

PUBLIC

Before the CALIFORNIA PUBLIC UTILITIES COMMISSION

In the Matter of the Joint Application of
Sprint Communications Company L.P.
(U-5112) and T-Mobile USA, Inc., a Delaware
Corporation, For Approval of Transfer of
Control of Sprint Communications Company
L.P. Pursuant to California Public Utilities
Code Section 854(a).

Application 18-07-011

And Related Matter.

Application 18-07-012

Reply Testimony

of

LEE L. SELWYN

on behalf of the

Public Advocates Office
at the California Public Utilities Commission

November 22, 2019

SUPPLEMENTAL REBUTTAL DECLARATION OF LEE L. SELWYN

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REPLY TESTIMONY OF LEE L. SELWYN

1 I, Lee L. Selwyn, declare as follows:

2
3 I.

4 INTRODUCTION

5
6 1. I am the same Lee L. Selwyn who submitted direct and supplemental testimony in this
7 proceeding on January 7, 2019 and April 26, 2019, respectively. The purpose of my additional
8 testimony at this time is to address and respond to certain documents that were received into the
9 record pursuant to the August 27, 2019 *Administrative Law Judge's Ruling Re-opening Record*
10 *to Take Additional Evidence and Directing Joint Applicants to Amend Application (A.)*
11 *18-07-012* and the additional testimony filed by Sprint and T-Mobile (the "Joint Applicants")
12 and by DISH Network, Inc. on November 7, 2019 pursuant to the October 24, 2019 *Assigned*
13 *Commissioner's Amended Scoping Ruling*.

14
15 2. On July 26, 2019, the Joint Applicants filed a Motion to advise the California Public
16 Utilities Commission ("Commission") of the terms of a proposed consent decree (the "Proposed
17 Final Judgment") and related Stipulation and Order (Stipulation & Order) that had been filed by
18 the US Department of Justice (DOJ) that same day in the US District Court for the District of
19 Columbia.¹ Attached to the Joint Applicants' Motion were three documents – (1) the aforesaid
20 *Proposed Final Judgment*; (2) the proposed Stipulation & Order; and (3) an Asset Purchase
21 Agreement among T-Mobile US, Inc., Sprint Corporation and DISH Network Corporation dated

1. *Motion of Joint Applicants to Advise the Commission of Doj Proposed Final Judgment*, July 26, 2019; *United States of America et al., v. Deutsche Telekom AG, T-Mobile US, Inc., SoftbankGroup Corp., Sprint Corporation, and DISH Network Corporation*, DDC, Civil Action No. 1:19-cv-02232-TJK.

1 as of July 26, 2019 and filed with the Securities and Exchange Commission as an exhibit to
2 T-Mobile’s July 26, 2019 Form 8-K. On August 27, 2019, the Administrative Law Judge issued
3 a *Ruling Re-opening Record to Take Additional Evidence and Directing Joint Applicants to*
4 *Amend Application (A.) 18-07-012*. Finding that “the three documents appear to fundamentally
5 change the Transaction,” the ALJ re-opened the record in this proceeding for the purpose of
6 admitting the three documents and “to provide other parties with an opportunity for comment.”²
7 The October 24, 2019 *Assigned Commission’s Amended Scoping Ruling* expanded the scope of
8 this proceeding to include eight (8) additional questions/issues to be addressed by the Joint
9 Applicants and DISH, and to which intervenors were afforded this opportunity to respond.

10

11 3. In this testimony, I supplement and revise my prior testimony pertaining to Issue 1 as
12 identified in the October 4, 2018 *Amended Assigned Commissioner’s Scoping Memo and Ruling*
13 as well as responding to Issues 1 and 7 as specified in the October 24, 2019 *Assigned*
14 *Commissioner’s Amended Scoping Ruling*:

15

16 October 4, 2018 *Amended Assigned Commissioner’s Scoping Memo and Ruling*

17 -

18 ISSUE 1. How would the merger impact competition for services currently provided by
19 Sprint or T-Mobile in any metropolitan area or other geographically distinct market?

20

21 October 24, 2019 *Assigned Commissioner’s Amended Scoping Ruling*

22

23 ISSUE 1: What changes are required to previously submitted written or oral witness
24 testimony resulting from Sprint, T-Mobile or DISH Network entering into the DOJ and
25 FCC Commitments? The changes must be identified in new testimony from the same
26 witness who submitted the original testimony.

2. ALJ August 27, 2019 *Ruling*, at 5-6.

- 1 ISSUE 3: What are Dish Network's California service obligations?
2
3 ISSUE 4: How does the proposed transfer of spectrum to Dish Network impact the
4 quality and extent of New T-Mobile's existing 4G network and its planned 5G network?
5
6 ISSUE 5: How does the divestiture of Sprint, Boost and Virgin pre-paid businesses
7 impact California customers who are currently receiving services from one or another
8 of these providers?
9
10 ISSUE 6: How does the requirement that New T-Mobile make its network available to
11 Dish Network for up to seven years impact the quality and extent of New T-Mobile's
12 existing 4G network and its planned 5G network?
13
14 ISSUE 7: In what other ways, if any, could the DOJ and FCC commitments change the
15 benefits that applicants have claimed California customers will receive from the
16 proposed transaction?
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II.

THE DoJ *COMPLAINT* AND THE *PROPOSED FINAL JUDGMENT*

The principal factual dispute that this testimony addresses is the ability of DISH Network Corporation to actually become the competitively viable fourth national facilities-based retail wireless carrier that the US Department of Justice has determined to be a critical element of the proposed Consent Decree in overcoming the serious anticompetitive harms that the DoJ has attributed to the proposed Sprint/T-Mobile merger.

4. On July 26, 2019, the United States Department of Justice (“DoJ”) together with five state Attorneys General (Kansas, Nebraska, Ohio, Oklahoma and South Dakota) jointly filed a *Complaint* in the United States District Court for the District of Columbia alleging, *inter alia*, with respect to the mobile wireless telecommunications market, that:

2. Competition has kept mobile wireless service prices down and served as a catalyst for innovation. *Preserving this competition is critical to ensuring that consumers will continue to have reasonable and affordable access to an essential service that, for many, serves as a gateway to the modern economy.*

3. By combining two of the only four national mobile facilities-based wireless carriers, *without appropriate remedies, the merger of T-Mobile and Sprint would extinguish substantial competition.*

4. As the nation’s third and fourth largest mobile wireless carriers, T-Mobile and Sprint have positioned themselves as challengers to Verizon and AT&T, their larger and more expensive rivals, targeting retail customers who particularly value affordability. Some of these customers purchase mobile wireless service on a postpaid basis and are billed monthly after receiving service. Others, including those who may lack ready access to credit, purchase prepaid mobile wireless service and pay for service in advance of using it.

5. *The merger would eliminate Sprint as an independent competitor, reducing the number of national facilities-based mobile wireless carriers from*

1 *four to three.* The merger would cause the merged T-Mobile and Sprint (“New
2 T-Mobile”) to compete less aggressively. Additionally, *the merger likely*
3 *would make it easier for the three remaining national facilities-based mobile*
4 *wireless carriers to coordinate their pricing, promotions, and service*
5 *offerings. The result would be increased prices and less attractive service*
6 *offerings for American consumers, who collectively would pay billions of*
7 *dollars more each year for mobile wireless service.*³
8

9 Having concluded that “the merger of T-Mobile and Sprint likely would substantially lessen
10 competition for retail mobile wireless service,” the DoJ asked the Court to “permanently enjoin
11 the proposed transaction.”⁴
12

13 5. Concurrently with the filing of their *Complaint*, the DoJ and the five state Attorneys
14 General, together with the Joint Applicants Sprint and T-Mobile, and DISH Network
15 Corporation, also filed their *Proposed Final Judgment and Stipulation and Order* setting forth
16 certain conditions that would settle the case, cause the DoJ’s *Complaint*, to be withdrawn, and
17 permit the merger to go forward subject to certain specified terms and conditions. Under a
18 procedure known as a “Consent Decree,” the Department of Justice and the parties agree to
19 certain measures that, if fully complied with, are expected and intended to effectively offset and
20 overcome the various anticompetitive harms enumerated in the *Complaint*. The Consent Decree
21 here is intended to restore a fourth nationwide facilities-based wireless carrier to the retail and
22 wholesale mobile wireless market by requiring that Sprint divest certain spectrum and other
23 assets, together with nearly all of its prepaid customers and associated retail prepaid business, to

3. *Id.*, *Complaint*, July 26, 2019, at paras. 2-5, emphasis supplied.

4. *Id.*, at para. 6.

1 DISH Network Corporation, that the post-merger New T-Mobile (“NTM”) make certain accom-
2 modations to DISH with respect to the provision of wholesale services that would permit DISH
3 to operate as a Full Mobile Virtual Network Operator (“MVNO”), all of which are intended to
4 enable DISH to establish itself as a viable facilities-based mobile services competitor that is
5 capable of providing substantive competitive discipline to the remaining three national facilities-
6 based Mobile Network Operators (MNOs) – New T-Mobile, Verizon, and AT&T.

7

8 6. Under the Antitrust Procedures and Penalties Act, 15 U.S.C. § 16(b)-(h) (the “APPA”),
9 which applies to civil antitrust cases brought and settled by the United States, parties may submit
10 comments on the proposed settlement to the Department of Justice and the Court. Meanwhile,
11 back on June 11, 2019, sixteen state Attorneys General, including California Attorney General
12 Xavier Becerra, filed a lawsuit in the US District Court for the Southern District of New York to
13 block the merger.⁵ In their *Complaint*, California and the other fifteen states allege, *inter alia*,
14 that

15

16 The combined market share of Sprint and T-Mobile would result in an increase
17 in market concentration that significantly exceeds the thresholds at which
18 mergers are presumed to violate the antitrust laws” and that “[t]his increased
19 market concentration will result in diminished competition, higher prices, and
20 reduced quality and innovation. This increase in market concentration does
21 not reflect fully the harm to competition that would result from the proposed
22 transaction. Sprint and T-Mobile are close competitors. Direct competition
23 between Sprint and T-Mobile has led to lower prices, higher quality service,

5. *States of New York, California, et al, Plaintiffs, v. Deutsche Telekom AG, T-mobile US, Inc., Sprint Corporation, and Softbank Group Corp., Defendants*, US District Court for the southern District of New York, Case No. 1:19-cv-5434-VM-RWL, filed June 11, 2019.

1 and more features for consumers. If consummated, the merger will eliminate
2 the competition between Sprint and T-Mobile and will increase the ability of
3 the three remaining MNOs to coordinate on pricing.⁶
4

5 Unlike the DoJ, the state AGs have not offered the equivalent of a Consent Decree that would
6 settle their case, nor have these states accepted the notion that the proposed asset and customer
7 divestitures to DISH would work to eliminate the anticompetitive effects of the Sprint/T-Mobile
8 merger.⁷
9

10 7. In support of its Consent Decree (the *Proposed Final Judgment* or “PFJ”), the
11 Department of Justice also submitted, on the same July 26, 2019 date, its “Competitive Impact
12 Statement” setting forth the basis for its determination that the “Stipulation and Order and
13 proposed Final Judgment ... are designed to preserve competition by enabling the entry of
14 another national facilities-based mobile wireless network carrier.”⁸
15

16 The primary purpose of the proposed Final Judgment is to facilitate DISH
17 building and operating its own mobile wireless services network by combining
18 the Divestiture Package of assets and other relief with DISH’s existing mobile
19 wireless assets, including substantial and currently unused spectrum holdings,
20 to enable it to compete in the marketplace. The proposed Final Judgment thus

6. *Id.*, *Complaint*, at paras. 5=6.

7. On October 22, 2019, the State of Colorado announced that it was withdrawing from the SDNY lawsuit. According to Fierce Wireless, “Apparently, Colorado’s attorney general was enticed by promises made by T-Mobile and DISH Network. T-Mobile promised to heavily deploy 5G across Colorado. And DISH Network, already a big employer in the state, has promised to add 2,000 more jobs as it builds out a greenfield 5G network.” “T-Mobile, DISH entice Colorado to drop its merger opposition,” Fierce Wireless Report, October 22, 2019, available at <https://www.fiercewireless.com/operators/t-mobile-dish-entice-colorado-to-drop-its-merger-opposition> (accessed 11/7/19). The remaining 15 states are still active parties in the case.

8. *Competitive Impact Statement*, at 2.

1 obligates DISH to build out its own mobile wireless services network and offer
2 retail mobile wireless service to American consumers. DISH's long-term
3 build out of a new network, along with the short-term requirement that DISH
4 and T-Mobile negotiate a lease for DISH's currently unused 600 MHz
5 spectrum, promise to increase output and put currently fallow spectrum into
6 use by American consumers. The required Divestiture Package and related
7 obligations in the proposed Final Judgment are intended to ensure that DISH
8 can begin to offer competitive services *and grow to replace Sprint as an*
9 *independent and vigorous competitor in the retail mobile wireless service*
10 *market in which the proposed merger would otherwise lessen competition.*
11 Further, the proposed Final Judgment would allow the potential benefits of the
12 merger to be realized, including expanding American consumers' access to
13 high quality networks.⁹

14
15 8. The remedy embodied in the PFJ is the creation of a fourth national retail facilities-based
16 carrier that would be expected to *replace Sprint* and in so doing retain a four-firm retail wireless
17 market. DISH's ability to fulfill the role envisioned for it – that of a competitively viable fourth
18 national facilities-based retail MNO – is *critical* to the ability of the settlement being sponsored
19 by the DoJ to overcome the serious anticompetitive consequences of the elimination of Sprint as
20 a competitor in this market, *and is one of the principal disputed facts before the CPUC in this*
21 *proceeding.* If DISH cannot or, for whatever reason, does not become this fourth viable MNO,
22 then the market will consist of only three competitors, and the Consent Decree will have failed to
23 overcome the specific negative consequences of the merger that the DoJ has some forcefully
24 articulated.

9. *Id.*, at 2-3.

1 **Neither DISH nor the Joint Applicants have offered any substantive evidence that the**
2 **proposed divestitures of prepaid customers and the delayed divestitures of other assets to**
3 **DISH will enable DISH to become an effective competitor in the national 5G wireless**
4 **services market.**
5

6 9. As I shall discuss in detail in Section III of this testimony, there is in fact serious doubt
7 both as to the sufficiency of the proposed divestitures to DISH to enable it to effectively replace
8 Sprint as a fourth national MNO, as well as to DISH's own financial and technical ability to
9 fulfill the competitive role that the Department of Justice has envisioned for it. This conclusion
10 is based upon the following facts and observations:

11

12 (1) DISH began acquiring Commercial Mobile Radio Service (CMRS) licenses in 2008, when
13 the company "paid \$712 million to acquire certain 700 MHz wireless spectrum licenses,
14 which were granted to [it] by the FCC in February 2009."¹⁰

15

16 (2) Between December 31, 2007 and September 30, 2019, DISH's Consolidated Balance Sheet
17 entry for the Long Term Asset "FCC Authorizations" increased by \$24.7-billion, from
18 \$845-million as of December 31, 2007 to \$25.5-billion as of September 30, 2019.¹¹ While
19 some of these licenses were associated with DISH's Direct Broadcast Satellite ("DBS")

10. DISH 2014 Form 10-K, at 40.

11. DISH 2007 through 2018 Form 10-Ks, DISH Form 10-Q for the period ending September 30, 2019.

1 satellite TV business, the vast majority – at least \$24.5-billion (including capitalized
2 interest) – represent CMRS spectrum licenses acquired by DISH and by its affiliates.¹²

3
4 (3) Despite these massive investments in wireless spectrum licenses that have spanned more
5 than a decade, DISH has neither constructed an operational wireless network nor has it
6 commenced offering any wireless services utilizing this spectrum. Moreover, if DISH does
7 not begin to utilize its licensed spectrum to provide service within a short period of time, it
8 risks forfeiture of these licenses back to the FCC.

9
10 (4) Of the four categories of assets that are to be divested by the Joint Applicants and acquired
11 by DISH under the terms of the PFJ – Sprint’s Prepaid Customers, Sprint’s 800 MHz
12 spectrum, decommissioned retail stores, and decommissioned cell sites – only the Prepaid
13 Customers are to be turned over to DISH immediately following entry of the court order.
14 Depending upon the specific category of asset, DISH would not obtain control of these other
15 assets from New T-Mobile for between three and five years following the date of the court
16 order.

17
18 (5) In testimony submitted by DISH on November 7, 2019 in response to the *Amended Scoping*
19 *Ruling*, DISH has offered no facts or other basis for the Commission to conclude that
20 whatever conditions have thus far prevented DISH from building out a wireless network are
21 materially altered by its largely delayed acquisition of spectrum, cell sites and retail

12. DISH 2018 Form 10-K, at 1.

1 locations that are being essentially discarded by the Joint Applicants and whose loss the
2 Joint Applicants have testified will have no consequential impact upon their own ability to
3 successfully construct and operate their nationwide 5G network.

4
5 10. In my January 7, 2019 testimony in this proceeding, I provided specific calculations of
6 the effect that the proposed merger of Sprint and T-Mobile would have on market concentration,
7 as quantitatively measured by the Herfindahl-Hirschman Index (HHI). Based upon 2016
8 revenues, I calculated the change in HHI (at an industry-wide level) going from four firms pre-
9 merger to three post-merger. I found that the HHI will increase from its pre-merger level of
10 2843 to a post-merger HHI of 3257, an increase of 414, which is well in excess of the *Horizontal*
11 *Merger Guidelines*' (HMG's) 200-point threshold. I also made separate HHI calculations for
12 each of the 58 California counties, and found that, for many of them, the merger-driven increase
13 in the HHI will far exceed the apparent HHI change at an industry-wide level. I have now
14 redone these HHI calculations to account for the potential entry of DISH as a fourth wireless
15 carrier. Because DISH has no customers nor revenues at this time and its potential market share
16 and revenue levels going forward cannot be known, an industry-wide revenue share-based HHI
17 calculation is problematic at best. The county level HHIs that I presented in my January 7
18 testimony were based upon *spectrum* shares, and I have been able to recalculate these county
19 HHIs using the amount of spectrum that DISH currently controls together with the additional
20 13.5 MHz of 800 MHz spectrum that it will have the option to acquire after three years. As I
21 show in Section III of this testimony, DISH will control so small a share of the California
22 wireless market that the post-merger HHIs including DISH are not materially different than the

1 post-merger HHIs without DISH. Thus, even if DISH actually succeeds in building out its 5G
2 network and meeting the various deployment commitments it has made to the DoJ and to the
3 FCC, the HHI with DISH will be higher than the pre-merger HHI with the existing four firms.
4 Thus the entry of DISH will 43.62

5 11. not be sufficient to overcome the large increase in market concentration that will surely
6 emerge if the Sprint/T-Mobile merger is allowed to go forward.

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III.

DISH'S POTENTIAL TO BECOME
THE FOURTH FACILITIES-BASED WIRELESS CARRIER

The ability of DISH to assume the role of a commercially viable fourth retail facilities-based national mobile wireless competitor is uncertain at best, and will present financial and other challenges that will be difficult or impossible for DISH to overcome.

12. DISH Network Corporation's current and primary business activities is that of a provider of direct broadcast satellite ("DBS") pay TV services. DISH's predecessor company, EchoStar, began providing DBS service in 1996. DISH is one of the two principal US DBS pay television service providers. Its principal competitor is DirecTV, which was acquired by AT&T in 2014. The two satellite TV providers compete with each other and with one or more landline cable TV operators and local telephone company broadband services in each geographic market area. The satellite and cable TV providers offer what is generally referred to as "linear" pay-TV services, in that programs are broadcast sequentially on each of the various channels at specified times; viewers must either watch their desired programs at the specified broadcast dates/times, or use a digital video records ("DVR") to "time-shift" the broadcast to a more convenient time.

