

General Information and Document Request for T-Mobile
WT Docket No. 18-197
August 15, 2018

1. Provide a current organization chart and personnel directory for the Company as a whole and for each of the Company's facilities or divisions involved in any activity relating to any Relevant Product or Relevant Service in any Relevant Area.
2. Provide full and complete copies of the merger agreement and any side or letter agreements or other related agreements (and all amendments and attachments thereto) that T-Mobile and Sprint have entered into that relate to the Proposed Transaction, including the Proxy, Lock-up and Right of First Refusal Agreement (Proxy Agreement) between Deutsche Telekom and SoftBank, and any side or letter agreements or other agreements (and all amendments and attachments thereto) related to the Proxy Agreement, which the Applicants state will be executed prior to closing. In addition, provide all documents discussing the Proposed Transaction (except those discussing solely environmental, tax, human resources, OSHA, or ERISA issues), including, but not limited to:
 - a. all presentations to management committees, executive committees, boards of directors, investors, investor analysts, and industry analysts concerning the Proposed Transaction, including, but not limited to, the effect of the Proposed Transaction on T-Mobile's spectrum needs and business plans;
 - b. all plans for changes in the Company's operations, structure, policies, strategies, product and service offerings, corporate goals, financing, business, officers, employees, or any other area of corporate activity as a result of the Proposed Transaction;
 - c. any documents containing other terms or conditions of the Proposed Transaction that were considered, but are not reflected in the merger agreement between the parties or in the other documents supplied in response to this Request;
 - d. documents containing all terms and conditions applicable if the Proposed Transaction is not consummated;
 - e. a timetable for the Proposed Transaction, including when it was first proposed, when the parties came to an agreement, and the actions that must be taken prior to consummation; and
 - f. provide all documents since January 1, 2012 related to: (i) the reasons that any previously contemplated transaction between T-Mobile and Sprint, and any other plans for acquisition, divestiture, joint venture, alliance, or merger other than the Proposed Transaction were discontinued, abandoned, or otherwise not consummated; (ii) prospects for, approaches to, or analyses of the regulatory approvals required for any such transaction; and (iii) changes in the Company's operations, policies, strategies, product offerings, corporate goals, or financing as a result of each such discontinuation, abandonment, or non-consummation.
3. Provide a list of all databases or datasets used or maintained by the Company that constitute, record, or discuss: (a) discount or promotional requests or approvals; (b) sales personnel call reports; (c) meeting competition requests or approvals; (d) win/loss reports; (e) prices, quotes, estimates, or bids submitted to any customer; (f) the results of any bid or quote submitted to any customer or prospective customer; (g) customer relationship databases; (h) products and product codes; (i) facilities; (j) production; (k) sales; (l) prices; (m) margins; (n) costs, including production costs, development costs, distribution costs, standard costs, expected costs, and opportunity costs; (o) patents or other intellectual property; (p) research or development projects, including expenditures and significant accomplishments.
4. Provide, as of the date of this request, a csv format list, by county or county equivalent, of each spectrum license that can be used in the provision of mobile wireless services that the Company holds, leases, has an interest in through a joint venture or other business arrangement, manages, has contracted to acquire, or is in negotiations to acquire. For each license, identify the: (a) FIPS Code;

(b) county; (c) state; (d) market name; (e) market number (e.g., BTA, CMA, PEA); (f) spectrum type; (g) spectrum block; (h) amount of spectrum; (i) the wireless technology format deployed or planned (e.g., GSM, CDMA, EV-DO Rev. A, UMTS, HSPA, HSPA+, LTE, VoLTE, 5G); and (j) whether the Company: (i) holds; (ii) has an interest in through a joint venture or other business arrangement; (iii) leases to or from another person; (iv) manages; (v) has contracted to acquire; or (vi) is in negotiations to acquire.

5. In seeking approval to acquire MetroPCS, T-Mobile claimed that the proposed combination would allow the combined company to realize significant projected network synergies generating savings of approximately \$5-6 billion on a net present value basis, and that these synergies would come from rationalization of T-Mobile's and MetroPCS's LTE networks into a single network, decommissioning of overlapping cell sites, the eventual decommissioning of MetroPCS's CDMA/EV-DO network, elimination of overlapping functions, and reduction in duplicative network-based capital expenditures. In the context of the current Proposed Transaction, the Applicants assert that the T-Mobile team was able to migrate 70 percent of the MetroPCS subscribers within 15 months and complete the full migration within 26 months. (Public Interest Statement, page 40, citing Ray Declaration, para. 71). The Applicants claim that T-Mobile realized the estimated synergies a year ahead of schedule and achieved 40 percent higher synergies than planned. (Public Interest Statement, pages 40-41, citing Ray Declaration, para. 71). Provide a detailed discussion:
 - a. identifying and quantifying the synergies that were realized a year ahead of schedule, including a detailed discussion of what steps and actions led to this outcome;
 - b. specifically identifying and quantifying the synergies that allowed T-Mobile to achieve 40 percent higher synergies than planned in connection with its combination with MetroPCS, including a detailed discussion of what steps and actions led to this result; and
 - c. provide all documents discussing and/or detailing both of these results.

6. The Applicants claim that the Proposed Transaction will generate cost savings "of approximately \$43.6 billion total net present value cost synergies by 2024," and that "T-Mobile will use these synergies to invest nearly \$40 billion to bring the combined company into the 5G era." (Public Interest Statement, pages 15, 120; Ewens Declaration, paras. 7, 12). For all business, network, or other efficiencies, including operational savings, cost synergies, or quality improvements, claimed to result from the Proposed Transaction, provide:
 - a. identification of the efficiency and quantification of that efficiency in terms of total benefits and benefits to consumers of a Relevant Product or Relevant Service (i.e., pass-through), in any Relevant Area, separately for each year from 2018 through 2024;
 - b. for each cost savings claimed from the Proposed Transaction, state separately for each year from 2018 through 2024, the one-time fixed cost savings, recurring fixed cost savings, and variable cost savings in dollars per subscriber, dollars per year, as a percentage decrease of the current cost base (fixed, recurring, and variable), and separately as a percentage reduction of current costs as a whole;
 - c. all documents related to the ability of New T-Mobile to achieve that efficiency, the ability of Sprint and T-Mobile to achieve that efficiency without the Proposed Transaction, and the benefits likely to arise from that efficiency for consumers of any Relevant Product or Relevant Service in any Relevant Area;
 - d. a detailed explanation of how the benefits from that efficiency can be independently verified, with: (i) identification of the record documents relevant to its verification; (ii) identification of the record documents relevant to the factual or numeric inputs in its quantification; and (iii) identification of the record documents relevant to the validation of any material assumptions in its quantification;
 - e. all workpapers, model runs, and other calculations used to derive the cost synergies figure of \$43.6 billion;

- f. all documents or information related to cost savings or synergies achieved through partnerships or agreements with foreign equipment vendors; and
 - g. all other documents, to the extent not already provided, discussing potential efficiencies from the Proposed Transaction.
7. For T-Mobile and New T-Mobile, provide separately, for the United States and the Commonwealth of Puerto Rico, for 2018, the per cell site average CAPEX and OPEX for a new build, as well as the average cost of upgrading, collocating, or decommissioning a site. Provide all assumptions and methodological calculations used to generate the per site average cost estimates for T-Mobile and projected average cost estimates for New T-Mobile. The data should be provided on the following basis:
 - a. whether the site is a macrocell, microcell, picocell, or distributed antenna system;
 - b. whether the site is rural, suburban, or urban; and
 - c. whether the site will implement a 5G, LTE, or lower generation technology.
8. For T-Mobile's acquisition of 600 MHz and 700 MHz spectrum since January 1, 2012, whether via auction or via a secondary market transaction with a third party:
 - a. provide a list of all the competitive benefits projected to be achieved as a result of the proposed acquisition;
 - b. provide a list of all the competitive benefits achieved to date following such acquisitions of 600 MHz and/or 700 MHz spectrum;
 - c. provide a list of all the competitive benefits projected to be achieved that were not achieved at all or were achieved only in part, and an explanation why any such projected synergy was not achieved or was achieved only in part; and
 - d. provide all documents discussing the competitive benefits that were achieved, achieved in part, or not achieved following acquisition of 600 MHz and/or 700 MHz spectrum.
9. Provide all documents since January 1, 2012, discussing the decision to participate or not to participate in previous spectrum auctions such as the Incentive Auction, or upcoming spectrum auctions, including the 3.5 GHz Band, the C-Band, and any millimeter wave spectrum auctions. Further, provide all documents discussing bidding strategy in past or upcoming spectrum auctions, including a discussion of the spectrum on which to bid, the dollar amount to bid, and how the bids should change based on competitive considerations. Explain how the Company's auction participation plans would be affected by the occurrence or not of the Proposed Transaction.
10. Provide all analyses, including GUPPI analyses, merger simulations, econometric modeling, or similar analyses, including those regarding the effect of market concentration or pricing, that have been undertaken by the Company or any consultant or expert hired by the Company to analyze the effects of the Proposed Transaction, including all documents and data used in these analyses. If such analyses incorporate cognizable efficiencies, including quality and quality-adjusted price efficiencies, specify the types and amounts of cognizable efficiencies assumed, together with the justifications, data sources and work papers used for these efficiencies.
11. The Applicants claim that New T-Mobile has every incentive to continue T-Mobile's disruptive conduct in the mobile industry. (Public Interest Statement, pages 117, 124; *see also* Ewens Declaration, para. 10). The Applicants state that "reneging on the consumer-centric tenets of T-Mobile's brand promise will greatly diminish the value of the Un-carrier brand." (Ewens Declaration, para. 10). Moreover, in their Joint Declaration, Dr. Salop and Dr. Sarafidis claim that New T-Mobile plans to continue to behave as a maverick, rather than to settle into coordinated interaction with AT&T and Verizon. (Salop and Sarafidis Joint Declaration, paras. 33, 54). Provide

