



FEDERAL COMMUNICATIONS COMMISSION  
Washington DC 20554

March 8, 2012

*Via E-mail*

Michael Samsock  
Cellco Partnership, dba Verizon Wireless  
1300 I Street, N.W., Suite 400  
Washington, DC 20005

Re: Applications of Cellco Partnership d/b/a Verizon Wireless, SpectrumCo LLC and Cox TMI Wireless, LLC for Consent To Assign Licenses Held by SpectrumCo LLC and by Cox TMI Wireless, LLC (WT Docket No. 12-4)

Dear Mr. Samsock:

Cellco Partnership d/b/a Verizon Wireless (“Verizon Wireless”), SpectrumCo LLC (“SpectrumCo”) and Cox TMI Wireless, LLC (“Cox”) have filed applications pursuant to section 310(d) of the Communications Act of 1934, as amended,<sup>1</sup> seeking Commission consent to the assignment of licenses held by SpectrumCo and by Cox.<sup>2</sup> In order for the Commission to complete its review of the applications and make the necessary public interest findings under section 310(d) of the Communications Act,<sup>3</sup> we require additional information and clarification of certain matters discussed in the applications and other information provided to the Commission. If necessary, we will follow up with additional requests for information.

Accordingly, pursuant to section 308(b) of the Act,<sup>4</sup> we request that you provide written responses and supporting documentation for each request set forth in the attachment and, where appropriate, amend the applications to reflect such responses. Each response or document should clearly indicate the specific question or request to which it responds, and each page should be marked with a corporate identification and document control number as specified in the attached instructions. We would appreciate receiving your response to each inquiry no later than March 22, 2012.

Your responses should be filed with Marlene H. Dortch, Secretary, Federal Communications Commission, in WT Docket No. 12-4. In addition, the Comment Public Notice and the Protective Orders<sup>5</sup> require the submission of multiple copies of all *ex parte* and other filings submitted in this

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<sup>1</sup> 47 U.S.C. § 310(d).

<sup>2</sup> See Cellco Partnership d/b/a Verizon Wireless, SpectrumCo, LLC and Cox TMI Wireless, LLC Seek FCC Consent to the Assignment of AWS-1 Licenses, WT Docket No. 12-4, *Public Notice*, DA 12-67 (Jan. 19, 2012) (“Comment Public Notice”).

<sup>3</sup> 47 U.S.C. § 310(d).

<sup>4</sup> 47 U.S.C. § 308(b).

<sup>5</sup> Application of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo LLC for Consent to Assign Licenses, WT Docket No. 12-4, *Protective Order*, DA 12-50 at 4 (WTB Jan. 17, 2012) (“Protective Order”); Application of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo LLC for Consent to Assign Licenses, WT Docket No.

proceeding.<sup>6</sup> The Wireless Telecommunications Bureau also should receive, at a minimum, two copies of all paper filings. This requirement does not apply, however, to the submission of documents produced in a form compatible with the Commission's document review software as described in the attached instructions, for which only one electronic copy shall be submitted. If you submit information pursuant to the Protective Orders issued in this case, you should deliver to John Spencer of the Wireless Telecommunications Bureau two copies of the unredacted documents marked "Confidential Information – Subject to Protective Order in WT Docket No. 12-4 before the Federal Communications Commission" or "Highly Confidential Information – Subject to Second Protective Order in WT Docket No. 12-4 before the Federal Communications Commission," as applicable, and two copies of the redacted documents marked "Redacted – For Public Inspection."<sup>7</sup> For any electronic filings made using the Commission's Electronic Comment Filing System ("ECFS"), parties also should serve the documents via e-mail to Sandra Danner, [sandra.danner@fcc.gov](mailto:sandra.danner@fcc.gov); Joel Taubenblatt, [joel.taubenblatt@fcc.gov](mailto:joel.taubenblatt@fcc.gov); and Joel Rabinovitz, [joel.rabinovitz@fcc.gov](mailto:joel.rabinovitz@fcc.gov).

If you have any questions regarding this matter, please contact Sandra Danner, Wireless Telecommunications Bureau, at (202) 418-0916, Joel Taubenblatt, Wireless Telecommunications Bureau, at (202) 418-1513, or Joel Rabinovitz, Office of General Counsel, at (202) 418-0689.

Sincerely,



Rick Kaplan  
Chief, Wireless Telecommunications Bureau

Attachment

cc: John T. Scott, III, Verizon Wireless

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12-4, *Second Protective Order*, DA 12-51 at 5 (WTB Jan. 17, 2012) ("Second Protective Order") (collectively the "Protective Orders").

<sup>6</sup> See Comment Public Notice at 4; Protective Order at 4; Second Protective Order at 5.

<sup>7</sup> See Protective Order at 4; Second Protective Order at 5.

**WT Docket Number 12-4**  
**INFORMATION AND DISCOVERY REQUEST FOR VERIZON WIRELESS**

1. Provide an organization chart and personnel directory in effect since January 1, 2010, for the Company as a whole and for each of the Company's facilities or divisions involved in any activity relating to any Relevant Wireless Product or any Relevant Wireless Service.
2. Provide a list, in csv format, as of the date of this Request, organized by state (including the District of Columbia, and Puerto Rico), and then by county (or municipality in the case of Puerto Rico) of each spectrum license that can be used in the provision of mobile wireless services that Verizon Wireless: (a) holds; (b) manages; (c) contracted to acquire; (d) is in negotiations to acquire; (e) plans to transfer or assign; (f) leases to or from another person or entity; (g) holds a general partnership interest. For each license, identify: (a) the call sign; (b) the county FIPS Code; (c) the county name (and the District of Columbia and each municipality in the case of Puerto Rico); (d) the state; (e) the market name; (f) the market number (e.g., CMA, MTA, and/or BTA); (g) the spectrum band; (h) the spectrum block; (i) the amount of spectrum; (j) the wireless technology format (e.g., CDMA, EV-DO Rev. A, LTE) deployed at present; (k) in the Cellular and PCS spectrum, an indication of any future plans to upgrade to LTE; and (l) any measures of past/present/expected spectrum utilization per sector and capacity models or analysis of CDMA 1x and EV-DO to LTE migration.
3. Provide data as specified in the attached spreadsheets and instructions: "Historical Site Level Data" and "Historical and Projected County Level Data."
4. Provide a list of all internal and external reports that the Company produces on a monthly, quarterly, or annual basis. For each such report, provide the time period covered by the report, the full name and title of each recipient, and a brief description of the content and subject matter addressed.
5. Provide, as of the date of this Request, maps by bands of the geographic coverage of each relevant network provided by Verizon Wireless, distinguishing by technological format (e.g., CDMA, EV-DO, EV-DO Rev. A, LTE, GSM, EDGE, UMTS, HSPA, or HSPA+ ). On these coverage maps: (1) depict in separate colors two ranges of signal levels (- 95 to - 85 dBm, and greater than -85 dBm); (2) depict all major and minor roads; and (3) indicate locations of their cell sites (color coded with frequency band). Provide the maps in a geo-referenced format, such as a shapefile (for ArcMap) or table (for MapInfo). Provide all assumptions, methodology (e.g., propagation, field measurements), calculations (including link budgets), tools (e.g., predictive and field measurements) and data (e.g., terrain, morphology, buildings) that are used to produce the maps.
6. Paragraph 6 of the Stone Declaration (VZW – SpectrumCo) makes the following statements regarding Verizon Wireless's projections for data traffic on its network: "From 4Q06 until 4Q11 we have experienced a compounded annual data traffic growth rate of approximately 94% year over year, meaning that data usage has nearly doubled each consecutive year for the past five years. . . . Our LTE usage projections suggest that this trend of doubled data usage every year will continue, and that traffic on our LTE

network will surpass data usage on our EV-DO network in early 2013.” Paragraph 13 of Stone’s Supplemental Declaration (Joint Opposition) provides “historical and projected downloaded busy-hour data,” while paragraphs 19-20 provide a high level description of the “Verizon Planning Instrument” that Verizon Wireless has developed as a capacity and spectrum planning tool to monitor and calculate capacity needs on its EV-DO and LTE network.

- a. Provide all plans, analyses, and reports discussing actual and projected compounded annual growth rates for all network technologies and services, including any break-down of subscriber connection growth and the traffic growth per subscriber connection. If not included in such plans, analyses, and reports, discuss in detail the various assumptions and models underlying these plans, analyses, and reports, including assumptions relating to traffic volume, speed and quality of services, and mix of devices and services.
  - b. Provide all plans, analyses, and reports that Verizon Wireless uses on a daily and periodic basis to estimate traffic requirements, including on sector level basis. If not included in such plans, analyses, and reports, discuss traffic growth assumptions and models underlying these plans, analyses, and reports, including details on the various assumptions used in the Verizon Planning Instrument and whether and how each of these assumptions is factored into the resulting traffic demand forecast for each sector and each cell site.
  - c. Provide all plans, analyses, and reports on adjustments that Verizon Wireless applies to make corrections to usage predictions.
7. Provide all plans, analyses, and reports discussing the Company's current and projected capacity and bandwidth requirements for:
- a. mobile wireless services, including its current and projected number of subscriber connections by device type (traditional handset, iPhone, other smartphone, tablet, laptop or laptop card, mobile Wi-Fi), its subscribers’ current and projected voice and data usage, the corresponding covered population, corresponding pricing assumptions, and assumptions regarding how subscribers with multiple devices affect capacity needs; or
  - b. services using LTE fixed wireless equipment to bring broadband service to the home, such as the Cantenna device discussed in Paragraph 11 of the Stone Declaration (VZW-SpectrumCo) or the Fusion service discussed in Paragraph 17 of the Stone Supplemental Declaration (Joint Opposition).

Include the amount and type of spectrum required by the Company to provide these services, including services that would use the LTE network. Include all plans, analyses, and reports discussing how the projected capacity and bandwidth requirements may be affected by the Proposed Transaction or the Agreements.