13. The entry and growth of broadband Internet access has presented serious competitive challenges to these linear video service providers. So-called "streaming" video services like Netflix, Hulu, Amazon Prime, the new Apple TV+ and the new Disney+, among others, offer consumers a "video on demand" ("VoD") alternative to linear video services. Not only can programs, movies, and other content be viewed at times that are at the discretion of the viewer,

1 the range of content that is available from streaming services is orders-of-magnitude greater than
2 what can be offered over the limited channel capacity of the linear video services. Almost all of
3 the video content that had previously been controlled by the linear cable and satellite services
4 can now be obtained over the Internet. Moreover, whereas consumers had been required to
5 purchase “bundles” of video content in the form of multi-channel packages from the linear video
6 providers, this same content can now be obtained *a la carte* and, in some cases, at no additional
7 charge, through the various streaming services. Linear video operators had long resisted *a la*
8 *carte* pricing, but are now being forced to respond to the *a la carte* streaming competition. A
9 number of content providers and linear video services – including DISH – have themselves
10 introduced streaming services of their own.

11

12 14. This competition from streaming services has resulted in both a net loss of subscribers
13 who have chosen to “cut the cord” altogether and, for those that have remained on these services,
14 to substitute lower-priced content packages. In 2012, DISH had 14.056-million satellite TV
15 subscribers; as of September 30, 2019, its satellite TV subscriber base had dropped to 9.49-
16 million.¹³ Sometime around 2013, DISH began offering a streaming service of its own known as
17 “Sling TV.” By 2018, this “Sling TV” offering had some 2.68-million subscribers,¹⁴ thus
18 somewhat offsetting the satellite TV drop-off. But Sling TV packages are priced far lower than
19 satellite TV, so even if DISH retains the customer, it sustains a large drop in revenues from that
20 customer. However, even combining DISH’s satellite and streaming pay-TV customers, the

13. DISH Network Corporation 2014 Form 10-K, at 55; 9/30/2019 Form 10-Q, at 6.

14. DISH Network Corporation 2019 Form 10-Q, at 6.

1 2018 subscriber count was only 12.17-million, a loss of 13.4% relative to the 2012-2014 peak.
2 DISH's revenues peaked in 2015 at \$15.225-billion; by the third quarter of 2019,, annualized
3 DISH revenues had dropped by 16.22% to \$12.756-billion.¹⁵ DISH's common stock price
4 reached its high for the year at \$43.62 per share on July 23, 2019, just days before the deal with
5 Sprint and T-Mobile was announced. On November 20, 2019, DISH shares closed at 35.48, off
6 some 18% from its July 23 peak at \$43.26. Over that same period, the S&P 500 Index was *up*
7 about 3.4%. Investors do not appear to be particularly excited about the deal that DISH had
8 agreed to.

9
10 15. Cable TV providers have been largely able to overcome the erosion of demand for their
11 traditional linear video cable TV services by developing and aggressively marketing high-speed
12 broadband Internet access to the same customers. However, DISH is not in the business of
13 providing high-speed terrestrial broadband Internet access over its own wireline facilities, so the
14 erosion of demand for its satellite TV service has not been so easily replaced.

15
16 16. DISH has had its sights on the mobile wireless market for some time. Beginning
17 around 2008, the company began acquiring spectrum licenses through direct purchases via FCC
18 spectrum auctions.¹⁶ Over the years since 2008, DISH has made a number of spectrum

15. *Id.*, at 2. Revenues for the nine months ending 9/30/2019 were \$9.427-billion, annualized by multiplying this by 4/3.

16. DISH F2018 Form 10-K, at 18. "We have directly invested over \$11 billion to acquire certain wireless spectrum licenses and related assets." In 2008, DISH paid \$712-million to acquire certain 700 MHz E Block licenses. In 2012, DISH paid approximately \$2.860-billion to acquire several companies holding 40 MHz of midband spectrum (2000-2040 MHz). in 2014, DISH paid approximately \$1.672 billion to acquire these H Block
(continued...)

1 acquisitions both directly and via affiliates. All of these are reflected on DISH’s Consolidated
 2 Balance Sheets as provided in its Annual and Quarterly SEC filings. Table 1 provides a
 3 compilation of the various FCC licenses now held by DISH.

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Table 1		
DISH NETWORK CORPORATION FCC SPECTRUM LICENSE ACQUISITIONS 2008 THROUGH 3Q2019 (\$000)		
Spectrum band	Year	Purchase price
DBS Licenses	pre-2007	\$ 611,794
700 MHz	2008	712,000
MVDOS		24,000
AWS-4		1,949,000
H-Block	2014	1,671,506
AWS-3	2015	9,890,389
600 MHz	2017	6,211,154
TOTAL		21,069,843
Source: DISH Network Corp. Forms 10-K 2008 - 2018; Form 10-Q 9/30/19, Consolidated Balance Sheets		

23 17. With the exception of DISH’s Direct Broadcast Satellite licenses whose acquisition pre-
 24 dates 2008, all of the licenses purchased from 2008 onward are associated with CMRS – mobile
 25 wireless services. In addition to the \$21.07-billion that DISH has spent acquiring these mobile
 26 wireless licenses, as of September 30, 2019 DISH’s balance sheet also includes \$4.475-billion in
 27 “Capitalized Interest on FCC Authorizations” – i.e., interest payments associated with the
 28 \$20.46-billion of wireless license purchases. In fact, DISH has been capitalizing close to \$1-

16. (...continued)
 licenses, including clearance costs associated with the lower H Block spectrum. In 2017, DISH was the winning bidder for 486 licenses in the 600 MHz band with aggregate winning bids totaling approximately \$6.211 billion.

1 billion in interest on these licenses each year for the past several years. But notwithstanding
2 those massive capital outlays, as of October 31, 2019, “DISH does not currently have any mobile
3 retail wireless customers in California”¹⁷ and, as far as I am aware, anywhere else. Indeed, if
4 DISH does not commence using these licenses to provide service soon,¹⁸ it risks forfeiture. To
5 put DISH’s non-revenue-producing \$25-billion spectrum investment in perspective, at the time it
6 was being built, the English Channel Tunnel was the most expensive construction project ever
7 conceived. It cost \$21-billion.

8

9 18. DISH has described its 5G build-out plans in its 2018 Form 10-K as follows:

10

11 These wireless spectrum licenses are subject to certain interim and final
12 build-out requirements, as well as certain renewal requirements. In March
13 2017, we notified the FCC that we plan to deploy a next-generation
14 5G-capable network, focused on supporting narrowband IoT. We expect to
15 complete the First Phase by March 2020, with subsequent phases to be
16 completed thereafter. As of December 31, 2018, we had entered into vendor
17 contracts with multiple parties for, among other things, base stations, chipsets,
18 modules, tower leases, the core network, RF design, and deployment services
19 for the First Phase. Among other things, initial RF design in connection with
20 the First Phase is now complete, we have secured certain tower sites, and we
21 are in the process of identifying and securing additional tower sites. The core
22 network has been installed and commissioned. We installed the first base
23 stations on sites in 2018, and plan to continue deployment until complete. We
24 currently expect expenditures for our wireless projects to be between \$500
25 million and \$1.0 billion through 2020. We expect the Second Phase to follow
26 once the 3GPP Release 16 is standardized and as our plans for our other
27 spectrum holdings develop, we plan to upgrade and expand our network to full
28 5G to support new use cases. We currently expect expenditures for the Second

17. DISH Response to Public Advocates Data Request 2-10.

18. DISH 2018 Form 10-K, at 18-20.

1 Phase to be approximately \$10 billion. We will need to make significant
2 additional investments or partner with others to, among other things,
3 commercialize, build-out, and integrate these licenses and related assets, and
4 any additional acquired licenses and related assets; and comply with regula-
5 tions applicable to such licenses. Depending on the nature and scope of such
6 commercialization, build-out, integration efforts, and regulatory compliance,
7 any such investments or partnerships could vary significantly. In addition, as
8 we consider our options for the commercialization of our wireless spectrum,
9 we will incur significant additional expenses and will have to make significant
10 investments related to, among other things, research and development, wireless
11 testing and wireless network infrastructure. We may also determine that
12 additional wireless spectrum licenses may be required to commercialize our
13 wireless business and to compete with other wireless service providers.¹⁹
14

15 Notably, as of the date hereof (November 22, 2019), DISH is still not offering any facilities-
16 based mobile wireless services. and it does not appear that DISH will meet its stated March 2020
17 First Phase 5G target date.

18

19 **Throughout this proceeding, the Joint Applicants have repeatedly claimed that neither**
20 **Sprint nor T-Mobile, each standing alone, possesses the resources necessary to construct a**
21 **robust nationwide 5G wireless network, yet DISH is and will be far smaller than either of**
22 **these two stand-alone companies.**
23

24 19. In his January 29, 2019 Rebuttal Testimony, T-Mobile’s Executive Vice President and
25 Chief Technology Office Neville R. Ray testified that “[o]n a standalone basis, neither company
26 has enough, or the right combination of, spectrum or cell site resources to deliver the full scope
27 of 5G benefits (i.e. capacity, speed, coverage) that New T-Mobile will provide in the near term.

19. DISH Network 2018 Form 10-K, at 68.

1 New T-Mobile’s complementary spectrum portfolio will be the best starting point for 5G, with
2 spectrum across all 3 bands.”²⁰

3 20. Sprint’s Chief Commercial Officer, Brandon Dow Draper, has offered a similar notion –
4 that the 5G network that a merged Sprint and T-Mobile will be capable of deploying will be far
5 superior to what either company could achieve on its own. So how would DISH’s wireless
6 operations under the industry restructuring contemplated in the PFJ compare with those currently
7 being experienced by standalone T-Mobile or standalone Sprint? Several comparisons among
8 the three companies may be helpful here.

9

10 **Spectrum**

11

12 21. As noted, DISH currently holds some \$21.07-billion in wireless spectrum, not including
13 its capitalized interest on these acquisitions. The corresponding original cost figures for
14 spectrum held by (standalone) Sprint (as of March 31, 2019) and (standalone) T-Mobile (as of
15 December 31, 2018) were \$41.465-billion²¹ and \$35.559-billion, respectively.²² Since these
16 amounts as reported on the companies’ balance sheets represent their original acquisition cost,
17 they likely understate the current market value of the Sprint and T-Mobile spectrum holdings
18 since much of that had been acquired many years – even decades – in the past. Under the PFJ,
19 DISH will have the opportunity to acquire Sprint’s existing 800 MHz spectrum holdings for an

20. Rebuttal Testimony of Neville Ray on Behalf of T-Mobile USA, Inc., January 29, 2019 (“Ray Rebuttal”), at 14-15.

21. Sprint Corporation 2018 Form 10-K, at F-4.

22. T-Mobile 2018 Annual Report, at 57; Form 10-K, at 28

1 estimated \$3.59-billion,²³ bringing DISH's total spectrum to about \$24.66-billion. Note,
2 however, that DISH is not required to actually purchase this Sprint 800 MHz spectrum which, in
3 any event, will not be available to DISH for at least three years following the effective date of
4 the Order. Sprint currently holds approximately 13.5 MHz of 800 MHz spectrum nationwide.²⁴
5 Based upon their California spectrum holdings, DISH's existing holdings, none of which are in
6 the 800 MHz band, are around 72 MHz of total bandwidth, although this varies by geographic
7 area. Post-merger New T-Mobile will control more than 300 MHz of low- and mid-band
8 spectrum. Verizon's holdings are around 260 MHz, and AT&T's are around 250 MHz.

9
10 **Scale of operations.**

11
12 22. Every type of facilities-based telecommunications service provider – wireline and
13 wireless, voice, data and video – confronts high fixed costs. As such, all of these services are
14 subject to substantial economies of scale in their operations. A larger scale of operations enables
15 the service provider to spread its fixed costs over successively larger numbers of customers,
16 thereby achieving successively lower average costs and, as a result, increasing the firm's
17 competitiveness overall. DISH's scale of operations will necessarily be far smaller than either
18 that of pre-merger Sprint or T-Mobile, making it all the more difficult for this newly-minted
19 fourth wireless MNO to compete with the three substantially larger incumbents. Sprint is a far
20 stronger competitor in a four-firm market than DISH can possibly become.

23. Asset Purchase Agreement, at Item 1.01; DISH Response to Public Advocates Data Request 2.1..

24. DISH Response to Public Advocates Data Request 2.1.

1 23. Sprint’s total subscriber base – prepaid and postpaid – as of June 30, 2019 was 54.567-
2 million, of which 32.187-million were postpaid retail, 9.033-million were prepaid retail (which
3 appears to include lifeline customers that are not being divested), and 13.347-million were
4 “wholesale and affiliates.”²⁵ The “Asset Purchase Agreement” submitted to the SEC as part of
5 T-Mobile’s July 26, 2019 Form 8-K puts the total number of Boost Mobile, Virgin Mobile and
6 Sprint-branded prepaid customers (excluding the Assurance brand Lifeline customers and the
7 prepaid wireless customers of Shenandoah Telecommunications Company and Swiftel
8 Communications, Inc.) that are to divested to DISH at approximately 9.3 million in total,²⁶ about
9 300,000 more than the total number of retail prepaid customers disclosed on Sprint’s June 30,
10 2019 Form 10-Q. DISH, of course, had 0 subscribers as of June 30, 2019. Under the terms of
11 the PFJ, Sprint would divest its 9.033-million (or 9.3-million) prepaid subscribers to DISH,
12 which would still leave Sprint with some 45-million subscribers going into its merger with
13 T-Mobile.²⁷ Together with T-Mobile’s 84.183-million (prepaid, postpaid and wholesale)
14 customers as of September 30, 2019,²⁸ New T-Mobile’s total customer base will be in the range
15 of 130-million – *some fifteen times larger than the customer base that DISH will be serving*

25. These figures appear in Sprint June 30, 2019 2019 Form 10-Q, at 46.

26. T-Mobile Form 8-K, July 26, 2019, Asset Purchase Agreement, unnumbered page.”New T-Mobile and DISH Agreements Agreement to Divest Sprint Prepaid Businesses“

27. T-Mobile’s July 26, 2019 Form 8-K, at 93, explains that “Effective upon the successful completion of T-Mobile’s merger with Sprint, the New T-Mobile will be committed to divest Sprint’s entire prepaid businesses including Boost Mobile, Virgin Mobile and Sprint-branded prepaid customers (excluding the Assurance brand Lifeline customers and the prepaid wireless customers of Shenandoah Telecommunications Company and Swiftel Communications, Inc.), to DISH for approximately \$1.4 billion. These brands serve approximately 9.3 million customers in total.” It is unclear as to whether the 9.3-million figure refers to *all* Sprint prepaid customers or solely to the three prepaid brands that are to be divested to DISH.

28. T-Mobile US September 30, 2019 Form 10-Q, at 51.

1 *under the terms of the Proposed Final Judgment*. Note also that Sprint’s projected 2019
2 Average [monthly] Revenue per Unit (“ARPU”) associated with Sprint’s retail *prepaid* customer
3 base is considerably lower than that for its *postpaid* customers – \$32.15 vs. \$42.57.²⁹ So while
4 Sprint is to divest roughly one-fifth of its customer base, it will be divesting only about 16.8% of
5 its total retail plus wholesale service revenues³⁰ – actually less than that, since some prepaid
6 customers and revenues are to be retained. Additionally, at least until DISH is in a position to
7 migrate these prepaid customers to its own facilities-based network, a substantial portion of that
8 \$32.15 prepaid ARPU will be paid over to New T-Mobile under the Transition Services
9 Agreement (“TSA”). And even after that migration takes place, DISH will still need to enter
10 into – and pay for – various wholesale MVNO and roaming agreements with New T-Mobile and
11 other carriers in order to offer its customers nationwide coverage where DISH has no facilities-
12 based network presence. In short, if Mr. Draper’s claim – that Sprint’s scale of operations is too
13 small for it to compete successfully – is to be believed, then DISH’s scale of operations will be
14 considerably smaller – less than one-fifth that of the already too-small Sprint and around *one-*
15 *fifteenth* the size of New T-Mobile – such that the claimed disadvantages that Sprint’s (and pre-
16 merger T-Mobile’s) too-small scale engenders will be compounded for DISH.
17

29. Sprint June 30, 2019 Form 10-Q, at 46.

30. *Id.*, at 45. For the 3-months ending June 30, 2019, Sprint’s postpaid service revenues were \$4.199-billion; its prepaid revenues were \$0.843-billion; and its Affiliate, Wholesale and Other service revenues were \$0.280-billion, for Total Service Revenues of \$5.322-billion.

1 **Capital Investment (CAPEX)**
2

3 24. The PFJ contemplates that DISH will have “deployed a core network and offered 5G
4 Service to at least 20% of the U.S. population over DISH’s facilities-based network within three
5 (3) years of the closing of the divestiture of the Prepaid Assets.”³¹ As of the end of 2018, the net
6 book value of all Property and Equipment on DISH’s Consolidated Balance Sheet was \$1.928-
7 billion.³² The corresponding figure as of the end of 2017 was \$2.184-billion,³³ indicating a net
8 *disinvestment* by DISH of \$256-million.³⁴
9

10 25. DISH’s total gross Property and Equipment capital expenditures for 2018 were \$393.9-
11 million (excluding capitalized interest).³⁵ However, \$226-million of that sum was for “capital
12 expenditures for new and existing DISH TV customer equipment.”³⁶ The Form 10-K does not
13 provide any details as to what remaining amount – about \$168-million – was spent on.. Some
14 portion of it may have been used for initial development of DISH’s wireless network, but
15 inasmuch as DISH is primarily engaged in the satellite pay-TV business, it is likely that some,

31. *Proposed Final Judgment*, at 12.

32. DISH Network Corporation 2018 Form 10-K, at F-4.

33. *Id.*

34. *Disinvestment* arises when the annual depreciation and amortization accruals exceed the gross additions to the category. From DISH’s *Consolidated Statement of Cash Flows* for 2018, we learn that DISH made capital expenditures on Property and Equipment during 2018 of some \$393.9-million. Since the *net* Property and Equipment balance *decreased* by \$256-million from the end of 2017 to the end of 2018, one can infer that DISH’s took depreciation and amortization accruals in the Property and Equipment category of about \$650-million in 2018.

35. DISH Network Corporation 2018 Form 10-K, at F-8.

36. *Id.*, at 85.

1 perhaps a significant, portion of that remaining amount was not spent on wireless. In any event,
2 DISH’s 2018 gross capital expenditures on its wireless network build-out were, *at the very most*,
3 no more than about \$168-million, but more likely were well below that amount. In the first nine
4 months of 2019, DISH’s total capital expenditures on Property and Equipment (also excluding
5 capitalized interest) amounted to \$461.4-million.³⁷ However, \$213-million of this was spent on
6 “new and existing DISH-TV subscriber equipment” with the remaining \$248.4-million used for
7 “other corporate capital expenditures.”³⁸ Thus, in the 21-month period from January 2018
8 through September 2019, DISH’s total capital investment directed toward things other than
9 satellite TV customer equipment was only \$416-million. Its investment in wireless was almost
10 certainly less than that, since some portion of these “other corporate capital expenditures” almost
11 certainly had nothing to do with wireless.

12

13 26. I have extracted the corresponding data from each of DISH’s Form 10-Ks from 2010
14 through 2018 and its Form 10-Q through the third quarter of 2019. Over that period, DISH
15 invested approximately \$7.83-billion in Property and Equipment. However, nearly 75% of that –
16 \$5.85-billion – was spent on pay TV and broadband customer equipment that DISH provided
17 (i.e., rented) to its satellite TV subscribers. The remaining \$1.75-billion was devoted to “other
18 corporate capital expenditures,” the bulk of which were almost certainly associated with the
19 satellite TV business.