all documents, including any underlying assumptions and models, relating to T-Mobile's "Un-carrier" or consumer-centric brand promise.

12. Provide all documents, and any underlying spreadsheets, that relate to or discuss difficulties in providing any Relevant Product or Relevant Service in any Relevant Area, including, but not limited to:
 - a. spectrum utilization and efficiency;
 - b. how the Company evaluates and monitors capacity and capacity utilization, speed or quality of service, including the amount of spectrum, speed of connection, key performance indicators, and facilities (including cell splitting, cell site configuration, cell site densification, and backhaul) that are required to meet consumer demand;
 - c. the Company's estimates of the amount and type of spectrum required to support each Relevant Product or Relevant Service and projections of whether and when the Company would exhaust its available spectrum in each Relevant Area;
 - d. any spectrum capacity constraints the Company is currently facing or is projected to face in the future;
 - e. dropped and/or blocked calls;
 - f. speed and other quality measures of data services;
 - g. the amount of spectrum needed for the Company to provide mobile wireless services for each technology deployed in the Company's network;
 - h. the impact the availability of backhaul services has on the Company's ability to provide data services at a particular rate of speed;
 - i. repurposing spectrum, including the transition of subscribers from the repurposed spectrum; and
 - j. alternative solutions to any spectrum constraint problems, including enhanced network or user equipment features, changing prices, or use of small cells or other network reconfiguration options.

13. The Applicants state that, on a standalone basis, "T-Mobile would be capacity constrained," and that "T-Mobile's ability to expand capacity to maximize the value of its spectrum assets and roll out robust 5G cannot come close to matching that of New T-Mobile." (Public Interest Statement, page 19; *see also* Ray Declaration, paras. 18-20, 25). The Applicants further claim that New T-Mobile's 5G network will have much greater capacity than the capacity of T-Mobile's standalone 5G network in 2024. (Sievert Declaration, para. 12). Provide:
 - a. the engineering model and underlying assumptions relied on by Mr. Ray in making the statements contained in Section V of his declaration, and label it as Exhibit A to your response;
 - b. an explanation of how the model relied upon by Mr. Ray was developed, whether and how it is used by T-Mobile in the ordinary course of business, and any deviations it contains from modeling done by T-Mobile in the ordinary course of business;
 - c. all documents related to all engineering models or claims, relied on by Mr. Ray or otherwise, for New T-Mobile, including all documents relating to 5G network coverage and speed for T-Mobile, Sprint, and New T-Mobile, including, but not limited to, all versions or drafts of any such model;
 - d. all documents related to 5G network coverage and speed (2021 and 2024) for T-Mobile, Sprint, and New T-Mobile as shown in Figures 4 and 5 of the Public Interest Statement (Public Interest Statement, pages 26-27);
 - e. all documents related to the capacity of New T-Mobile's 5G network and T-Mobile's standalone 5G network, including reporting estimates by year for all years that such estimates were made;

- f. all documents detailing assumptions about New T-Mobile’s spectrum holdings, including the estimated efficiency of spectrum used for 5G services and estimates of how much spectrum (and in what frequency ranges) New T-Mobile will provide 5G services;
 - g. all documents discussing the plans of T-Mobile to purchase additional spectrum on the secondary market; and
 - h. all documents, including models and the results from any field trials, discussing the current and projected performance characteristics of LTE-A and 5G from 2015 to 2024, including the efficiency of spectrum use, upload and download speed, latency, and deployment configuration.
14. The Applicants state that, “[i]n its initial three years, New T-Mobile will invest significantly more in network infrastructure than the standalone firms combined to build a world-leading nationwide 5G network.” (Public Interest Statement, page 80). Provide a detailed explanation why New T-Mobile would have the incentive to invest significantly more in network infrastructure than the standalone firms, and provide all documents related to New T-Mobile’s network investment incentives. Provide all documents discussing T-Mobile’s 5G network investment as a standalone entity.
15. Provide a list, as of the date of this Request, by CMA, of the cell sites owned, leased, or shared by the Company, the percentage of cell sites collocated with each of the following: (1) Sprint; (2) AT&T; (3) Verizon Wireless; (4) U.S. Cellular; and (5) all other mobile wireless service providers.
16. The Applicants state that New T-Mobile will increase cell site density “by retaining 11,000 cell sites from Sprint,” which “[i]n many instances . . . will obviate the need to work with the tower companies for new site leases.” (Ray Declaration, para. 31). For which retained cell sites would the Proposed Transaction obviate the need to work with the tower companies for new site leases, and for which would it not? For the cell sites to be retained, identify the expected cost and timeframe for standalone T-Mobile to obtain access, and provide all documents related to T-Mobile’s inability to access those cell sites.
17. In his declaration, Dr. Evans emphasizes that network investments are essential to remain competitive, and cites to various internal documents. (Evans Declaration, paras. 140-41). Explain in detail the typical time horizon and process that T-Mobile plans for network improvements, upgrades, and capital expenditures in its ordinary course of business. Provide all documents relating to T-Mobile’s ordinary course of business network upgrades and capital expenditure plans from January 1, 2012, to the present. Discuss in detail the Company’s ordinary course of business plans for network coverage, data rate, capacity, and other quality improvements including coverage expansion to new areas and indoor coverage, and the planned new macrocell and small cell deployments in urban, suburban, and rural areas.
18. For any Relevant Service or Relevant Product in any Relevant Area, provide all:
- a. short-term and long-term strategic and business plans;
 - b. plans to reduce costs, improve services or products, improve service quality, improve capacity to transmit mobile wireless services, introduce new services or products;
 - c. budgets and financial projections on a local, regional, or national basis; and
 - d. presentations to management committees, executive committees, boards of directors, investors, investor analysts, bankers, and industry analysts.
19. The Applicants state that New T-Mobile would provide “substantial capacity improvements that will benefit consumers” as demonstrated in Tables 3-6 and “will be able to provide dramatic improvements in data rates to consumers” as shown in Tables 7-8 of the Public Interest Statement. (Public Interest Statement, pages 42-45).