8. Provide all plans, analyses, and reports discussing CDMA to LTE migration, including Verizon's plans to use or market devices that support both CDMA (1x and EV-DO) and LTE in bands that currently support only CDMA.
9. Paragraph 24 of the Stone Declaration (VZW - SpectrumCo) states that: "Generally speaking, our earlier projections indicated that we would have sufficient spectrum in most areas served by our network until 2015, but that we would need additional capacity in some cell sites in various markets before that year." In addition, Paragraph 25 of the Stone Declaration (VZW - SpectrumCo) states that ". . . we could need additional spectrum in some markets as early as 2013." Paragraphs 30-38 of the Stone Supplemental Declaration (Joint Opposition) provide additional discussion about projected capacity constraints in a number of markets.
  - a. Explain these statements in detail, including identifying all markets in which additional spectrum would be needed prior to 2015, which spectrum bands Verizon Wireless presently is using in those markets, and the requisite timeframes for meeting these spectrum needs. Describe assumptions and methodology.
  - b. Provide all documents that address whether Verizon Wireless already has sufficient spectrum to meet its capacity needs until 2015.
  - c. Provide all documents that address whether Verizon Wireless could become capacity constrained in some areas as early as 2013, including how and where such asserted capacity constraints affect Verizon Wireless's current and projected ability to provide mobile wireless services to its customers, with any relevant pricing assumptions.
  - d. Discuss whether, and if so how, such spectrum needs are affected by the Proposed Transaction between Verizon Wireless and the cable companies. Describe assumptions and methodology. Provide all documents discussing how Verizon Wireless's spectrum needs would be affected by the Proposed Transaction.
10. Paragraph 27 of the Stone Declaration (VZW-SpectrumCo) states that Verizon Wireless's 700 MHz Lower Band spectrum "is not as suitable for our LTE capacity requirements [when compared to AWS], because among other factors, the spectrum cannot be deployed as efficiently (or at all) in many markets because of the presence of existing Channel 51 television broadcast operations." Paragraph 49 of Stone's Supplemental Declaration (Joint Opposition) provides additional discussion about the limitations of the Company's Lower 700 MHz Band spectrum.
  - a. Provide all documents, from August 17, 2007 (announcement of Auction 73), to present, discussing the basis for the statements in the Stone Declarations. Provide a list of all markets that are affected by the presence of existing Channel 51 television broadcast operations and the degree and manner in which the provision of wireless service in each of these markets is affected.

- b. Provide all documents that discuss whether Verizon Wireless's Lower 700 MHz Band spectrum can be deployed efficiently for LTE, including deployment relating to:
    - i. Lower 700 MHz A Block that is affected by Channel 51 operations;
    - ii. Lower 700 MHz A Block that is not affected directly by Channel 51 operations; or
    - iii. Lower 700 MHz B Block.
  - c. Provide all plans, reports, and analyses -- from August 17, 2007 (announcement of Auction 73), to present -- discussing Verizon Wireless's strategy for its Lower 700 MHz Lower Band spectrum, including:
    - i. all plans or efforts to deploy its Lower 700 MHz A or B Block spectrum;
    - ii. all plans to sell or lease its Lower 700 MHz spectrum holdings;
    - iii. comparisons of the viability of using Lower 700 MHz band spectrum to deploy LTE versus AWS or Upper 700 MHz Band spectrum, particularly in markets that Verizon Wireless has identified in response to Question 9 as needing additional spectrum;
    - iv. any efforts to facilitate mobile wireless or fixed wireless standards that would include Lower A Block;
    - v. any efforts to negotiate with Channel 51 licensees for relocation;
    - vi. assessments of potential interference (or lack thereof) from Channel 51 operations, including in markets that Verizon Wireless has identified in response to Question 9 as needing additional spectrum;
    - vii. whether, and if so how, Verizon Wireless's strategy for its Lower 700 MHz Band spectrum has changed from the time it acquired the spectrum to the present; or
    - viii. how Verizon Wireless's strategy for its Lower 700 MHz Band spectrum would be affected by the Proposed Transaction.
11. Provide all plans, analyses, and reports discussing Verizon Wireless's deployment of its 700 MHz Upper C Block, including its projections of whether, and if so, where and when it would exhaust capacity on this spectrum.
12. Paragraph 21 of Stone's Supplemental Declaration (Joint Opposition) states a specific projected capacity for a fully loaded cell site sector using 700 MHz C Block spectrum to provide LTE while still maintaining the speeds Verizon Wireless seeks to provide to all

consumers in that sector. Provide all documents in which spectral efficiency is calculated and compared for Verizon Wireless's wireless technologies (including, but not limited to EV-DO and LTE). Include all calculations and assumptions that relate spectral efficiency to hourly cell site capacity.

13. Paragraph 28 of the Stone Declaration states that Verizon Wireless would need to supplement its existing AWS spectrum in the eastern half of the U.S. and add AWS spectrum in many areas of the western half of the U.S. where it currently holds no AWS spectrum, in order to meet customer demand.
  - a. Provide all plans, analyses, and reports discussing Verizon Wireless's plans for offering any service or technology using its existing AWS spectrum, including when and where it would launch any service or network. In particular, include all plans, reports, or analysis describing steps that Verizon Wireless has taken to deploy networks that use its existing AWS licenses.
  - b. Provide all plans, analyses, and reports discussing Verizon Wireless's projected use of its current AWS licenses, including how and to what extent the Proposed Transaction would affect these plans, capacity needs, and timeframes.
  - c. Provide all plans, analyses, and reports discussing whether the acquisition of spectrum from SpectrumCo and Cox would allow more consumers to use data-intensive applications and features on Verizon Wireless's network.
14. Paragraph 27 of the Stone Declaration states that Verizon Wireless's cellular and PCS licenses are "fully deployed to provide our nationwide CDMA, EV-DO Rev A and 1x services, which currently carry the lion's share of our data and SMS traffic and all of our voice traffic." Provide all plans, analyses, and reports discussing Verizon Wireless's projected use of its cellular and PCS licenses, including how and to what extent the Proposed Transaction would affect these plans, capacity needs, and timeframes.
15. Provide all plans, analyses, and reports discussing alternatives Verizon Wireless considered to address any current or future constraints in capacity or to increase capacity, including:
  - a. acquiring new spectrum;
  - b. increasing network capacity using existing spectrum, including deploying more efficient technologies, improving backhaul, adding cell sites, or deploying small cells (e.g., picocells, outdoor DAS, indoor DAS, femtocells);
  - c. repurposing particular spectrum to different technologies (e.g., LTE), including the transition of subscribers from the repurposed spectrum; or
  - d. alternative solutions to managing any spectrum constraint problems, including upgrading network or customer equipment, changing prices, offloading traffic onto

Wi-Fi networks (of Verizon Wireless or any third party), migrating towards heterogeneous networks, or deploying alternative technologies such as Voice over LTE.

16. Provide projected three-year wireless capital expenditure budgets for the past three years, and explain any changes for each year.
17. Provide all plans, analyses, and reports discussing how Verizon Wireless would use the SpectrumCo and Cox AWS spectrum for Relevant Wireless Services, including:
  - a. how that use would fit with Verizon Wireless's overall strategy for using its various existing spectrum holdings;
  - b. the timeframe for integrating AWS spectrum into Verizon Wireless's LTE devices and any steps the Company has taken to date towards that purpose; or
  - c. the cost impacts, if any, of adding the AWS band to LTE devices.
18. Discuss how Verizon Wireless's acquisition of spectrum from Leap Wireless, if approved, would affect Verizon Wireless's plans and timeframe for use of the SpectrumCo and Cox AWS spectrum, both on a local and national basis. Provide all plans, analyses, and reports discussing how the acquisition of the Leap Wireless spectrum would affect the deployment of the SpectrumCo and Cox AWS spectrum.
19. Paragraph 27 of the Stone Declaration states that AWS spectrum is "the most cost-effective and spectrally efficient way" for Verizon Wireless to supplement its 700 MHz C Block spectrum for the deployment of its LTE network. Provide all plans, analyses, and reports provided to, reviewed by, or relied upon for this statement. Provide any cost models and underlying valuation of spectrum bands.
20. On pages 14-15 of the Public Interest Statement (VZW-SpectrumCo), the Applicants state that "[f]orward-looking, long-term spectrum planning is essential because long lead times are needed to complete the many steps that can be required before new spectrum is put to work." The Applicants further describe eight actions, some or all of which Verizon Wireless "typically" must complete before it can deploy new spectrum. With respect to the process and timeframe for putting the SpectrumCo and Cox spectrum to use, provide all plans, analyses, and reports discussing which of these steps and actions are necessary and the length of time needed to achieve any of them.
21. Provide all documents discussing Verizon Wireless's valuation of the AWS spectrum assets in the Proposed Transaction, including:
  - a. to what extent, if any, elements of the Agreements affect the valuation of these AWS spectrum assets; or

- b. the cost and relative valuation of any other spectrum licenses that Verizon Wireless considered acquiring or acquired in the secondary market, including through the acquisition of firms.

22. Provide a timeline of discussions concerning the Proposed Transaction or Agreements, including:

- a. dates of various discussions between principals and representatives of the parties;
- b. dates of meetings of the boards of directors where the matter was discussed; and
- c. dates of interactions between advisors and the boards of directors or management.

Provide all plans, analyses, and reports presented at these discussions, meetings, and interactions.

23. On page 19 of the Public Interest Statement (VZW-SpectrumCo), the Applicants state that the transaction would benefit consumers by enabling the company to expand the capacity of its network to address increasing consumer demand and deliver high quality, high-speed state-of-the-art services. Provide all plans, analyses, and reports discussing the consumer benefits that would result from the Proposed Transaction including all plans to improve services or products, improve service quality, improve capacity to transmit mobile wireless services (including the number of customers affected), introduce new services or products, or change the pricing for new or future services or products.

24. Paragraph 8 of the Stone Declaration (VZW - SpectrumCo) states that Verizon Wireless engineers its network with access speeds “that are designed to achieve the goals we set for data services -- for EV-DO, typical download speeds of 600 kbps -- 1.4 Mbps and upload speeds of 500 - 800 kbps; for LTE, typical download speeds of 5 - 12 Mbps and upload speeds of 2 - 5 Mbps.” Paragraph 9 of the Stone Declaration (VZW - SpectrumCo) states that “[t]o maintain the same speeds that customers grow to expect as the norm, more spectrum capacity must be added.” Paragraphs 21-23 of Stone’s Supplemental Declaration (Joint Opposition) discuss capacity and the impact on the consumer experience. Provide all documents provided to, reviewed by, or relied upon by Mr. Stone in making these statements. Provide all plans, analyses, and reports discussing the impact the Proposed Transaction would have on performance speeds.

