be mentioned in an attached declaration.[48] As Professor Chevalier shows, Applicants' expert's criticisms of her economic model are largely red herrings. Professor Katz's declaration does not dispute Professor Chevalier's basic point regarding the incentive of a large incumbent to hoard spectrum, mischaracterizes key points of Professor Chevalier's testimony and devotes much effort to attacking these dummy arguments rather than the real issues. His argument that Verizon Wireless cannot be hoarding because it uses spectrum intensively is both irrelevant (because an incumbent may seek to raise rivals' costs at the same time it is expanding its own output)[49] and based on an inappropriate and misleading measure of spectral efficiency.[50] He complains that Professor Chevalier's illustrative economic model does not capture all the relevant details of the wireless industry, but in fact her model is internally consistent and, while simplified, is still a better representation of the wireless industry than the alternative offered by Professor Katz, which focuses solely on the marginal revenues and marginal costs of a single firm without accounting at all for potential strategic considerations.[51] Applicants' criticisms of T-Mobile's economic evidence do not refute its basic point: economic theory recognizes that the interests of a large incumbent in a market seeking control of a scarce and critical input are not coincident with the interests of consumers.[52]

The Commission should therefore reject Applicants' attempt to focus exclusively on the immediate "Day 1" consequences of the proposed transfers of spectrum, and instead consider the actual effects going forward of undue spectrum concentration on competition and consumer welfare.

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[48] Declaration of Michael L. Katz (Ex. 4 to Opposition) ("Katz Declaration"), at 21-31.

[49] Chevalier Supp. Declaration at para. 11.

[50] Chevalier Supp. Declaration at para. 12.

[51] Chevalier Supp. Declaration at paras. 16-18.

[52] Chevalier Supp. Declaration at para. 4.

B. The Commission Should Engage in a Competitive Analysis Beyond the Spectrum Screen to Ensure Appropriate Scrutiny of Potential Competitive Harms, and Should Revise the Screen to Reflect Marketplace Reality.

1. The Commission Should Engage in A Competitive Analysis Separate and Apart from the Screen

The spectrum screen was designed not as a bright-line test, but as a flexible tool to assist the Commission in case-by-case analysis of spectrum transactions. The screen's job is to separate spectrum acquisitions that "clearly" pose no threat of competitive harm from those that require further scrutiny in order to determine the potential magnitude of such harm.[53] As T-Mobile showed in its Petition to Deny, the spectrum screen is *not* serving its intended purpose because it fails to trigger an appropriate public interest review where, as here, the *largest* wireless carrier is acquiring *even more* spectrum on a nationwide basis while checkmating crucial avenues for growth of its smaller competitors.[54] Applicants' response, in essence, is simply to hide behind the screen and insist that the Commission apply its past approach mechanistically, without regard to current realities and the resulting flaws in its results.[55]

Applicants' reliance on a mechanically-applied screen is also contrary to the history of the Commission's transaction review. In 2001, the Commission found the use of a fixed and inflexible spectrum cap "no longer necessarily in the public interest." Instead, it decided its objectives to "promote competition in the CMRS markets, allow[] efficient administration of CMRS spectrum acquisitions, and provide[] regulatory certainty" would better be served through the use of a "case-by-case review" of secondary market transactions.[56]

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[53] *Sprint Nextel-Clearwire Order* at para. 76 ("The purpose of this initial screen is to eliminate from further review those markets in which there is clearly no competitive harm.").

[54] T-Mobile Petition at 9-14.

[55] Opposition at 42-44.

[56] *2000 Biennial Regulatory Review, Spectrum Aggregation Limits for Commercial Mobile Radio Services*, Report and Order, 16 FCC Rcd 226688, at paras. 50, 54 (2001) ("*2001 CMRS Report*").

As useful as the spectrum screen has been in prior transactions, it is ultimately only a guideline for the Commission to remove markets from further detailed analysis[57] and to assist it in determining whether a specific transaction is in the public interest. Transactions that fall below the screen threshold are not automatically approved, and those that fall above are not automatically denied. Rather, after applying the screen, the Commission proceeds to consider the totality of the circumstances in each application, so that it does not "approve any transfer, assignment, or disposal of a license, or attendant rights unless we find that the public interest, convenience and necessity will be served thereby[.]"[58] Thus, the screen policy plainly "does not establish a 'binding norm' . . . [but] leave[s] the administrator free to exercise his informed discretion in the situations that arise."[59]

In the present case, as demonstrated in detail in the T-Mobile Petition at pages 8-20, Applicants' reliance on the outmoded screen that has existed heretofore is refuted by ample evidence that the Transactions would be anticompetitive whatever the screen might indicate. As T-Mobile showed in its Petition, the chief effect of the proposed Transactions would not be to provide any near-term benefits to Verizon Wireless customers, but rather to foreclose the possibility that this AWS spectrum could be acquired by smaller competitors – such as T-Mobile – who would use it more quickly, more intensively, and more efficiently than Verizon Wireless.