- a. define “available capacity” and “carried capacity” as shown in Tables 3-6 and 7-8. Explain in detail whether these values represent monthly downlink, uplink, or combined capacities nationwide, and how they are calculated;
 - b. provide the current or projected nationwide “offered capacity” and “carried capacity” values from 2015 to 2024 for each of T-Mobile, Sprint, and New T-Mobile; and
 - c. provide all plans, analyses, and reports reviewed and relied upon in making these tables, and provide all documents related to the claimed improvements.
20. Provide, as of the date of this Request, polygons in an ESRI shapefile format representing geographic coverage in every Relevant Area for a -85 dBm RSSI signal level or better for each mobile broadband network technology (e.g., GSM, CDMA, EV-DO Rev. A, UMTS, HSPA, HSPA+, LTE, VoLTE, 5G) deployed in each frequency band (e.g., 600 MHz, 700 MHz, 800 MHz, AWS, PCS, BRS, EBS). Provide all assumptions, methodology (e.g., propagation, projection, field measurements), calculations (including link budgets), tools (e.g., predictive and field measurements), and data (e.g., terrain, morphology, buildings) used in the production of the polygons, and identify the propagation tool used, the propagation model used within that tool, including but not limited to, the coefficients used in the model, and any additions, corrections, or modifications made to the model. For detailed instructions, see the attached shapefile format specifications.
21. Provide the projected 5G coverage maps in geo-referenced shapefile format for 2021 and 2024 with average download data rates being considered by the Company of: (a) 25 Mbps, (b) 100 Mbps, (c) 150 Mbps, (d) 300 Mbps, (e) 500 Mbps, and (f) 5G coverage for T-Mobile and New T-Mobile. (Public Interest Statement, Figures 4-5, pages 26-27, Tables 7-8, pages 44-45, Figure 10, page 46). For detailed instructions, see the attached shapefile format specifications.
22. Provide all plans, analyses, and reports discussing the research and development of any new Relevant Product or Relevant Service by the Company, individually or with third parties, including those discussing the Company’s total expenditures associated with research, development, and testing of any new Relevant Product or Relevant Service.
23. For any Relevant Service or any Relevant Product in any Relevant Area, provide all documents discussing:
- a. the Company’s analysis of, or response to, the entry or potential entry of new competitors into any Relevant Product or Relevant Service;
 - b. any actual or potential effect on the supply, demand, cost, or price of any Relevant Service or any Relevant Product caused by the introduction by a current market participant of any new Relevant Product or any Relevant Service or by any change in the price or service characteristics of any Relevant Product or Service, or increase in the quality of any Relevant Product or Relevant Service;
 - c. any actual or potential effect on the supply, demand, cost, or price of any Relevant Service or any Relevant Product caused by competition from any new entrant, including cable companies, or by any new service regarded by customers as a potential substitute for the Relevant Product or Relevant Service;
 - d. prepaid mobile wireless service offerings, the development of new prepaid mobile wireless service offerings, or the expansion, improvement, or reduction of existing prepaid mobile wireless service offerings, or any other changes to the company’s current prepaid mobile wireless services offerings, including, but not limited to, brand development or elimination, retail expansion and distribution, promotions, and device offerings as a result of the Proposed Transaction; and
 - e. how the combined company would compete with other mobile wireless service providers, including, but not limited to, prepaid and postpaid advertising plans and strategies, prepaid

and postpaid service plans and promotions, and prepaid and postpaid devices offered under either of the T-Mobile or Sprint brands.

24. The Applicants state that, “[t]he merger will allow New T-Mobile to deliver data rates that compete against wired data speeds,” (Public Interest Statement, page 45), and “[t]he merger enables New T-Mobile to offer an attractive high-speed in-home broadband option in some areas in direct competition with existing incumbent wired broadband services.” (Sievert Declaration, para. 35). Provide all documents discussing:
 - a. New T-Mobile’s in-home broadband offerings, including a detailed discussion of deployment incentives, planned prices and data caps (if any), estimated revenue, market share, and adoption;
 - b. those areas where New T-Mobile plans to deploy in-home broadband offerings; and
 - c. any comparison of New T-Mobile’s in-home broadband offering with offerings from incumbent wired broadband services and other mobile service providers.
25. Provide all plans, analyses, and reports discussing the extent to which customers may substitute mobile wireless broadband services for fixed broadband services (and vice versa) and sales or marketing efforts that reflect such potential substitution.
26. The Applicants assert that New T-Mobile would bring T-Mobile’s disruptive Un-carrier approach into new market segments. (Public Interest Statement, page 117). Identify all new market segments that New T-Mobile plans to enter. Submit all documents discussing the Company’s or any other person’s plans relating to any Relevant Product or Relevant Service in any Relevant Area, including, but not limited to: business plans; short-term and long-range strategies and objectives; budgets and financial projections; expansion or retrenchment plans; research and development efforts; plans to better manage services; plans to reduce costs, improve services, introduce new services, or otherwise become more competitive (e.g., plans to close, consolidate, or rationalize any facility or to discontinue the provision of any Relevant Product or Relevant Service); and presentations to management committees, executive committees, and boards of directors. For regularly prepared budgets and financial projections, the Company need only submit one copy of final year-end documents and cumulative year-to-date documents for the current year.
27. The Applicants assert that “New T-Mobile will leverage the benefits of scale in network, costs, and financial resources to disrupt the video market by offering TV packages that will allow customers to forego traditional multi-channel video programming distributors (MVPDs) in favor of broadband-delivered video offerings. The Company’s 5G network will provide mobile and fixed video services to consumers in all markets, including rural areas, and deliver high quality—including 4K video—service offerings with lower prices than traditional options. This will exert tremendous competitive pressure on legacy cable providers and other MVPDs, forcing them to lower prices and invest and innovate to keep up with New T-Mobile.” (Public Interest Statement, page 76). Provide all plans, analysis, and reports discussing how T-Mobile/New T-Mobile will leverage the benefits of scale in network, costs, and financial resources to disrupt the video market, including, but not limited to, T-Mobile’s Layer3 TV (Layer3).
28. Provide all documents discussing T-Mobile’s plans to develop its rural networks for 2018 through 2024, including:
 - a. network expansion plans, including specific locations by Relevant Area and related timetables;
 - b. strategies involving the use of unlicensed spectrum;
 - c. relationships with rural service providers, including affiliated entities, if any, including any partnership arrangements and initiatives;

- d. plans related to retail store expansion in rural areas, including the number of new retail stores expected to be operating in rural areas in 2019, 2020, 2021; and
 - e. New T-Mobile’s plans for replacing handsets for rural subscribers, and explain how New T-Mobile plans to migrate rural subscribers.
29. The Applicants state that “[i]n many rural areas there are currently no high-speed broadband alternatives, so the Transaction would introduce a high-speed alternative to DSL and satellite.” (Evans Declaration, para. 256). Provide a definition of “rural area.” Submit all documents related to 5G deployment for each year from 2019 to 2024 in rural areas for standalone T-Mobile, standalone Sprint, and New T-Mobile, and provide a detailed explanation of how the merger increases the incentive and ability of New T-Mobile to deploy rural high-speed broadband in comparison to standalone T-Mobile.
30. The Applicants state that New T-Mobile will be “providing fixed in-home broadband service of at least 25/3 Mbps to 52.2 million rural residents over 2.4 million square miles, approximately 84.2 percent of rural residents.” (Public Interest Statement, page 66). Provide all documents, including RF link budgets, assumptions, studies, and RF propagation models, relied upon in making this statement, and coverage maps in geo-referenced shapefile format depicting the projected fixed in-home broadband service in any Relevant Area.
31. For any Relevant Service or any Relevant Product in any Relevant Area, provide all documents discussing:
- a. buyer substitution responses to price or product changes, including all analyses of elasticities of demand (own-price elasticities and cross-price elasticities with respect to competitors, and the elasticity of demand for the industry as a whole (aggregate elasticity of demand)), and any estimates of diversion ratios/rates among competing suppliers of the Relevant Product or Relevant Service;
 - b. churn and subscriber acquisition and retention, including:
 - i. churn data, including the correlation of churn with quality, length of contract commitments, national footprint, price, the expected impact of migration to new technologies on churn, type of customer, and any other factors;
 - ii. data or studies indicating that a customer left or switched to the Company because of pricing, network quality, customer service, or the absence or availability of particular services or devices (including data on subscribers lost or gained), and any consumer surveys undertaken about consumer substitution across mobile wireless service providers;
 - iii. data or studies on switching costs or customer inertia or both;
 - iv. the Company’s experience or success in retaining customers, including examination of customer tenure and the value or net present value of a customer or type of customer;
 - v. the Company’s experience or success in obtaining customers through marketing or promotions targeted at particular mobile wireless service providers, particular geographic areas (including local and regional promotions), particular wireless devices or types of customers (including the offers made and the amount spent on the marketing effort, the number of new subscribers gained, churn rates for such subscribers, and revenue realized by the Company);
 - vi. customer acquisition costs, including per gross addition costs;
 - vii. the characteristics of consumers who want to purchase standalone services or bundled services; and
 - viii. descriptions or analyses of bidding results for enterprise or other large customers.