25. Provide all plans, analyses, and reports discussing:

- a. actual or potential competition between the Company’s and any Competing Provider’s mobile wireless services (either individually or in the aggregate); or
- b. actual or potential competitive responses by your Company to any other provider of mobile wireless services, including but not limited to, new product introductions, pricing, service offerings, and network upgrades.

26. Provide all plans, analyses, and reports discussing the effect that approval of the Proposed Transaction would have on the ability of other firms to offer or compete in the provision of all mobile wireless services.
27. Provide all plans, analyses, and reports discussing the Company's assessment of the effect of the proposed AT&T/T-Mobile merger on its business, as well as the impact of withdrawal of those companies' plans to merge.
28. Provide all plans, analyses, and reports discussing how the Proposed Transaction might affect the pricing and availability of voice and data roaming in the United States, including roaming on AWS spectrum.
29. Provide all plans, analyses, and reports discussing the Company's or other wireless service provider's use or future use of Wi-Fi networks in the provision of services, including:
  - a. the Company's use or future use of its (or its affiliate's) Wi-Fi networks for the delivery of Relevant Wireless Services;
  - b. the Company's or other wireless service provider's use or future use of any other company's Wi-Fi networks for the delivery of Relevant Wireless Services;
  - c. the benefits of having access to Wi-Fi networks for the provision of its wireless services (e.g., for network management, such as through offloading of traffic, or the provision of enhanced services) and any valuation of having access to Wi-Fi networks, including any competitive implication;
  - d. how the Proposed Transaction and the Agreements would affect the Company's use or future use of its (or its affiliate's) or other companies' Wi-Fi networks, or affect any other wireless service provider's access to Wi-Fi networks; or
  - e. any potential or actual agreements, partnerships, or arrangements that the Company has with other companies to supply Wi-Fi services.

To the extent the Company has entered into any agreements, partnerships, or arrangements subject to subsection (e), provide a copy of such agreements, partnerships, or arrangements.

30. Provide all documents discussing the impact of the Proposed Transaction and the Agreements on the availability and terms, including prices, for the Company or other backhaul providers to provide backhaul for unaffiliated mobile wireless service providers to new or existing network facilities.
31. Provide all plans, reports, and analyses discussing the Company's actual or potential use or provision of backhaul services or factors relevant to the Company's use or provision of such services, and competitive issues relating to backhaul services, including:

- a. Verizon Wireless's or other wireless service providers' demand for backhaul services, including projected demand;
- b. Verizon's provision of backhaul services (and the markets in which it provides backhaul services), including its provision to Verizon Wireless and other wireless service providers;
- c. other providers' supply of backhaul services;
- d. Verizon Wireless's possible expansion or reduction of its backhaul network or backhaul service offerings, including the rates, terms, and conditions on which it would provision such services;
- e. Verizon Wireless's practices when it seeks additional backhaul services, including whether it has discussed or entered into any "preferred provider" or similar arrangement with any other backhaul provider; or
- f. whether and how Verizon Wireless's projected need or use of backhaul services may change as a result of the Proposed Transaction or the Agreements.

32. Provide all plans, analyses, and reports discussing MVNOs or similar resale arrangements or potential arrangements between a wireless service provider and any wireline broadband, video, or satellite service provider, including any MVNO or similar arrangement, or potential arrangement, with wireline, satellite service, or video providers considered by the Company or entered prior to entering into the Agreements. The response should include, but not be limited to:

- a. any MVNO or similar arrangement that the Company has entered or sought to enter (including the terms, conditions, services, and term period of the arrangement);
- b. the benefits of an MVNO (or similar) arrangement, or any valuation of such an arrangement; or
- c. how such an arrangement could affect the ability of any wireless service provider to compete in the provision of competitive mobile wireless services now and in the future.

To the extent the Company has entered into such an arrangement, provide a copy of any executed agreement.

33. Provide all plans, analyses, and reports discussing the Company's negotiations and final decision to enter into the Agreements as a means of enabling the Company's subscribers to have access to a combination of both Wireless and Wired Services, including:

- a. the benefits of these arrangements in the Agreements, including how such arrangements compare with alternative arrangements such as MVNO or resale arrangements, as well as any valuation of these arrangements;
  - b. how these arrangements in the Agreements promote the ability of the Company to compete in the provision of Relevant Wireless Services now and in the future;
  - c. initial term of these arrangements and the renewal period; or
  - d. the exclusivity provisions relating to entering into an MVNO or resale arrangement.
34. Provide all plans, reports, and analyses discussing the Company's negotiations and final decision to enter into the Reseller Agreement enabling the possible entering of an MVNO arrangement in the future, including those discussing:
- a. the benefits or valuation of the Agreement;
  - b. the rate structure provisions;
  - c. the exclusivity provisions relating to entering into an MVNO arrangement, the initial term of the arrangement, and the renewal period; or
  - d. any competitive analyses of such an arrangement, including the importance of such an arrangement to enable the company to compete in the provision of Relevant Wireless Services now and in the future.
35. Describe in detail and provide all documents discussing whether and if so how the Company:
- a. conditioned or otherwise connected its decision to enter into the License Purchase Agreements on the execution or consummation of any of the Agreements or any other commercial agreement or arrangement; or
  - b. conditioned or otherwise connected its decision to enter into any of the Agreements on the execution or consummation of the Spectrum License Purchase Agreements, any of the other Agreements, or any other commercial agreement or arrangement; or
- The response should include, but not be limited to, the nature of and the purposes or objectives underlying any such condition or connection.
36. Provide all documents discussing whether the Agreements have an impact on the state of competition on any Mobile Wireless Service or Mobile Wireless Product.
37. To the extent not already provided, provide all documents cited in the Public Interest Statement or Joint Opposition and the attached declarations, and any data, documents or analyses provided to, reviewed by, or relied upon in preparing those declarations, grouped

by declaration/Public Interest Statement, or Joint Opposition.

## Definitions

**In this Information and Document Request, the following terms shall have the following meanings (such meanings to be equally applicable to both the singular and plural forms of the terms defined):**

1. The terms “Company” or “VZW” means Cellco Partnership d/b/a Verizon Wireless, its parents, predecessors, divisions, subsidiaries, affiliates, partnerships and joint ventures, and all directors, officers, employees, agents, and representatives of the foregoing. The terms “parent”, “subsidiary”, “affiliate”, and “joint venture” refer to any person in which there is partial (10 percent or more) or total ownership or control between the company and any other person.
2. “Agent Agreements” means collectively the Cable Company Agent Agreements and the VZW Agent Agreements.
3. “Agreements” means collectively the Agent Agreements, JOE Agreement, MSO Agreement and Reseller Agreements.
4. The terms “and” and “or” have both conjunctive and disjunctive meanings.
5. The word “any” shall be construed to include the word “all,” and the word “all” shall be construed to include the word “any.” The word “each” shall be construed to include the word “every,” and the word “every” shall be construed to include the word “each.” All words used in the singular should be construed to include the plural, and all words used in the plural should be construed to include the singular.
6. The term “Applicants” means VZW and SpectrumCo, collectively, in application no. 0004993617 and VZW and Cox, collectively, in application no. 0004996680.
7. The term “Application” means the applications submitted by VZW and SpectrumCo on December 16, 2011, with the lead file number for the wireless radio services listed as 0004993617, and VZW and Cox TMI Wireless, LLC on December 21, 2011, with the lead file number for the wireless radio services listed as 0004996680.
8. “Backhaul” means the facilities that comprise the intermediate links that transmit voice and data traffic between a wireless service provider’s cell sites and a core network.
9. The term “BHN” means Bright House Networks, LLC, its domestic and foreign parents, predecessors, divisions, subsidiaries, affiliates, partnerships, and joint ventures, and all directors, officers, employees, agents, and representatives of the foregoing. The terms “parents”, “subsidiary,” “affiliate,” and “joint venture” refer to any person in which there is partial (10 percent or more) or total ownership or control between SpectrumCo and any other person.
10. “BHN Agent Agreement” means that certain Agent Agreement, dated as of December 2, 2011, by and between VZW and BHN.

11. "Cable Company" means any of Comcast Cable Communications, LLC, Cox Communications Inc., Time Warner Cable Inc., or Bright House Networks, LLC.
12. "Cable Company Agent Agreement" means any of the Comcast Agent Agreement, the Cox Agent Agreement, the TWC Agent Agreement, or the BHN Agent Agreement.
13. The term "CDMA" means Code Division Multiple Access technology.
14. The term "CMA" means Cellular Market Area.
15. The term "Comcast" means Comcast Corp., its domestic and foreign parents, predecessors, divisions, subsidiaries, affiliates, partnerships, and joint ventures, and all directors, officers, employees, agents, and representatives of the foregoing. The terms "parents", "subsidiary," "affiliate," and "joint venture" refer to any person in which there is partial (10 percent or more) or total ownership or control between SpectrumCo and any other person.
16. "Comcast Agent Agreement" means that certain Agent Agreement, dated as of December 2, 2011, by and between VZW and Comcast.
17. "Competing Provider" means any partnership, corporation (including a business trust), joint stock company, trust, unincorporated association, joint venture, limited liability company, or other entity that can provide actual or potential competition in any relevant area for any relevant product.
18. The term "Cox" means Cox Communications Inc., its domestic and foreign parents, predecessors, divisions, subsidiaries, affiliates, partnerships, and joint ventures, and all directors, officers, employees, agents, and representatives of the foregoing. The terms "parents", "subsidiary," "affiliate," and "joint venture" refer to any person in which there is partial (10 percent or more) or total ownership or control between SpectrumCo and any other person.
19. "Cox Agent Agreement" means that certain Agent Agreement, dated as of December 16, 2011, by and between VZW and Cox.
20. The term "discussing" when used to refer to documents means analyzing, constituting, summarizing, reporting on, considering, recommending, setting forth, or describing a subject. Documents that contain reports, studies, forecasts, analyses, plans, proposals, evaluations, recommendations, directives, procedures, policies, or guidelines regarding a subject should be treated as documents that discuss the subject. However, documents that merely mention or refer to a subject without further elaboration should not be treated as documents that discuss that subject.
21. The term "documents" means all computer files and written, recorded, and graphic materials of every kind in the possession, custody, or control of the Company. The term "documents" includes without limitation drafts of documents, copies of documents that are not identical duplicates of the originals, and copies of documents the originals of which are not in the possession, custody, or control of the Company. The term "documents" includes, without limitation, materials of every kind in the possession, custody, or control of the Company whether created internally or externally. In addition, the term "documents" includes without limitation any amendments, side letters,

appendices, or attachments. The term “computer files” includes without limitation information stored in, or accessible through, computer or other information retrieval systems. Thus, the Company should produce documents that exist in machine-readable form, including documents stored in personal computers, portable computers, workstations, minicomputers, mainframes, servers, backup disks and tapes and archive disks and tapes, and other forms of offline storage, whether on or off the Company’s premises. Electronic mail messages should also be provided, even if only available on backup or archive tapes or disks. Computer files shall be printed and produced in hard copy or produced in machine-readable form (provided that Commission staff determine prior to submission that it would be in a format that allows the Commission to use the computer files), together with instruction and all other materials necessary to use or interpret the data. Unless otherwise specified, the term “documents” excludes bills of lading, invoices, purchase orders, customs declarations, and other similar documents of a purely transactional nature and also excludes architectural plans and engineering blueprints. Where more than one identical copy of a requested document exists, the Company shall only submit one representative copy.