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[57] *AT&T–Cingular Order* at para. 110 ("[A]pplication of the initial screen eliminated from further review any market *not* identified by the screen. Although the structure of many of these eliminated markets will change as a result of the transaction, the fact that they were not caught by the screen indicated either that the market will be no more concentrated than the average market today, or that the structural change as a result of the merger is *de minimis*, or both, and we therefore find that these structural changes will not alter carrier conduct in such a way as to impair competition and hence market performance.") (emphasis in original).

[58] *2001 CMRS Report* at para. 55 (citing section 301(d) of the Communications Act).

[59] *Guardian Federal Savings and Loan Association v. Federal Savings and Loan Insurance Corp.*, 589 F.2d 658, 666 (D.C. Cir. 1978) (quoting *Pacific Gas & Electric Co. v. FPC*, 506 F.2d 33, 38 (1974)).

The acquisitions would unduly hamper the deployment of LTE by competitors of Verizon Wireless by sharply paring back the bandwidth available for such deployments. Thus, if these Transactions go forward, the end result will be less LTE capacity available overall and reduced competition in the provision of LTE, which would be contrary to the public interest – and this can be determined even without applying any "screen."

2. The Screen Should be Modified to Reflect Current Industry Realties

Should the Commission nevertheless decide to apply a spectrum screen analysis to the instant Transactions, it needs to make certain adjustments to the screen to ensure it accurately reflects the real-world economic and technical factors affecting competition in the wireless marketplace. As with any tool, if the screen is inadequate for the purpose for which it was intended, the Commission not only can, but is obligated to, adjust the screen so that it may fulfill its statutory public interest obligation.[60]

It is well-established that the Commission can make such changes in the context of reviewing specific transfer of control applications. Indeed, as the Commission has found, the "case-by-case" approach to analyzing spectrum transfers provides it with the necessary "flexibility to reach the appropriate decision in each case, on the basis of the particular circumstances of that case."[61] Consistent with this flexible approach, adjustments to the screen have been made frequently in past spectrum transfer proceedings and the "Commission will continue to monitor any technological or market-driven developments . . . and will adjust the screen where appropriate to accommodate these changes."[62] Indeed, the concept of the spectrum "screen" itself and its

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[60] *AT&T Co. v. FCC*, 978 F.2d 727, 732-33 (D.C. Cir. 1992) (holding that the Commission may not apply any rules that are contrary to its statutory authority under the Communications Act and may not "avoid their responsibilities in an adjudication properly before them by looking to a rulemaking").

[61] *2001 CMRS Report* at para. 50.

[62] *AT&T–Qualcomm Order* at para. 42.

initial parameters was developed in the context of a particular merger proceeding[63] and the notion that it was intended to be set in stone and cannot be adjusted in light of the particular circumstances of a particular subsequent transaction would defeat the very flexibility that the Commission intended to implement.[64]

Furthermore, contrary to the Applicants' assertions that there are no concerns about competitive harm under "any version" of the screen,[65] T-Mobile has demonstrated that under an appropriate spectrum screen analysis that takes into account the actual values for the spectrum inputs, there would be a significant number of markets that would be subject to additional review. Specifically, under the weighted spectrum approach, 12 of the top 25 markets, 24 of the top 50, and 46 of the top 100 markets would exceed the screen and would be subject to further detailed analysis.[66] Thus, unlike the Commission's findings in the *AT&T-Qualcomm* transaction, there are a significant number of markets that would be triggered for additional analysis if the spectrum screen were adjusted and thus there is a demonstrated need to address the broken spectrum screen process. Since the spectrum screen, in its current form, no longer provides an accurate assessment of the markets where competitive harms may result if the transaction is

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[63] *AT&T-Cingular Order* at paras. 4-6, 95-112.

[64] *2001 CMRS Report* at para. 54. Indeed, the Commission stated emphatically that while it intended to develop guidelines for the process of conducting "meaningful and timely review of spectrum aggregation transactions without the spectrum cap," it "emphasize[d] . . . that we do not intend to adopt guidelines to reinstate a bright-line rule." *Id.* at 57-57. The Commission proposed to consider the appropriate process for developing such guidelines, "including whether notice and comment procedures are necessary or helpful," *id.*, and it proceeded without the need for such a rulemaking on a flexible case-by-case basis to develop the initial screen parameters in the *AT&T-Cingular Order* and to adjust those parameters in particular transactions as appropriate to the circumstances and market conditions in place at the time. S*ee AT&T-Cingular Order* at para. 4.

[65] Opposition at 55.

[66] Supplemental Declaration of Peter Cramton (copy attached hereto as Exhibit C) ("Cramton Supp. Declaration") at para. 21.

granted, it must be modified to ensure that it fulfills the Commission's policy and statutory public interest goals.