- c. any attempts to win customers from, or stem losses to, other mobile wireless service providers;
 - d. share of sales or revenues of the Company or any of its competitors, including subscriber counts, gross additions, deactivations, and net additions; and
 - e. share of sales through various distribution channels (e.g., own sales versus sales through exclusive or non-exclusive third parties) of the Company (by channel and by name for each third party) and its competitors.
32. Provide all documents that employ, discuss, or calculate customer lifetime value (CLV) or any other concept related to the present discounted value (e.g., active customer value, lifetime customer value, average customer value) to the Company of acquiring a new customer for any Relevant Service. State, describe in detail, and provide documents sufficient to show the Company's most current and best estimate of CLV or present discounted value to the Company of acquiring a new customer for each Relevant Service, including a description of how the calculations were performed and overall methodology, including the parameters used in the determination of such value. Provide all data upon which the calculations are based and the programs used for the calculations. If the Company employs more than one concept related to the value of a customer, the Company's response should provide the calculation and description for each approach, and a description of how the Company uses each approach in the ordinary course of business.
33. Provide all documents discussing T-Mobile's pricing decisions for any Relevant Product or Relevant Service in any Relevant Area and in the United States as a whole, including, but not limited to discussions of: (1) pricing plans, including unlimited; (2) pricing policies; (3) pricing forecasts; (4) pricing strategies; (5) pricing analysis; (6) introduction of new pricing plans or promotions, including local promotions and their determinants, and expected or actual impact; (7) tiered pricing, and expected or actual impact; (8) pricing decisions relating to each Relevant Service and Relevant Product; (9) which prices, if any, are set through individualized negotiations, and the criteria and process use to determine rates; and (10) any other factors considered in how the Company prices each Relevant Product or Relevant Service in each Relevant Area.
34. Identify each major pricing, plan, or promotional action taken by T-Mobile since January 1, 2012, and for each:
- a. explain whether and how this action reflects T-Mobile's Un-carrier brand or behavior as a maverick, as opposed to an action that would plausibly have been taken by a non-maverick or other carrier without the Un-carrier brand;
 - b. explain and provide documents sufficient to show T-Mobile's strategic rationale for the pricing, plan, or promotional action; and
 - c. provide all plans, analyses, or reports relating to or analyzing the business impacts of the pricing, plan, or promotional action, including retrospectively.
35. For the dates January 1 and July 1 in the years 2012 through 2018, and for each brand under which the Company sells mobile wireless services, identify the 10 best-selling mobile wireless services pricing plans for the United States as a whole, as measured by subscribers. For each pricing plan identified: (i) state the number of total subscribers to each plan; (ii) state the number of new subscribers added in the prior six months; (iii) describe and identify the price of and all features and services encompassed in the plan, including but not limited to, the number of included minutes and data services, whether mobile wireless services can be shared with others, any promotions offered to attract new subscribers to the plan, and any charges for usage in excess of the maximum allowed under the plan; and (iv) provide the ARPU for each such pricing plan.

36. The Applicants assert that New T-Mobile will bring disruptive Un-carrier choices for enterprise business and government customers. According to the Public Interest Statement, the combined company “will be able to integrate the Sprint wireline assets to diversify its enterprise offerings and make available fixed broadband products, cloud computing services, network security offerings, or other complementary business lines.” With its 5G network, the Applicants claim that “New T-Mobile will be able to support and spur the broad spectrum of commercial IoT applications of the future.” (Public Interest Statement, pages 73-74). Provide all plans, analyses, and reports discussing enterprise and government segments and services, including, but not limited to, whether and how New T-Mobile will offer flexible and inventive plans and pricing, as opposed to the pricing plans of a standalone T-Mobile.
37. For any Relevant Service or any Relevant Product in any Relevant Area, provide all documents (including any surveys conducted by T-Mobile or by any third party) that discuss:
- a. the competitive positioning of the Company and other mobile wireless service providers (e.g., price and quality relative to others);
 - b. how reliability and reputation affect competition or potential competition; or
 - c. how consumers or enterprise customers or competitors view and value mobile wireless services or products offered by the Company or by other mobile wireless service providers, including:
 - i. their perceptions of customer service, network quality, network coverage plans, and features;
 - ii. the impact of not offering particular wireless services or devices;
 - iii. the impact of pricing on decisions to purchase any Relevant Service or any Relevant Product;
 - iv. the impact of variation in subscribers’ usage patterns across different pricing plans and devices;
 - v. the impact of roaming; and
 - vi. the impact of being able to use products and services internationally.
38. Provide all documents discussing the possible effects of the Proposed Transaction on roaming or discussing New T-Mobile’s offering of roaming arrangements. Further, identify any person (including mobile wireless service providers) to whom the Company provides, pursuant to a current roaming agreement, each Relevant Service for use by that person’s subscribers in any Relevant Area. For each person whose subscribers used the Company’s Relevant Service, provide all documents related to the negotiation of any associated agreements, and list, in csv format, on a monthly basis and for each Relevant Area in which the Relevant Service is provided:
- a. the name of the person;
 - b. the total number of subscribers of the person using the Company’s Relevant Service;
 - c. the total minutes and the total megabytes, as relevant, of the Company’s Relevant Service used by the person’s subscribers;
 - d. the total amount, the price per minute, and the price per megabyte, that the Company charged the person for the Company’s Relevant Service used by that person’s subscribers; and
 - e. the Company’s total sales of roaming services, in dollars, minutes of use, and in megabytes of data, used separately for each mobile wireless technology.
39. The Applicants assert that “New T-Mobile has the same competitive incentives with respect to, and will bring the same network benefits to, its relationships with MVNOs.” In particular, the Applicants contend that “New T-Mobile will have significant added network capacity, and therefore will have no incentive to impair MVNOs’ ability to put subscribers on New T-Mobile’s network.” The Applicants further maintain that “New T-Mobile will encourage the launch of new MVNOs that can offer unique value propositions or better reach unique customer segments.” (Public Interest Statement, pages 123-24). Provide all documents discussing MVNOs as they relate to T-Mobile and all documents relating

to plans or projections for New T-Mobile, including any analysis of the competitive effects of MVNOs in the mobile wireless marketplace, and analysis of the costs and revenues of customers served through an MVNO.

40. Provide a complete list of MVNOs that have provided or are providing mobile wireless service using T-Mobile's network, and explain in detail how the Proposed Transaction would affect current MVNO agreements. Provide all documents discussing the possible effects of the Proposed Transaction on wholesale charges or discussing New T-Mobile's offering of wholesale arrangements. Further, identify any person (including mobile wireless service providers) to whom the Company provides, pursuant to a wholesale agreement, each Relevant Service for use by that person's subscribers in any Relevant Area. For each person whose subscribers used the Company's Relevant Service, provide all documents related to the negotiation of any associated agreements, and list, in csv format, on a monthly basis and for each Relevant Area in which the Relevant Service is provided:
 - a. the name of the person;
 - b. the total number of subscribers of the person using the Company's Relevant Service;
 - c. the total minutes and the total megabytes, as relevant, of the Company's Relevant Service used by the person's subscribers;
 - d. the total amount, the price per minute, and the price per megabyte, that the Company charged the person for the Company's Relevant Service used by that person's subscribers; and
 - e. the Company's total sales of wholesale services, in dollars, minutes of use, and in megabytes of data used separately for each mobile wireless technology.

41. The Applicants assert that New T-Mobile would use the existing T-Mobile network as its anchor, thereby enabling New T-Mobile to migrate Sprint customers to the existing T-Mobile network within three years without degrading the user experience for LTE. The Applicants state that: (1) Sprint subscribers with compatible devices would be able rapidly to convert to the New T-Mobile network; (2) New T-Mobile would migrate CDMA voice users to VoLTE; and (3) the 1900 MHz PCS band would allow a seamless integration of Sprint's existing customers onto T-Mobile's network. (Public Interest Statement, pages 38-39).
 - a. describe in detail how this migration plan would be accomplished within three years without degrading the user experience for LTE;
 - b. provide all documents discussing or relating to the expected cost of achieving the migration plan, and all documents discussing the customer migration plan, including the transition of MVNO customers and Lifeline customers;
 - c. describe in detail the plans for T-Mobile and New T-Mobile to sunset GSM and HSPA/HSPA+, and for Sprint and New T-Mobile to sunset CDMA 1x voice and EV-DO Rev. A technologies; and
 - d. describe in detail New T-Mobile's transition plans for M2M services offered over its 2G network.