22. The term “EDGE” means Enhanced Data rates for GSM Evolution technology.
23. The term “EvDO” or “EvDO Rev. A” means Evolution-Data Optimized or Evolution-Data Optimized Revolution A. technology.
24. The term “GSM” means Global System for Mobile Communications technology.
25. The term “HSPA” or “HSPA+” means High Speed Packet Access or High Speed Packet Access + technology.
26. The term “identify,” when used with reference to a document, means to state the date, author, addressee, type of document (e.g., the types of document, as described above), a brief description of the subject matter, its present or last known location, and its custodian, who must also be identified.
27. The term “including” shall be construed as including, but not limited to, and indicates examples to be addressed. The term should not be construed as to limit the response to only those examples listed.
28. “JOE Agreement” means that agreement, dated December 2, 2011, among Comcast Cable Communications, LLC, Time Warner Cable Inc., Bright House Networks, LLC and Cellco Partnership d/b/a Verizon Wireless.
29. “Joint Operating Entity” or “JOE” means the Joint Operating Entity, LLC formed pursuant to the JOE Agreement.
30. The term “LTE” means Long Term Evolution technology.
31. The term “Mobile Wireless Application,” also referred to as “application software” or “app,” means software that enables one or more functions on a mobile wireless device running a mobile operating system (e.g., Android, iOS).
32. The term “Mobile Wireless Data Services” means any data communications service using radio transmission between mobile or fixed stations and a network providing

- communication of packet data information, including but not limited to, broadband data, video, remote file access, status reporting, facsimile, and internet/intranet access. Mobile Wireless Data Services include non interconnected Voice over IP but exclude mobile wireless voice and text services, as defined herein.
33. The term “Mobile Wireless Services” includes Mobile Wireless Voice Services, Mobile Wireless Text Services, Mobile Wireless Data Services, and Mobile Wireless Applications.
  34. The term “Mobile Wireless Text Services” means any communications service using radio transmission between mobile or fixed stations and a network providing communication of numeric or alphanumeric messages, such as multi media messaging, short messaging, and short codes. Mobile wireless text services exclude e-mails.
  35. The term “Mobile Wireless Voice Services” means interconnected voice communications services provided using radio transmission between mobile or fixed stations on a wireless basis to customers, other than fixed wireless services. Mobile Wireless Voice Services include interconnected voice over Internet protocol.
  36. “MSO Agreement” means the MSO Agreement, dated as of December 2, 2011, by and among C Spectrum Investment, LLC, Time Warner Cable LLC, BHN Spectrum Investments, LLC, Comcast Cable Communications, LLC, Time Warner Cable Inc., and Bright House Networks, LLC.
  37. “MVNO” means mobile virtual network operator.
  38. The term “plans” means tentative and preliminary proposals, recommendations, or considerations, whether or not finalized or authorized, as well as those that have been adopted.
  39. The term “plans, analyses and reports” means business plans, strategic plans, written policies, budgets, analyses, reports, presentations (including quantitative presentations), and similar documents, including all appendices and attachments thereto, prepared for, presented to, reviewed by, discussed by, or considered by the Company’s board of directors or the Company’s executive management, or any member thereof. In the case of VZW, the terms board of directors and executive management include the board of directors and executive management of Verizon Communications, Inc. The term “plans, analyses and reports” includes without limitation copies of plans, analyses and reports that are not identical duplicates of the originals, and copies of plans, analyses and reports, the originals of which are not in the possession, custody, or control of the Company, but does not include drafts of plans, analyses and reports, but only the final version or the latest draft if the final version does not exist or is not in the possession, custody, or control of the Company.
  40. The term “Proposed Transaction” means the proposed acquisition of AWS spectrum by VZW from SpectrumCo, filed on December 16, 2011, with lead application file number for the wireless radio services listed as 0004993617, and the applications submitted by VZW and Cox TMI Wireless, LLC on December 21, 2011, with the lead file number for the wireless radio services listed as 0004996680.
  41. The term “Public Interest Statement” refers to the document filed by the Applicants entitled “Description of the Transaction and Public Interest Statement.”

42. The term “Relevant Area” means, and information must be provided separately for, each Cellular Market Area and the United States as a whole (including Puerto Rico).
43. The term “Relevant Wireless Product” means any of the mobile wireless services and using any of the following formats: CDMA, EV-DO, EV-DO Rev. A, LTE, GSM, EDGE, UMTS only, HSPA, and HSPA+):
- 1) feature mobile devices: wireless handset devices that are cable of supporting voice services as well as text services;
  - 2) smartphones: wireless handset devices other than iPhones, with advanced computing capability and connectivity sufficient to run complete mobile operating system software (e.g., Android, Research in Motion Ltd. Blackberry, Windows phone) to support all mobile wireless services, including broadband data and video applications as well as voice, photographic cinematic, and audio-visual media player services (including books, periodicals, movies, music, games);
  - 3) iPhones: smartphones designed and marketed by Apple Inc.;
  - 4) tablet PCs (includes netbook PCs): portable devices (other than iPads) with touch screen and/or a QWERTY keyboard input, and advanced computing capability and connectivity sufficient to run complete operating system software (e.g., Android, Windows) to support broadband data and video applications as well as photographic, cinematic, and audio-visual media player services (including books, periodicals, movies, music, games);
  - 5) iPads: tablet PCs designed by Apple Inc.;
  - 6) e-readers: portable personal computing devices with a display size of 6" to 10" typically, with advanced computing capability and connectivity sufficient to enable users to shop for, purchase, download, and display text, designed primarily for the purpose of reading books, newspapers, and periodicals;
  - 7) “air cards” (also referred to as “laptop cards”): portable wireless modems that enable personal computing devices to connect to a mobile wireless network in order to support and deliver voice, data, and video services;
  - 8) mobile hotspots devices: network routing devices that enable portable, Wi-Fi enabled handset and personal computing devices to connect to a mobile wireless network in order to support and deliver voice, data, and video services; and
  - 9) other mobile wireless devices not listed above. Describe the other devices included in this category.
44. The term “Relevant Wireless Service” means any of the services identified below using any of the following formats: CDMA, EVDO, EVDO Rev. A, LTE, GSM, EDGE, UMTS only, HSPA, and HSPA+,:
- 1) mobile wireless voice services;
  - 2) mobile wireless text services;
  - 3) mobile wireless data services; and
  - 4) mobile wireless applications.
45. “Reseller Agreements” means the proposed Reseller Agreement between a Cable Company and VZW pursuant to which, among other things, VZW shall make available VZW wireless services for Cable Company’s purchase and resale.
46. The term “SMS” means short message service.

47. The term "SpectrumCo" means SpectrumCo, LLC, its domestic and foreign parents, predecessors, divisions, subsidiaries, affiliates, partnerships, and joint ventures, and all directors, officers, employees, agents, and representatives of the foregoing. The terms "parents", "subsidiary," "affiliate," and "joint venture" refer to any person in which there is partial (10 percent or more) or total ownership or control between SpectrumCo and any other person and shall also include Bright House Networks, LLC.
48. "Spectrum License Purchase Agreements" means either of two agreements, together or separately, dated December 2, 2011, between SpectrumCo and VZW and, dated December 16, 2011, between Cox and VZW.
49. The term "subsidiary" as to any Person means any corporation, partnership, joint venture, limited liability company, or other entity of which shares of stock or other ownership interests having ordinary voting power to elect a majority of the board of directors or other managers of such corporation, partnership, joint venture, limited liability company or other entity are at the time owned, or the management of which is otherwise controlled, directly or indirectly, through one or more intermediaries, or both, by such Person.
50. The term "TWC" means Time Warner Cable Inc., its domestic and foreign parents, predecessors, divisions, subsidiaries, affiliates, partnerships, and joint ventures, and all directors, officers, employees, agents, and representatives of the foregoing. The terms "parents", "subsidiary," "affiliate," and "joint venture" refer to any person in which there is partial (10 percent or more) or total ownership or control between SpectrumCo and any other person.
51. "TWC Agent Agreement" means that certain Agent Agreement, dated as of December 2, 2011, by and between VZW and TWC.
52. "United States" or "U.S." means the United States, its possessions, territories, and outlying areas.
53. "VZW Agent Agreement" shall mean any of the Agent Agreements dated December 2, 2011 by and between VZW, of the first part, and any one of Comcast, TWC, or BHN, of the second part, or the Agent Agreement, dated as of December 16, 2011, by and between, VZW and Cox, pursuant to which, among other things, VZW appoints each Cable Company as its sales agent for certain VZW services.