C. Applicants Have Not Justified Inclusion of Additional Spectrum in the Screen Analysis

Applicants' continued attempt to include additional spectrum bands into the spectrum screen analysis is without support and the Commission should deny such requests. Contrary to Applicant's assertion that the MSS/ATC spectrum is viable for mobile services,[67] the Commission decision to deny the recent waiver request of DISH Network to use the MSS spectrum to provide terrestrial service[68] makes it clear that the inclusion of this spectrum in the spectrum screen analysis is premature at this point. This conclusion is not changed by the Commission's recent adoption of an NPRM to examine whether and how this spectrum could be made available for terrestrial services.[69] The NPRM raises a number of complex technical and policy issues that will need to be addressed, and the notice itself has not yet been published in the Federal Register so the comment cycle has not even begun yet. The outcome of this proceeding is uncertain both as to substance and to timing, and hence this spectrum, even if is eventually deemed "suitable" for mobile broadband will not be "available" for such uses in the near term. Indeed, even if all of the legal and policy hurdles are overcome in repurposing this spectrum for terrestrial mobile

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[67] Opposition at 56, n.182.

[68] *See Applications for Consent to Assign/Transfer Control of Licenses and Authorizations of New DBSD Satellite Services G.P., Debtor-in-Possession and TerreStar License Inc., Debtor-in-Possession and Requests for Rule Waivers and Modified Ancillary Terrestrial Component Authority*, Order, IB Docket Nos. 11-50, 11-149, DA 12-332, at para. 29 (IB March 2, 2012) (denying the waiver requests and noting that certain changes are the subject of a separate proceeding and certain non-technical ATC restrictions will be the subject of a rulemaking proceeding).

[69] *Notice of Proposed Rulemaking and Notice of Inquiry*, WT Docket No. 12-70, ET Docket No. 10-142 and WT Docket No. 04-356, FCC 12-32 (Mar. 21, 2012).

broadband, there will be additional time and effort required to deploy it and develop and manufacture handsets that can use it.[70]

Applicants also continue to argue that additional BRS spectrum and the EBS bands should be considered suitable and available for mobile telephony/broadband services notwithstanding technical restrictions and limitations.[71] They assert that T-Mobile joined with AT&T in making similar arguments in the recent Commission proceeding on the proposed AT&T acquisition of T-Mobile. What they do not note is that various other petitioners, including Verizon Wireless, have sought to include additional BRS and EBS spectrum in the screen in any number of cases, but the Commission has rejected all such requests.[72] Applicants' arguments concerning BRS and EBS here are substantially the same as those the Commission rejected in past cases. Nothing has changed to support a different decision here, and thus it would be arbitrary and capricious for the Commission to depart from this precedent without any demonstration of materially changed circumstances since those earlier decisions were rendered.[73]

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[70] *AT&T-Qualcomm Order* at para. 38, n.117 (spectrum will be considered "a relevant input if it will meet the criteria for suitable spectrum in the near term").

[71] Opposition at 56.

[72] *See e.g., Verizon Wireless-ALLTEL Order* at para. 65, 67; *Sprint Nextel-Clearwire Order* at para. 70-71; and *AT&T-Dobson Order* at para. 67.

[73] Applicants' claim that a T-Mobile "Issues and Insights" blog posting supports their view that additional spectrum should be included in the screen is wildly out of context and misleading. Opposition at 57 and n.186. In that posting, T-Mobile's Senior Vice President of Government Affairs discussed Sprint's argument that the then-proposed merger of AT&T and T-Mobile would result in the merged company charging higher prices and being less innovative, and observed that if this were true, Sprint should be planning to take advantage of the merged company's weakness rather than complaining about it. This observation has no bearing whatsoever on Applicants' spectrum screen arguments. Further, the key point T-Mobile is making in this case, namely that allowing Verizon Wireless to accumulate spectrum for which it has no immediate need could *prevent* competitors from taking advantage of any weaknesses of Verizon Wireless that may become apparent, is exactly the opposite of the arguments discussed in the blog posting.

D. Applicants' Objections to a Value-Weighted Spectrum Screen are Unpersuasive

Although Applicants strenuously object to any modification of the spectrum screen to take account of spectrum values,[74] their reasons for doing so are self-contradictory and unsupported by any evidence. To begin with, Applicants admit that different spectrum bands are not fungible: "Different bands have different characteristics that can make them more or less attractive to a given carrier at a given time depending on many factors."[75] Yet they continue to support use of a screen that completely ignores these differences and treats each megahertz of spectrum as if it were identical to every other one.[76] They also quote statements by T-Mobile and other carriers concerning the benefits of higher-frequency spectrum in some circumstances as if these statements somehow contradicted the weighting argument.[77] But value-weighting as proposed by T-Mobile is not based on any particular carrier's business plan or its subjective analysis of spectrum utility; instead, it is based on the actual arm's-length transactions in the market that ultimately determine the value of spectrum.

Applicants oppose weighting based on technical characteristics of spectrum (propagation strength, etc.) because the impacts of these characteristics vary based on various factors.[78] Yet it is precisely the fact that so many different factors can affect a carrier's demand for spectrum that makes the current assumption that all spectrum is equivalent so unrealistic. As Professor Cramton explains, wireless service is a complex differentiated product, and the ability of a carrier to

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[74] Opposition at 52-54, 58-63.

[75] Opposition at 59.

[76] As Professor Cramton points out in his Declaration attached as Exhibit C to T-Mobile's Petition (*e.g.*, at para. 21), and again in his Supp. Declaration (*e.g.*, at para. 10), the Commission's current practice is not mere neutrality – it amounts to an affirmative presumption that all spectrum is equal. Yet even Applicants agree that this presumption is unsound.