42. In his declaration, Mr. Ewens states that "Sprint customers will receive more value for less money shortly after close and with minimal disruption as we enable their phones to access the T-Mobile network." (Ewens Declaration, para. 8). Provide all plans, analyses, and reports discussing New T-Mobile's cost savings for or quality benefits to Sprint customers. Discuss in detail how Sprint's push-to-talk services, including in the enterprise and government market, would be affected by the Proposed Transaction.

43. The Applicants state that "a built-in LTE feature known as Multi-Operator Core Network (MOCN) will allow us to unify the T-Mobile and Sprint radio access networks (RANs) almost immediately and allow Sprint existing customers with compatible devices to seamlessly access the best of both networks during integration." (Ray Declaration, para. 66).

- a. state how many, and what percentage of, T-Mobile and Sprint devices are compatible with the MOCN feature;
 - b. discuss in detail whether those devices require Over-the-Air (OTA) device software updates to enable the MOCN feature;
 - c. state how many, and what percentage of, Sprint and T-Mobile devices (retail, prepaid and wholesale) will need OTA software updates to work on both networks;
 - d. state how many, and what percentage of, Sprint devices are not compatible with the feature, and provide all documents related to transitioning users of those devices;
 - e. discuss in detail how New T-Mobile plans to address non-compatible devices; and
 - f. provide all documents reviewed and relied upon to answer a.-e.
44. In his declaration, Dr. Eisenach estimates that the employment effects of the Proposed Transaction “show[] that it will contribute a cumulative total of approximately 51,200 job-years to the U.S. economy in the five years following consummation (2019-2023).” (Eisenach Declaration, para. 11). Further, he estimates that “accelerated 5G deployment will contribute an additional 73,600 job-years from 2021 through 2023.” (Eisenach Declaration, para. 12).
- a. provide all documents, including the underlying IMPLAN model, and associated data utilized, reviewed, or relied upon by Dr. Eisenach in arriving at these estimates;
 - b. provide the charts in Dr. Eisenach’s declaration in csv format;
 - c. define the “change in generational penetration” variable, and explain in detail how that study supports Dr. Eisenach’s analysis. (Eisenach Declaration, para. 46, fn. 47, citing to an analysis by Dr. Shapiro and Dr. Hassett);
 - d. describe what Dr. Eisenach did to test the fixed-coefficients assumption implicit in input-output analysis; and
 - e. produce Dr. Eisenach’s regression output regarding his attempt to implement the Hassett and Shapiro procedure
45. The Applicants claim that, in its initial three years, New T-Mobile will invest significantly more in network infrastructure, which “will translate into thousands of additional American jobs, as New T-Mobile will need to hire employees to build the new network; extend the Un-carrier customer care model to a wider subscriber base; and support growing services like in-home broadband and IoT. The result is that New T-Mobile will be jobs positive from its first year and beyond, with an initial increase relative to the combined companies’ standalone of more than 3,000 jobs that increases to 11,000 jobs by 2024.” (Public Interest Statement, pages 80-81). Provide all plans, analyses, and reports discussing the creation or loss of jobs if the Proposed Transaction were to be consummated.
46. Provide all documents discussing competition, pricing, or network investment in countries other than the United States, including, but not limited to, documents discussing comparisons between markets for wireless services in the United States and elsewhere.
47. The Applicants state that low-band spectrum “can support cell site operating radii of up to 18 miles”; mid-band spectrum cell site operating areas “would be reduced to approximately 4 miles”; and high-band, mmW spectrum (above 20 GHz) is preferable in dense urban markets as “cell operating areas are significantly less than half a mile.” (Public Interest Statement, pages 32-33). Provide all documents, including RF link budgets, assumptions, studies, and RF propagation models related to the operating radii of these spectrum bands.
48. Provide a detailed description of deployed backhaul by technology, number of sites for each technology, as well as link capacity available by technology. Explain the spectrum band(s) that T-Mobile uses for wireless backhaul and how that compares to fiber backhaul in terms of availability

at sites, traffic carried, latency, and capacity. Discuss in detail the Applicants' plans to upgrade the backhaul transport to support New T-Mobile's projected increases in capacity and throughput.

49. To the extent not already provided, provide all documents cited in the Public Interest Statement 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.

Definitions

In this General 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 “T-Mobile” mean T-Mobile US, 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 “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. The term “Sprint” means Sprint Corporation, 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 “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.
3. The term “New T-Mobile” means T-Mobile US, Inc., after the proposed merger of Sprint into an indirect subsidiary of T-Mobile, the proposed structure of which is reflected on page 7 of the Public Interest Statement, as well as 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 “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.
4. The term “5G” means 5th generation technology.
5. The terms “and” and “or” have both conjunctive and disjunctive meanings.
6. 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.
7. The term “Applicants” means T-Mobile and Sprint, collectively.
8. The term “Application” means the applications submitted by T-Mobile and Sprint beginning on June 18, 2018, some of which have been subsequently amended, with the lead application file number for the wireless radio services listed as 0008224209.
9. The term “BTA” means Basic Trading Area.
10. The term “CDMA” means Code Division Multiple Access technology.
11. The term “CMA” means Cellular Market Area.
12. The term “competitor” includes any partnership, corporation (including a business trust), joint stock company, trust, unincorporated association, joint venture, limited liability company, or other entity providing any actual or potential competition in any relevant area for any relevant product.
13. 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.

14. 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, mobile devices, 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.
15. The term “EV-DO” or “EV-DO Rev. A” means Evolution-Data Optimized or Evolution-Data Optimized Revolution A. technology.
16. The term “GSM” means Global System for Mobile Communications technology.
17. The term “HSPA” or “HSPA+” means High Speed Packet Access or High Speed Packet Access + technology.
18. 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.
19. The term “including” shall be construed as including, but not limited to, and indicates examples for the Applicants to address. The term should not be construed as to limit the response to only those examples listed.
20. The term “IoT” means Internet of Things.
21. The term “LTE” or “LTE-A” means Long Term Evolution technology or Long Term Evolution Advanced technology.
22. The term “mobile wireless application,” also referred to as “application software” or “app,” means a computer system that enables one or more functions on a mobile wireless device running a mobile operating system (e.g., Android, iOS).
23. 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.

24. The term “mobile wireless services” includes mobile wireless voice services, mobile wireless text services, mobile wireless data services, and mobile wireless applications.
25. The term “mobile wireless telephone number,” means the 10-digit telephone number assigned to an end-user to access mobile wireless services.
26. 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.
27. 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 IP and Voice over LTE.
28. The term “M2M” means machine-to-machine.
29. The term “MVPD” means multi-channel video programming distributor.
30. The term “MVNO” means mobile virtual network operator.
31. The term “PEA” means Partial Economic Area.
32. The term “Person” includes the Company, and means any individual, partnership, corporation (including a business trust), joint stock company, trust, unincorporated association, joint venture, limited liability company or other entity, or a government or any political subdivision or agency thereof.
33. 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.
34. 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 appendixes 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. 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.
35. The term “Proposed Transaction” means the proposed transfer of licenses and authorizations controlled by T-Mobile and Sprint reflected in the Application.
36. The term “Public Interest Statement” refers to the document filed by the Applicants on June 18, 2018, entitled “Description of Transaction, Public Interest Statement, and Related Demonstrations.”
37. The term “Relevant Area” means, and information must be provided separately for, (a) each Cellular Market Area; (b) the United States; and (c) the Commonwealth of Puerto Rico.

38. The term “Relevant Product” means (and information must be provided separately for, any of the mobile wireless services and using any of the following formats: GSM, CDMA, EV-DO Rev. A, UMTS, HSPA, HSPA+, LTE, VoLTE, 5G):
- 1) feature mobile devices: wireless handset devices that are cable of supporting voice services as well as text services;
 - 2) smartphones: wireless handset devices, with advanced computing capability and connectivity sufficient to run complete mobile operating system software (e.g., Apple, Android, 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) tablet PCs (includes netbook PCs): portable devices with touch screen and/or a QWERTY keyboard input, and advanced computing capability and connectivity sufficient to run complete operating system software (e.g., Apple, 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);
 - 4) 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;
 - 5) “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;
 - 6) mobile hotspot 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
 - 7) other mobile wireless devices not listed above. Describe the other devices included in this category.
39. The term “Relevant Service” means (and information must be provided separately for, any of the services identified below, and bundles of such services, and using any of the following formats: GSM, CDMA, EV-DO Rev. A, UMTS, HSPA, HSPA+, LTE, VoLTE, 5G):
- 1) mobile wireless voice services;
 - 2) mobile wireless text services;
 - 3) mobile wireless data services; and
 - 4) mobile wireless applications.
40. 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.
41. The term “UMTS” means Universal Mobile Telecommunications System technology.
42. The term “VoLTE” means Voice over Long Term Evolution technology.
43. “United States” or “U.S.” means the United States, its possessions, territories, and outlying areas.