## Instructions

1. Unless otherwise specified, all Information and Document Requests cover the period from January 1, 2010 through the present.
2. Corporations and other entities, including affiliated or subsidiary entities, shall be identified by the Central Index Key ("CIK") assigned by the Securities and Exchange Commission ("SEC"). A unique identifier should be used for each entity that has not been assigned a CIK by the SEC.
3. Submit responses to Information Requests in both paper and electronic form, unless an electronic form is specified (*e.g.*, electronic spreadsheet). Submit responses to Document Requests (including materials containing Highly Confidential or Confidential Information) in electronic form only in a manner that is fully compatible with the Commission's Summation Enterprise software database, as set forth in the Instructions for Submission of Electronic Documents. The Commission does not require the submission of paper copies of these documents at this time, but reserves the right to require their submission at a later time.
4. Each requested document shall be submitted in its entirety, even if only a portion of that document is responsive to a request made herein. This means that the document shall not be edited, cut, or expunged, and shall include all appendices, tables, or other attachments, and all other documents referred to in the document or attachments. All written materials necessary to understand any document responsive to these requests shall also be submitted. Provide final versions of each document; however, if a final version does not exist provide one copy of the latest draft of the document.
5. Those documents written in a language other than English must be translated into English; automated or machine translations are not permitted. Submit the foreign language document, with the English translation attached thereto.
6. Data provided in response to this Request should include a list of all parameters/assumptions on which the data are based.
7. Unless otherwise agreed to by the Commission, requests for the production of documents (and any particular type of document) require the production of all responsive documents in the possession, custody, or control of the Company.
8. For each document or statement submitted in response to the requests, indicate, by number and subsection, the request to which it is responsive and, for documents, identify the Person(s) from whose files the document was retrieved (*i.e.*, custodian). Group submitted materials according to the request number to which they are responsive and then, within each of those request-number groupings, by the appropriate custodian. If a document is responsive to more than one request, submit the document in response to the first request to which it is responsive, and, in accordance with the Instructions for Submission of Electronic Documents below, indicate in the metadata accompanying the document's electronic record all subsequent requests to which it also is responsive. If any document is not dated, if known, state the date on which it was prepared. If any document does not identify its author(s) or recipient(s), provide, if known, the name(s) of the author(s) or recipient(s) as metadata in accordance with Instructions for Submission of Electronic Documents. The Company must identify with reasonable specificity all documents provided in response to these requests. Where more than one identical copy of a requested document exists, the Company may submit only one representative copy, but in all cases all metadata, including without limitation all custodians who possessed identical

documents withheld, must be provided in accordance with the provisions of Instructions for Submission of Electronic Documents.

9. If search terms were used to conduct all or any part of a search conducted in response to this Information Request, provide a list of search terms used, along with a glossary of industry and company terminology. In addition, describe the search methodologies and the applications used to execute the search.
10. The specific requests made herein are continuing in nature. The Company is required to produce in the future any and all documents and information that are responsive to the requests made herein but not initially produced at the time, date, and place specified herein. In this regard, the Company must supplement its responses (a) if the Company learns that, in some material respect, the documents and information initially disclosed were incomplete or incorrect or (b) if additional responsive documents or information are acquired by or become known to the Company after the initial production.
11. Any documents that are withheld in whole or in part from production based on a claim of privilege shall be assigned document control numbers (with unique consecutive numbers for each page of each document). For any page of any Document that the Company has designated to be withheld as entirely privileged, the Company shall submit a substitute, placeholder page that lists only the Document ID of the page that was withheld in entirety as privileged and a statement indicating that the page has been withheld in entirety as privileged. For any document withheld as entirely privilege, it is sufficient to supply one substitute, placeholder page for that document, so long as the range of Document IDs for the entire document is listed on the placeholder page and each Document ID for each page of the document is reflected in metadata. The placeholder pages must be OCR'd as any other paper record, as described above. For each document withheld as privileged, whether in entirety or in part, the Company shall code the substitute document submitted as specified in and provide as metadata the information in the attached MetaData Table of Requested Fields.
12. For each Document identified on the Company privilege log:
  - 1) Provide the document control number(s);
  - 2) Identify all authors of the document;
  - 3) Identify all addressees of the document;
  - 4) Identify all recipients of the document or of any copies of the document, to the extent not included among the document's addressees;
  - 5) Provide the date of the document;
  - 6) Provide a description of the subject matter of the document;
  - 7) State the nature or type of the privilege that the Company is asserting for the document (e.g., "attorney-client privilege");
  - 8) Provide the number(s) of the Request to which the document is responsive;
  - 9) Provide the document control number(s) of any attachments to the document, regardless of whether any privilege is being asserted for such attachment(s); and
  - 10) State whether the document has been produced in redacted form, and include the range of Document ID labels for those produced documents.
13. The Company's privilege log shall also conform with all of the following requirements:
  - 1) Provide a separate legend identifying each author, addressee, and recipient identified on the Company's privilege log.
  - 2) Identify on the privilege log, and denote with an asterisk, all attorneys acting in a legal capacity with respect to the withheld document or communication.

- 3) The description of the subject matter of each document shall describe the nature of the document in a manner that, though not revealing information that is itself privileged, provides sufficiently detailed information to enable the Commission to assess the applicability of the privilege claimed.
- 4) For each document withheld under a claim that it constitutes or contains attorney work product, also state whether the Company asserts that the document was prepared in anticipation of litigation or for trial and, if so, specify the anticipated litigation or trial upon which the assertion is based.
- 5) Produce all nonprivileged portions of any responsive document (including nonprivileged or redactable attachments) for which a claim of privilege is asserted, except where the only nonprivileged information in the document has already been produced. Note where any redactions in the document have been made.
- 6) The privilege log shall be produced in both hardcopy and electronic form, the electronic form of which shall be both searchable and sortable.
- 7) Documents sent solely between counsel, including in-house counsel acting solely in a legal capacity, and documents authored by the Company's outside counsel that were not directly or indirectly furnished to any third party, such as internal law firm memoranda, may be omitted from the privilege log. However, any attachments to such documents must be included on the privilege log (if a privilege is applicable to such materials), unless such attachments are addressed and sent solely to counsel.

## **Instructions for Submission of Electronic Documents**

### **A. Form of Production**

1. Electronic documents shall be produced in Summation Enterprise load files as images and/or native format files with extracted text and related metadata and bibliographic information. A list of metadata fields that must be populated, as relevant, is attached. Specific requirements for different types of documents are discussed below. Please contact Commission staff for further technical specifications, including the image and text file specifications and the load file configuration, and for a sample load file set.
2. Each Summation submission must be on a physical media, either a portable hard drive or DVD-ROM.
3. Each physical media provided must have a label affixed. The label shall state: (a) the name of the party submitting the data, (b) the date of the submission, (c) the volume number of production (see below), and (d) the range of documents contained on the media
4. Each Summation submission must have a volume number associated with it. On the root of the media, the top-level folder must be named for the volume. This volume number should also be indicated on the physical label of the media. The volume naming scheme should start with a 2 or 3 letter prefix (identifying your company) followed by a 3-digit counter (e.g., ABC001). Load file volumes may not contain more than 25,000 records each (but multiple file volumes may be included on one hard drive).
5. Under the volume folder, the production should be organized in 3 subfolders:
  - a) IMAGES (may contain subfolders, with no more than 5,000 image files per folder) and FULLTEXT (may contain subfolders, with document-level text files). No file may be more than 25 megabytes.
  - b) DOCLINK (documents in native format, including all spreadsheets and presentations)
  - c) LOADFILES (the metadata, EDII, and LST information should be contained in one file, and the custodian append information in a separate file)
6. Each submission shall be accompanied by an spreadsheet (production index), in hard copy and electronic form, detailing what has been produced, by custodian and document identification number, and containing statistical information about each volume.
7. If a password is used, the same password must be used for all submissions. If encryption is used, only Truecrypt software may be used
8. To minimize any delay in loading your submissions, each submission shall be as large as practical under these specifications, while also maintaining a timely and rolling production.
9. Subsequent submissions shall not include information produced in previous submissions, unless specifically requested by the Commission. However, if an error occurs in loading, the entire load must be resubmitted, maintaining the original volume number(s). For example, if a hard drive contains volumes ABC005 – ABC 009, and there is an error with volume ABC006, ABC006 must be corrected and the entire submission ABC005 – ABC009 must be resubmitted on a new hard drive.

### **B. Document Types**

1. Hard-copy (or paper) documents.
  - (a) Except as otherwise agreed, hard-copy documents shall be produced as image files with

related searchable OCR text and bibliographic information.

(b) Some documents may more appropriately and efficiently be produced in hard-copy form (*e.g.*, maps).

(c) Special care should be taken to properly unitize documents, maintain attachment relationships, and indicate file folder or binder labels, consistent with the Definitions and Instructions.

2. E-mail and Other Electronic Messages.

(a) E-mail and other electronic messages (*e.g.*, instant messages (“IMs”)) shall be produced as image files with related searchable text and metadata and bibliographic information.

(b) Each IM conversation shall be produced as one document.

(c) E-mail metadata shall include the folderpath (“folder” field) information for e-mail file folders into which a custodian’s e-mail messages have been organized. Be sure to preserve and produce this information as specified. Beware of copying e-mails into an electronic repository or forwarding them to a central e-mail box, as such processes may destroy this information. *See also infra* Section C(2) regarding custodian metadata.

(d) Depending on how the Company’s systems represent names in e-mail messages or IMs, the Commission may require a table of names or contact lists.

3. Spreadsheets shall be produced in native format (*e.g.*, .XLS files) with the first page imaged and with related searchable text and metadata and bibliographic information.

4. Presentations.

(a) Presentations shall be produced as images that show the full slide images and speaker notes, with related searchable text and metadata and bibliographic information.

(b) Presentations shall also be produced in native format (*e.g.*, .PPT files).

5. Word processing and other electronic documents not specifically addressed elsewhere in this letter shall be produced as image files with related searchable text and metadata and bibliographic information.

6. Databases.

(a) This letter does not address enterprise databases which may be responsive to the Information and Document Requests and should be the subject of a separate discussion once you have identified them.

(b) Smaller databases (*e.g.*, Microsoft Access) that are responsive should be produced, but not as part of the load-file production. Such databases should be produced separately.

7. Company Intranets and Social Networking Sites.

(a) If the Company’s intranet or company social networking content (*e.g.*, Facebook, Twitter) contains responsive information, production of these items should be the subject of a separate discussion.

(b) Depending on the nature of the information, it may be appropriate to provide the Commission direct access to the Company's intranet via a secure Internet connection, but significant technical issues are often involved.

8. Embedded files with no substantive content (e.g., corporate logos, executive "head-shot" photographs, stationery address blocks), which would appear in the production as an otherwise blank and therefore unresponsive "TIFF" image, should not be produced.

### **C. General Issues**

1. Attachments and their parent documents are a "family" of documents. Families of documents (e.g., a cover e-mail with multiple attachments) must all be produced in full. If one member of the family is responsive, the entire family is considered responsive, and individual documents in the family cannot be withheld on grounds of being "non-responsive."

2. The required metadata for each electronic document includes "custodian" information (typically, the name of the human person from whose files the document was gathered) and "filepath" information for directory/server folders into which a custodian's documents have been organized. Ensure that this information is collected when collecting responsive documents. If the Company stores documents in a repository that does not maintain personal custodian or filepath information (e.g., that "journals" e-mails), it shall be required to stipulate to custodian identities for purposes of using documents.