[77] Opposition at 59, nn. 194, 195.

[78] Opposition at 59-60.

deliver various attributes desired by consumers (coverage, speed, reliability, value added services, and access to the latest handsets) depends on the quality of its spectrum holdings.[79] Applicants also oppose weighting spectrum based either on auction prices[80] or book values[81] because these would only reflect the value that a particular carrier had placed on the spectrum at some point in the past. Although these measures are not ideal, even they would be an improvement over the current, manifestly-incorrect assumption that all spectrum is equally valuable. Nonetheless, T-Mobile continues to believe that the preferable basis for weighting spectrum is *current* market prices, as objectively determined by neutral observers, which does not share the supposed problems Applicants claim affect other weighting techniques.[82] Weighting by market value is equivalent to weighting the bands by scarcity, because market price is how economists measure scarcity. Relative prices effectively reflect the relative contributions of each band to producing wireless service valued by consumers.[83]

The Commission should, therefore, adopt T-Mobile's proposal to adjust the spectrum screen by weighting each band based on current market values.

IV. THE COMMISSION SHOULD REQUIRE FURTHER SCRUTINY OF THE "COMMERCIAL AGREEMENTS" AMONG THE APPLICANTS

The Applicants predictably protest that the Commission should not examine the substance of the allegedly-independent "Commercial Agreements" that were signed coincident with

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[79] Cramton Supp. Declaration at para. 9.

[80] Opposition at 60.

[81] Opposition at 61.

[82] Applicants' economic expert argues that because spectrum is only one of several inputs used to produce wireless service, market value of spectrum is not a good measure of competitive conditions. Katz Declaration at 37-38. However, the whole purpose of the spectrum screen is to measure control of an input, namely spectrum, not to measure output share. Control of spectrum is particularly relevant because, unlike any of the other inputs required by wireless carriers, its supply and allocation is dictated by Government policy.

[83] Cramton Supp. Declaration at paras. 15-18.

the agreement to transfer spectrum licenses that resulted in the Applications.[84] They ingeniously, but misleadingly, assert that "Commenters argue that the Commission must review and approve the separate Commercial Agreements . . . ."[85] Although Applicants are technically correct that *affirmative* Commission approval of these agreements before implementation by the parties is not required, they are squarely wrong in seeking to imply that the Commission either must or should ignore them completely in analyzing the competitive ramifications of the related Transactions.

A. The Commission Has Ample Authority To Consider Any Agreement Among Applicants That Affects the Public Interest Impacts of a License Transfer

If these commercial agreements contain terms that are relevant in determining how the public interest would be affected by the license transfers, then they are within the scope of the Commission's review of those transfers. Section 310(d) of the Act provides that no wireless license "shall be transferred, assigned or disposed of in any manner . . . except . . . upon finding by the Commission that the public interest, convenience, and necessity will be served thereby."[86] The Commission has broad discretion to determine the scope of information required to complete its public interest analysis and the manner in which that review will be conducted. Section 4(j) of the Act empowers the Commission to "conduct its proceedings in such manner as will best conduce to the proper dispatch of business and to the ends of justice."[87] Additionally, section 309(a) states that the Commission may decide whether the public interest standard has been satisfied based on its review of the application and consideration "of such other matters as

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[84] Opposition at 70-79.

[85] Opposition at 70.

[86] 47 U.S.C. § 310(d).

[87] 47 U.S.C. § 154(j).

the Commission may officially notice."[88] Thus, the Act does not restrict the Commission's authority to reviewing only what the *applicant* deems relevant to the transfer of wireless assets. That choice is instead given to the Commission.

With respect to deciding what material is relevant, "[t]he Commission's authority to use its administrative discretion in determining which documents and materials are necessary to, or otherwise most relevant and probative to, its public interest analysis is well-established."[89] As the D.C. Circuit has stated, "[t]he Commission is fully capable of determining which documents are relevant to its decision-making."[90] In the instant case, the Commission has expressly requested that the Applicants' joint marketing and product development agreements be entered into the record in this proceeding. The Applicants have acknowledged that such a request was made.[91]

Given that "[i]t is incumbent upon the Commission to include in the public record documents or evidence of decisional significance,"[92] the Commission's request that the Applicants produce their joint marketing and product development agreements clearly indicates that such agreements are considered by the Commission relevant to its public interest analysis and should

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[88] 47 U.S.C. § 309(a). The provisions of section 309 address not only an initial license application but also pertain to the review of license transfers pursuant to section 310 of the Act. ("Any such application shall be disposed of as if the proposed transferee or assignee were making application under section 308 of this title for the permit or license in question . . ."). Section 309 governs applications to which section 308 applies.

[89] *In the Matter of Applications for Consent to the Transfer of Control of Licenses from Comcast Corporation and AT&T Corp., Transferors, to AT&T Comcast Corporation, Transferee*, Order, 17 FCC Rcd 22633, 22636 (2002) ("*Comcast/AT&T Order*"), *aff'd Consumer Federation of America v. FCC*, 348 F.3d 1009 (D.C. Cir. 2003).