20

37. DISH Network Corporation Form 10-Q for the quarter ended September 30, 2019, at 5, 95.

38. *Id.*, at 84.

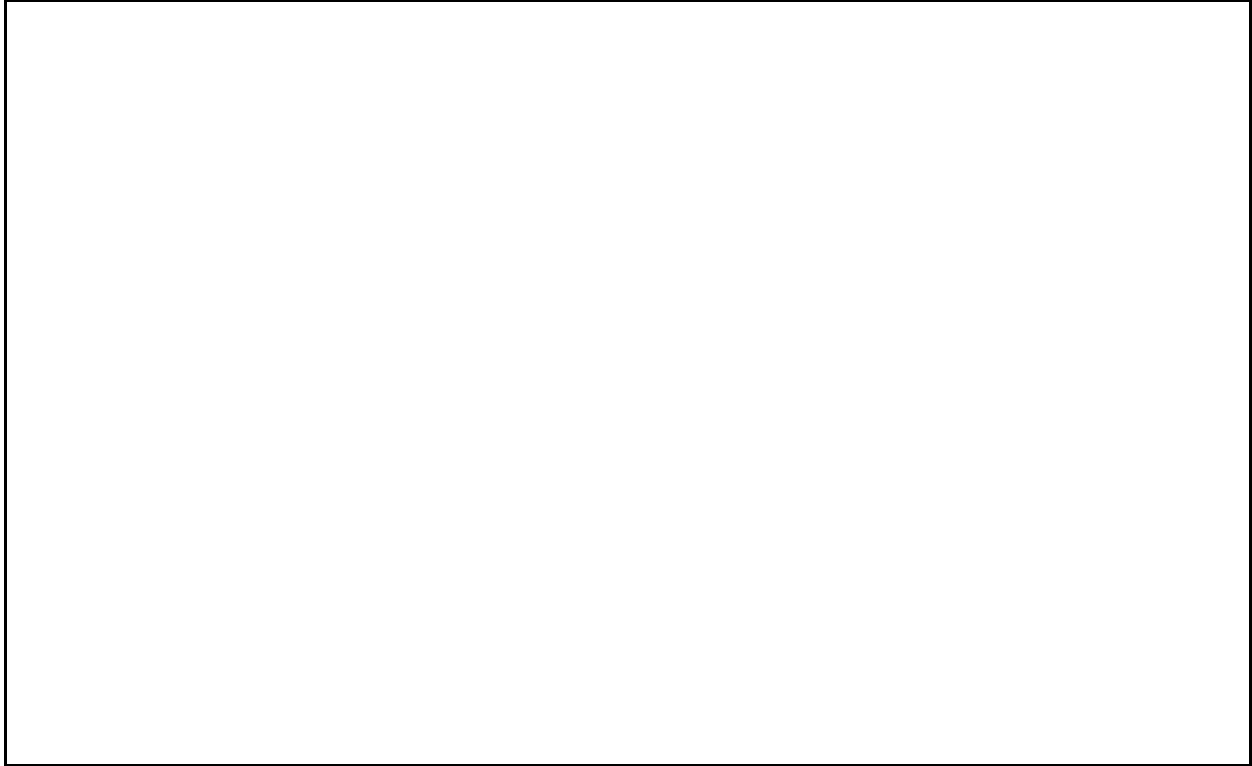
1 27. In DISH’s 2018 Form10-K, the Company states: “We currently expect expenditures
2 for our wireless projects to be between \$500 million and \$1.0 billion through 2020. We expect
3 the Second Phase to follow once the 3GPP Release 16 is standardized and as our plans for our
4 other spectrum holdings develop, we plan to upgrade and expand our network to full 5G to
5 support new use cases. We currently expect expenditures for the Second Phase to be
6 approximately \$10 billion.”³⁹ As for the \$10-billion that DISH says it will need in order to
7 complete the Second Phase of its wireless build-out, there is no indication as to how and from
8 what source the Company expects to raise such capital.

9
10 28. To better place DISH’s current and potential capital expenditures in context, it is useful
11 to examine the capital investment activities of the four incumbent facilities-based wireless
12 carriers. In his January 29 Rebuttal Testimony, Mr. Draper provided a chart summarizing the
13 annual capital outlays of Sprint, AT&T, Verizon and T-Mobile on their *wireless* operations for
14 the years 2014 through 2017.⁴⁰ For convenience, I have reproduced Mr. Draper’s chart as Figure
15 1 below:

39. *Id.*, at F-52.

40. Mr. Draper has marked this chart as “confidential” and does not provide sources for this data. His figures for “pure play” Sprint and T-Mobile are fairly close to figure that I have extracted from these two companies’ 10-K reports. AT&T and Verizon do not publicly report wireless sector capital expenditures, so Mr. Draper’s figures for these companies cannot be corroborated.

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3

4 Table 2 below summarizes Mr. Draper's figures for each company's wireless capital

5 expenditures over this four-year period:

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2
3
4
5

Table 2		
INCUMBENT WIRELESS CARRIER CAPITAL EXPENDITURES		
Service Provider	2014-17 CapEx per Draper	2014-17 CapEx per 10-K Reports
Verizon	\$ -billion	\$ 151,411-billion
AT&T	\$ -billion	\$ 183.387-billion
T-Mobile	\$ -billion	\$ 18.980-billion
Sprint	\$ -billion	\$ 15.371-billion

6
7
8
9
10
11
12
13

Source: Draper Rebuttal, at Attachment F. Form 10-K amounts include all business sectors, not just wireless

14 **>> END HIGHLY CONFIDENTIAL**

15

16 In considering these capex amounts, it is also important to remember that all four of these
17 companies had been in the mobile wireless business for many years prior to the four-year period
18 covered by Mr. Draper’s chart. These were thus *incremental* investments made to enhance and
19 expand *already existing* networks.

20

21 29. The Cellular Telecommunications and Internet Association (“CTIA”) estimates that
22 “[s]ince the launch of 4G in 2010, the industry has made over \$253-billion in capital
23 investments” and that in 2018 alone the wireless industry invested \$27.4-billion.” CTIA states
24 that “[m]uch of this investment goes toward expanding the capacity and coverage of wireless
25 networks and upgrading their technology to support 5G, including through increased

1 infrastructure deployment.”⁴¹ AT&T and Verizon are diversified companies that are engaged in
2 a number of business activities including wireless. However, they do not provide detailed
3 segment-level breakdowns in their financing reporting. Sprint and T-Mobile are “pure play”
4 wireless MNOs, such that an examination of these firms’ financial statements can reveal much
5 about their respective capital expenditures.

6

7 30. As summarized in Table 3 below, since 2010, T-Mobile has made capital expenditures
8 (capex) totaling roughly \$50.57-billion, of which \$34.97-billion was for “Property and
9 Equipment” and \$15.56-billion was for the acquisition of FCC spectrum licenses.⁴² Over that
10 same period, Sprint’s total capex was roughly \$39.09-billion, of which \$37.35-billion was for
11 “Property and Equipment” and \$1.74-billion was for the acquisition of FCC spectrum licenses.
12 Verizon’s total capex from 2010 through 2018 was \$169.27-billion, of which a large (however,
13 unspecified) portion was for wireless network property and equipment. We do have Verizon’s
14 expenditures on FCC spectrum licenses over the period, at \$18.36-billion. AT&T’s
15 Consolidated Balance Sheet as of December 31, 2018 shows \$96.14-billion of “Licenses,” but
16 this figure likely includes more than just CMRS spectrum.⁴³ AT&T’s total capex was \$188.19-
17 billion, but no further breakdown is provided. Again, a substantial portion of this amount was
18 undoubtedly directed toward wireless licenses and wireless property and equipment.

41. <https://www.ctia.org/news/2019-annual-survey-highlights> (accessed 11/2/19).

42. T-Mobile US Forms 10-K, 2010 through 2018, Condensed Consolidating Statement of Cash Flows Information.

43. AT&T 2018 Form 10-K, Exhibit 13, “Selected Financial and Operating Data,” at 52.

31. The NMOs do not separately report the gross book value (before depreciation and amortization) of their long-term capital assets. However, it is possible to reconstruct that by extracting the annual gross capital expenditures from a succession of Forms 10-K cash flow statements. Table 2 below provides this data for the four largest MNOs.

Table 3 INCUMBENT WIRELESS CARRIER REPORTED CAPITAL EXPENDITURES 2010-2018 (\$billions)				
Service Provider	Total Capex	Wireless Plant & Equipment	Spectrum Licenses	Not specified
Verizon [Note 1]	\$169.275		\$18.364	\$151.411
AT&T [Note 1]	\$188.187			\$188.187
T-Mobile	\$ 50,523	\$ 34.966	\$ 15.557	
Sprint	\$ 39,092	\$ 37,354	\$ 1,738	
DISH [Note 2]	\$ 28.270		\$ 21.101	\$ 7.169

Source: Verizon, A&T&T, T-Mobile US, Sprint, DISH Forms 10-K, 2010 through 2018, Condensed Consolidating Statement of Cash Flows Information.

NOTE 1: AT&T and Verizon do not separate out their wireless segment financial data from the total corporate financial data. These figures necessarily include substantial investment components that have nothing to do with their wireless businesses.

NOTE 2: DISH does not separate out its satellite TV capex and license purchases from its wireless property and license purchases. DISH has indicated that since 2008 it has spent "over \$11-billion" cumulatively on wireless spectrum licenses. DISH also acquired what it describes as "non-controlling" interests in several entities that had applied for and won wireless licenses in FCC auctions.

As I noted above, from 2010 through the first half of 2019, DISH's total capex was \$7.43-million, of which \$3.53-million was spent on satellite TV and broadband customer equipment.

1 Unlike the incumbent MNOs, DISH is starting from scratch. Although the company began
2 buying wireless spectrum more than a decade ago, it has never actually made use of any of that
3 spectrum to offer any services to any customers, and its investments in network equipment
4 (radios, antennas, switches, etc.) have been minimal. Thus, even if DISH is actually able to
5 come up with the \$10-billion that it projects will need to be spent on its network over the next
6 several years, the scope, coverage, capacity and virtually every other attribute of a DISH
7 wireless network will quite literally be little more than a drop in the ocean when compared to
8 both the current level of capital spending by the incumbent carriers, not to mention the
9 cumulative investments that they have made in their networks and infrastructures.

10

11 32. This is by no means to suggest that DISH's late entry into this well-established market
12 cannot be profitable *for DISH*. DISH has some 12-million DBS and streaming TV subscribers,
13 and may be able to leverage those relationships into a profitable business, as Comcast is
14 attempting to do with its base of cable TV and broadband subscribers. But DISH's ability to
15 profitably address a small fraction (less than 3%) of the national wireless services market offers
16 no assurance that its presence will work to discipline its larger rivals to any significant degree.
17 As noted above, Mr. Draper has described Sprint's difficulties in attracting *and retaining*
18 customers away from Verizon. There is simply no basis upon which to expect that DISH will
19 have any more luck with a brand new network with limited geographic reach.

20

1 **Physical network facilities**
2

3 33. In his November 7, 2019 Supplemental Testimony, Mr. Ray has provided projections as
4 to the number New T-Mobile 5G cell sites that the company expects to maintain *in California*
5 *alone* over the 2021 through 2024 time frame. New T-Mobile is projected to have some BEGIN
6 HIGHLY CONFIDENTIAL < [REDACTED] > END HIGHLY CONFIDENTIAL California cell sites in
7 2021, growing to BEGIN HIGHLY CONFIDENTIAL < [REDACTED] > END HIGHLY
8 CONFIDENTIAL by 2024.⁴⁴ Compare this with DISH’s “Nationwide 5G Commitment” to the
9 FCC of 15,000 cell sites by 2023.⁴⁵ California includes about 12% of the total US population.
10 Being generous, let’s assume that 15% of DISH’s cell sites are located in California. That would
11 imply a California cell site count of around 2,250, i.e., BEGIN HIGHLY CONFIDENTIAL
12 < [REDACTED] > END HIGHLY CONFIDENTIAL California cell sites to
13 which New T-Mobile has committed to the FCC by 2023. Indeed, according to these same Ray
14 projections, even a *standalone Sprint* is expected to deploy BEGIN HIGHLY CONFIDENTIAL
15 < [REDACTED] > END HIGHLY
16 CONFIDENTIAL in California by 2023.

17
18 34. The PFJ requires that all decommissioned cell sites, but no fewer than 20,000, be made
19 “available to [DISH] immediately after such Decommissioning.”⁴⁶ In his January 29, 2019

44. Ray Supplemental Testimony, November 7, 2019, at 12.

45. DISH Response to Public Advocates Data Request 1-17.

46. PFJ, §IV.C.1.

1 Rebuttal Testimony, Mr. Ray advised that T-Mobile’s “current analysis shows that T-Mobile
2 expects to decommission approximately BEGIN HIGHLY CONFIDENTIAL < [REDACTED] > END
3 HIGHLY CONFIDENTIAL [California] Sprint sites, although no final decisions on site
4 retention or decommissions have been made at this time and the number of sites may change as
5 the plans are finalized or when deployment begins.”⁴⁷ Other data provided to the Public
6 Advocates Office suggests that only BEGIN HIGHLY CONFIDENTIAL < [REDACTED] > END
7 HIGHLY CONFIDENTIAL cell sites in California will be decommissioned as a result of the
8 Sprint/T-Mobile site consolidations.⁴⁸ Whatever the number of decommissioned cell sites
9 ultimately turns out to be, the PFJ gives New T-Mobile up to five years to turn over these
10 decommissioned sites to DISH.⁴⁹ However, DISH Senior Vice President of Public Policy and
11 Government Affairs Jeff Blum has testified that “DISH has committed to deploy ... DISH 5G
12 Broadband Service to At Least 20% of U. S. Population by 2022 [and to] At Least 70% of U. S.
13 Population by 2023.”⁵⁰ If New T-Mobile is not required to provide DISH with access to any of
14 these decommissioned cell sites until 2025, it would seem that this particular aspect of the PFJ
15 will do nothing to assist DISH in meeting these 5G deployment commitments.

16

17 35. It is also important not to lose sight of these specific “commitments” in the context of
18 California. DISH can meet the 20% coverage commitment by serving less than all of Los

47. Ray Rebuttal, at 21.

48. Cameron Reed, Confidential Attachment D.

49. PFJ, § IV.C.1.

50. Testimony of Jeff Blum, November 7, 2019, at A7, page 4.

1 Angeles County only. DISH can meet the 70% commitment by serving most, but not even all, of
2 just ten of the state's 58 counties.⁵¹ While DISH has talked about how it will serve rural areas,
3 the small number of cell sites that it apparently plans to deploy raise questions as to the veracity
4 of that promise. While I do not expect that DISH will actually pursue the type of highly
5 concentrated geographic coverage that these commitments would seem to allow, there is no
6 question but that DISH can meet these 20% and 70% coverage goals at considerably lower cost
7 by focusing its investments in the more densely populated parts of the State.

8

9 **Even under the most optimistic forecasts of the ramp-up of DISH's wireless business, the**
10 **company's overall market share will still fall in the low single-digit range at the end of year**
11 **7 following the effective date of the Consent Decree.**

12

13 36. The ramp-up of DISH's wireless business has several components that will occur
14 concurrently over the 2020-2026 period.

15

16 (1) Deployment of its network. DISH has indicated that it anticipated deployment to 20% of
17 the US population by 2022 and that it will reach the target 70% by 2023.

18

19 (2) Acquisition of the additional 800 MHz spectrum from Sprint. The 13.5 MHz bandwidth of
20 Sprint's 800 MHz spectrum will not become available to DISH until year 4 (2023). And

51. The nine counties are Los Angeles, San Diego, Orange, Riverside, San Bernardino, Santa Clara, Alameda Sacramento, and Contra Costa. For some of these (e.g., Riverside, San Bernardino), most of the population is located within a very small portion of the county, so coverage of these areas can help to meet the 70% coverage commitment while leaving the remaining areas unserved.

1 DISH will be required to lease back 4 MHz of that bandwidth to New T-Mobile for two
2 additional years.

3

4 (3) Customer acquisition. DISH will acquire the 9.3-million Sprint Prepaid customers shortly
5 after the effective date of the Order, and will need both to actively market these prepaid
6 services to new customers as well as maintain its acquired customer base in the face of
7 churn.

8

9 **Spectrum shares**

10

11 37. DISH's spectrum holdings will thus increase over the 7-year ramp-up period. Table 4
12 below provides current 2019 spectrum holdings of Verizon, AT&T, T-Mobile and Sprint for
13 each of the 58 California counties. This data was extracted from the revised version of
14 Appendix L-1 to the Joint Applicants' FCC Application, WT Docket No. 18-197, submitted on
15 to the FCC by the Joint Applicants on July 5, 2018. Using this data together with DISH
16 spectrum license data provided by DISH in response to Public Advocates Data Request 1-14, I
17 have compiled a tabulation of DISH's California spectrum holdings together with those of
18 Verizon, AT&T and post-merger New T-Mobile for each year from 2020 through 2026. These
19 are shown in in Attachment 1 to this testimony.

1 **Projected ramp-up in DISH’s customer base and market share**
2

3 38. The US mobile wireless market is largely saturated at this point in the nearly four
4 decades since its birth in the early-1980s. According to FCC data, as of the end of 2017, there
5 were between 400-million and 427-million wireless “connections” in the US.⁵² In comparison,
6 the total EOY 2017 US population was 325.7-million.⁵³ UBS data cited by the FCC “shows that,
7 in 2017, the postpaid segment accounted for more than 60% of all connections, while the prepaid
8 segment accounted for less than 20%, and wholesale connections and connected devices
9 accounted for the remainder.”⁵⁴ Carrier market shares have become fairly stable, although there
10 is some small movement among the four major carriers as customers respond to promotions,
11 handset offers, pricing, and service features. Table 5 below summarizes the four national
12 MNOs’ and regional carrier US Cellular’s respective subscriber counts and market shares as of
13 the end of 2017, and also provides the 2017 net additions for each carrier and their respective
14 shares of these net additions.
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52. FCC, *Communications Marketplace Report*, GN Docket No. 18-231, Rel. December 26, 2018 (“*Communications Marketplace Report*”), at 7, Figs. A-1 and A-2. The FCC cites three sources for these EOY 2017 estimates: Number Resources Utilization Forecast (NRUF) data – 410.7-million; Cellular Telecommunications and Internet Association (CTIA) data – 400.2-million; and UBS Investment Research data – 427.3-million. “Connections” includes handsets as well as all other wireless devices (e.g., tablets, IoT devices, etc.).

53. US Census Bureau.

54. *Communications Marketplace Report*, at 6.

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Table 5				
INCUMBENT WIRELESS CARRIER 2017 CUSTOMERS AND MARKET SHARES (000)				
Service Provider	Total Connections		Net Additions	
	Count	Share	Count	Share
Verizon	151,978	35.1%	5,222	24.26%
AT&T	146,847	33.9%	9,474	44.02%
T-Mobile	74,040	17.1%	5,658	26.29%
Sprint	54,683	12.6%	1,173	5.45%
US Cellular	5,063	1.2%	N/A	
Total	432,611		21,523	

Source: FCC Communications Marketplace Report, December 26, 2018 , Figs. A-3, A-6

39. Churn rates among the major carriers have generally been dropping. Prepaid churn rates remain considerably higher than for postpaid services. Veriaon, AT&T and T-Mobile postpaid churn rates are hovering around 1% per month, and prepaid churn is in the 4% range, with Sprint somewhat higher. Table 6 below summarizes the average monthly churn rates for the four major facilities-based wireless incumbents:

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Table 6						
INCUMBENT WIRELESS CARRIER AVERAGE MONTHLY 38CHURN RATES 2014-2017						
Service Provider	2014	2015	2016	2017	2018	2019
Postpaid						
Verizon	1.04%	0.96%	1.01%	1.01%	1.03%	1.05%
AT&T	1.04%	1.05% [Note 1]	1.07%	1.07%	1.12%	1.19%
T-Mobile	1.58%	1.39%	1.30%	1.18%	1.01%	0.85%
Sprint	2.16%	1.64%	1.62%	1.73%	1.76%	1.81%
Prepaid						
Verizon	Not Separately Reported					
AT&T	Not Separately Reported					
T-Mobile	4.76%	4.45%	3.88%	4.04%	3.96%	3.77%
Sprint	4.12%	4.95%	5.66%	4.68%	4.50%	4.51%
Source: (2014-17) – FCC Communications Marketplace Report, December 26, 2018 , Fig. A-7; (2018-19) – carrier 10-K and 10-Q Reports.						
Note 1: Extrapolated from 2014 and 2016 data.						

