the issue of ETFs through public hearings, requests for information, and with reprimands for mobile wireless providers viewed as requiring unreasonable ETFs. At the FCC’s public hearing on June 12, 2008, FCC Chairman Kevin Martin proposed five rules designed to guarantee consumer protection, one of which was that ETFs should be prorated over the life of the contract.⁵⁹ Although no rules have yet been established explicitly for ETFs by the FCC, all major carriers have since publicly committed to prorate their ETFs.⁶⁰

E.1.3. Policies that encourage new entrants promote competition

- (86) FCC has given attention to the promotion of new entrants through the design of bandplans to include smaller licenses (both in terms of their bandwidth and geographic coverage) and by offering bidding credits at FCC spectrum license auctions for small businesses.
- (87) For example, the 700MHz Auction included a block of 12MHz licenses defined over the relatively small Cellular Market Areas (CMAs),⁶¹ with reduced reserve prices for rural CMAs.⁶² In addition, qualifying bidders in the 700MHz Auction were eligible for “small” or “very small” business bidding credits of 15% or 25%, respectively.⁶³ The bidding credit program for small and very small bidders supported many license purchases. Of the 1,090 licenses sold, 712 were sold to large bidders, 49 to small bidders, and 329 to very small bidders. Of the 101 winning bidders, 45 were large, 20 were small, and 36 were very small. The FCC discounted license prices to small and very small bidders by a total of \$162,795,850.⁶⁴

E.2. Role of innovative activity

- (88) The existence of firms with substantial market share is of less concern for the competitiveness of a market if the market is dynamic in the sense that product offerings are evolving quickly, and especially if the larger firms are capacity constrained and obliged to continue to provide service under legacy technologies. The need for ATT and TMO to continue to provide service for

⁵⁸ FCC, Fourteenth CMRS Competition Report at ¶242–3.

⁵⁹ FCC Chairman Kevin J. Martin, Remarks, Early Termination Fees, Public Hearing, June 12, 2008, p.2, http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-282898A1.pdf.

⁶⁰ FCC, Fourteenth CMRS Competition Report at ¶235.

⁶¹ http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=73.

⁶² FCC Procedures Public Notice (DA 07-4171) at ¶211.

⁶³ http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=73#Small Business Bidding Credits.

⁶⁴ http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=73.

customers using legacy handsets and technologies limits the extent to which they can deploy their spectrum and other network resources to compete with new entrants offering services based on next-generation technologies. This suggests that one concern associated with having firms in a market with large market shares, that they might act so as to preclude profitable entry, may be less of a concern here. Legacy obligations mean that the larger firms may be more limited in their ability to take advantage of technological advances to protect their market shares than would otherwise be the case.

Appendix

Detail of AWS availability by spectrum holder

22.197	CMAs where AWS is unavailable in at least 1 county			CMAs where AWS is available in all counties			AWS holdings (regardless of availability)	
	MHz*	CMAs	POPs	MHz*	CMAs	POPs	CMA	POPs
T-Mobile	88.00	38,851,799	19	484.00	226,895,313	572	266,000,000	591
SpectrumCo	54.00	10,370,966	20	447.00	195,661,917	501	206,000,000	521
Verizon	89.00	43,353,833	15	365.00	154,932,410	454	198,000,000	469
AT&T	77.00	25,945,305	12	396.00	155,931,558	473	182,000,000	485
Leap	43.00	24,677,856	13	195.00	107,670,607	238	132,000,000	251
MetroPCS	16.00	5,408,348	13	109.00	46,978,298	125	52,400,000	138
Aloha	19.00	28,617,184	16	71.00	19,133,273	90	47,800,000	106
Cox	27.00	7,685,470	11	141.00	37,219,176	168	44,900,000	179
US Cellular	23.00	4,494,056	11	69.00	15,760,286	92	20,300,000	103
Cavalier	7.00	2,765,443	10	29.00	6,922,999	36	9,688,442	46
Cellular South	6.00	1,255,721	9	25.00	6,770,278	31	8,025,999	40
NextWave	12.00	2,330,333	8	18.00	4,889,916	30	7,220,249	38
Cleartalk	7.00	1,357,922	16	33.00	4,901,408	40	6,259,330	56

* Simple average (by CMA) of population-weighted (by county population) CMA-specific holdings.
 Source: Author's calculations based on information in Appendix B, ATT and TMO's Public Interest Statement.

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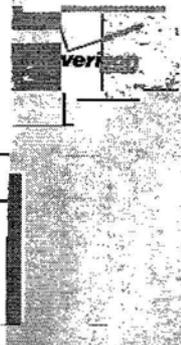
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