[90] *SBC Communications Inc v. FCC*, 56 F.3d 1484, 1496 (D.C. Cir. 1995).

[91] Letter to Marlene H. Dortch, Secretary, FCC, from Michael H. Hammer, WT Docket No. 12-4, at 3 (Jan. 18, 2012) ("in order to avoid undue delay in the Commission's review of the spectrum transaction and in response to a Commission request").

[92] *Comcast/AT&T Order* at para. 7.

be considered in its review of Applicants' license transfer request. As the Commission is authorized to examine those matters it deems necessary to conduct its public interest analysis, the Applicants' protestations that the joint marketing and product development agreements are outside of the Commission's authority should be rejected.

B. The Commission Cannot Make an Informed Public Interest Determination Without Reviewing the Unredacted Commercial Agreements

The Applicants assert that the Commercial Agreements are entirely independent of the spectrum transfers.[93] The Commission, however, is not obligated to take the Applicants' word for this, or to accept on faith their assurances that the agreements will have no anti-competitive effects. The Applicants, in essence, have told the Commission to "move along, nothing to see here." Circumstances strongly suggest, however, that there is something to see, and the Commission should make its own examination of the unredacted agreements before determining whether they have any bearing on its public interest analysis.

The commercial agreements, announced at the same time that Applicants announced their proposed spectrum assignments, reportedly provide for joint marketing, joint research, and joint product development[94] between Verizon Wireless, the largest mobile carrier, and the major cable MSOs, each of which, either itself or through its subsidiaries or affiliates, is the incumbent multichannel video programming distribution within its respective cable footprint. Moreover, several of these MSOs are vertically integrated enterprises that also control extensive program content, most notably Comcast, with its controlling interest in NBC Universal as well as many local and regional sports networks. The intertwining of the interests of these particular busi-

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[93] Opposition at 70.

[94] Verizon Press Release, Comcast, Time Warner Cable, and Bright House Networks Sell Advanced Wireless Spectrum to Verizon Wireless for $3.6 Billion; The Companies Also Announce Commercial Agreements That Will Deliver Mobile Products To Consumers (Dec. 2, 2011), http://news.verizonwireless.com/news/2011/12/pr2011-12-02.html.

nesses under these commercial agreements raises many potential concerns. For example, an agreement that provided Verizon Wireless with preferential or even exclusive rights to advertise on the MSOs' cable networks, on their affiliated content networks, or both, would certainly impair competition in the wireless services market. Another possible concern, as Sprint has noted, is that the agreements may limit or preclude customers of wireless carriers other than Verizon Wireless from accessing MSO-owned WiFi networks, which would give Verizon Wireless an enhanced ability to offload data traffic from its licensed spectrum.[95] Likewise, if Verizon Wireless were to receive exclusive access to Comcast-controlled programming, or if the joint venture were to develop mobile apps for access to that programming that operate exclusively on Verizon Wireless devices, such developments would severely limit customer choice and impair future mobile services competition.[96] Just as the Commission has found it necessary to adopt regulations to ensure competitive access to programming for multichannel video programming distributors,[97] it may also (depending on the terms of these agreements) find it necessary to impose conditions to ensure similar competitive access for mobile broadband service providers and applications.

The fact that the Department of Justice is reviewing the agreements[98] should heighten, not diminish, the Commission's interest in conducting an independent inquiry. The Commission has often stated that it considers potential harms under the antitrust laws as an important, al-

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[95] Comments of Sprint Nextel Corporation, WT Docket No. 12-4, at 5-9 (Feb. 21, 2012).

[96] *See also* T-Mobile Petition at 18-20. At the risk of belaboring the obvious, neither T-Mobile nor the Commission can know at this time whether any of these potential anti-competitive consequences are likely to occur, because neither of them has had the ability to inspect the unredacted commercial agreements.

[97] 47 C.F.R. §§ 76.1000 *et seq*.

[98] Opposition at 75-76.

though not the sole, component of its public interest analysis under section 310(d).[99] Regardless of whether a violation of the antitrust laws would be conclusive in the analysis, at a minimum it would certainly be relevant to the Commission's consideration of whether the proposed transactions are in the public interest.

C. The Reseller Agreements Have the Potential to Severely Harm Competition in the Roaming Market

As the record in this proceeding continues to develop, it has become clear that the Transactions also potentially pose an additional threat to the provision of competitive roaming services. The Rural Cellular Association ("RCA") warned in its petition that:

> [T]he Commission should consider adopting a stringent roaming condition with respect to Verizon that will allow new entrants and existing carriers to effectively compete in the market, such as applying the best available reseller rate Verizon is charging any of the Cable Companies to any requesting carrier.
>
> It would be counterintuitive to allow the Cable Companies to benefit from a low reseller rate, despite their failure to develop the spectrum they purchased, their significant financial gain from the Transactions, and their own admitted inability to obtain reasonable roaming rates, while at the same time allowing Verizon to deny reasonable roaming rates to competitors. It is not in the public interest to allow the Non-Operators [i.e., the Cable Companies] to benefit from a failure to compete while allowing Verizon to hold other competitors hostage in anti-competitive negotiations.[100]

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[99] *See* n. 42, *supra*.