3. In certain circumstances, a custodian may be a shared resource (e.g., shared drive or server, shared filing cabinet). Materials gathered from such repositories, to which multiple people have access, shall be produced as separate custodians. The Company shall provide a brief description of each shared resource that includes a list of the employees who have access to that shared resource. The documents in shared resources should otherwise be produced as described in the rest of this letter. (Personal share or server drives are not shared resources and shall be produced as part of each human custodian's files.)

#### **4. Native Format Files**

(a) If any native files will be produced that cannot be viewed using the standard configuration of Microsoft Office 2007, Adobe Acrobat Reader 9, WordPerfect X4, or Internet Explorer 7, you will need to notify the Commission so it can determine whether it has the appropriate software and licenses to view those files. If it does not, it may be necessary for the Company to provide that software.

(b) Any encryption or password protection shall be removed from all native format files produced.

#### **5. Images and Text Files**

(a) Images of the produced electronic documents shall conform with any further specifications provided by the Commission.

(b) Searchable OCR and extracted text from the produced electronic documents shall conform with any further specifications provided by the Commission.

(c) Care should be taken to ensure that the text files will properly format and wrap.

(d) If any document cannot be interpreted in image/text format (e.g., color, Microsoft Project), the Commission may request that it be produced natively, or the Company can contact the Commission to discuss producing them natively. As noted above in C(4)(a), the Company may need to provide the appropriate software in order for the Commission to view these documents.

## 6. Deduplication

(a) The Company shall deduplicate vertically within each custodian's files.

(b) The Commission prefers that the Company also deduplicate horizontally across all custodians' files, but only if:

(i) the deduplication methodology preserves information on BCC recipients of e-mail;

(ii) custodian information from suppressed duplicates can be preserved and produced as a custodian append file; and

(iii) the Company, prior to beginning its production, provides a written description its deduplication methodology, including how custodial and BCC information shall be preserved and produced, to which the Commission agrees.

(c) The Company must produce all members of a family of documents (*see* C(1)) and cannot suppress attachments to other documents. In other words, the integrity of families of documents must be maintained, except as limited by any claim of privilege. For example, and in particular, the deduplication process may not remove attachments to e-mails that are being produced because the attachment is produced elsewhere. Improper deduplication may require the resubmission of a production set.

(d) The Company agrees not to raise any objections to the Commission's use of the produced duplicate in relation to whether it was in the files of the custodians who had the suppressed duplicates in their files or were the sender or recipients of any e-mail.

## 7. Privilege Designations

(a) Documents redacted pursuant to any claim of privilege shall be designated "Redacted" in the Properties field in the metadata and bibliographic information provided. The Company shall provide appropriately redacted related searchable text, metadata, and bibliographic information for these documents.

(b) Documents withheld pursuant to any claim of privilege that are part of a document family shall include a designation of "Family Member of Priv Doc" in the Properties field in the metadata and bibliographic information provided for all the other documents in its family. A placeholder image with a document identification number should be provided in place of the document.

(c) Both redacted and withheld documents shall appear on the privilege log. Each withheld document from a family shall include the family document identification number range in its entry on the privilege log.

## 8. Document Identification Numbering

(a) A consistent format for document identification numbering shall be used across the entire production. Document identification numbers should contain no more than three segments – *e.g.*, a company identifier, a middle segment (*e.g.*, custodian identifier), and a sequence of 6-8 digits (the number of digits should be consistent across the entire production).

(b) Document identification numbers should not contain embedded spaces (“ ”), slashes (“/”), backslashes (“\”), or underscores (“\_”). Document identification numbers may contain hyphens (“-”).

(c) Native format files should be assigned a document identification number; if images have been produced with a native format file, the beginning document identification number of the images should be the native format file’s document identification number.

9. These instructions do not address or endorse any search method the Company may use to identify responsive electronic documents.

10. In order to ensure the Company’s full technical and procedural compliance with these instructions, the Company shall make its Information Technology personnel and those of its vendors available to Commission staff for consultation and coordination before, during, and after its production of materials responsive to the requests.

#### **D. Sample Submission Required Prior to Full Production**

In consultation with Commission staff, the Company shall submit a test submission to ensure proper configuration of data for uploading into the Commission’s Summation Enterprise database server before the Company “ramps up” production. To minimize the likelihood of encountering problems during full production, the sample must be representative of an actual production, including multiple types of documents, documents with attachments (“families”), document families from which an item has been removed pursuant to privilege (and replaced with a document identification -numbered, placeholder image), redacted documents with appropriately related searchable text, and presentation documents with speaker notes.

FIELD LISTING FOR SUMMATION METADATA LOAD FILE			TYPE OF RECORD(S) TO WHICH EACH FIELD APPLIES			
Field Name	Field Description	Field Type	Hard Copy	E-Mail	Spreadsheets and Presentations	Other E-Docs (all Attachments, Calendar Appts, Loose Files)
<b>SUBMISSION#</b>	Production volume number (e.g., ABC001)	Note Text	x	x	x	x
<b>REQUEST#</b>	Request(s) to which the document is responsive	Multi-Entry	x	x	x	x
<b>BEGDOC#</b>	Start Document Identification Number (including prefix) -- do not use commas, underscores, ampersands, slashes, spaces, characters not allowed in Windows file names or any character used as a delimiter in the load files as part of this number	Note Text	x	x	x	x
<b>ENDDOC#</b>	End Document Identification Number (including prefix) -- do not use commas, underscores, ampersands, slashes, spaces, characters not allowed in Windows file names, or any character used as a delimiter in the load file as part of this number	Note Text	x	x	x	x
<b>EPROPERTIES</b>	Indicate All That Apply : Record Type: Loose File, E-mail, Attachment, Hard Copy, Calendar Appt  Privilege Notations: Redacted, Privileged, Family Member of Priv Doc	Multi-Entry	x	x	x	x
<b>PRIV</b>	Privileged (Y/N)	Note Text	x	x	x	x
<b>PO1</b>	Subject to First Protective Order (Y/N)	Note Text	x	x	x	x
<b>PO2</b>	Subject to Second Protective Order (Y/N)	Note Text	x	x	x	x
<b>DATEAPPTSTART</b>	Start date of calendar appointment - YYYYMMDD	Date				x
<b>TIMEAPPTSTART</b>	Start time of calendar appointment - HH:MM am/pm	Time				x





FOLDER	E-mail folder path (sample: Inbox\Active); or Hard Copy folder/binder title/label	Note Text	x	x		
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## "Historical and Projected County Level Data" Table

**FCC Disclaimer: Example Entries are only examples and are not extracted from nor representative of actual data.**

The following data descriptions apply to the columns of the "Historical and Projected County Level Data" table. The "Historical and Projected County Level Data" table should contain one row for every county for the given date.

All data provided in this table should correspond to data entered in the other requested tables or Appendices.

Column A:

**Date**

*Description:*

The month for which the data is being reported from January 2008 through January 2016. Historical data should be as of the second week of the month. For future years, provide latest projected data.

*Format of Field:*

Text - YYYY\_01

**Possible Entries:**

2011\_01

2012\_01

2013\_01\*

2014\_01\*

2015\_01\*

2016\_01\*

\* Future projections may represent EOY of the previous year (e.g., 2013\_01 may actually be EOY2012)

Column B:

**County\_FIPS**

*Description:*

The five digit county FIPS code (two digit state code plus three digit county code) as specified in the US Census Bureau's 2010 census.

*Format of Field:*

Text

**Example Entries:**

"01001", "51121", etc.

Column C:

**County\_Name**

*Description:*

County name as specified by the US Census Bureau followed by a comma, a space, and the two-letter state abbreviation. The county's name corresponds to the correct county FIPS code given in Column B.

*Format of Field:*

Text

**Example Entries:**

Montgomery, VA

Column D:

**Total\_Verizon\_Subs**

*Description:*

The total number of Verizon Wireless subscribers (all technologies) in a county excluding M2M.

*Format of Field:*

Integer Number

**Example Entries:**

3,000,000

**"Historical and Projected County Level Data" Table**

Column E-J:

**Spec\_Band\_MHz**

*Description:* Total available spectrum in MHz within a given licensed band in the given county  
*Format of Field:* Number with two decimal places  
*Possible Entries:* 25.00

- Column E 850 MHz band
- Column F PCS Band
- Column G AWS Band (prior to transaction)
- Column H AWS from SpectrumCo (assuming transaction is consummated)
- Column I AWS from Cox (assuming transaction is consummated)
- Column j 700 MHz Upper and Lower

Columns: K-M

**Covered\_POPS\_Technology**

*Description:* The county population covered by Verizon Wireless's corresponding Radio Access Technology.  
*Format of Field:* Integer Number  
*Possible Entries:* 50,000

- Column K 1X
- Column L DO
- Column M LTE

Columns: N-P

**Area\_Cov\_Technology\_SqM**

*Description:* The county area covered by Verizon Wireless's corresponding Radio Access Technology.  
*Format of Field:* Integer Number  
*Possible Entries:* 25,000

- Column N 1X
- Column O DO
- Column P LTE

Columns: Q-S

**BW\_Technology\_850\_MHz**

*Description:* Deployed Bandwidth in MHz for the listed Radio Access Technology in the 850 MHz band (e.g., three DO carriers = 3 x 1.25 MHz x 2 = 7.5 MHz).  
*Format of Field:* Number with two decimal point  
*Possible Entries:* 25.00

- Column Q 1X
- Column R DO
- Column S LTE

## "Historical and Projected County Level Data" Table

Columns: T-V

### **BW\_Technology\_PCS\_MHz**

*Description:* Deployed Bandwidth in MHz for the listed Radio Access Technology in the PCS band.  
*Format of Field:* Number with two decimal point  
*Possible Entries:* 20.00  
 Column T 1X  
 Column U DO  
 Column V LTE

Column: W

### **BW\_Technology\_AWS\_MHz**

*Description:* Actual Deployed Bandwidth in MHz for LTE within the AWS band.  
*Format of Field:* Number with two decimal point  
*Possible Entries:* 40.00

Column: X

### **BW\_Technology\_700\_MHz**

*Description:* Actual Deployed Bandwidth in MHz for LTE in the 700 MHz bands.  
*Format of Field:* Number with two decimal point  
*Possible Entries:* 20.00