Instructions

1. Unless otherwise specified, all requests cover the period from January 1, 2015, through the date of the Request. Where information is required, provide it separately for each year unless otherwise directed in this request. Where yearly data are not yet available, provide data for the calendar year to date.
2. 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. The requirement to update the record will continue until the Commission's decision regarding the Transaction is no longer subject to reconsideration by the Commission or to review by any court.
3. Submit responses to this Information Request in both paper and electronic form, unless an electronic form is specified (e.g., electronic spreadsheet). Submit responsive documents (including materials containing Highly Confidential or Confidential Information) in electronic form only, unless otherwise specified, 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. Where a narrative response is required, identify each document relied upon by the Company in their narrative response.
5. Documents must be uniquely and sequentially numbered across the entire production. Documents submitted in response to this Information Request that were or will be submitted both to the Commission and to the U.S. Department of Justice must have the same document control number and the same metadata.
6. Contact Commission staff to discuss an acceptable format for the submission of all documents and data.
7. 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.
8. Those documents written in a language other than English must be translated into English; automated or machine translations are permitted; however, the Commission retains the right to require a non-machine translation. Submit the foreign language document, with the English translation attached thereto.
9. Unless otherwise specified, provide data and interrogatory responses separately for prepaid, post-paid, wholesale, and all mobile wireless services. The Company shall provide a separate response for interrogatory, data, and documents (i.e., do not submit the Company's interrogatory and data responses on the same discs).
10. Data provided in response to this Information Request should include a list of all parameters/assumptions on which the data are based.

11. 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.
12. For each statement submitted in response to the Information Request, indicate, by number and subsection, the specific request to which it is responsive.
13. For each document submitted in response to the Information Request, identify the Person(s) from whose files the document was retrieved (i.e., the custodian). 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 the 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 the Instructions for Submission of Electronic Documents.
14. For each question in this Information Request, provide a list of the custodians, based on discussions with Commission staff, who are most likely to have relevant documents, and whose files are to be searched for responsive documents.
15. 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, including project code words. In addition, describe the search methodologies and the applications used to execute the search.
16. 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 its entirety as privileged and a statement indicating that the page has been withheld in its entirety as privileged. For any document withheld as entirely privileged, 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 imaged as any other paper record, as described above. For each document withheld as privileged, whether in its 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.
17. 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.
18. 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 SHAPEFILE FORMATTING

For each technology and frequency band, submit a separate shapefile showing the coverage area. The following data field must accompany each polygon on the map. The field names must appear in the shapefile attribute table as shown below.

Field Name	Contents	Description	Type	Example
ID	Sequence Number	Unique ID for each polygon	Integer	1
SOFT	Software Product	The name of the propagation model software product used by the Applicant to generate the coverage map.	Text	PlanetDB
SPECTRUM	Spectrum Used	Code for spectrum used for the provision of service. The valid codes are:	Integer	90
		90 700 MHz Band		
		91 Cellular Band		
		92 Specialized Mobile Radio (SMR) Band		
		93 Advanced Wireless Services (AWS) 1 Band		
		94 Broadband Personal Communications Service (PCS) Band		
		95 Wireless Communications Service (WCS) Band		
		96 Broadband Radio Service/Educational Broadband Service Band		
		99 600 MHz Band		
		100 H Block		
		101 Advanced Wireless Services (AWS) 3 Band		
		102 Advanced Wireless Services (AWS) 4 Band		
BANDWIDTH	Total Channel Bandwidth	The total downlink channel bandwidth in MHz	Integer	10
RSSI	Edge RSSI	Minimum signal strength (RSSI) as requested	Integer	-111

- All map areas must be simple (i.e., closed, non-overlapping, and non-self-intersecting) polygons with a single, unique identifier.
- Report information on spectrum band and bandwidth used to generate the coverage area as specified above. Any variation in bandwidth necessitates the creation of a separate polygon showing the relevant coverage.
- Each shapefile must have an assigned projection with an accompanying .prj file.
- Each shapefile must use unprojected (geographic) WGS84 geographic coordinate system.
- The spatial resolution of maps must be 100-meter BINS (approximately 3 arc-seconds) or smaller. Do not use smoothing techniques to create contours at the cell edge that obscure the BIN resolution when converting from a raster format to a shapefile. The coverage boundaries shall have a resolution of 100 meters or smaller. An arc-second represents the distance of latitude or longitude traversed on the earth's surface while traveling one second (1/3600th of a degree).¹
- Each shapefile must be submitted as a *.zip file. This can be done with a program like WinZip or, in Windows, by: (a) selecting the files associated with a shapefile; (b) right-clicking the selected files; (c) clicking **Send to**; and (d) clicking **Compressed (zipped) folder....** Each *.zip file must contain one shapefile only.

¹ Esri, *Measuring in Arc-Seconds*, www.esri.com/news/arcuser/0400/wdside.html (last visited Aug. 15, 2018). Three arc-seconds is a common resolution of terrain databases. U.S. Geological Survey National Mapping Division, National Mapping Program Technical Instructions at Part 1 General 1.2, 1.4 (1997), <https://nationalmap.gov/standards/pdf/1DEM0897.PDF>.

Instructions for Electronic Production of Documents and Electronically Stored Information

Introduction

This document contains the standard specifications and procedures for submitting to the Federal Communications Commission electronic versions of documents in response to an Information Request.

- In many cases, it is useful for the party producing the documents, its vendor, and the FCC staff to review the technical details of the production prior to submitting the response.
- Take care to ensure that all responsive data and metadata are preserved in the collection process.
- Submit two copies of the response: file one copy in the docket with the Secretary's Office and provide one copy to FCC staff or the FCC's contractor, as directed, for loading and review.

I. CATEGORIES OF DOCUMENTS

There are seven major categories of relevant documents: (1) email and other electronic messages (e.g., instant messaging, text messages); (2) other electronic documents; (3) hard copy documents; (4) shared resources; (5) databases; (6) audio and video data; and (7) foreign-language materials. Typically, responsive documents will come from the first four categories, although databases will be used to respond to Data Requests. The general requirements for each category of document are outlined below. The attached Metadata Table of Requested Fields provides information regarding document-specific metadata and bibliographic information (identifying information).

A. Email, Attachments, and Other Electronic Messages

Email and other electronic messages (e.g., instant messages (IMs), text messages) should be produced as image files with related searchable text, metadata, and bibliographic information. Depending on how the Company's systems represent names in email messages, IMs, or text messages, we may require a table of names or contact lists from custodians.

Each IM or text conversation should be produced as one document.

Email repositories, also known as email databases (e.g., Outlook .PST, Lotus .NSF), can contain a variety of items, including messages, calendars, contacts, tasks, etc. For purposes of production, responsive items should include the "Email", "Other ESI", or "Calendar Items" metadata/database fields outlined in the Metadata Table, including but not limited to all parent items (mail, calendar, contacts, tasks, notes, etc.) and child files (attachments of files to email or other items), with the parent/child relationship preserved. Similar items found and collected outside an email repository (e.g., .MSG, .EML, .HTM, .MHT) should be produced in the same manner.

Graphic objects embedded in emails such as logos, letterheads, or backgrounds should remain as part of the email and not be extracted as separate attached documents.

Pay special attention to the PARENTID, ATTACHMENTIDS, and FAMILYRANGE fields, which are used to track email families. While the example below relates to email families, all attachment relationships for all responsive documents are to be produced in this format.