[100] RCA - The Competitive Carriers Association Petition to Condition or Otherwise Deny Transactions, WT Docket No. 12-4, at 56 (filed Feb. 21, 2012).

Roaming is a critical input for wireless carriers and is becoming ever more so.[101] RCA has raised the very real possibility that the cable company Applicants – who propose to turn their spectrum entirely over to Verizon Wireless – will be offered resale rates that are substantially more favorable than the roaming rates Verizon offers to its roaming partners, thereby placing carriers competing with both Verizon Wireless and the cable company Applicants who resell its services at a significant competitive disadvantage. This would be particularly perverse since the Commission has sought to structure its roaming rules so that they do not disincentivize network build-out, while the proposed resale arrangement would grossly disadvantage those who have built out substantial networks and advantage companies who have never even commenced to build out a network with the spectrum they acquired in 2006.

T-Mobile accordingly urges the Commission to investigate thoroughly whether the Reseller Agreements are anticompetitive in the manner described by RCA. Should it find that they are, this would be yet another strong ground for denying the Applications.

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[101] Historically, the choice of roaming partners has been technology-constrained, such that CDMA carriers' customers typically roam only on other CDMA networks (such as Verizon Wireless), while GSM carriers' customers typically roam only on other GSM networks. With the increasing migration to LTE, Verizon Wireless will become a potential roaming partner of "GSM carriers" such as T-Mobile and many other smaller carriers.

V. CONCLUSION

For the foregoing reasons, the Commission should grant the Petition to Deny.

Respectfully submitted,

/s/Jean L. Kiddoo

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Dated: March 26, 2012

EXHIBIT A

EXHIBIT A

DECLARATION

OF

DENNIS ROBERSON

March 26, 2012

REDACTED – FOR PUBLIC INSPECTION

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Application of Cellco Partnership d/b/a	)	
Verizon Wireless and SpectrumCo LLC	)	
For Consent To Assign Licenses	)	WT Docket No. 12-4
	)	
Application of Cellco Partnership d/b/a	)	
Verizon Wireless and Cox TMI Wireless, LLC	)	
For Consent To Assign Licenses	)	

DECLARATION OF DENNIS ROBERSON

1. I, Dennis Roberson, am the Founder, President and CEO of Roberson and Associates, LLC. In parallel with this role I serve as Vice Provost, and Research Professor in Computer Science at Illinois Institute of Technology. I am an active researcher in the wireless networking arena and a co-founder of IIT's Wireless Network and Communications Research Center (WiNCom). My specific research focus areas include dynamic spectrum access networks, spectrum occupancy measurement and spectrum management, and wireless interference and its mitigation. I currently serve on the governing and/or advisory boards of several technology-based companies. Prior to IIT, I was Executive Vice President and Chief Technology Officer at Motorola and I had an extensive corporate career including major business and technology responsibilities at IBM, DEC (now part of HP), AT&T, and NCR. I am and have been involved with a wide variety of technology organizations, currently including the FCC Technology Advisory Council and the Commerce Spectrum Management Advisory Committee. I am a frequent speaker at universities, companies, technical workshops, and conferences around the

globe. I have BS degrees in Electrical Engineering and in Physics from Washington State University and a MSEE degree from Stanford.

Summary

2. In this Declaration, I will address contentions made in portions of the Joint Opposition to Petitions to Deny and Comments ("Opposition"), filed in this proceeding by Verizon Wireless, SpectrumCo and Cox TMI Wireless ("Applicants"). First, I will discuss Applicant's assertion that Verizon Wireless is more spectrally efficient in providing wireless services than a number of other providers, including T-Mobile, because, they allege, Verizon Wireless' ratio of ***customer connections per MHz of spectrum*** allocated is higher than that of T-Mobile (and some others). Applicants use this argument in an attempt to show that Verizon Wireless has not warehoused spectrum, notwithstanding that it has held substantial AWS spectrum without using it for more than five years. I will show that this part of Applicants' analysis is flawed, principally because the calculation is performed on an aggregated, nationwide basis, instead of on a market-by-market basis, does not take into account the different usage profiles of smartphones and featurephones, and ignores the different characteristics of low- and high-frequency spectrum. A corrected analysis leads to the opposite conclusion, and that in fact Verizon Wireless' historic spectral efficiency has on balance been considerably less than that of T-Mobile. Indeed, the pre-acquisition comparison shows that T-Mobile is as or more spectrally efficient than Verizon Wireless in 8 of the top 10 markets, and 31 of the Top 49 markets. Averaged over these markets, T-Mobile's efficiency exceeds that of Verizon Wireless by more than 50% percent.

3. Second, I will discuss Applicants' assertion that Verizon Wireless is more efficient than other providers, including T-Mobile, based on an alternative metric – its ratio of

spectrum share to customer connections share is lower than that of T-Mobile (and others). Applicants attempt to show that, by this measure as well, Verizon Wireless is more efficient in its use of the RF spectrum than other providers. I will show that this analysis too is flawed for the same reasons as Applicants' first analysis, and that a corrected analysis shows that under this metric as well, Verizon Wireless is less efficient than T-Mobile, particularly in the most spectrally constrained top markets. In the pre-acquisition comparison T-Mobile is seen to be as or more spectrally efficient than Verizon Wireless T-Mobile under this metric in 8 of the top 10 markets, and 31 of the top 49 markets. Averaged over these markets, T-Mobile's efficiency again exceeds that of Verizon Wireless by a large margin.