23 40. Customer churn has two – and opposite – effects upon individual wireless service
 24 providers. Churn being experienced by rival providers produces “addressable” customers that
 25 seek an alternative supplier for their wireless service. An “addressable” customer is one who is
 26 “in the market” to buy service, either because the customer has discontinued service with another
 27 carrier (churn) or is purchasing service for the first time (growth). But a provider’s own churn
 28 erodes its customer base and forces the provider to expend marketing resources just to replace
 29 those customers, let alone grow its customer base overall. Unless DISH is somehow able to

1 quickly reduce the churn rate on these prepaid services, it could lose more than half of the
2 customers it will be acquiring from Sprint within the first year alone.

3

4 41. UBS data cited by the FCC indicate that, as of the end of 2017, there were
5 approximately 270-million postpaid connections and about 60-million prepaid connections.⁵⁵
6 The corresponding figures for year-end 2016 were 257-million and 77-million, respectively.⁵⁶
7 Extrapolating these figures to year-end 2019, we can estimate the number of postpaid
8 connections at approximately 276-million and prepaid connections at about 65-million. In any
9 given month, there are thus probably somewhere in the range of 3-million “addressable”
10 postpaid customers and perhaps another 2.5-million addressable prepaid customers. Growth in
11 overall wireless market demand is also a source of addressable customers. As shown in Table 5
12 above, Sprint was able to capture only 5.45% of total (prepaid + postpaid) *net* additions in 2017.
13 Unfortunately, we do not have data on the carriers’ shares of prepaid and postpaid gross
14 additions. If DISH’s prepaid gross additions were roughly to correspond with Sprint’s 14.31%
15 prepaid market share, that would result in its capturing approximately 360,000 out of the 2.5-
16 million addressable prepaid customers each month. Over the first twelve months, DISH could
17 thus expect to see about 4.4-million in gross additions. However, if Sprint’s 4.37% monthly
18 churn rate were to persist under DISH’s management, DISH would likely lose slightly more
19 customers than it would add, resulting in *negative* net additions overall.

55. Communications Marketplace Report, at 8, Fig. A-3.

56. FCC, *20th Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, at Appendix II: Table II.B.ii, “Quarterly Total Mobile Wireless Connections by Service Segment, 2013-2016”

1 42. We can learn something about DISH’s likely success in attracting new customers by
2 looking at the recent experience of Comcast, which began offering wireless services mainly to its
3 cable TV subscribers in 2017. According to *Multichannel News*, a cable industry trade
4 publication, “Comcast’s Xfinity Mobile, which currently has 1.6 million subscribers, will control
5 around 6% of the U.S. wireless market by 2023”⁵⁷ – it will take Comcast six years following the
6 launch of its wireless service to capture a 6% share. Comcast has 26.2 million Internet
7 customers and 22.3 million video customers. There is considerable overlap between these two
8 categories, but overall Comcast probably has around three times as many subscribers as DISH.
9 If Comcast is not expected to capture more than a 6% mobile service market share after six years
10 since its launch in 2017, a realistic estimate of DISH’s potential market penetration after six
11 years – i.e., by roughly the end date of the Proposed Final Judgment – would necessarily be
12 considerably lower.

13
14 43. I have constructed a model to estimate the potential growth in DISH’s customer base
15 and market share during this initial ramp-up period (“ETI DISH Ramp-up Model”). The Model
16 covers the period 2020-2026 (years 1 through 7) and is based upon the following facts, analyses
17 and assumptions:

18
19 (1) DISH will only have access to “addressable” customers – i.e., the net growth in overall
20 wireless customers and the churn being experienced by the incumbent carriers.

57. “Xfinity Mobile to Generate \$266M in EBITDA By 2023,” *Multichannel News*, September 12, 2019,
<https://www.multichannel.com/news/xfinity-mobile-to-generate-266-million-in-ebitda-by-2023> (accessed 10/31/19).

1 (2) The US wireless market is essentially fully saturated; overall market growth in recent years
2 has been in the range of 5% per year. Although the growth rate is expected to slow even
3 further, the ETI DISH Ramp-up Model assumes a constant 5% per year growth over the
4 2020-2026 period.

5

6 (3) DISH starts out in 2020 with the 9.3-million prepaid customers that are to be divested to it
7 by Sprint. At least initially, DISH will likely continue to experience somewhere near the
8 same 4.37% monthly churn rate on these prepaid customers that Sprint has been
9 experiencing. However, the ETI DISH Ramp-up Model assumes that DISH will improve its
10 customer service to the point where its prepaid churn will approach the industry average of
11 4% per month.

12

13 (4) The 9.3-million prepaid customers that DISH will acquire from Sprint represents
14 approximately 14.3% of the prepaid market overall. The ETI DISH Ramp-up Model
15 assumes that DISH will continue to capture this same 14.3% of addressable prepaid
16 customers over the full 2020-2026 period.

17

18 (5) DISH will launch its 5G postpaid service in 2022. It will at that point control 8.06% of the
19 total low-band and mid-band spectrum nationwide, increasing to 9.48% by 2025. The ETI
20 DISH Ramp-up Model assumes that when DISH launches its own facilities-based 5G
21 network, its share of addressable customers will equal its share of total wireless spectrum
22 within the areas where it offers service. Because I do not have data on DISH's spectrum

1 holdings outside of California, I have used California spectrum shares as a proxy for
2 national spectrum shares. Initially (in 2022), DISH projects to have service availability to
3 20% of the US population; by 2023, it expects to reach 70%. The ETI DISH Ramp-up
4 Model assumes that DISH will acquire 8.06% of addressable postpaid customers within the
5 20% of the market where it offers service. For 2023 and beyond, the ETI DISH Ramp-up
6 Model assumes that DISH will acquire whatever its spectrum shares in each year of
7 addressable postpaid customers within the 70% of the market where it offers service. Note,
8 however, that these DISH spectrum shares are based solely upon low- and mid-band
9 spectrum, and do not include the high-band spectrum that Verizon, AT&T and New
10 T-Mobile currently own. As such, the spectrum shares that the ETI DISH Ramp-up Model
11 ascribes to DISH are overstated when the incumbents' high-band holdings are considered.
12 Additionally, under the terms of the PFJ, “[DISH} and [New T-Mobile] agree to negotiate in
13 good faith to reach an agreement for [New T-Mobile] to lease some or all of [DISH}'s 600
14 MHz Spectrum Licenses for deployment to retail consumers by [New T-Mobile]. ...
15 recognizing that the lease(s) must be for a sufficient period of time for [New T-Mobile] to
16 make adequate commercial use of the 600 MHz Spectrum Licenses.”⁵⁸ The PFJ is entirely
17 silent as to the quantity of 600 MHz spectrum, the start date of the lease, and the length of
18 time that DISH is required to make available to New T-Mobile. For purposes of the ETI
19 DISH Ramp-up Model, I have assumed that DISH would retain all of the 600 MHz
20 bandwidth that is currently licensed to it. To the extent that DISH leases “some or all” of
21 this bandwidth to New T-Mobile, the spectrum shares that the ETI DISH Ramp-up Model

58. PFJ, § V.A.

1 ascribes to DISH are further overstated, and the spectrum shares that the ETI DISH Ramp-
2 up Model ascribes to New T-Mobile are correspondingly understated.

3
4 (6) Based upon the carrier churn data in Table 5 above, the overall wireless industry market
5 churn rate is assumed to be 4.0% per month on prepaid services and 1.0% per month on
6 postpaid services.

7
8 (7) DISH will experience the industrywide 4.0% customer churn rate on its prepaid services.
9 However, as a start-up, the ETI DISH Ramp-up Model assumes a postpaid churn rate of
10 1.5% (still much lower than Sprint's 1.81%) over the full 2020-2026 period.

11
12 44. The ETI DISH Ramp-up Model simulates the ramp-up of DISH's wireless business
13 over a seven year period. It assumes that year 1 is 2020, and that DISH starts out in January
14 2020 with the 9.3-million Prepaid customers that it acquires from Sprint. For these first two
15 years, the Model assumes that DISH is only offering resold prepaid services as an MVNO.
16 Since the 9.3-million represents roughly 14.31% of the national prepaid market, the ETI DISH
17 Ramp-up Model assumes that DISH will be able to acquire 14.31% of all addressable prepaid
18 customers in any given month. These "addressable" customers consist of the prepaid churn
19 (assumed at 4% per month) being experienced by the other three carriers, plus the net market
20 growth, which is assumed to be 0.41% per month (5.0% per year).⁵⁹ Thus, for example, in the
21 first month, the Model assumes that 4% of the 56.7-million *non-DISH* prepaid customers – 2.3-

59. Other MVNOs offering prepaid services will also experience churn. Some of these customers will

1 million – will cancel service with their existing carrier and thus be addressable by other carriers.
2 DISH would get 14.31% of this 2.3-million, or about 319,000 gross additions. DISH would also
3 get 14.31% of the prepaid growth during that same month, i.e., 14.31% of 265,000, for a total of
4 about 38,000. But DISH will also experience churn of its existing customer base. The ETI
5 DISH Ramp-up Model uses the industrywide prepaid churn rate of 4.0% (rather than Sprint’s
6 prepaid churn rate of 4.83%), resulting in a loss of 372,000 customers in the first month. Taken
7 together, the gross additions less the losses from churn will result in a net loss in the number of
8 DISH prepaid customers of about 15,000, decreasing DISH’s total prepaid customer base to
9 9.285-million. That end of month volume is then carried into the next month (February) and the
10 process continues iteratively through December 2026 (7 years total). DISH will continue to
11 experience net prepaid losses through about month 8, at which point the increase in overall
12 industry demand results in an increase in industry churn, which makes more customers
13 addressable to DISH.

14

15 45. The ETI DISH Ramp-up Model assumes that DISH will have no *activated* spectrum
16 under its control for the initial two years – i.e., DISH will be building out its network, and thus
17 will not be utilizing its existing spectrum holdings to provide service. At the onset of year 3
18 (2022), DISH will put some of its existing 600 MHz, 700 MHz and mid-band AWS spectrum in
19 service, and will reach 20% of the population. In 2023 (year 4), the Model assumes that DISH
20 will obtain the 800 MHz spectrum from New T-Mobile, but will lease 4 MHz of that back to
21 New T-Mobile, for a net availability to DISH of 9.5 MHz. That condition is assumed to persist

1 through 2024. Starting in 2023, DISH's coverage is increased to 70%, and stays at that level for
2 the remainder of the modelled time period.

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4 46. Although the ETI DISH Ramp-up Model is run on a monthly basis, Table 7 below
5 presents the model's results as yearly averages.

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Table 7				
PROJECTED DISH MARKET GROWTH DURING THE 2020-2026 RAMP-UP PERIOD				
Year	Prepaid Subscribers	Postpaid Subscribers	Total Subscribers	Overall Market Share
Pre-merger	0	0	0	0.00%
2020	9,251	0	9,251	2.65%
2021	9,316	0	9,316	2.55%
2022	9,553	212	9,765	2.55%
2023	9,900	1,295	11,194	2.78%
2024	10,358	3,128	13,486	3.18%
2025	10,836	4,678	15,514	3.48%
2026	11,355	6,116	17,470	3.74%

Source: ETI DISH Ramp-up Modell

22 47. The Model projects that by the end of year 7 (2026), DISH will have close to 17.4-
23 million prepaid and postpaid customers, representing an overall market share of 3.74%. This
24 Model forms the basis for the market concentration (HHI) analysis that is presented in Section
25 IV of this testimony.

26

1 **Sensitivity analysis**
2

3 48. I believe that the various assumptions upon which the model relies are reasonable and
4 that the model provides a realistic picture of what DISH can expect to achieve in terms of
5 customers and market shares over the 7-year period. However, I have re-run the model to
6 include what can best be described as highly optimistic, best-case assumptions, as follows:
7

8 (1) DISH will improve its customer service to the point where its prepaid churn will decrease to
9 3% per month.
10

11 (2) Instead of simply maintaining its prepaid market share of 14.3%, DISH will succeed in
12 acquiring 20% of addressable prepaid customers over the full 2020-2026 period.
13

14 (3) Instead of acquiring only its spectrum share of addressable customers, DISH will acquire
15 double its spectrum share upon the launch of its 5G postpaid service in 2022 within areas
16 where it is offering facilities-based 5G service.
17

18 49. Table 8 below summarizes the results under these highly optimistic assumptions. Even
19 under what I would describe as better-than-best-base assumptions, DISH will still only achieve
20 an overall market share of 6.58% by the end of year 7.
21

Table 8

**SENSITIVITY ANALYSIS
 PROJECTED DISH MARKET GROWTH
 DURING THE 2020-2026 RAMP-UP PERIOD
 USING HIGHLY OPTIMISTIC “BEST CASE” ASSUMPTIONS**

Year	Prepaid Subscribers	Postpaid Subscribers	Total Subscribers	Overall Market Share
Pre-merger	0	0	0	0.00%
2020	10,597	0	10,597	3.04%
2021	12,412	0	12,412	3.40%
2022	13,965	424	14,390	3.76%
2023	15,250	2,590	17,840	4.43%
2024	16,470	6,255	22,726	5.36%
2025	17,516	9,356	26,872	6.03%
2026	18,532	12,231	30,763	6.58%

Source: ETI DISH Ramp-up Model

As I shall discuss below, even under these highly optimistic expectations, DISH’s presence in the US wireless market will not materially offset the substantial increase in overall market concentration that will result from the Sprint/T-Mobile merger.

Even if DISH is fully successful in meeting all of the specific commitments for 5G deployment as set out in the PFJ and in DISH’s letter to the FCC, its presence in the national facilities-based retail wireless market will not materially alleviate the escalation in market concentration the will result from the Sprint/T-Mobile merger.

50. The underlying premise of the DoJ’s Proposed Final Judgment is that, by facilitating the entry of DISH into the wireless market, there will still be four national facilities-based wireless carriers, assuring that competition in this market will persist even as Sprint gets absorbed into T-Mobile. However, having undertaken a detailed analysis of DISH’s spectrum holdings and the

1 extent to which DISH can realistically expect to acquire both prepaid and postpaid customers
2 over the 7-year life of the PFJ, I conclude that DISH's presence in the market will not materially
3 alter the level of market concentration that would result from the merger without DISH's
4 presence.

5
6 51. Because DISH will be ramping up its market presence over the 7-year period, the level
7 of market concentration, as measured by the HHI, will change as DISH's share of the market
8 grows. For this reason, I have calculated county-level HHIs for each of California's 58 counties
9 using basically the same methodology that I had employed in my January 7, 2019 testimony, but
10 with certain modifications to reflect DISH's market presence during each year of the ramp-up
11 period. In my previous methodology, I used *spectrum shares* held by each of the four dominant
12 carriers as a proxy for their respective market share. Although DISH held spectrum at that
13 time, none of it was being used to provide service, and therefore was not included in the HHI
14 analysis. Going forward, however, DISH would be phasing in its facilities-based network,
15 initially covering 0% of the US population (2020-2021), then 20% (2022) and finally 70%
16 (2023-2026). To calculate DISH's effective spectrum utilization, I multiplied its overall
17 bandwidth in each of the seven years by the coverage percentage applicable in each year. For
18 example, in 2025, DISH would have a total of 94 MHz of low- and mid-band spectrum in
19 Alameda County, which is 10.12% of the 899 MHz of low- and mid-band spectrum that would
20 be held by Verizon, AT&T, New T-Mobile and DISH combined. However, from the ETI DISH
21 Ramp-up Model, DISH would have amassed an actual (statewide) market share in 2025 of only
22 6.04%. Since we are using spectrum shares for the other three carriers as a proxy for their actual

1 customer counts, we need to adjust DISH’s spectrum share by its projected market share in order
 2 to obtain a metric that is comparable to the spectrum shares held by the other three carriers. This
 3 calculation was made for each county, and then a statewide adjusted spectrum share was
 4 calculated from the county results on a population-weighted basis. Table 9 below summarizes,
 5 on a statewide basis, the spectrum holdings for each of the four carriers. It also provides the four
 6 carriers’ adjusted spectrum shares based upon DISH’s market-share adjusted spectrum holdings
 7 for each year from 2020 through 2026.

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Table 9									
WIRELESS CARRIER CALIFORNIA SPECTRUM HOLDINGS AND ADJUSTED SPECTRUM SHARES 2020-2026									
Spectrum Holdings						Adjusted Spectrum Shares			
Year	VZ	AT&T	T-NTM	DISH	DISH-Adj	VZ	AT&T	T-NTM	DISH
2020	260.17	250.67	311.01	0.00	0.00	31.66%	30.50%	37.84%	0.00%
2021	260.17	250.67	311.01	0.00	0.00	31.66%	30.50%	37.84%	0.00%
2022	260.17	250.67	311.01	72.02	22.78	30.80%	29.68%	36.82%	2.70%
2023	260.17	250.67	311.01	82.01	25.14	30.72%	29.60%	36.72%	2.97%
2024	260.17	250.67	311.01	82.01	28.73	30.59%	29.47%	36.56%	3.38%
2025	260.17	250.67	311.01	86.01	31.62	30.48%	29.37%	36.44%	3.70%
2026	260.17	250.67	311.01	86.01	33.91	30.40%	29.29%	36.34%	3.96%

Source: FCC Spectrum License data; ETI DISH Ramp-up Model

24

25 Using this data, I have calculated California statewide HHIs for each year 2020-2026, in Table
 26 10 below:

27

Table 10

**CALIFORNIA WIRELESS MARKET
 PROJECTED HERFINDAHL-HIRSCHMAN INDICES (HHIS)
 RESULTING FROM PROPOSED FINAL JUDGMENT
 AND THE ENTRY OF DISH INTO THE
 CALIFORNIA WIRELESS MARKET
 2020-2026**

Year	HHI	Change resulting from Merger and PFJ
Pre-merger	2713	
2020	3373	660
2021	3373	660
2022	3201	488
2023	3184	471
2024	3160	447
2025	3141	428
2026	3126	413

Source: Tables 7, 9

Sensitivity analysis of the ETI DISH Ramp-up Model results

52. Table 8 above presented the results of the DISH Ramp-Up Model using the extremely optimistic “better-than-best-case” assumptions that I described at paragraph 47. In Table 11 below, I have recalculated the California statewide spectrum holdings and adjusted spectrum shares for each of the four carriers based upon the optimistic ramp-up scenario for each year from 2020 through 2026.