EXAMPLE: Consider ABC-JD-00000001, a 10-page parent email, with records ABC-JD-00000011 to ABC- JD-00000015, ABC-JD-00000016 to ABC-JD-00000020, and ABC-JD-00000021 to ABC-JD-00000025 as its attachments. Fields should be populated exactly as follows using the semicolon as the multi-entry delimiter for ATTACHMENTIDS:

BEGDOC#	ENDDOC#	PARENTID	ATTACHMENTIDS	FAMILYRANGE
ABC-JD-00000001	ABC-JD-00000010		ABC-JD-00000011;ABC-JD-00000016;ABC-JD-00000021	ABC-JD-00000001 – ABC-JD-00000025
ABC-JD-00000011	ABC-JD-00000015	ABC-JD-00000001		ABC-JD-00000001 – ABC-JD-00000025
ABC-JD-00000016	ABC-JD-00000020	ABC-JD-00000001		ABC-JD-00000001 – ABC-JD-00000025
ABC-JD-00000021	ABC-JD-00000025	ABC-JD-00000001		ABC-JD-00000001 – ABC-JD-00000025

B. Electronic Documents

Electronic documents include word processing documents, spreadsheets, presentations, and all other electronic documents not specifically discussed elsewhere. Production of these items should include image files with related searchable text, metadata, and bibliographic information. All passwords and encryption must be removed from electronic documents prior to production. Note that the following apply to both attachments of files to email or other items and loose native files:

1. *Spreadsheets:* Spreadsheets should be produced in native format (e.g., as .XLSX files), with searchable text for the entire document, metadata, and bibliographic information. Provide only a single image of the first page of the spreadsheet or provide a single placeholder image. The placeholder image must contain at a minimum the BEGDOC#, FILENAME, and FILEPATH. The Identification range for a spreadsheet should be a single number (e.g., ABC-JD-00000001 – ABC- JD-00000001). The linked native file name should match the BEGDOC#/DOCID with the appropriate file extension.
2. *Presentations:* Presentations should be produced in full slide image format along with speaker notes (which should follow the full images of the slides) with related searchable text, metadata, bibliographic information, and linked native file. Presentations should also be produced in native format (e.g., as .PPT files). The linked native file name should match the BEGDOC#/DOCID with the appropriate file extension.
3. *Hidden Text:* All hidden text (e.g., track changes, hidden columns, hidden slides, mark-ups, notes) shall be expanded and rendered in the extracted text file. For files that cannot be expanded, linked native files shall be produced with the image files.
4. *Embedded Files:* All embedded objects (e.g., graphical files, Word documents, Excel spreadsheets, .wav files) that are found within a file shall be produced so as to maintain the integrity of the source document as a single document. For purposes of production, the embedded files shall remain embedded as part of the original source document. Hyperlinked files must be produced as separate, attached documents upon request. Any objects that cannot be rendered to images and extracted text (e.g., .wav, .avi files) must be produced as separate extracted files with linked native files and placeholder images and be treated as attachments to the original file.
5. *Image-Only Files:* All image-only files (non-searchable PDFs, multi-page TIFFs, Snipping Tool screenshots, etc., as well as all other images that contain text) shall be produced with associated OCR text, metadata, and bibliographic information.
6. *Proprietary File Types and Non-PC or Non-Windows Based Systems:* Proprietary file types, such as those generated by financial or graphic design software, should be discussed with

Commission staff in advance of production to determine the optimal format of production. Also, file types from non-PC or non-Windows based systems (e.g., Apple, UNIX, LINUX systems), should be discussed with Commission staff in advance of production to determine the optimal format of production.

7. *Archive File Types:* Archive file types (e.g., .zip, .rar) must be uncompressed for processing. Each file contained within an archive file should be produced as a child to the parent archive file. If the archive file is itself an attachment, that parent/child relationship must also be preserved.
8. *Processing Errors:* The text of the placeholder image should also be contained in the searchable text of the document in the event of uncorrectable processing errors.

C. Hard-Copy (or Paper) Documents

Hard-copy documents are to be produced as black-and-white image files, except where noted below, with related searchable OCR text and bibliographic information. Special attention should be paid to ensure that hard-copy documents are produced as they are kept, reflecting attachment relationships between documents and information about the file folders within which each document is found. In addition, multi-page documents must be produced as single documents (i.e., properly unitized) and not as several single-page documents. Where color is required to interpret the document, such as hard copy photos, and certain charts, that image must be produced in color. These color images are to be produced as .jpg format. Hard-copy photographs should be produced as color .jpg format files, if originally in color, or black-and-white .tif files if originally in black-and-white.

D. Shared Resources

Shared Resources should be produced as separate custodians if responsive custodians have access to them or if they contain responsive documents. The name of the group having access would be used as the custodian name, i.e., Marketing Execs or Accounting Dept. The Company will separately provide a brief description of each shared resource that includes a list of the custodians who have access.

E. Database Productions

Production of enterprise databases are not addressed in these specifications and must be discussed with the appropriate government legal and technical staff to determine the optimal production format; these will usually fall outside the scope of an image-based production. Care must be taken to ensure that all responsive databases and their metadata are preserved.

F. Audio/Video Data

These specifications do not address the production of audio/video data. Care must be taken to ensure that all responsive audio/video data and their metadata are preserved. These data types may be stored in audio or video recordings, voicemail text messaging, and related/similar technologies. However, such data, logs, metadata, or other files related thereto, as well as other less common but similar data types, should only be produced after consultation with and consent of Commission staff as to the format for the production of such data.

G. Foreign-Language Materials

Foreign language materials should be produced after consultation with Commission staff.

II. DE-DUPLICATION

Before doing any de-duplication, provide Commission staff with a written description of the method used to de-duplicate (including which elements are compared and what hash codes are used), and what is considered a duplicate. Then confirm that your approach is acceptable to the Commission. The Commission does not allow de-duplication of hard-copy documents, or that of "loose" electronic documents (e.g., presentation slides located on the custodian's C: drive) against email attachment versions of those same documents. The integrity of any produced email and any related "document family" must be maintained except as limited by any claim of privilege. Email attachments may not be deduplicated against attachments in other email families. De-duplication should occur both vertically within each custodian and horizontally across custodians. Vertical de-duplication is crucial when a production includes electronic documents from back-up tapes. Horizontal de-duplication must be done in a way that preserves (and produces) information on blind copy (Bcc) recipients of emails and other custodians whose files contain the duplicates that will be eliminated from the production as well as original filepath and mailbox folder information.

Custodian Append File. A Custodian Append file is to be produced when de-duplicating ACROSS custodians (i.e., horizontal de-duplication) and data is produced on a rolling basis. The file must be provided on an incremental basis starting with the second submission; as more custodians are discovered for previously produced documents, this file is updated with only the new custodian information. The Custodian Append File is a four-field delimited file consisting of the DOCIDs of the previously delivered document, the new custodian names, the Filepath(s) prepended with Custodian Name (multi-entry), and the FolderLabel(s) prepended with Custodian name (multi-entry) for the duplicates of those records that would otherwise have been produced in the subsequent (new) submissions.

These specifications do not allow for near de-duplication or email threading. These forms of de-duplication must be discussed separately with Commission staff and consent obtained prior to the use of such techniques for production.

III. DOCUMENT NUMBERING

Documents must be uniquely and sequentially numbered across the entire production, with an endorsement burned into each image. Each number shall be of a consistent length, include leading zeros in the number, and unique for each produced page. Numbers should contain no more than three segments connected by a hyphen. The leading segment must be the Company identifier, a middle segment identifying the custodian, and a sequential page counter with connecting hyphens (e.g., ABCCO-CEO-0000001). The number of digits in the numeric portion of the format should not change in subsequent productions, nor should spaces, hyphens, or other separators be added or deleted. Under no circumstances should Identification numbers contain embedded spaces, slashes (/), backslashes (\), carats (^), underscores (_), ampersands (&), hash marks (#), plus signs (+), percent signs (%), dollar signs (\$), exclamation marks (!), pipes (|), any character used as a delimiter in the metadata load files, or any character not allowed in Windows file-naming convention (, \ / : * ? " < > | ~ @ ^).

IV. PRIVILEGE DESIGNATIONS

Documents redacted pursuant to any claim of privilege will be designated "Redacted" in the EPROPERTIES field as described in the Metadata Table. Appropriately redacted searchable text (OCR of the redacted images is acceptable), metadata, and bibliographic information must also be provided.

All documents that are part of a document family that includes a document withheld pursuant to any claim of privilege will be designated "Family Member of Privileged Doc" in the EPROPERTIES field as described in the Metadata Fields table for all other documents in its family. Placeholder images

with BEGDOC#, FILENAME, FILEPATH and reason withheld (e.g., “Privileged”) should be provided in place of the document images of the privileged document.

V. SAMPLE

Before beginning production, a sample production covering files of all types, including emails with attachments, loose files including spreadsheets and presentations, redacted documents, etc., should be provided, as directed by Commission staff. The sample size should be between 500 to 1000 records to be large enough to be representative and small enough to review quickly. The Commission will take a few business days to evaluate the sample and provide feedback. If there are any problems, corrected samples will need to be resubmitted until the Commission can confirm the problems are resolved.