4. Under my supervision and direction, Roberson and Associates conducted an analysis and comparison of the spectrum efficiency of the T-Mobile and Verizon networks in the Top-50 cellular market areas under each of these two measures, correcting for several fundamental errors in Applicants' analysis by: (i) removing from each operator's allocation spectrum it does not yet have, (ii) analyzing the data on a market-by-market basis rather than merely in the aggregate, (iii) accounting for the different network demands imposed by smartphone users compared to featurephone users, and (iv) adjusting for the relative spectrum efficiency differences between high and low-band spectrum. Of the Top 50 markets, Verizon Wireless does not provide service using company-licensed spectrum in market 21, San Juan, PR. For the other 49, as further detailed below, the analysis shows that in fact the spectrum efficiency for T-Mobile networks greatly exceeds Verizon Wireless' spectrum efficiency. This is true whichever of Applicants' two proposed metrics is used. It is also true whether the comparison is based on Verizon Wireless' and T-Mobile current spectrum holdings or whether it includes spectrum they each propose to acquire.

5. In the discussion of the analysis and results below, eight tables (graphs) comparing the spectral efficiency of Verizon and T-Mobile networks are therefore presented. Tables 1-4 compare the spectral efficiency performance of the Verizon and T-Mobile networks in the top 50 markets, not including San Juan, using the metric subscribers per MHz of bandwidth. In these tables, a higher spectral efficiency number indicates better performance. Tables 1 and 2 exclude from each operator's allocation spectrum that it does not yet have. Tables 3 and 4 include spectrum that each operator proposes to acquire. Tables 5-8 compare the efficiency of the two networks in the top 50 markets using the metric that is the ratio of the spectrum share to customer connections share in those markets. In Tables 5-8, a lower ratio indicates better performance. Tables 5 and 6 exclude from each operator's allocation spectrum that it does not yet have. Tables 7 and 8 include spectrum that each operator proposes to acquire.

Applicants' Analysis Erroneously Includes Spectrum That T-Mobile Does Not Yet Have and Fails to Address the Differential Effects in Different Markets

6. In the analysis of spectral efficiency as measured by subscribers per MHz of bandwidth, an elementary and obvious error in Applicants' analysis is that they have allocated to T-Mobile spectrum it does not yet have: the spectrum to be assigned to it by AT&T pursuant to the break-up of their proposed merger, which is pending approval by the FCC, but did not allocate to Verizon Wireless the spectrum it would gain from this proposed transaction. Applicants are purporting to compare the efficiency of the carriers' historic use of their spectrum. Accordingly, we have removed the T-Mobile break-up spectrum from our initial analysis in order to compare the present-day holdings of both carriers, and this forms the basis of the first part of our analysis. In the second part, we add back in the spectrum *each* party proposes to acquire and perform the analysis again.

7. The overly aggregated nature of Applicants' analysis also distorts its usefulness in comparing operators' networks. Cellular networks are designed and deployed market by market depending on the specific physical environment and subscriber population. For this reason, spectral efficiency can and does vary significantly from one market area to the next: a market-by-market comparison is therefore necessary to compare spectral efficiency between network operators, and we have performed such a comparison. Furthermore, a nationwide subscriber metric results in an inaccurate comparison of spectral efficiency, since it improperly inflates the subscriber count for operators that have networks and licenses in more market areas. In making this analysis, market share data for Verizon and T-Mobile is taken from "Q42011 Market Share Data," provided by **[***BEGIN CONFIDENTIAL***]** [redacted] **[***END CONFIDENTIAL***]** to T-Mobile. Spectrum holdings information is taken from information assembled and prepared by T-Mobile based on FCC records.

Applicants' Analysis Erroneously Fails to Address the Vastly Different Usage Demands of Smartphones and Featurephones