Columns: Y-AA

### **#Sites\_Technology\_850**

*Description:* The number of sites in the county in which the designated radio access technology is deployed in the 850 MHz band.  
*Format of Field:* Integer Number  
*Possible Entries:* 1,234  
 Column Y 1X  
 Column Z DO  
 Column AA LTE

Columns: AB-AD

### **#Sites\_Technology\_PCS**

*Description:* The number of sites in the county in which the designated radio access technology is deployed in the PCS band.  
*Format of Field:* Integer Number  
*Possible Entries:* 880  
 Column AB 1X  
 Column AC DO  
 Column AD LTE

Columns: AE

### **#Sites\_LTE\_AWS**

*Description:* The number of sites in the county in which LTE is deployed in the AWS band.  
*Format of Field:* Integer Number  
*Possible Entries:* 620

## "Historical and Projected County Level Data" Table

Columns: AF	<b>#Sites_LTE_700</b>	<i>Description</i>	The number of sites in the county in which LTE is deployed in the 700 MHz bands.
		<i>Format of Field:</i>	Integer Number
		<b>Possible Entries:</b>	<b>1,453</b>
Column: AG	<b>#Subs_1X_Voice_Only</b>	<i>Description:</i>	The number of voice-only subscribers on the 1X network in the county.
		<i>Format of Field:</i>	Integer Number
		<b>Possible Entries:</b>	<b>3,000,000</b>
Column: AH	<b>#Subs_1X_Voice_DO_Data</b>	<i>Description:</i>	The number of voice and data subscribers using the 1X network for voice and the DO network for data in the county.
		<i>Format of Field:</i>	Integer Number
		<b>Possible Entries:</b>	<b>2,000,000</b>
Column: AI	<b>#Subs_DO_Data_Only</b>	<i>Description:</i>	The number of data-only subscribers on the DO network in the county, excluding M2M.
		<i>Format of Field:</i>	Integer Number
		<b>Possible Entries:</b>	<b>2,000,000</b>
Column: AJ	<b>#Subs_DO_M2M</b>	<i>Description:</i>	The number of M2M subscribed connections on the DO network in the county.
		<i>Format of Field:</i>	Integer Number
		<b>Possible Entries:</b>	<b>2,000,000</b>
Column: AK	<b>#Subs_1X_Voice_LTE_Data</b>	<i>Description:</i>	The number of voice and data subscribers using the 1X network for voice and the LTE network for data in the county.
		<i>Format of Field:</i>	Integer Number
		<b>Possible Entries:</b>	<b>250,000</b>
Column: AL	<b>#Subs_LTE_VoLTE</b>	<i>Description:</i>	The number of voice and data subscribers using the LTE network for both voice and data in the county.
		<i>Format of Field:</i>	Integer Number
		<b>Possible Entries:</b>	<b>250,000</b>

## "Historical and Projected County Level Data" Table

Column: AM	#Subs_LTE_Data_Only	<p><i>Description:</i> The number of data-only subscribers on the LTE network in the county, excluding M2M.</p> <p><i>Format of Field:</i> Integer Number</p> <p><b>Possible Entries:</b> 250,000</p>
Column: AN	#Subs_LTE_M2M	<p><i>Description:</i> The number of M2M subscribed connections on the LTE network in the county.</p> <p><i>Format of Field:</i> Integer Number</p> <p><b>Possible Entries:</b> 250,000</p>
Column: AO	Agg_BBH_1X_Voice_Traffic_Erlang	<p><i>Description:</i> The county aggregate bouncing busy hour 1X voice traffic in Erlangs. The BBH traffic for each site should be each site's five-day (weekday) average.</p> <p><i>Format of Field:</i> Integer Number</p> <p><b>Possible Entries:</b> 500,000</p>
Column: AP	Agg_BBH_DO_Data_Traffic_GB	<p><i>Description:</i> The county aggregate bouncing busy hour downlink DO data traffic in GB. The BBH traffic for each site should be each site's five-day (weekday) average.</p> <p><i>Format of Field:</i> Integer Number</p> <p><b>Possible Entries:</b> 300,000</p>
Column: AQ	Agg_BBH_LTE_Data_Traffic_GB	<p><i>Description:</i> The county aggregate bouncing busy hour downlink LTE data traffic in GB (excluding VoIP). The BBH traffic for each site should be each site's five-day (weekday) average.</p> <p><i>Format of Field:</i> Integer Number</p> <p><b>Possible Entries:</b> 1,000,000</p>
Column: AR	Agg_BBH_LTE_VoIP_Traffic_GB	<p><i>Description:</i> The county aggregate bouncing busy hour downlink LTE VoIP traffic in GB. The BBH traffic for each site should be each site's five-day (weekday) average.</p> <p><i>Format of Field:</i> Integer Number</p> <p><b>Possible Entries:</b> 75,000</p>
Column: AS	Agg_Total_Daily_1X_Voice_Traffic_Erlang	<p><i>Description:</i> The county aggregate total daily 1X voice traffic in Erlangs. The total daily traffic for each site should be each site's five-day (weekday) average.</p> <p><i>Format of Field:</i> Integer Number</p> <p><b>Possible Entries:</b> 5,000,000</p>

**"Historical and Projected County Level Data" Table**

Column: AT

<b>Agg_Total_Daily_DO_Data_Traffic_G</b> B
---

*Description:* The county aggregate total daily downlink DO data traffic in GB.  
 The total daily traffic for each site should be each site's five-day (weekday) average.

*Format of Field:* Integer Number

**Possible Entries:** 3,000,000

Column: AU

<b>Agg_Total_Daily_LTE_Data_Traffic_G</b> B
--

*Description:* The county aggregate total daily downlink LTE data traffic in GB (excluding VoIP).  
 The total daily traffic for each site should be each site's five-day (weekday) average.

*Format of Field:* Integer Number

**Possible Entries:** 10,000,000

Column: AV

<b>Avg_Total_Daily_LTE_VoIP_Traffic_G</b> B
--

*Description:* The county aggregate total daily downlink LTE VoIP traffic in GB. The total daily traffic for each site should be each site's five-day (weekday) average.

*Format of Field:* Integer Number

**Possible Entries:** 750,000











## **Format of Data**

All data should be submitted in a .csv (comma-delimited) format. The sheets in the workbook provide a template for how the tables should be designed. The required format for the entries in each column/field is indicated in the instructions for each sheet.

All entries in Text fields must be in quotation marks (e.g. "Verizon").

Column entries in bold red indicate that the party should enter only one of the possible entries listed for that column. No other entries should be entered.

Do not submit any data for U.S. territories or the Gulf of Mexico (CMAs 91, 147, 169, 202, 204, 306, and CMAs 723 through 734).

Data for all of the tables should be submitted for all timeframes specified in the instructions for the "Date" field of each respective sheet.

## "Site Data" Table

The following data descriptions apply to the columns of the "Site Data" table. The "Site Data" table should contain one row for every site utilized by Verizon Wireless. The site IDs in this table should correspond to the site IDs entered in the other requested tables.

Column A:	<b>Date</b>	
	<i>Description:</i>	The time period for which the data are being reported. Submit annual snapshots from January 2008 through January 2012. Site data should be as of the second week of January.
	<i>Format of Field:</i>	Text - YYYY_01
	<i>Possible Entries:</i>	<b>2008_01</b> <b>2009_01</b> <b>2010_01</b> <b>2011_01</b> <b>2012_01</b>
Column B:	<b>Site ID</b>	
	<i>Description:</i>	A unique site ID for the site to which this data record applies.
	<i>Format of Field:</i>	Text
	<i>Example Entries:</i>	"AL0001", "VA0128", etc.
Column C:	<b>Number of Sectors</b>	
	<i>Description:</i>	This field provides an integer representing the number of sectors this site utilizes.
	<i>Format of Field:</i>	Number - Integer
	<i>Example Entries:</i>	1, 2, 3, etc.
Column D:	<b>Latitude</b>	
	<i>Description:</i>	This field is the latitude (NAD 82) of the site in decimal form to at least six significant digits.
	<i>Format of Field:</i>	Number - At least 6 decimal places
	<i>Example Entries:</i>	37.705278, 34.299167, etc.
Column E:	<b>Longitude</b>	
	<i>Description:</i>	This field is the longitude (NAD82) of the site in decimal form to at least six significant digits.
	<i>Format of Field:</i>	Number - At least 6 decimal places
	<i>Example Entries:</i>	-77.424444, -102.860556, etc.
Column F:	<b>County FIPS</b>	
	<i>Description:</i>	This field is the five-digit FIPS code - based on 2010 designations - of the county in which the site is located.
	<i>Format of Field:</i>	Text
	<i>Example Entries:</i>	"01001", "51121", etc.
Column G:	<b>CMA</b>	
	<i>Description:</i>	This field represents the standard market number of the CMA in which the site is located.
	<i>Format of Field:</i>	Number - Integer
	<i>Possible Entries:</i>	<b>Integers 1 - 722, excluding 91, 147, 169, 202, 204, and 306</b>

## "Site Data" Table

Column H: **Site Type**

*Description:* This field indicates the type of site to which the record applies using one of the possible entries listed below.

*Format of Field:* Text

*Possible Entries:*

"Macro_Tower"	An outdoor macrocell mounted on a monopole, guyed tower, or free standing tower
"Macro_Building"	An outdoor macrocell mounted on a building
"Macro_Other"	An outdoor macrocell that does not fit the previous categories (silo, water tower, etc.)
"Microcell"	An outdoor cell classified by the vendor as a microcell
"Outdoor Pico"	An outdoor cell classified by the vendor as a picocell
"Indoor Pico"	An indoor cell classified by the vendor as a picocell
"Outdoor DAS"	An outdoor Distributed Antenna System
"Indoor DAS"	An indoor Distributed Antenna System
"Repeater"	A cell that repeats/boosts the signal of another cell
"Other"	A cell that does not meet any of the above descriptions

Column I: **Site Geographic Classification**

*Description:* This field indicates the morphology of the area that the site serves using one of the possible entries listed below. Please provide a description of the methodology used to determine these classifications in a separate attachment.

*Format of Field:* Text

*Possible Entries:*

- "Urban"
- "Suburban"
- "Rural"

Column J: **Antenna Height - (Feet - AGL)**

*Description:* This field indicates the antenna height above ground level in feet.