Table 11

**SENSITIVITY ANALYSIS
 WIRELESS CARRIER CALIFORNIA SPECTRUM HOLDINGS
 AND ADJUSTED SPECTRUM SHARES
 USING “BETTER THAN BEST CASE”
 ETI DISH RAMP-UP MODEL RESULTS
 2020-2026**

Year	Spectrum Holdings					Adjusted Spectrum Shares			
	VZ	AT&T	T-NTM	DISH	DISH-Adj	VZ	AT&T	T-NTM	DISH
2020	260.17	250.67	311.01	0.00	0.00	31.66%	30.50%	37.84%	0.00%
2021	260.17	250.67	311.01	0.00	0.00	31.66%	30.50%	37.84%	0.00%
2022	260.17	250.67	311.01	72.02	33.56	30.41%	29.30%	36.36%	3.92%
2023	260.17	250.67	311.01	82.01	40.05	30.19%	29.08%	36.08%	4.65%
2024	260.17	250.67	311.01	82.01	48.40	29.90%	28.80%	35.74%	5.56%
2025	260.17	250.67	311.01	86.01	54.76	29.68%	28.60%	35.48%	6.25%
2026	260.17	250.67	311.01	86.01	59.71	29.51%	28.43%	35.28%	6.77%

Source: FCC Spectrum License data; ETI DISH Ramp-up Model

Table 12 provides the projected HHIs on the basis of these “better-than-best-case” results: Even when examined using what I believe are excessively optimistic assumptions – that DISH will attract 20% of all prepaid churn and prepaid growth throughout the 7-year period, that DISH will attract double its spectrum share of all postpaid churn and postpaid growth throughout the 7-year period, and that DISH’s own prepaid churn rate will be 3% while the industrywide prepaid churn remains at around 4% – DISH will still end up with only a 6.77% market share, resulting in a California statewide wireless market HHI of 2977 *after seven years* – an increase of 264, which is still well above the *HMG* threshold of 200.

Table 12

**SENSITIVITY ANALYSIS
 CALIFORNIA WIRELESS MARKET
 PROJECTED HERFINDAHL-HIRSCHMAN INDICES (HHIS)
 RESULTING FROM PROPOSED FINAL JUDGMENT
 AND THE ENTRY OF DISH INTO THE
 CALIFORNIA WIRELESS MARKET
 2020-2026**

Year	HHI	Change resulting from Merger and PFJ
Pre-merger	2713	
2020	3373	660
2021	3373	660
2022	3129	416
2023	3088	375
2024	3039	326
2025	3004	291
2026	2977	264

Source: Tables 8, 11

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21 The more realistic ramp-up results (Tables 7, 9 and 10), which put DISH’s 2026 market share at
 22 3.96% after seven years, result in a California wireless market HHI of 3126, an increase of 413
 23 vs. pre-merger conditions. Even if DISH succeeds in building a nationwide 5G network
 24 reaching 70% of the US populaton as it has committed to do, DISH cannot replace Sprint as the
 25 fourth national facilities-based wireless provider capable of constraining the other three carriers
 26 from engaging in the type of conduct that the Department of Justice has addressed in its
 27 *Complaint*.

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53. I have also conducted another sensitivity analysis that examines the effects of the PFJ’s
 requirement that DISH least some (unspecified) portion of its 600 MHz spectrum to New

1 T-Mobile for an unspecified period of time. Starting with the base case ramp-up scenario
 2 (Tables 7, 9 and 10), I assumed that DISH would lease half of its 600 MHz spectrum to New
 3 T-Mobile. DISH’s 600 MHz spectrum holdings vary by county, from 0 to 30 MHz. For this
 4 sensitivity analysis, I shifted exactly half of the bandwidth that DISH owns in each California
 5 county from DISH to NTM. Tables 13 and 14 below provide the resulting spectrum shares and
 6 HHIs under this scenario:

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Table 13									
SENSITIVITY ANALYSIS									
WIRELESS CARRIER CALIFORNIA SPECTRUM HOLDINGS									
AND ADJUSTED SPECTRUM SHARES									
ASSUMING DISH LEASES HALF OF ITS 600 MHz SPECTRUM									
TO NEW T-MOBILE									
ETI DISH RAMP-UP MODEL RESULTS									
2020-2026									
Spectrum Holdings						Adjusted Spectrum Shares			
Year	VZ	AT&T	T-NTM	DISH	DISH-Adj	VZ	AT&T	T-NTM	DISH
2020	260.17	250.67	321.60	0.00	0.00	31.25%	30.11%	38.63%	0.00%
2021	260.17	250.67	321.60	0.00	0.00	31.25%	30.11%	38.63%	0.00%
2022	260.17	250.67	321.60	61.43	22.69	30.42%	29.31%	37.61%	2.65%
2023	260.17	250.67	321.60	71.42	24.73	30.35%	29.24%	37.52%	2.89%
2024	260.17	250.67	321.60	71.42	27.84	30.24%	29.14%	37.38%	3.24%
2025	260.17	250.67	321.60	75.42	30.38	30.15%	29.05%	37.27%	3.52%
2026	260.17	250.67	321.60	75.42	32.39	30.08%	28.98%	37.19%	3.75%

Source: FCC Spectrum License data; ETI DISH Ramp-up Model

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Table 14

**SENSITIVITY ANALYSIS C
CALIFORNIA WIRELESS MARKET
PROJECTED HERFINDAHL-HIRSCHMAN INDICES (HHIS)
RESULTING FROM PROPOSED FINAL JUDGMENT
AND THE ENTRY OF DISH INTO THE
CALIFORNIA WIRELESS MARKET
ASSUMING DISH LEASES HALF OF ITS 600 MHz SPECTRUM TO
NEW T-MOBILE
2020-2026**

Year	HHI	Change resulting from Merger and PFJ
Pre-merger	2713	
2020	3384	671
2021	3384	671
2022	3214	501
2023	3200	487
2024	3179	466
2025	3162	449
2026	3149	436

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Source: Table 13

23 This particular requirement of the PFJ has the effect of further escalating the resulting post-
24 merger market concentration relative to where it would be absent this 600 MHz lease
25 requirement.

26
27 54. Attachment 1 provides the yearly county-level HHI calculations based upon my
28 spectrum shares and Ramp-Up Model analysis.

1 **There is no assurance that DISH has the financial capacity to raise the \$10-billion of**
2 **additional capital it says it will need to invest to meet its 5G commitments.**
3

4 55. DISH’s ability to assume the role that the Department of Justice is relying upon – that
5 of an effective fourth national facilities-based wireless competitor – is critically dependent upon
6 the company’s financial capacity to raise the additional \$10-billion in capital that it has indicated
7 will be required for it to build out its 5G network and to meet its 5G coverage commitments.
8 The recent experience with Frontier’s acquisition of Verizon’s California ILEC assets under-
9 scores the need for the Commission to go beyond the company’s promises and make an
10 independent determination as to the likelihood that DISH actually has the financial wherewithal
11 to achieve these commitments.
12

13 56. In my testimony for the Office of Ratepayer Advocates in the Verizon/Frontier
14 proceeding, A.15-03-005, in response to the *Amended Scoping Ruling*’s question seeking
15 information as to “the financial implications of the transaction for Frontier,” I noted that, [a]ll
16 else equal, the above-book-value acquisition cost and the incremental debt and equity costs that
17 will result, create substantial financial challenges for Frontier that have simply not existed under
18 Verizon’s ownership of these three ILECs.”⁶⁰ I cited the Frontier CFO’s admission that
19 “operating costs for California are not expected to be reduced,”⁶¹ noting that “[a] prime source of
20 the loss that he was now projecting resulted from the \$10.54-billion price that Frontier had

60. A.15-03-005, Supplemental Testimony of Lee L. Selwyn on behalf of the CPUC Office of Ratepayer Advocates, September 11, 2015, at para. 16.

61. *Id.*, citing Rebuttal Testimony of John M. Jureller, CFO, Frontier, A.15-03-005, August 24, 2015, at 11, A10.

1 agreed to pay Verizon, a price that far exceeded the net book value that had been carried on
2 Verizon's books. As a result, Frontier's debt service and other costs of carrying this \$10.54-
3 billion turned out to be considerably greater than the costs that were being incurred by Verizon,
4 not even considering the higher overall cost of capital confronting Frontier due to its poorer
5 credit rating relative to Verizon's."⁶² As we all know now, that transaction with Verizon did not
6 work out very well for Frontier *or for California ratepayers*.

7

8 57. DISH will face similarly daunting financial challenges in meeting its 5G build-out and
9 asset purchase commitments. As I have discussed above, DISH has spent nearly \$25-billion
10 (including capitalized interest payments) over a twelve-year period to acquire wireless spectrum.
11 It has never put any of this spectrum into commercial service, nor has it realized one penny of
12 revenue from this outlay.

13

14 58. DISH says it will spend \$10-billion to build out its 5G network. Even if one accepts
15 this cost estimate, the company has failed to demonstrate that it has the financial capacity to
16 actually raise that \$10-billion. As an initial matter, DISH does not have \$10-billion in cash on
17 hand. As of September 30, 2019, DISH only had about \$1.4-billion in cash on hand – much of
18 which is needed to finance ongoing operations.⁶³ DISH already spends about \$500-million
19 annually to purchase new plant and equipment to run its satellite TV and video streaming
20 business. DISH also has been subject to the redemption requirements of existing senior notes,

62. *Id.*, at para. 9.

63. DISH 9/30/19 Form 10-Q, at 1.

1 expending between \$1-billion and \$1.5-billion annually to meet these debt service obligations.
2 DISH has also incurred significant debt to acquire its existing spectrum licenses, and is paying
3 nearly \$1-billion annually in interest alone to maintain these holdings. With these *current* cash
4 needs, DISH will almost certainly have to raise the entire \$10-billion in order to finance the
5 planned network rollout. And if DISH does exercise its option to purchase Sprint’s 800 MHz
6 spectrum in 2023, it will need yet another \$3.6-billion on top of that.

7

8 59. But DISH’s current financial condition will confront the company with serious
9 challenges if it is to raise \$10-billion or more in the capital markets. In its certified financial
10 statements filed with the SEC, DISH warns investors that it “may need to raise significant
11 additional capital, which may not be available on acceptable terms or at all, to among other
12 things, continue investing in our business, construct and launch new satellites, *deploy our*
13 *wireless network* and to pursue acquisitions and other strategic transactions (*including significant*
14 *investments in wireless*).”⁶⁴ The need to raise capital for the build-out of its 5G wireless network
15 is only one of many capital requirements that DISH faces. DISH advises investors that:

16

17 Weakness in the equity markets could make it difficult for us to raise equity
18 financing without incurring substantial dilution to our existing shareholders.
19 We may be unable to generate cash flows from operating activities sufficient
20 to pay the principal, premium, if any, and interest on our debt and other
21 obligations. ... *Furthermore, our borrowing costs can be affected by short*
22 *and long-term debt ratings assigned by independent rating agencies, which are*
23 *based, in significant part, on our performance as measured by their credit*

64. DISH 2018 Form 10-K, at iii, 53.

1 *metrics. A decrease in these ratings would likely increase our cost of*
2 *borrowing and/or make it more difficult for us to obtain financing. ...*⁶⁵

3
4 60. These warnings are not just routine 10-K boilerplate. In order to raise the \$10-billion,
5 DISH will have to choose between selling additional stock – and diluting existing shareholders’
6 equity – issuing additional notes or other debt instruments, or some combination of the two. As
7 per the warning issued by DISH to its investors, there are good reasons to believe that the
8 markets would find such a large debt or equity raise to be unpalatable.

9
10 61. DISH’s current market capitalization is roughly \$9-billion,⁶⁶ the aggregate amount that
11 DISH’s equity investors currently value the entire company as it exists today. If DISH were to
12 raise the entirety of the \$10-billion from the equity markets, current DISH shareholders would be
13 massively diluted, going from owning 100% of a satellite television company to owning 47% of
14 the satellite business and 47% of an as-yet non-operational, fledgling wireless business. This
15 53% dilution of existing stockholder equity is the most conservative estimate of the possible
16 dilution, in that it assumes that the stock price will remain at today’s levels even while issuing
17 more shares of DISH stock than currently exist. That the share price will remain largely
18 unchanged seems extremely unlikely given that DISH stock is already trading near its 5-year
19 lows, as shown in Figure 2 below.

20

65. *Id.*, emphasis supplied.

66. Based on 254,623,280 shares of Class A common stock (DISH Form 10-Q, 9/30/19, at 1) at a market price as of 11/13/19 of \$35.67. DISH Class B shares are not publicly traded and have no current market value.



Figure 1. DISH Class A common stock price movements over the past five years.

1 This would also not be the first time in recent history that DISH stockholders would be made to
2 suffer a dilution. In August 2019, DISH filed a merger prospectus with the SEC detailing the
3 company’s plans to acquire EchoStar in an all-stock deal. As noted in the prospectus, DISH
4 intended to issue 22,937,188 new shares of DISH Class A Common Stock, representing a
5 dilution to existing shareholders of roughly 5%⁶⁷ (worth roughly \$750-million at the time).

6

7 62. One of the explanations given by the DISH Board of Directors for its willingness to
8 authorize such a deal was precisely because the dilutive effect of the deal was relatively small.
9 As part of “The DISH Network Board’s Reasons for the Transaction,” the Board notes the
10 “limited dilutive impact of the Transaction to the DISH Network stockholders.”⁶⁸ An Initial
11 Public Offering (IPO) of \$10-billion in new common stock could hardly qualify as a “limited
12 dilution.”

67. DISH Network Corp., Form 424B3 Prospectus, filed August 29, 2019 with the US Securities and Exchange Commission, at 1-2.

68. *Id.*, at 52.

1 63. DISH’s other option – the issuance of debt – may be equally unpalatable. DISH
2 presently owes approximately \$17.7-billion in long term obligations (which includes \$1.17-
3 billion of the currently-due portion of long-term debt and finance lease obligations).⁶⁹ An
4 additional \$10-billion (\$13.6-billion if we include the \$3.6-billion needed to purchase Sprint’s
5 800 MHz spectrum) in new debt would represent an increase of over 56% in DISH’s long term
6 debt load (a 77% increase if the additional \$13.6-billion is included). Much of DISH’s existing
7 long term debt is in the form of Senior Notes. These Notes carry interest rates of between 5%
8 and 7.875%. At these same interest rates and on \$10-billion in new Notes, DISH would face
9 additional interest expenses of between \$500-million and \$786-million annually – but that
10 assumes that the company could borrow as much as \$10- to \$13.6-billion on the same terms as
11 its existing debt. This seems particularly unlikely.

12

13 64. This “debt” approach assumes that DISH could even be able to issue that much new
14 debt. As DISH advises its investors, its current Senior Notes carry restrictive covenants that
15 limit DISH’s ability to: (a) incur additional debt; (b) pay dividends; and (c) make certain
16 investments.⁷⁰ If DISH were to fail to live up to these covenants, the company could face
17 immediate repayment of its existing debt: “Should we fail to comply with these covenants, all or

69. DISH 9/30/19 Form 10-Q, at 1.

70. DISH 2018 Form 10-K, at 88.

1 a portion of the debt under the senior notes and our other long-term debt could become
2 immediately payable.”⁷¹

3

4 65. The Moody’s credit rating agency currently assigns DISH an overall company credit
5 rating of “Ba3.” On the Moody’s scale, Ba3 is “judged to have speculative elements and a
6 significant credit risk.”⁷² Moody’s rated DISH’s senior debt at “B1.” On the Moody’s scale, B1
7 is “judged as being speculative and a high credit risk.” In other words, DISH’s debt is not
8 “investment grade” and presents high risk. In July 2019, Moody’s placed DISH’s current ratings
9 on notice for a *downgrade*. Moody’s provides the following justification for downgrading
10 taking DISH’s ratings:

11

12 The review is prompted by DISH’s and DISH DBS’s already limited financial
13 capacity for higher debt and leverage for their present credit ratings and an
14 agreement reached by DISH, the Department of Justice (DOJ), T-Mobile
15 USA, Inc. (T-Mobile, Ba2 stable) and Sprint Corporation (Sprint, B2 under
16 review for upgrade) to acquire Sprint’s prepaid wireless service businesses
17 and wireless spectrum assets for a combined \$5 billion.⁷³
18

19 In other words, Moody’s has identified DISH’s very plans to launch a wireless network as a
20 reason why creditors might not want to lend money to DISH.

21

71. *Id.*

72. Moody’s Rating Scale and Definitions, available online at
https://www.moodys.com/sites/products/productattachments/ap075378_1_1408_ki.pdf (accessed 11/20/2019).

73. “Moody’s places DISH Networks and DISH DBS ratings on review”
https://www.moodys.com/research/Moodys-places-DISH-Networks-and-DISH-DBS-ratings-on-review--PR_405815 (accessed 11/20/2019).

1 66. DISH’s current financial condition and the current market climate provide a level of
2 uncertainty as to DISH’s actual financial ability to fulfill the various build-out commitments it
3 has made. If DISH cannot or does not fulfill the commitments it has made to the DoJ, the DoJ’s
4 reliance on these commitments as the basis for the Consent Decree is brought into serious doubt.
5 These concerns should not be lightly dismissed. As the DoJ has stated in its *Complaint*, “[b]y
6 combining two of the only four national mobile facilities-based wireless carriers, without
7 appropriate remedies, the merger of T-Mobile and Sprint would extinguish substantial
8 competition.” And if DISH cannot finance the 5G build-out and the additional spectrum
9 acquisition, it certainly cannot be counted upon to become the fourth competitively viable
10 national facilities-based wireless carrier that lies at the heart of the DoJ Consent Decree. *Unless*
11 *the Commission can affirmatively find that DISH will be able to raise the necessary capital to*
12 *meet its 5G commitments and the additional \$3.6-billion it will need to purchase the 800 MHz*
13 *spectrum from Sprint, there can be no assurance that competition will not be irreparably harmed*
14 *and that California consumers will not be forced to pay more for wireless service.*

15

16 **The numerous limitations and restrictions associated with the various divestitures**
17 **contemplated in the Proposed Final Judgment will seriously undermine DISH’s ability to**
18 **present any meaningful competitive challenges to the other three remaining facilities-based**
19 **mobile wireless carriers.**

20

21 67. As I noted earlier, in its July 26, 2019 “Competitive Impact Statement,” the Department
22 of Justice described and underscored the critical role that the entry of DISH into the facilities-
23 based wireless service market is expected to play in preserving the level of competition that
24 would otherwise be reduced as a result of the merger of Sprint and T-Mobile:

1
2 The primary purpose of the proposed Final Judgment is to facilitate DISH
3 building and operating its own mobile wireless services network by combining
4 the Divestiture Package of assets and other relief with DISH’s existing mobile
5 wireless assets, including substantial and currently unused spectrum holdings,
6 to enable it to compete in the marketplace.⁷⁴
7

8 However, upon closer examination of the proposed divestitures to DISH, and the post-divestiture
9 relationships between DISH and the post-merger New T-Mobile, there is serious concern that the
10 various restrictions and limitation that the PFJ would impose on the divestitures would so
11 seriously undermine DISH’s ability to “build[] and operat[e] its own mobile wireless services
12 network” as to negate and thus undermine the plan’s “primary purpose” – i.e., “to enable it to
13 compete in the marketplace.” This is not to say that DISH’s venture into the wireless telecom-
14 munications business might not be profitable *for DISH*. Indeed, an expectation of a profitable
15 outcome is obviously a key driver of DISH’s participation in the proposed settlement. But a
16 profitable DISH mobile wireless business does not necessarily translate into the creation of a
17 fourth national MNO capable of providing substantive competitive discipline to the other three
18 incumbents. In this regard, the interests and objectives of DISH and the Department of Justice
19 are hardly in sync. In the testimony that follows, I do not offer an opinion as to the potential for
20 DISH to operate a profitable wireless business using the customers and assets that it would be
21 acquiring under the PFJ. However, there is serous doubt as to DISH’s ability to actually
22 construct and operate the kind of robust 5G network that the DoJ believes to be necessary so as

74. *Competitive Impact Statement*, at 2-3.