VI. LOAD FILE SET/VOLUME CONFIGURATION

Each production must have a unique MEDIAID name associated with it. This MEDIAID name must also appear on the physical label. The MEDIAID naming scheme should start with a 2 or 3 letter prefix identifying the Company followed by a 3-digit counter (e.g., ABC001). Each separate volume delivered on that media must also have a separate VOLUMENAME associated with it. On the root of the media, the top-level folder(s) must be named for the volume(s). VOLUMENAME(s) should also be indicated on the physical label of the media. The volume naming scheme should be based on the MEDIAID name followed by a hyphen, followed by a 3-digit counter (e.g., ABC001-001). Load file volumes should be as large as practical but not contain more than 100,000 records each. The VOLUMENAME should increase sequentially across all productions on the same MEDIAID.

Under the VOLUMENAME folder, the production should be organized in 4 subfolders:

1. DOCLINK (contains linked native files, may contain subfolders, with no more than 5,000 files per folder)
2. IMAGES (may contain subfolders, with no more than 5,000 image files per folder)
3. FULLTEXT (may contain subfolders, with no more than 5,000 document-level text files per folder)
4. LOADFILES (should contain the metadata, DII, OPT, LST, and custodian append files)

VII. DELIVERABLES

A submission index spreadsheet must be delivered with each submission and should provide statistical information about the volume(s) and media produced. Provide this in hard copy format and electronically on the deliverable media. A sample is included in this PDF.

It is expected that all productions will conform to the structure of the final, approved sample production. Any changes to production procedures that alter output format will require prior submission of another sample production as outlined in Section 5. Sample.

The Commission accepts electronic productions loaded onto hard drives, CD-ROMs, or DVD-ROMs; however, production on hard drives minimizes costs and delay and is preferable. Where the size of the production exceeds the capacity of a single DVD-ROM, hard drives should be used as the delivery medium. For each piece of media, a unique identifier (MEDIAID) must be provided and must be physically visible *on the exterior* of the physical item.

If the media is encrypted, supply the tool for decryption on or with the same media, as well as instructions for decryption. Provide the password separately.

All documents produced in electronic format shall be scanned for, and free of, viruses. The Commission will return any infected media for replacement, which may affect the timing of the Company’s compliance with this Information Request.

The Commission does not accept load file productions via email or those that are posted on download sites (e.g., FTP, secure server).

The Commission recognizes that occasionally unforeseen issues will arise that require replacing documents or data from a previously delivered production with new documents or corrected data. Substantive corrections may require the reproduction of the entire production volume. The production format for all corrections must be agreed upon prior to any submission of corrections. Any productions that have been created but not delivered when the need for corrections is detected must be corrected prior to delivery. Each replacement or corrected production must be named based on the production volume that is being replaced or corrected. For example, if a corrected metadata file replaces data in the previously delivered volume ABC-001-001 then the file name ABC-001-001-fix.txt should be used. Replacement document image file names, likewise, must be labeled with the same Identification number as the image being replaced. A separate correcting file is required for each volume to be corrected. These replacement or corrected productions must be delivered on separate media from any new productions. In the event that corrections alter the statistical information previously reported in the cover letter spreadsheet, an updated submission index spreadsheet with the corrected final statistical information must accompany each replacement or corrected submission. Provide this in hard copy format and electronically on the deliverable media.

METADATA TABLE OF REQUESTED FIELDS

Review carefully as fields may have been added or modified from the Commission's last set of specifications.

Field Name	Field Description	Field Type	Hard-Copy	Email	Other ESI	Calendar Items
COMPANIES	Company submitting data	Multi-Entry	X	X	X	X
MEDIAID	The unique identifier on the physical piece of media (e.g., ABC001)	Note Text	X	X	X	X
VOLUMENAME	Production volume number (e.g., ABC001-001)	Note Text	X	X	X	X
CUSTODIAN	Custodian(s) / source(s) -- format: <i>Last, First</i> or <i>ABC Dept.</i> Be consistent across all ESI sources/productions.	Multi-Entry	X	X	X	X
TIMEZONE	The TimeZone in which the custodian is located.	Note Text		X	X	X
SPEC#	Subpoena/request paragraph number to which the document is responsive	Multi-Entry	X	X	X	X
HASHMD5	Document MD5 hash value (used for deduplication or other processing)	Note Text		X	X	X
HASHSHA	Document SHA1 hash value (used for deduplication or other processing)	Note Text		X	X	X
SEARCHVALUES	List of search terms used to identify record as responsive (if used)	Multi-Entry	X	X	X	X
BEGDOC#	Start Identification number (including prefix) -- No spaces or special characters	Note Text	X	X	X	X
ENDDOC#	End Identification number (including prefix) -- No spaces or special characters	Note Text	X	X	X	X
DOCID	Must equal the value appearing in the BEGDOC# field and be UNIQUE	Note Text	X	X	X	X
NUMPAGES	Page count	Integer	X	X	X	X
PARENTID	Parent record's BEGDOC#, including prefix (populated ONLY in child records)	Note Text	X	X	X	X
ATTACHMENTIDS	Child document list: BEGDOC# of each child (populated ONLY in parent records)	Multi-Entry	X	X	X	X
FAMILYRANGE	Range of the BEGDOC# value of the parent record to the ENDDOC# value (including prefix) of the last child record (for example, ABC-JD-00001201 - ABC-JD-00001220); populated for all documents in the group. Empty if the record is NOT in family grouping	Note Text	X	X	X	X
EPROPERTIES	Indicate all that apply: <u>Record Type:</u> E-Doc, E-Doc Attachment, Email, Email Attachment, Hard Copy, Calendar Appt <u>Other Notations:</u> Translation of [DOCID of original], Translated as [DOCID of Translation] <u>Privilege Notations:</u> Redacted, Privileged, Family Member of Priv Doc	Multi-Entry	X	X	X	X
FOLDERLABEL	Email folder path (sample: Smith,James-Inbox\Active); or Hard Copy folder/binder title/label prepended with Custodian Name.	Multi-Entry	X	X		X
FROM	Author of the Email or Calendar item (as formatted on the original)	Note Text		X		X
TO	Recipients of the Email or Calendar Item (as formatted on the original)	Multi-Entry		X		X
CC	Names of the individuals who were copied on the Email or Calendar Item (as formatted on the original)	Multi-Entry		X		X
BCC	Names of the individuals who were blind-copied on the Email or Calendar Item (as formatted on the original)	Multi-Entry		X		X
SUBJECT	Email or calendar subject	Note Text		X		X
DATE_HC	Date of hard copy documents, if coded. Format: YYYYMMDD.	Date	X			
DOCDATE	This is a multipurpose date field. Populate with: DATESAVED for E-Docs; DATESENT for Emails; DATEAPPTSTART for calendar appointments; DATE_HC for hard copy documents, if available. Format: YYYYMMDD.	Date	X	X	X	X
DATECREATED	Date electronic file was created. Format: YYYYMMDD.	Date			X	
DATESENT	Date the Email or Calendar Item was sent. Format: YYYYMMDD.	Date		X		X
TIMESENT	Time Email or Calendar Item was sent -- Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; timezone indicators cannot be included)	Time		X		X
DATERECEIVED	Date Email or Calendar Item was received. Format: YYYYMMDD.	Date		X		X
TIMERECEIVED	Time Email or Calendar Item was received. Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; timezone indicators cannot be included)	Time		X		X
HEADER	The internet header information for Email sent through the internet;	Note Text		X		
INTERNETMSGID	Globally unique identifier for a message which typically includes messageid and a domain name. Example: <0E6648D558F338179524D555@m1p.innovy.net	Note Text		X		X

MESSAGEID	Unique system identification number for the e-mail message assigned by the proprietary email database/mailstore/post office file associated with centrally managed enterprise email servers. EntryID for Microsoft Outlook, the UniqueID (UNID) for Lotus Notes, or equivalent value for other proprietary mailstore formats.	Note Text		X		X
INREPLYTOID	Internet message ID of the Email replied to	Note Text		X		
CONVERSATIONINDEX	Email Thread Identification	Note Text		X		X
IMPORTANCE	Email flag indicating priority level set for message	Note Text		X		X
DELIVRECEIPT	Delivery receipt request notification for Email messages	Note Text		X		X

An "X" indicates that the field should be populated in the load file produced. "Other ESI" includes non-email files, such as, but not limited to MS Office files, WordPerfect files, etc.