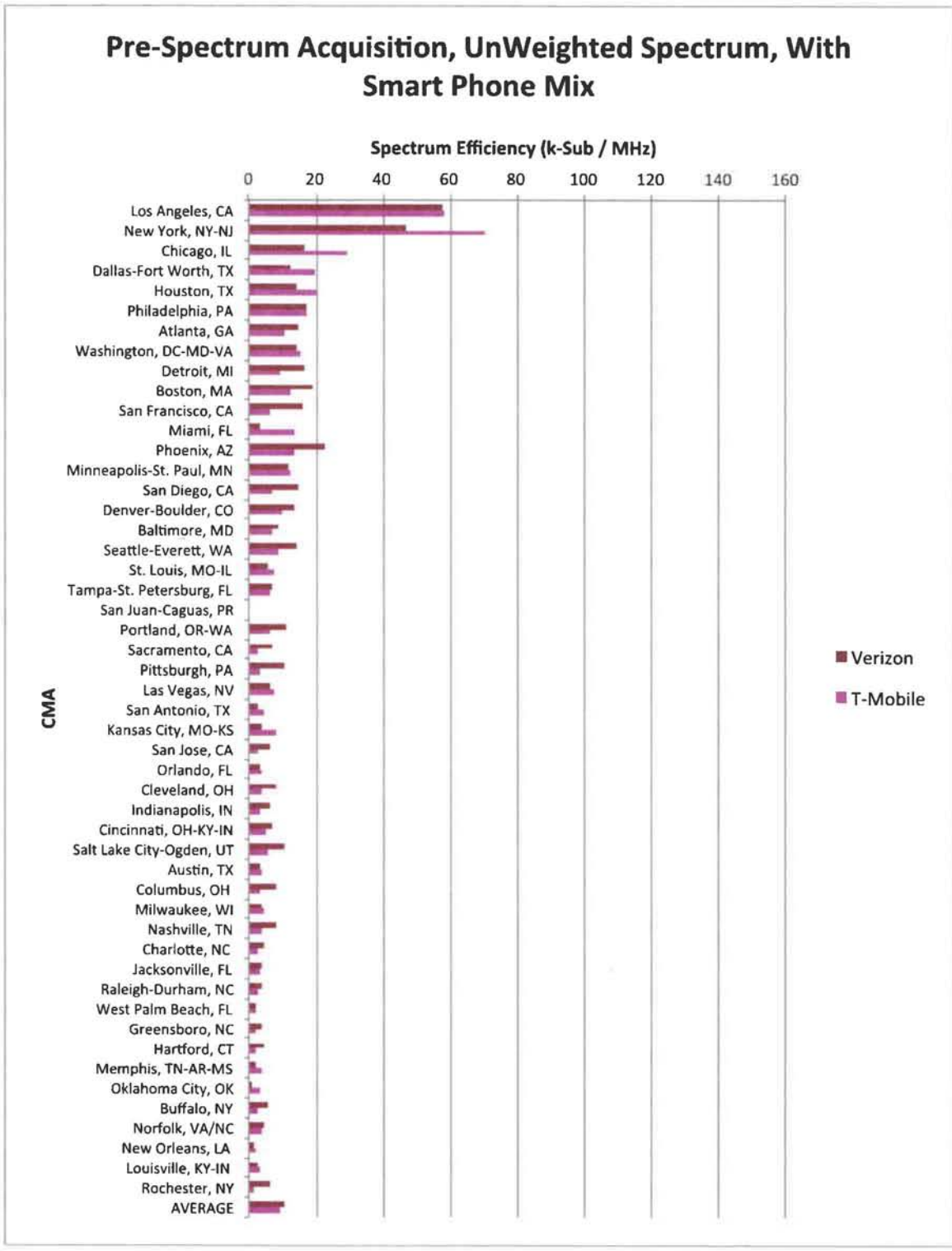
8. It is well known that smartphone subscribers consume significantly more network resources (bandwidth) than featurephone subscribers. A network serving mostly smartphone users would therefore be able to serve a much smaller raw number of users than a network serving mostly featurephone users. For this reason, any comparison of spectrum efficiency using the metric of subscribers/MHz *must* take into account any difference in the relative mix of smartphones and feature phones between the networks being compared. But even though the Opposition elsewhere acknowledges this difference, Applicants' purported spectrum efficiency comparison did not reflect this difference. To correct this, our spectral efficiency comparison accounts for the effect of the mix of smartphones and feature phones on different networks. The relative mix of smartphones on Verizon Wireless' network is taken as 40%, while the relative

mix of smartphones on the T-Mobile network is taken at 50%. These numbers are approximate Q4-2011 data taken from a graph titled "Smartphone Penetration and Industry % of Total Subs and Units" on page 4 of the J.P. Morgan Company report, "Telecom, Cable and Satellite Spectrum and Competition Overview, 4Q 2011 Wrap-Up and 2012 Outlook," dated March 5, 2012.[1] Furthermore, for purposes of this analysis, smartphones are assumed to consume 35 times the amount of bandwidth as a featurephone, which is the figure cited by Verizon Wireless in its Opposition at page 7.

9. Table 1 below shows the effects of correcting the analysis to reflect the differing smartphone mix. It shows that when this correction is made, T-Mobile is shown to be as or more spectrally efficient than Verizon Wireless in all 5 of the top 5 markets, and many of the Top 49 markets. Even when averaged across the top 49 markets (i.e., aggregating the data as Applicants did), T-Mobile's efficiency is essentially the same as that of Verizon Wireless.

[1] This independently conducted survey provides the most comprehensive direct comparison of the overall smartphone penetration of different operators. The Verizon Wireless number is consistent with that reported for retail subscribers only in "Smartphone sales squeeze margins at Verizon," FT.com, Jan. 24, 2012, accessed at http://www.ft.com/intl/cms/s/0/ab635362-4694-11e1-85e2-00144feabdc0.html#axzz1prJeSt90. T-Mobile reports **[***BEGIN CONFIDENTIAL***]** [redacted] **[***END CONFIDENTIAL***]** postpaid smartphone penetration.

TABLE 1[2]



[2] In this table, a larger metric value indicates better performance.