1 to resolve the serious anticompetitive concerns that it had expressed in its July 26, 2019
2 *Complaint* and thus permit the Sprint/T-Mobile merger to go forward.

3

4 68. The proposed divestitures involve specific “Divestiture Assets” as described and
5 specified in the PFJ and in the Asset Purchase Agreement that was filed with the SEC by
6 T-Mobile as a Form 8-K on July 26, 2019:

7

- 8 • The Prepaid Assets – the Boost and Virgin Mobile prepaid services brands and the
9 customers thereof;
- 10 • The 800 MHz Spectrum Licenses currently being held by Sprint;
- 11 • The Decommissioned Sprint Retail Locations; and
- 12 • The Decommissioned Sprint and T-Mobile Cell Sites.

13

14 **The Prepaid Assets**

15

16 69. The so-called “Prepaid Assets” that are to be divested to DISH include “all tangible and
17 intangible assets primarily used by the Boost Mobile, Sprint-branded prepaid, and Virgin Mobile
18 businesses today, including but not limited to Boost and Virgin Mobile Retail Locations,
19 licenses, personnel, facilities, data, and intellectual property, as well as all relationships and/or
20 contracts with prepaid customers served by Sprint, Boost Mobile, and Virgin Mobile.”⁷⁵ DISH
21 advises that “TMUS is required to divest the Prepaid Business to us no later than the latest of (I)

75. PFJ, § I.L.

1 15 days after TMUS has enabled us [i.e., DISH] to provision any new or existing customers of
2 the Prepaid Business holding a compatible handset device onto the New T-Mobile (“NTM”)
3 network, (ii) the first business day of the month following the later of the consummation of the
4 Sprint-TMUS merger or the receipt of approvals for the Prepaid Business Sale, and (iii) five
5 days after the entry of the PFJ by the District Court.”⁷⁶ As Public Advocates witness Cameron
6 Reed has noted, “DISH does not currently have a plan to transition these customers and is in the
7 process of conceptualizing its greenfield network deployment. DISH noted that the PFJ has
8 provisions for T-Mobile to facilitate the transition that may include handling customers with
9 incompatible handsets. Mr. Ray states that DISH will be responsible for its customers’ handset
10 upgrades and compatibility after the divestiture.”⁷⁷ The PFJ contemplates that DISH will assume
11 responsibility to serve these divested prepaid customers as a “Full MVNO,” acquiring the
12 underlying wholesale wireless services from New T-Mobile.

13

14 70. The PFJ contemplates that the divestiture of these Prepaid Assets will have been
15 completed within ninety (90) days following the entry of the Order.⁷⁸ DISH does not currently
16 operate any retail outlets of its own for its satellite TV service. In view of the retail challenges
17 confronting DISH as described above, it is difficult to see how DISH could possibly complete
18 the acquisition, fit-up, staffing, and the provision of all required organizational and IT support to
19 a network of retail locations whose activities are limited to the sale and support of the Prepaid

76. DISH Response to Public Advocates Data Request 2-1.

77. Cameron Reed Reply Testimony, at para. 41, p. 23.

78. PFJ, § IV.A.1.

1 Assets within so short a time frame. DISH and T-Mobile have entered into a *Transition Services*
2 *Agreement* (“TSA”) under which post-merger New T-Mobile will continue to serve these
3 divested prepaid customers for up to two (2) years in essentially the same manner as Sprint does
4 today. Under the TSA, New T-Mobile will even continue to provide customer service to the
5 divested prepaid customers until such time as DISH is prepared to assume these functions directly.
6 Following the divestiture of these prepaid accounts, DISH will need to establish its own retail
7 operation and insert itself in third party retail distribution channels such as Walmart and CVS
8 where the prepaid Boost, Virgin Mobile or Sprint-branded prepaid phones are sold. The TSA
9 may be extended for up to one additional year if DISH so requests it.

10

11 71. Sprint’s voice services are furnished using the CDMA (Code Division Multiple Access)
12 protocol; T-Mobile’s use GSM (Global System for Mobile communication). Most handsets are
13 compatible with one or the other of these, but not both. The inclusion of an express reference to
14 an obvious (from a technical standpoint) requirement that handsets in use by Boost, Virgin and
15 Sprint-branded prepaid customers be “compatible” with New T-Mobile’s network compels the
16 concern that some of these handsets may become incompatible with T-Mobile’s network as it
17 migrates Sprint customers to it. Absent the merger, these Sprint prepaid brands would continue
18 to be supported by Sprint’s CDMA network, and Sprint on its own would not necessarily migrate
19 to GSM. Hence, it seems likely that a successively larger number of customer handsets will
20 require replacement under DISH’s management and New T-Mobile’s transition and ultimate
21 MVNO support than would be the case without the merger and the divestiture.

22

1 72. The PFJ appears to contemplate that the transfer of these prepaid brands, customers,
2 personnel and other assets to DISH would be a “going business” type of transaction – the type of
3 relationship that is contemplated via the Transition Services Agreement appears to support that
4 principle. Upon closer examination, however, that appearance may be a bit illusory. For
5 example, if any of the to-be-divested prepaid services are currently marketed and sold at *Sprint*
6 retail locations together with Sprint postpaid services and associated handsets and other
7 equipment. Although Sprint is obligated to make any individual retail location that it
8 “decommissions” available to DISH, the PFJ does not actually require that Sprint decommission
9 any locations immediately. Thus, if a particular Sprint retail store currently sells any of the
10 prepaid services that are to be divested to DISH, and Sprint determines not to immediately (or
11 ever) decommission that particular retail location, DISH will need to quickly establish a
12 substitute retail location for the acquired prepaid services.

13
14 73. Even the PFJ’s reference to “Prepaid Assets Personnel” appears not to address this
15 specific concern. As defined, the term refers to “all employees whose jobs currently focus on
16 the support of the Prepaid Assets, or whose jobs have previously focused on supporting the
17 Prepaid Assets at any time between January 1, 2016 and the date on which the Prepaid Assets are
18 divested to the Acquirer. Prepaid Assets Personnel shall include no fewer than 400 current
19 employees of the Divesting Defendants, which shall include employees involved in sales
20 management, marketing management, distribution support, sales support, and finance.”⁷⁹ But
21 where a retail store sells both prepaid and postpaid services, there are typically no personnel

79. PFJ, § I.M.

1 therein “whose jobs currently focus on the support of the Prepaid Assets” to the exclusion of
2 postpaid services or other products and services that are also sold at that same retail location. On
3 July 1, 2015, Sprint announced that it had 4,500 retail locations, “making it one of the largest
4 retailers in the U.S.”⁸⁰ While that number may have changed since that date, it is apparent that
5 the explicit limitation of “Prepaid Assets Personnel” to a maximum of 400 individuals certainly
6 does not include any significant number of retail store employees.

7

8 74. As noted earlier, prepaid wireless services hardly represent the cream of any wireless
9 service provider’s market. They generate decidedly lower revenue (ARPU) than do postpaid
10 services, their churn rate is considerably higher than that for postpaid services, and the average
11 in-service life of prepaid service customers is considerably shorter than for postpaid customers.
12 The Joint Applicants will be divesting the least desirable customers while retaining the most
13 valuable postpaid customers. DISH, on the other hand, will be acquiring these same low-
14 revenue customers – customers who take prepaid services because they can’t qualify for credit as
15 required for postpaid services, customers whose specific needs are time-limited, or customers
16 whose ability to pay for the service forces them to the low-end of the spectrum of service
17 offerings. There is, of course, nothing to preclude DISH from offering postpaid services as well,
18 but it would be required to launch that business from a zero customer base.

19

80. <https://newsroom.sprint.com/sprint-reaches-4500-stores-making-it-one-of-the-largest-retailers-in-the-us.htm>
(accessed 11/2/19).

1 75. More generally, under the PFJ, DISH is being expected to launch a competitive
2 facilities-based wireless business capable of providing a substantive competitive challenge to the
3 larger incumbent carriers while starting off with the least desirable mix of customers.
4

5 **The 800 MHz Spectrum Licenses**
6

7 76. DISH will apparently be paying approximately \$3.59-billion for the 13.5 MHz that
8 Sprint currently holds in the 800 MHz spectrum band.⁸¹ Under the terms of the PFJ, New
9 T-Mobile is given three (3) years from the effective date of the Stipulation and Order to
10 effectuate and complete the transfer of those licenses to DISH.⁸² Thus, to the extent that DISH is
11 and will be utilizing its existing 600 MHz, PCS, AWS-3, AWS-4 and any other spectrum
12 holdings to build out its nationwide 5G network as required by the PFJ, it will have no ability to
13 incorporate any of the to-be-divested 800 MHz spectrum into its network for the first three years
14 of this undertaking. The PFJ requires that DISH pay a penalty of \$360-million to the United
15 States if it elects not to proceed with the spectrum license purchase unless it has already
16 deployed a core network and is offering 5G Service to at least 20% of the US population over its
17 facilities-based network at that same three-year time point.⁸³ Of course, if by the end of three
18 years DISH has *not* deployed a core network that is furnishing 5G Service to at least 20% of the
19 US population, it will be in violation of explicit commitments that the company has made to the

81. DISH Response to Public Advocates Data Request 2.01, at 5.

82. PFJ, § IV.B.1.

83. PFJ, § IV.B.2..

1 FCC, as described by Mr. Blum and as documented in DISH’s July 26, 2019 Letter to the Chief
2 of the FCC’s Wireless Telecommunications Bureau.⁸⁴ If DISH does not exercise its option to
3 purchase the Sprint 800 MHz spectrum, it may also be subject to a “fee of approximately \$72-
4 million” payable to New T-Mobile.⁸⁵ DISH will be unable to incorporate any of Sprint’s 800
5 MHz spectrum into its own 5G facilities-based network, yet DISH is expected to have built out
6 its network to 20% of the US population without the benefit of that 800 MHz spectrum. In
7 addition, DISH advises that “NTM [New T-Mobile] may exercise an option to lease back 4 MHz
8 (2 MHz downlink + 2 MHz uplink) of the [800 MHz] spectrum for two years following the
9 closing of the 800 MHz spectrum sale at the same per-Pop rate used to calculate the purchase
10 price paid by us to NTM – a rate of approximately \$68 million per year.”⁸⁶

11

12 77. The various conditions set out in the PFJ will expire after seven (7) years from its
13 effective date. In addition to having to wait for three years before it can obtain the to-be-
14 divested 800 MHz spectrum, if DISH does purchase that spectrum at that time it will be expected
15 to place it in service by the end of the 7-year term of the PFJ, or forfeit any of the 800 MHz
16 licenses that remain unactivated and unused, unless DISH is already providing nationwide retail
17 mobile wireless services over its own facilities-based network.⁸⁷

18

84. Blum Testimony, at A7, page 4; July 26, 2019 Letter from Jeffrey H. Blum to Donald Stockdale, Chief, FCC Wireless Telecommunications Bureau (Attachment B to Blum testimony), at 3.

85. DISH Response to Public Advocates Data Request 2.01, at 6.

86. DISH Response to Public Advocates Data Request 2.1.

87. PFJ, § IV.B.3.

1 78. The basis for New T-Mobile’s retention of the 800 MHz spectrum is to allow it to
2 migrate Sprint’s CDMA customer base – both prepaid and postpaid – to the GSM-based
3 T-Mobile network. That migration will require that the (then-former) Sprint customers obtain
4 new GSM-compatible handsets in order to utilize the T-Mobile GSM network. While that might
5 well be a legitimate basis for the 3-year delay of the divestiture, the unavailability of the 800
6 MHz spectrum *to DISH* for the first three years means that, following the effective date of the
7 Order, DISH will have exactly the same spectrum inventory as it has had for the past several
8 years. Nowhere does Mr. Blum provide any explanation as to why DISH has not proceeded to
9 actually utilize the spectrum it has acquired for more than \$21-billion up to this point, and what
10 it is about the specific PFJ and Asset Purchase Agreement that operates to make such deploy-
11 ment economically feasible following the Sprint/T-Mobile merger where it has apparently not
12 been economically feasible up to now.

13
14 79. DISH has indicated that it expects that it will be providing the full 4 MHz to New
15 T-Mobile for the two years following the acquisition.⁸⁸ So not only does DISH not get access to
16 the 13.5 MHz of Sprint’s 800 MHz spectrum for the first three years, for years four and five it
17 will only have access to 9.5 MHz of that spectrum. Additionally, the PFJ’s requirement that
18 DISH agree to lease a portion of its 600 MHz spectrum to New T-Mobile for an unspecified
19 period of time⁸⁹ would mean that New T-Mobile may actually have *access to more spectrum*
20 *capacity* under the terms of the PFJ than it would have if the merger was allowed to go forward

88. DISH Response to Public Advocates Data Request 2-1, at 6.

89. PFJ, § V.A.

1 without the various DoJ conditions. While this arrangement might provide some additional
2 revenue for DISH, it seems to run at cross-purposes with respect to DISH's commitments
3 regarding its own 5G network deployment. Moreover, by requiring that DISH cede some (or
4 even all) of its 600 MHz spectrum to New T-Mobile, this provision would work to strengthen
5 New T-Mobile relative to DISH and in so doing directly undermine DISH's ability to provide a
6 substantive competitive challenge to New T-Mobile and, for that matter, to the other two
7 incumbent facilities-based MNOs. Taken together and with respect to spectrum, the PFJ appears
8 to impair DISH while benefitting New T-Mobile.

9

10 **The Decommissioned Sprint Retail Locations**

11

12 80. Both Sprint and T-Mobile maintain extensive networks of retail locations where
13 customers can purchase handsets and accessories, initiate and modify their wireless services, and
14 even pay their bills. In many cases, the two companies' stores may be in close physical
15 proximity to one another, sometimes even on the same city block. One of the major synergies
16 that the Joint Applicants have posited as resulting from their merger is their ability to consolidate
17 such duplicative retail locations by retaining one and discontinuing the other. The PFJ requires
18 that New T-Mobile "shall make all assignable or transferrable Retail Locations" that are
19 "decommissioned within five (5) years of the closing of the divestiture of the Prepaid Assets,
20 which will not be fewer than four hundred (400) Retail Locations [nationwide], available to
21 [DISH] immediately after such Decommissioning."⁹⁰

90. PFJ, §IV.D.1.

1 81. New T-Mobile may decide to decommission a particular retail location so as to
2 eliminate duplicate stores in the same area, or it might decide to discontinue a particular retail
3 location because it is performing poorly. The PFJ does not appear to distinguish between these
4 two triggering events. Nationwide, Sprint currently maintains somewhere around 4,500 retail
5 sites, and T-Mobile has in excess of 5,300 such locations.⁹¹ The 400 decommissioned retail
6 locations that DISH will be given an opportunity to acquire are thus far fewer than the sites that
7 are to be retained by New T-Mobile.

8

9 82. Moreover, the requirement to transfer these decommissioned locations is to be spread
10 out over a five-year period. However, DISH will be acquiring Sprint's prepaid business almost
11 immediately following the entry of the Order in the Federal District Court proceeding.

12

13 83. Sprint-branded retail stores do not typically offer the Boost, Virgin Mobile, or even the
14 Sprint-branded prepaid products and, in fact, it appears that Sprint has recently migrated its
15 Sprint-branded prepaid products to its Boost Mobile brand.⁹² While Sprint does maintain a small
16 number of Boost Mobile storefronts, it appears that a far larger number of locations where Boost
17 services are sold are third-party general retailers such as Walmart, CVS, Walgreens, and
18 7-Eleven. For example, the Boost website identifies only three Boost-branded stores in San

91. "T-Mobile retail footprint grows from 3,600 to 5,300 stores—and isn't stopping there," Fierce Wireless, April 12, 2018, <https://www.fiercewireless.com/wireless/t-mobile-retail-footprint-grows-from-3-600-to-5-300-stores-and-isn-t-stopping-there> (accessed 11/2/19).

92. <https://prepaid.sprint.com/#/> (accessed 11/20/19). The webpage states that "Sprint Forward is migrating to Boost Mobile" and provides a link to "Visit Boost Mobile."

1 Francisco, located at 2057, 2748, and 4782 Mission Street, respectively. T-Mobile has retail
2 store locations at three similar locations (among others) -- 601 Valencia, 2369 Mission Street,
3 and 4621 Mission Street. One might expect that these three Boost locations could be
4 decommissioned soon after the transfer of Boost to DISH. But New T-Mobile is under no
5 obligation to do so, and could delay the decommissioning long enough that DISH would be
6 forced to find and fit-up its own locations in these neighborhoods. And other locations where
7 both Sprint and T-Mobile maintain nearby retail stores may not be all that useful for the type of
8 customers being targeted by Boost. In sum, it's not at all obvious that the divestiture of any
9 decommissioned retail locations will be of any particular benefit to DISH.

10

11 **The Decommissioned Sprint and T-Mobile Cell Sites**

12

13 84. As with the two merging companies' retail locations, there are cell sites that may be in
14 close geographic proximity to one another, such that only one would be required, allowing the
15 other to be decommissioned. New T-Mobile will be required to make no fewer than 20,000 such
16 decommissioned cell sites available to DISH within five (5) years following the date of the
17 Order.⁹³ While New T-Mobile would have up to five years to complete such transfers, it would
18 be required to make such sites available for transfer to DISH immediately upon decommis-
19 sioning. The 20,000 number is extremely small in the context of the number of cell sites that a
20 facilities-based NMO would typically utilize. Table 15 below summarizes the total number of
21 cell sites operated by the four largest NMOs as of the end of 2017. Nevertheless, this

93. PFJ, § IV.C.1.

1 requirement has the potential of providing DISH with a useful fast-start on the establishment of
2 its own cell sites, provided of course that they were to become available sooner rather than later.

3
4
5
6
7

Service Provider	CELL SITES
Verizon	61,800
AT&T	70,300
T-Mobile	61,457
Sprint	50,000

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9
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11
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14
15

Source: FCC Communications Marketplace Report, fn. 110, citing CTIA Wireless Industry Indices Year-End 2017, at 54.

16 85. CTIA puts the total number of cell sites in service as of the end of 2017 at 323,448,⁹⁴
17 about 80,000 more than the individual carrier figures for the four largest MNOs as given by the
18 FCC. Regional carriers, such as US Cellular, no doubt account for some of the difference.
19 There is relatively little variation among the top four MNOs with respect to their cell site counts
20 when compared with the variation in total customers. Nationwide coverage appears to require
21 somewhere in the range of 60,00 to 70,000 cell sites. The 20,000 decommissioned Sprint cell
22 sites that are to be divested to DISH will require substantial augmentation if national coverage is
23 to achieved.

24
25 86. For the same reason that New T-Mobile needs to hold on to the Sprint 800 MHz
26 spectrum while it transitions former Sprint customers to the T-Mobile network, it will likely

94. <https://www.ctia.org/news/the-state-of-wireless-2018> (accessed 11/2/19).

1 need to retain most Sprint cell sites until that transition is completed. But DISH needs to
2 establish cell sites right away if it is to meet its 5G build-out commitments. If these decommis-
3 sioned cell sites are not available to DISH for several years, their potential future availability
4 may be of little value to DISH in building out its 5G network within the time frame that it has
5 committed to meet.

6

7 **The PFJ's various enforcement remedies cannot assure a competitive outcome**

8

9 87. In an attempt to assure compliance by both parties (New T-Mobile and DISH) to the
10 terms of the Consent Decree, the PFJ imposes various fines and penalties upon one or the other
11 side in the event of their failure to comply with its terms. However, these fines and penalties for
12 noncompliance must be viewed in the larger context of the post-merger New T-Mobile's ability
13 to engage in coordinated conduct with its two principal rivals (AT&T and Verizon) and in so
14 doing effect potentially substantial increases in price.