*Format of Field:* Number

*Possible Entries:* 100

Column K: **Site Height (Feet - ASL)**

*Description:* This field indicates the antenna height above sea level in feet.

*Format of Field:* Number

*Possible Entries:* 467



## "Deployed Carriers" Table

The following data descriptions apply to the columns of the "Deployed Carriers" table (where "carriers" refers to channels or portions of spectrum used in the network rather than operators or service providers). In general, this table should contain one row for each carrier/channel deployed at each Verizon Wireless sector. Because sites and sectors can include multiple carriers/channels, the same site/sector ID may appear in multiple rows.

### Column A: | | |-------------| | <b>Date</b> | |-------------|

*Description:* The time period for which the data are being reported. Submit annual snapshots from January 2008 through January 2012. Deployed carriers data should be as of the second week of January.

*Format of Field:* Text - YYYY\_01

*Possible Entries:* **2008\_01**  
**2009\_01**  
**2010\_01**  
**2011\_01**  
**2012\_01**

### Column B: | | |----------------| | <b>Site ID</b> | |----------------|

*Description:* A unique site ID for the site to which this data record applies.

*Format of Field:* Text

*Example Entries:* **"AL0001", "VA0128", etc.**

### Column C: | | |------------------| | <b>Sector ID</b> | |------------------|

*Description:* A unique sector ID for the sector to which this data record applies, created by adding a suffix to the site ID.

*Format of Field:* Text

*Example Entries:* **Suffix examples include "A", "B", "C" or "1", "2", "3"**

### Column D: | | |------------------| | <b>Sector Az</b> | |------------------|

*Description:* Azimuth of the sector orientation in degrees.

*Format of Field:* Number

*Example Entries:* **0**  
**120**

### Column E: | | |-------------| | <b>Band</b> | |-------------|

*Description:* The frequency band in which the channel/carrier in this data record operates.

*Format of Field:* Text

*Possible Entries:* **"Cellular"** The Cellular 850 MHz band (824-859 MHz and 869-884 MHz)  
**"PCS"** The PCS 1900 MHz band (1850-1910 MHz and 1930-1990 MHz)  
**"AWS"** The AWS-1 band (1710-1755 MHz and 2110-2155 MHz)  
**"Upper\_700"** The Upper 700 MHz band  
**"Lower\_700"** The Lower 700 MHz band

## "Deployed Carriers" Table

Column F: 

<b>Block</b>
--------------

*Description:*

The frequency block in which the channel/carrier is operating. Do not report subblocks.

*Format of Field:*

Text

**Possible Entries:**

"A"	Band = Cellular
"B"	Band = Cellular
"A"	Band = PCS
"B"	Band = PCS
"C"	Band = PCS
"D"	Band = PCS
"E"	Band = PCS
"F"	Band = PCS
"A"	Band = AWS
"B"	Band = AWS
"C"	Band = AWS
"D"	Band = AWS
"E"	Band = AWS
"F"	Band = AWS
"A"	Band = Lower 700
"B"	Band = Lower 700
"C"	Band = Upper 700

Column G:

<b>Technology of Carrier</b>
------------------------------

*Description:*

This field indicates the technology standard used by the channel/carrier described in this record.

*Format of Field:*

Text

**Possible Entries:**

"1X"	A carrier/channel that only supports 1X CDMA
"EVDO"	A carrier/channel that supports EVDO
"LTE"	An LTE carrier conforming to E-UTRA Release 8 or later
"Other"	A carrier that does not conform to one of the technologies listed above

## "Deployed Carriers" Table

Column H: **Carrier BW\_MHz**

*Description:* This field contains the bandwidth in MHz of the carrier described in this record.

*Format of Field:* Number

*Possible Entries:*

- 1.25** Carrier = 1X
- 1.25** Carrier = EVDO
- 1.4** Carrier = LTE
- 3** Carrier = LTE
- 5** Carrier = LTE
- 10** Carrier = LTE
- Carrier = Other

Column I: **Center Freq\_MHz**

*Description:* This field contains the unrounded center frequency in MHz of the downlink carrier described in this record.

*Format of Field:* Number

*Example Entries:* 1937.5, 2142.625, etc.

Column J: **Carrier Active**

*Description:* This field is used to indicate whether a carrier is actively carrying customer traffic.

*Format of Field:* Text

*Possible Entries:*

- "Yes"** Indicates that the carrier is carrying commercial traffic generated by paying customers
- "No"** Indicates that the carrier is not yet deployed, used for test or trial purposes, or turned off



## "Traffic" Table

The following data descriptions apply to the columns of the "Traffic" table. In general, this table is intended to provide data on the average busy hour voice and data traffic at each Verizon Wireless site/sector, by technology group and by spectrum band. Busy hour data is defined as the average bouncing busy hour (BBH) over the 5-day business week period (Mon-Fri) in the second week of the month. The BBH is the one-hour period during the day in which the highest usage is measured, starting on the hour or half hour, and the highest usage hour may vary from day to day.

In the column headings, "1X" indicates traffic carried on a 1X network and "DO" indicates traffic carried on a EVDO network.

Column A: 

<b>Date</b>
-------------

*Description:* The time period for which the data are being reported. Submit annual snapshots from January 2008 through January 2012 and monthly snapshots for each month in 2011. BBH traffic should be the five-day average for the second week of the month.

*Format of Field:* Text - YYYY\_MM

**Possible Entries:** 2008\_01 2011\_04 2011\_10  
2009\_01 2011\_05 2011\_11  
2010\_01 2011\_06 2011\_12  
2011\_01 2011\_07 2012\_01  
2011\_02 2011\_08  
2011\_03 2011\_09

Column B: 

<b>Site ID</b>
----------------

*Description:* A unique site ID for the site to which this data record applies.

*Format of Field:* Text

*Example Entries:* "AL0001", "VA0128", etc.

Column C: 

<b>Sector ID</b>
------------------

*Description:* A unique sector ID for the sector to which this data record applies, created by adding a suffix to the site ID.

*Format of Field:* Text

*Example Entries:* Suffix examples include "A", "B", "C" or "1", "2", "3"

Column D: 

<b>Cell_1X_Avg BBH Voice Traffic Erlangs</b>
--

*Description:* BBH voice traffic in Erlangs carried by 1X carriers in the Cellular band.

*Format of Field:* Number

Column E: 

<b>Cell_1X_Avg BBH Data Traffic Downlink_MB</b>
---

*Description:* BBH base to mobile data traffic in MB carried by 1C carriers in the Cellular band.

*Format of Field:* Number

## "Traffic" Table

Column F:	<b>Cell_1X_Avg BBH Data Traffic Uplink_MB</b>	<i>Description:</i> BBH mobile to base data traffic in MB carried by 1X carriers in the Cellular band. <i>Format of Field:</i> Number
Column G:	<b>Cell_DO_Avg BBH Data Traffic Downlink_MB</b>	<i>Description:</i> BBH base to mobile data traffic in MB carried by EVDO carriers in the Cellular band. <i>Format of Field:</i> Number
Column H:	<b>Cell_DO_Avg BBH Data Traffic Uplink_MB</b>	<i>Description:</i> BBH mobile to base data traffic in MB carried by EVDO carriers in the Cellular band. <i>Format of Field:</i> Number
Column I:	<b>PCS_1X_Avg BBH Voice Traffic_Erlangs</b>	<i>Description:</i> BBH voice traffic in Erlangs carried by 1X carriers in the PCS band. <i>Format of Field:</i> Number
Column J:	<b>PCS_1X_Avg BBH Data Traffic Downlink_MB</b>	<i>Description:</i> BBH base to mobile data traffic in MB carried by 1X carriers in the PCS band. <i>Format of Field:</i> Number
Column K:	<b>PCS_1X_Avg BBH Data Traffic Uplink_MB</b>	<i>Description:</i> BBH mobile to base data traffic in MB carried by 1X carriers in the PCS band. <i>Format of Field:</i> Number

## "Traffic" Table

Column L:

**PCS\_DO\_Avg BBH  
Data Traffic  
Downlink\_MB**

*Description:* BBH base to mobile data traffic in MB carried by EVDO carriers in the PCS band.  
*Format of Field:* Number

Column M:

**PCS\_DO\_Avg BBH  
Data Traffic  
Uplink\_MB**

*Description:* BBH mobile to base data traffic in MB carried by EVDO carriers in the PCS band.  
*Format of Field:* Number

### **AWS Band - 1X/EVDO**

Column N:

**AWS\_1X\_Avg BBH  
Voice Traffic Erlangs**

*Description:* BBH voice traffic in Erlangs carried by 1X carriers in the AWS band.  
*Format of Field:* Number

Column O:

**AWS\_DO\_Avg BBH  
Data Traffic  
Downlink\_MB**

*Description:* BBH base to mobile data traffic in MB carried by DO carriers in the AWS band.  
*Format of Field:* Number

Column P:

**AWS\_DO\_Avg BBH  
Data Traffic  
Uplink\_MB**

*Description:* BBH mobile to base data traffic in MB carried by DO carriers in the AWS band.  
*Format of Field:* Number

## "Traffic" Table

### AWS Band - LTE

Column Q:

**AWS\_LTE\_Avg BBH  
Voice Traffic\_Erlangs**

*Description:* BBH voice traffic in Erlangs carried by LTE carriers in the AWS band.  
*Format of Field:* Number

Column R:

**AWS\_LTE\_Avg BBH  
Data Traffic  
Downlink\_MB**

*Description:* BBH base to mobile data traffic in MB carried by LTE carriers in the AWS band.  
*Format of Field:* Number

Column S:

**AWS\_LTE\_Avg BBH  
Data Traffic  
Uplink\_MB**

*Description:* BBH mobile to base data traffic in MB carried by LTE carriers in the AWS band.  
*Format of Field:* Number

Column T:

**700\_LTE\_Avg BBH  
Voice Traffic\_Erlangs**

*Description:* BBH voice traffic in Erlangs carried by LTE carriers in the 700MHz band.  
*Format of Field:* Number

Column U:

**700\_LTE\_Avg BBH  
Data Traffic  
Downlink\_MB**

*Description:* BBH base to mobile data traffic in MB carried by LTE carriers in the 700MHz band.  
*Format of Field:* Number

Column V:

**700\_LTE\_Avg BBH  
Data Traffic  
Uplink\_MB**

*Description:* BBH mobile to base data traffic in MB carried by LTE carriers in the 700MHz band.  
*Format of Field:* Number