15

16 88. T-Mobile's operating revenues for 2018 were \$43.3-billion,⁹⁵ Sprint's revenues for the
17 12-months ending March 31, 2019, was \$33.6-billion, or about \$76.9-billion combined. If, post
18 merger, the combined company is able to effect a 5% overall increase in price, that would
19 produce an additional \$3.85-billion in annual operating revenues, the various penalties and fines
20 that are specified in the PFJ look like petty cash by comparison.

21

95. T-Mobile 2018 Form 10-K, at 28.

1 89. *800 MHz spectrum licenses.* New T-Mobile is given up to three (3) years to divest the
2 Sprint 800 MHz spectrum to DISH. “If NTM fails to sell the spectrum to [DISH] following the
3 satisfaction or waiver of all closing conditions, [DISH’s] sole recourse will be to seek specific
4 performance, and if (and only if) specific performance is unavailable, to seek damages of up to
5 approximately \$72 million.”⁹⁶ \$72-million is only 2% of the \$3.6-*billion* price that the PFJ
6 places on the to-be-divested 800 MHz spectrum. Thus, if at the end of three years New
7 T-Mobile perceives the Sprint 800 MHz spectrum as being worth anything materially in excess
8 of the \$3.59-million price that Sprint agreed to sell and DISH agreed to pay, New T-Mobile can
9 simply walk away from the deal and potentially sell that spectrum at a higher price by writing a
10 check to DISH for \$72-million.⁹⁷ To the extent that the Department of Justice views the
11 divestiture of the Sprint 800 MHz spectrum *to DISH* as essential to the creation of a fourth
12 national facilities-based wireless carrier, there is simply no assurance that such a divestiture will
13 actually take place.

14

15 90. *Decommissioned cell sites.* The PFJ requires New T-Mobile to provide DISH, on a
16 monthly basis, a 270-day rolling monthly forecast of the cell sites that are scheduled for
17 decommissioning. Forecasted decommissionings within 180 days are to be binding on New
18 T-Mobile, subject to certain limited exceptions. New T-Mobile may be subject to fines if any

96. DISH Response to Public Advocates Data Request 2.1, at 6-7.

97. New T-Mobile cannot, in any event, retain the spectrum indefinitely for its own use. However, if the licenses are put up for auction, the proceeds will inure to New T-Mobile.

1 sites included within the 180-day forecast are not made available for acquisition by DISH.⁹⁸
2 While the PFJ requires that “[New T-Mobile] shall Decommission unnecessary Cell Sites
3 promptly [and] vacate a Decommissioned Cell Site as soon as reasonably possible after the site
4 is no longer in use on any of the Divesting Defendants’ networks,”⁹⁹ the PFJ does not define
5 what constitutes an “unnecessary Cell Site” nor does it specify or require that any specific
6 number of cell sites be decommissioned and made available to DISH within any specific time
7 frame, other than within five years, and that no fewer than 20,000 cell sites be offered to DISH
8 immediately after being decommissioned.¹⁰⁰

9

10 91. To be sure, New T-Mobile will incur costs by delaying decommissioning of any site.
11 For example, if it does not own the site, it would continue to make rental payments to the site
12 owner. If it keeps a site in service, it foregoes the ability to redeploy any equipment at that
13 location for use elsewhere. I am not suggesting that New T-Mobile might simply wait out the
14 full five years before decommissioning any sites to DISH. But it certainly has no incentive to
15 pursue decommissioning in the most expeditious manner. Indeed, it appears that one aspect of
16 the PFJ may actually work at cross-purposes to expedited decommissioning. If a site is placed
17 on the 180-day rolling forecast for decommissioning and New T-Mobile fails to deliver the site
18 to DISH at the appointed date, it may be subject to fines of \$50,000 or \$100,000 for each such
19 site depending upon the length of the delay. But since there is no requirement that any specific

98. PFJ, § IV.C.4.

99. PFJ, § IV.C.5.

100. PFJ, § IV.C.1.

1 number of cell sites be listed on these forecasts, New T-Mobile is afforded a clear incentive to
2 slow-roll the process and not list any site unless and until it is absolutely available for handover
3 to DISH.

4
5 92. Finally, it is difficult to see how DISH will be able to successfully factor the potential
6 availability of specific decommissioned cell sites into its 5G network planning, particularly since
7 at most it will receive only 270-days of advance notice as to availability. Additionally, as Mr.
8 Reed has noted, the specific locations of the cell sites that the Joint Applicants have previously
9 identified as candidates for decommissioning offer extremely limited coverage.¹⁰¹ If DISH truly
10 intends to construct a robust 5G network with broad coverage and availability and do so by the
11 end of 2022 as Mr. Blum suggests, the decommissioned cell sites that may be made available
12 will be of limited value at best.

13
14 93. *Retail locations.* The PFJ requires that New T-Mobile make all assignable or
15 transferrable Retail Locations it decommissions available to DISH within five years, and that no
16 fewer than 400 such locations be made available to DISH immediately after decommissioning.¹⁰²
17 No fines or penalties are specified in the PFJ in the event that New T-Mobile fails to comply
18 with this aspect of the divestiture.

19

101. **cite to Cameron

102. PFJ, § IV.D.1.

1 94. The problem with all of these mechanisms is that, while they might provide some
2 financial incentive for compliance, they cannot cure the failure of DISH to take on the role of
3 effective competitor if compliance does not occur. If New T-Mobile fails to divest any of the
4 specified assets, or if DISH fails to purchase them, the fines or penalties that may be imposed are
5 simply too small to compel compliance if it is in a party's interest not to do so. If at the end of
6 the day DISH is unable to construct a robust and competitive 5G network capable of providing a
7 meaningful competitive challenge to the three incumbent MNOs, the concerns expressed by the
8 DoJ – and by myself and others in our earlier testimony in this proceeding – will have been
9 borne out.

10

11 **Conclusion**

12

13 95. For all of the reasons discussed in this testimony and contrary to the Joint Applicants'
14 contentions and the Department of Justice's expectations, there is no assurance that DISH will be
15 capable of becoming the competitively viable fourth facilities-based mobile wireless carrier that
16 the DoJ has deemed essential to maintain the present level of competition in the wireless market.
17 As I have shown, even under the most optimistic DISH ramp-up scenario, at the end of the seven
18 year duration of the PFJ, the increase in the HHI both statewide and nationally will far exceed
19 the 200-point threshold as specified in the *Horizontal Merger Guidelines*. The Sprint/T-Mobile
20 merger is not in the public interest and the various measures specified in the PFJ will not come
21 even close to addressing, let alone curing, its anticompetitive outcome. Accordingly, this
22 Commission should find that the concerns expressed in the DoJ and 16-state *Complaints* are
23 entirely valid and that the PFJ will not cure them. The Commission should thus find that the

- 1 specific relief being sought in both *Complaints* – that the merger not be allowed to go forward –
- 2 should be adopted here.

DECLARATION

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information and belief, and if called to testify thereon I am prepared to do so.



LEE L. SELWYN

Executed at Boston, Massachusetts
this 22nd day of November, 2019.

Attachment
to the
Reply Testimony of
Lee L. Selwyn

November 22, 2019

Pre-Merger
California Spectrum Shares

Table 3-Redline - Pre-Merger

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND

Pre-Merger

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	T-mobile	Sprint	Dish	USCOC
Alameda	Low Band	82	90	32	14	0	0
	Mid-Band	200	150	80	186.5	0	0
	Total	282	240	112	200.5	0	0
Alpine	Low Band	32	74	52	14	0	0
	Mid-Band	180	160	60	192.2	0	0
	Total	212	234	112	206.2	0	0
Amador	Low Band	32	74	32	14	0	0
	Mid-Band	180	180	70	181.8	0	0
	Total	212	254	102	195.8	0	0
Butte	Low Band	82	74	32	14	0	0
	Mid-Band	180	150	70	196.5	0	0
	Total	262	224	102	210.5	0	0
Calaveras	Low Band	32	80	52	14	0	0
	Mid-Band	180	150	70	196.5	0	0
	Total	212	230	122	210.5	0	0
Colusa	Low Band	82	62	32	14	0	0
	Mid-Band	180	180	70	186.5	0	0
	Total	262	242	102	200.5	0	0
Contra Costa	Low Band	82	90	32	14	0	0
	Mid-Band	200	150	80	186.5	0	0
	Total	282	240	112	200.5	0	0
Del Norte	Low Band	82	12	30	14	0	50
	Mid-Band	170	150	70	107.5	0	0
	Total	252	162	100	121.5	0	50
El Dorado	Low Band	82	74	32	14	0	0
	Mid-Band	180	180	70	186.5	0	0
	Total	262	254	102	200.5	0	0
Fresno	Low Band	82	74	32	14	0	0
	Mid-Band	160	180	70	186.5	0	0
	Total	242	254	102	200.5	0	0
Glenn	Low Band	82	62	32	14	0	0
	Mid-Band	180	150	70	196.5	0	0
	Total	262	212	102	210.5	0	0
Humboldt	Low Band	82	18	42	14	0	60
	Mid-Band	170	170	60	143.1	0	0
	Total	252	188	102	157.1	0	60
Imperial	Low Band	82	30	52	11	0	0
	Mid-Band	180	190	65	100	0	0
	Total	262	220	117	111	0	0
Inyo	Low Band	82	74	52	14	0	0
	Mid-Band	150	130	70	107.5	0	0
	Total	232	204	122	121.5	0	0
Kern	Low Band	82	80	42	14	0	0
	Mid-Band	190	180	90	186.5	0	0
	Total	272	260	132	200.5	0	0
Kings	Low Band	82	74	32	14	0	0
	Mid-Band	170	210	40	160.9	0	0
	Total	252	284	72	174.9	0	0
Lake	Low Band	82	18	42	14	0	60
	Mid-Band	200	150	70	150.9	0	0
	Total	282	168	112	164.9	0	60
Lassen	Low Band	32	12	52	14	0	50
	Mid-Band	180	160	70	97.5	0	0
	Total	212	172	122	111.5	0	50

Table 3-Redline - Pre-Merger

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND

Pre-Merger

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	T-mobile	Sprint	Dish	USCOC
Los Angeles	Low Band	82	80	42	14	0	0
	Mid-Band	180	180	70	185.8	0	0
	Total	262	260	112	199.8	0	0
Madera	Low Band	32	74	32	14	0	0
	Mid-Band	140	210	50	186.5	0	0
	Total	172	284	82	200.5	0	0
Marin	Low Band	82	90	32	14	0	0
	Mid-Band	200	150	80	175	0	0
	Total	282	240	112	189	0	0
Mariposa	Low Band	32	80	52	14	0	0
	Mid-Band	170	170	60	196.5	0	0
	Total	202	250	112	210.5	0	0
Mendocino	Low Band	82	18	42	14	0	60
	Mid-Band	200	150	60	133.1	0	0
	Total	282	168	102	147.1	0	60
Merced	Low Band	32	80	52	14	0	0
	Mid-Band	140	200	60	186.5	0	0
	Total	172	280	112	200.5	0	0
Modoc	Low Band	32	12	30	14	0	60
	Mid-Band	150	100	70	107.5	0	30
	Total	182	112	100	121.5	0	90
Mono	Low Band	82	74	52	14	0	0
	Mid-Band	150	160	60	107.5	0	0
	Total	232	234	112	121.5	0	0
Monterey	Low Band	82	90	32	14	0	0
	Mid-Band	170	180	85	140.7	0	0
	Total	252	270	117	154.7	0	0
Napa	Low Band	82	90	32	14	0	0
	Mid-Band	200	150	80	186.5	0	0
	Total	282	240	112	200.5	0	0
Nevada	Low Band	82	74	32	14	0	0
	Mid-Band	180	180	70	186.5	0	0
	Total	262	254	102	200.5	0	0
Orange	Low Band	82	80	42	14	0	0
	Mid-Band	180	180	70	190.5	0	0
	Total	262	260	112	204.5	0	0
Placer	Low Band	82	74	32	14	0	0
	Mid-Band	180	180	80	177	0	0
	Total	262	254	112	191	0	0
Plumas	Low Band	32	12	52	14	0	50
	Mid-Band	180	160	70	168.7	0	0
	Total	212	172	122	182.7	0	50
Riverside	Low Band	82	80	42	14	0	0
	Mid-Band	180	180	70	196.5	0	0
	Total	262	260	112	210.5	0	0
Sacramento	Low Band	82	74	32	14	0	0
	Mid-Band	180	180	80	177	0	0
	Total	262	254	112	191	0	0
San Benito	Low Band	32	80	52	14	0	0
	Mid-Band	170	180	70	140.7	0	0
	Total	202	260	122	154.7	0	0
San Bernardino	Low Band	82	80	42	14	0	0
	Mid-Band	180	180	70	196.5	0	0
	Total	262	260	112	210.5	0	0

Table 3-Redline - Pre-Merger

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND

Pre-Merger

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	T-mobile	Sprint	Dish	USCOC
San Diego	Low Band	82	74	42	14	0	0
	Mid-Band	150	150	70	187	0	0
	Total	232	224	112	201	0	0
San Francisco	Low Band	82	90	32	14	0	0
	Mid-Band	200	150	80	166.3	0	0
	Total	282	240	112	180.3	0	0
San Joaquin	Low Band	82	90	32	14	0	0
	Mid-Band	180	150	80	196.5	0	0
	Total	262	240	112	210.5	0	0
San Luis Obispo	Low Band	32	80	42	14	0	0
	Mid-Band	180	180	60	186.5	0	0
	Total	212	260	102	200.5	0	0
San Mateo	Low Band	82	90	32	14	0	0
	Mid-Band	200	150	80	186.5	0	0
	Total	282	240	112	200.5	0	0
Santa Barbara	Low Band	32	80	42	14	0	0
	Mid-Band	220	150	70	186.5	0	0
	Total	252	230	112	200.5	0	0
Santa Clara	Low Band	82	90	32	14	0	0
	Mid-Band	190	150	90	186.5	0	0
	Total	272	240	122	200.5	0	0
Santa Cruz	Low Band	82	90	32	14	0	0
	Mid-Band	170	180	70	186.5	0	0
	Total	252	270	102	200.5	0	0
Shasta	Low Band	82	62	30	14	0	10
	Mid-Band	170	140	80	186.5	0	0
	Total	252	202	110	200.5	0	10
Sierra	Low Band	82	74	52	14	0	0
	Mid-Band	180	160	80	186.5	0	0
	Total	262	234	132	200.5	0	0
Siskiyou	Low Band	82	12	30	14	0	60
	Mid-Band	170	140	80	97.5	0	0
	Total	252	152	110	111.5	0	60
Solano	Low Band	82	90	32	14	0	0
	Mid-Band	200	150	80	186.5	0	0
	Total	282	240	112	200.5	0	0
Sonoma	Low Band	82	90	32	14	0	0
	Mid-Band	170	180	80	168.7	0	0
	Total	252	270	112	182.7	0	0
Stanislaus	Low Band	82	90	32	14	0	0
	Mid-Band	150	220	75	186.5	0	0
	Total	232	310	107	200.5	0	0
Sutter	Low Band	82	74	32	14	0	0
	Mid-Band	180	150	70	191.8	0	0
	Total	262	224	102	205.8	0	0
Tehama	Low Band	82	62	30	14	0	10
	Mid-Band	170	140	80	186.5	0	0
	Total	252	202	110	200.5	0	10
Trinity	Low Band	82	18	42	14	0	60
	Mid-Band	170	160	70	186.5	0	0
	Total	252	178	112	200.5	0	60
Tulare	Low Band	82	74	32	14	0	0
	Mid-Band	200	180	50	196.5	0	0
	Total	282	254	82	210.5	0	0

Table 3-Redline - Pre-Merger

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Pre-Merger
(Values shown are in MegaHertz)**

County	Band	Verizon	AT&T	T-mobile	Sprint	Dish	USCOC
Tuolumne	Low Band	32	80	52	14	0	0
	Mid-Band	180	180	65	186.5	0	0
	Total	212	260	117	200.5	0	0
Ventura	Low Band	82	80	42	14	0	0
	Mid-Band	190	150	80	178.7	0	0
	Total	272	230	122	192.7	0	0
Yolo	Low Band	82	74	32	14	0	0
	Mid-Band	180	180	80	177	0	0
	Total	262	254	112	191	0	0
Yuba	Low Band	82	74	32	14	0	0
	Mid-Band	180	150	70	191.8	0	0
	Total	262	224	102	205.8	0	0

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

DISH FCC Licenses

EXHIBIT 4 -- List of licenses DISH owns in California

DISH Network Licenses

AWS-4, 600 MHz, 700 MHz E Block, AWS H-Block

Licensee	Service	Market Number	Market Name	Call Sign
DBSD Services Limited	AWS-4	BEA151	Reno, NV-CA	T070272151
DBSD Services Limited	AWS-4	BEA160	Los Angeles-Riverside-Orange County, CA-AZ	T070272160
DBSD Services Limited	AWS-4	BEA161	San Diego, CA	T070272161
DBSD Services Limited	AWS-4	BEA162	Fresno, CA	T070272162
DBSD Services Limited	AWS-4	BEA163	San Francisco-Oakland-San Jose, CA	T070272163
DBSD Services Limited	AWS-4	BEA164	Sacramento-Yolo, CA	T070272164
DBSD Services Limited	AWS-4	BEA165	Redding, CA-OR	T070272165
DBSD Services Limited	AWS-4	BEA166	Eugene-Springfield, OR-CA	T070272166
Gamma Acquisition L.L.C.	AWS-4	BEA151	Reno, NV-CA	T060430151
Gamma Acquisition L.L.C.	AWS-4	BEA160	Los Angeles-Riverside-Orange County, CA-AZ	T060430160
Gamma Acquisition L.L.C.	AWS-4	BEA161	San Diego, CA	T060430161
Gamma Acquisition L.L.C.	AWS-4	BEA162	Fresno, CA	T060430162
Gamma Acquisition L.L.C.	AWS-4	BEA163	San Francisco-Oakland-San Jose, CA	T060430163
Gamma Acquisition L.L.C.	AWS-4	BEA164	Sacramento-Yolo, CA	T060430164
Gamma Acquisition L.L.C.	AWS-4	BEA165	Redding, CA-OR	T060430165
Gamma Acquisition L.L.C.	AWS-4	BEA166	Eugene-Springfield, OR-CA	T060430166
ParkerB.com Wireless L.L.C.	600 MHz	PEA 004	San Francisco	WQZM319
ParkerB.com Wireless L.L.C.	600 MHz	PEA 004	San Francisco	WQZM320
ParkerB.com Wireless L.L.C.	600 MHz	PEA 004	San Francisco	WQZM321
ParkerB.com Wireless L.L.C.	600 MHz	PEA 022	Sacramento	WQZM393
ParkerB.com Wireless L.L.C.	600 MHz	PEA 022	Sacramento	WQZM394
ParkerB.com Wireless L.L.C.	600 MHz	PEA 018	San Diego	WQZM417
ParkerB.com Wireless L.L.C.	600 MHz	PEA 018	San Diego	WQZM418
ParkerB.com Wireless L.L.C.	600 MHz	PEA 002	Los Angeles	WQZM457
ParkerB.com Wireless L.L.C.	600 MHz	PEA 002	Los Angeles	WQZM458
ParkerB.com Wireless L.L.C.	600 MHz	PEA 034	Fresno	WQZM462
ParkerB.com Wireless L.L.C.	600 MHz	PEA 034	Fresno	WQZM463
ParkerB.com Wireless L.L.C.	600 MHz	PEA 142	Merced	WQZM620
ParkerB.com Wireless L.L.C.	600 MHz	PEA 142	Merced	WQZM621
ParkerB.com Wireless L.L.C.	600 MHz	PEA 205	Douglas City	WQZM655
ParkerB.com Wireless L.L.C.	600 MHz	PEA 166	Redding	WQZM683
Manifest Wireless L.L.C.	Lower 700 MHz E Block	BEA151	Reno, NV-CA	WQJZ293
Manifest Wireless L.L.C.	Lower 700 MHz E Block	BEA161	San Diego, CA	WQJZ302
Manifest Wireless L.L.C.	Lower 700 MHz E Block	BEA162	Fresno, CA	WQJZ303
Manifest Wireless L.L.C.	Lower 700 MHz E Block	BEA164	Sacramento-Yolo, CA	WQJZ304
Manifest Wireless L.L.C.	Lower 700 MHz E Block	BEA165	Redding, CA-OR	WQJZ305
Manifest Wireless L.L.C.	Lower 700 MHz E Block	BEA166	Eugene-Springfield, OR-CA	WQJZ306
American H Block Wireless L.L.C.	AWS H-Block	BEA151	Reno, NV-CA	WQTX350
American H Block Wireless L.L.C.	AWS H-Block	BEA160	Los Angeles-Riverside-Orange County, CA-AZ	WQTX359
American H Block Wireless L.L.C.	AWS H-Block	BEA161	San Diego, CA	WQTX360
American H Block Wireless L.L.C.	AWS H-Block	BEA162	Fresno, CA	WQTX361
American H Block Wireless L.L.C.	AWS H-Block	BEA163	San Francisco-Oakland-San Jose, CA	WQTX362
American H Block Wireless L.L.C.	AWS H-Block	BEA164	Sacramento-Yolo, CA	WQTX363
American H Block Wireless L.L.C.	AWS H-Block	BEA165	Redding, CA-OR	WQTX364
American H Block Wireless L.L.C.	AWS H-Block	BEA166	Eugene-Springfield, OR-CA	WQTX365

ETI DISH Ramp-Up Model

Base Case

Table A-1 - Base Case

CONSTANTS AND ASSUMPTIONS

SENSITIVITY ANALYSIS - 600 MHz Lease	Constants	Sensitivity Adjusted Factor Constant	
Market-wide prepaid monthly churn rate	4.00%	1.00	4.00%
Market-wide postpaid monthly churn rate	1.00%	1.00	1.00%
Dish prepaid monthly churn rate	4.00%	1.00	4.00%
Dish postpaid monthly churn rate	1.50%	1.00	1.50%
Monthly prepaid market growth rate	0.41%	1.00	0.41%
Monthly postpaid market growth rate	0.41%	1.00	0.41%
Dish prepaid market share (9.3-million/60-million)	14.31%	1.00	14.31%
Dish spectrum share customer acquisition multiplier		1.00	0.00%

Table A-2 - BASE CASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2020 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Dish Facilities-Based 5G Population Coverage	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total prepaid subscribers	65,000	65,265	65,531	65,798	66,066	66,335	66,605	66,877	67,149	67,423	67,697	67,973
Total postpaid subscribers	276,000	277,124	278,253	279,387	280,525	281,668	282,816	283,968	285,125	286,287	287,453	288,624
TOTAL MARKET	341,000	342,389	343,784	345,185	346,591	348,003	349,421	350,845	352,274	353,709	355,150	356,597
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,228	2,239	2,250	2,261	2,273	2,284	2,295	2,305	2,316	2,327	2,338	2,349
Postpaid-from churn	2,760	2,771	2,783	2,794	2,805	2,817	2,828	2,840	2,851	2,863	2,875	2,886
Prepaid from market growth	265	266	267	268	269	270	271	272	274	275	276	277
Postpaid-from market growth	1,124	1,129	1,134	1,138	1,143	1,148	1,152	1,157	1,162	1,166	1,171	1,176
Total Addressable customers	6,377	6,405	6,434	6,462	6,490	6,518	6,546	6,575	6,603	6,631	6,660	6,688
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	319	320	322	324	325	327	328	330	331	333	335	336
Postpaid from churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid from growth	38	38	38	38	39	39	39	39	39	39	39	40
Postpaid from growth	-	-	-	-	-	-	-	-	-	-	-	-
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,300	9,285	9,272	9,261	9,252	9,246	9,242	9,239	9,238	9,239	9,242	9,246
Postpaid Beginning of Month	-	-	-	-	-	-	-	-	-	-	-	-
	4,443											
Dish prepaid Churn	372	371	371	370	370	370	370	370	370	370	370	370
Dish Postpaid churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid End of Month	9,285	9,272	9,261	9,252	9,246	9,242	9,239	9,238	9,239	9,242	9,246	9,252
Postpaid End of Month	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL DISH SUBS	9,285	9,272	9,261	9,252	9,246	9,242	9,239	9,238	9,239	9,242	9,246	9,252
TOTAL DISH MARKET SHARE	2.72%	2.71%	2.69%	2.68%	2.67%	2.66%	2.64%	2.63%	2.62%	2.61%	2.60%	2.59%

Table A-2 - BASE CASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2021 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Dish Facilities-Based 5G Population Coverage	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total prepaid subscribers	68,250	68,528	68,807	69,088	69,369	69,652	69,935	70,220	70,506	70,794	71,082	71,372
Total postpaid subscribers	289,800	290,981	292,166	293,356	294,552	295,752	296,957	298,166	299,381	300,601	301,826	303,055
TOTAL MARKET	358,050	359,509	360,973	362,444	363,921	365,403	366,892	368,387	369,888	371,395	372,908	374,427
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,360	2,371	2,382	2,392	2,403	2,414	2,425	2,436	2,446	2,457	2,468	2,479
Postpaid-from churn	2,898	2,910	2,922	2,934	2,946	2,958	2,970	2,982	2,994	3,006	3,018	3,031
Prepaid from market growth	278	279	280	281	283	284	285	286	287	288	290	291
Postpaid-from market growth	1,181	1,185	1,190	1,195	1,200	1,205	1,210	1,215	1,220	1,225	1,230	1,235
Total Addressable customers	6,717	6,745	6,774	6,803	6,831	6,860	6,889	6,918	6,947	6,976	7,005	7,035
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	338	339	341	342	344	345	347	348	350	352	353	355
Postpaid from churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid from growth	40	40	40	40	40	41	41	41	41	41	41	42
Postpaid from growth	-	-	-	-	-	-	-	-	-	-	-	-
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,252	9,260	9,268	9,278	9,290	9,303	9,316	9,332	9,348	9,365	9,383	9,402
Postpaid Beginning of Month	-	-	-	-	-	-	-	-	-	-	-	-
	4,443											
Dish prepaid Churn	370	370	371	371	372	372	373	373	374	375	375	376
Dish Postpaid churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid End of Month	9,260	9,268	9,278	9,290	9,303	9,316	9,332	9,348	9,365	9,383	9,402	9,422
Postpaid End of Month	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL DISH SUBS	9,260	9,268	9,278	9,290	9,303	9,316	9,332	9,348	9,365	9,383	9,402	9,422
TOTAL DISH MARKET SHARE	2.59%	2.58%	2.57%	2.56%	2.56%	2.55%	2.54%	2.54%	2.53%	2.53%	2.52%	2.52%

Table A-2 - BASE CASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2022 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	8.06%	8.06%	8.06%	8.06%	8.06%	8.06%	8.06%	8.06%	8.06%	8.06%	8.06%	8.06%
Dish Facilities-Based 5G Population Coverage	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Total prepaid subscribers	71,663	71,954	72,248	72,542	72,838	73,134	73,432	73,731	74,032	74,333	74,636	74,940
Total postpaid subscribers	304,290	305,530	306,774	308,024	309,279	310,539	311,804	313,075	314,350	315,631	316,917	318,208
TOTAL MARKET	375,953	377,484	379,022	380,566	382,117	383,674	385,237	386,806	388,382	389,964	391,553	393,148
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,490	2,500	2,511	2,522	2,533	2,544	2,555	2,566	2,577	2,588	2,599	2,610
Postpaid-from churn	3,043	3,055	3,067	3,079	3,091	3,103	3,116	3,128	3,140	3,153	3,165	3,178
Prepaid from market growth	292	293	294	296	297	298	299	300	302	303	304	305
Postpaid-from market growth	1,240	1,245	1,250	1,255	1,260	1,265	1,270	1,276	1,281	1,286	1,291	1,296
Total Addressable customers	7,064	7,093	7,122	7,152	7,181	7,210	7,240	7,270	7,299	7,329	7,359	7,389
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	356	358	359	361	362	364	366	367	369	370	372	373
Postpaid from churn	49	49	49	50	50	50	50	50	51	51	51	51
Prepaid from growth	42	42	42	42	42	43	43	43	43	43	44	44
Postpaid from growth	40	40	40	40	41	41	41	41	41	41	42	42
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,422	9,444	9,466	9,488	9,512	9,536	9,561	9,587	9,614	9,641	9,669	9,698
Postpaid Beginning of Month	-	40	80	119	157	196	233	271	308	345	381	417
	4,443											
Dish prepaid Churn	377	378	379	380	380	381	382	383	385	386	387	388
Dish Postpaid churn	-	1	1	2	2	3	4	4	5	5	6	6
Prepaid End of Month	9,444	9,466	9,488	9,512	9,536	9,561	9,587	9,614	9,641	9,669	9,698	9,727
Postpaid End of Month	40	80	119	157	196	233	271	308	345	381	417	452
TOTAL DISH SUBS	9,484	9,545	9,607	9,669	9,732	9,795	9,858	9,922	9,986	10,050	10,115	10,179
TOTAL DISH MARKET SHARE	2.52%	2.53%	2.53%	2.54%	2.55%	2.55%	2.56%	2.57%	2.57%	2.58%	2.58%	2.59%

Table A-2 - BASE CASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2023 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	75,246	75,552	75,860	76,169	76,479	76,791	77,104	77,418	77,733	78,050	78,368	78,687
Total postpaid subscribers	319,505	320,806	322,113	323,426	324,743	326,066	327,395	328,729	330,068	331,413	332,763	334,118
TOTAL MARKET	394,750	396,358	397,973	399,595	401,223	402,857	404,499	406,146	407,801	409,463	411,131	412,806
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,621	2,632	2,643	2,654	2,665	2,676	2,688	2,699	2,710	2,721	2,733	2,744
Postpaid-from churn	3,191	3,202	3,213	3,225	3,237	3,248	3,260	3,272	3,284	3,296	3,308	3,320
Prepaid from market growth	307	308	309	310	312	313	314	315	317	318	319	321
Postpaid-from market growth	1,302	1,307	1,312	1,318	1,323	1,328	1,334	1,339	1,345	1,350	1,356	1,361
Total Addressable customers	7,420	7,449	7,478	7,507	7,536	7,566	7,596	7,626	7,655	7,686	7,716	7,746
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	375	377	378	380	381	383	385	386	388	389	391	393
Postpaid from churn	203	203	204	205	206	206	207	208	209	209	210	211
Prepaid from growth	44	44	44	44	45	45	45	45	45	45	46	46
Postpaid from growth	165	166	167	167	168	169	170	170	171	172	172	173
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,727	9,757	9,787	9,818	9,849	9,881	9,914	9,947	9,980	10,014	10,048	10,083
Postpaid Beginning of Month	452	611	768	923	1,077	1,229	1,379	1,528	1,675	1,821	1,966	2,108
Dish prepaid Churn	4,443	389	390	391	393	394	395	397	398	399	401	403
Dish Postpaid churn		7	9	12	14	16	18	21	23	25	27	32
Prepaid End of Month	9,757	9,787	9,818	9,849	9,881	9,914	9,947	9,980	10,014	10,048	10,083	10,118
Postpaid End of Month	611	768	923	1,077	1,229	1,379	1,528	1,675	1,821	1,966	2,108	2,250
TOTAL DISH SUBS	10,368	10,555	10,741	10,926	11,110	11,293	11,475	11,655	11,835	12,014	12,191	12,368
TOTAL DISH MARKET SHARE	2.63%	2.66%	2.70%	2.73%	2.77%	2.80%	2.84%	2.87%	2.90%	2.93%	2.97%	3.00%

Table A-2 - BASE CASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2024 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%	9.08%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	79,008	79,330	79,653	79,978	80,303	80,631	80,959	81,289	81,620	81,953	82,286	82,622
Total postpaid subscribers	335,480	336,847	338,219	339,597	340,980	342,370	343,764	345,165	346,571	347,983	349,401	350,824
TOTAL MARKET	414,488	416,176	417,872	419,574	421,284	423,000	424,723	426,454	428,191	429,936	431,687	433,446
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,756	2,767	2,779	2,790	2,802	2,813	2,825	2,837	2,848	2,860	2,872	2,884
Postpaid-from churn	3,332	3,345	3,357	3,369	3,382	3,394	3,407	3,420	3,432	3,445	3,458	3,471
Prepaid from market growth	322	323	325	326	327	328	330	331	333	334	335	337
Postpaid-from market growth	1,367	1,372	1,378	1,384	1,389	1,395	1,401	1,406	1,412	1,418	1,424	1,429
Total Addressable customers	7,777	7,807	7,838	7,869	7,900	7,931	7,962	7,994	8,025	8,057	8,089	8,121
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	394	396	398	399	401	403	404	406	408	409	411	413
Postpaid from churn	212	213	213	214	215	216	217	217	218	219	220	221
Prepaid from growth	46	46	46	47	47	47	47	47	48	48	48	48
Postpaid from growth	174	174	175	176	177	177	178	179	179	180	181	182
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	10,118	10,154	10,190	10,226	10,263	10,300	10,337	10,375	10,414	10,452	10,491	10,530
Postpaid Beginning of Month	2,250	2,390	2,528	2,665	2,801	2,936	3,069	3,201	3,332	3,461	3,590	3,717
	4,443											
Dish prepaid Churn	405	406	408	409	411	412	413	415	417	418	420	421
Dish Postpaid churn	34	36	38	40	42	44	46	48	50	52	54	56
Prepaid End of Month	10,154	10,190	10,226	10,263	10,300	10,337	10,375	10,414	10,452	10,491	10,530	10,570
Postpaid End of Month	2,390	2,528	2,665	2,801	2,936	3,069	3,201	3,332	3,461	3,590	3,717	3,843
TOTAL DISH SUBS	12,543	12,718	12,892	13,064	13,236	13,407	13,576	13,745	13,913	14,081	14,247	14,412
TOTAL DISH MARKET SHARE	3.03%	3.06%	3.09%	3.11%	3.14%	3.17%	3.20%	3.22%	3.25%	3.28%	3.30%	3.33%

Table A-2 - BASE CASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2025 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	82,958	83,296	83,636	83,976	84,319	84,662	85,007	85,353	85,701	86,050	86,401	86,753
Total postpaid subscribers	352,254	353,689	355,130	356,577	358,029	359,488	360,953	362,423	363,900	365,382	366,871	368,366
TOTAL MARKET	435,212	436,985	438,765	440,553	442,348	444,150	445,960	447,777	449,601	451,433	453,272	455,118
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,896	2,907	2,919	2,931	2,944	2,956	2,968	2,980	2,992	3,004	3,017	3,029
Postpaid-from churn	3,484	3,497	3,510	3,523	3,537	3,550	3,563	3,577	3,590	3,604	3,618	3,631
Prepaid from market growth	338	339	341	342	344	345	346	348	349	351	352	353
Postpaid-from market growth	1,435	1,441	1,447	1,453	1,459	1,465	1,471	1,477	1,483	1,489	1,495	1,501
Total Addressable customers	8,153	8,185	8,217	8,250	8,282	8,315	8,348	8,381	8,414	8,447	8,481	8,515
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	414	416	418	419	421	423	425	426	428	430	432	433
Postpaid from churn	231	232	233	234	235	236	236	237	238	239	240	241
Prepaid from growth	48	49	49	49	49	49	50	50	50	50	50	51
Postpaid from growth	190	191	192	193	194	194	195	196	197	198	198	199
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	10,570	10,610	10,650	10,690	10,731	10,772	10,813	10,855	10,897	10,939	10,982	11,024
Postpaid Beginning of Month	3,843	3,975	4,107	4,237	4,367	4,495	4,622	4,747	4,872	4,996	5,118	5,240
	4,443											
Dish prepaid Churn	423	424	426	428	429	431	433	434	436	438	439	441
Dish Postpaid churn	58	60	62	64	65	67	69	71	73	75	77	79
Prepaid End of Month	10,610	10,650	10,690	10,731	10,772	10,813	10,855	10,897	10,939	10,982	11,024	11,067
Postpaid End of Month	3,975	4,107	4,237	4,367	4,495	4,622	4,747	4,872	4,996	5,118	5,240	5,361
TOTAL DISH SUBS	14,585	14,757	14,928	15,098	15,267	15,435	15,602	15,769	15,935	16,100	16,264	16,428
TOTAL DISH MARKET SHARE	3.35%	3.38%	3.40%	3.43%	3.45%	3.48%	3.50%	3.52%	3.54%	3.57%	3.59%	3.61%

Table A-2 - BASE CASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2026 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%	9.48%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	87,106	87,461	87,817	88,175	88,534	88,895	89,257	89,621	89,986	90,353	90,721	91,090
Total postpaid subscribers	369,866	371,373	372,886	374,405	375,931	377,462	379,000	380,544	382,095	383,651	385,214	386,784
TOTAL MARKET	456,973	458,834	460,704	462,581	464,465	466,358	468,258	470,165	472,081	474,004	475,935	477,874
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	3,042	3,054	3,067	3,079	3,092	3,104	3,117	3,130	3,143	3,155	3,168	3,181
Postpaid-from churn	3,645	3,659	3,673	3,687	3,701	3,715	3,729	3,744	3,758	3,772	3,787	3,802
Prepaid from market growth	355	356	358	359	361	362	364	365	367	368	370	371
Postpaid-from market growth	1,507	1,513	1,519	1,525	1,532	1,538	1,544	1,550	1,557	1,563	1,569	1,576
Total Addressable customers	8,548	8,582	8,616	8,651	8,685	8,719	8,754	8,789	8,824	8,859	8,894	8,930
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	435	437	439	441	442	444	446	448	450	451	453	455
Postpaid from churn	242	243	244	245	246	247	247	248	249	250	251	252
Prepaid from growth	51	51	51	51	52	52	52	52	52	53	53	53
Postpaid from growth	200	201	202	202	203	204	205	206	207	207	208	209
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	11,067	11,111	11,154	11,198	11,242	11,286	11,331	11,376	11,421	11,466	11,511	11,557
Postpaid Beginning of Month	5,361	5,480	5,599	5,716	5,833	5,949	6,064	6,178	6,291	6,403	6,514	6,625
	4,443											
Dish prepaid Churn	443	444	446	448	450	451	453	455	457	459	460	462
Dish Postpaid churn	80	82	84	86	87	89	91	93	94	96	98	99
Prepaid End of Month	11,111	11,154	11,198	11,242	11,286	11,331	11,376	11,421	11,466	11,511	11,557	11,603
Postpaid End of Month	5,480	5,599	5,716	5,833	5,949	6,064	6,178	6,291	6,403	6,514	6,625	6,735
TOTAL DISH SUBS	16,591	16,753	16,914	17,075	17,235	17,394	17,553	17,711	17,869	18,026	18,182	18,338
TOTAL DISH MARKET SHARE	3.63%	3.65%	3.67%	3.69%	3.71%	3.73%	3.75%	3.77%	3.79%	3.80%	3.82%	3.84%

Table 3-Redline-2020 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 1 (2020)

Dish Market Sha 2.65% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	1,663,190	0.042067	0.00%
Alpine	Low Band	32	74	66	0					
	Mid-Band	180	160	252.2	0					
	Total	212	234	318.2	0	-	0.00%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	0					
	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
Butte	Low Band	82	74	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	224	312.5	0	-	0.00%	229,294	0.005800	0.00%
Calaveras	Low Band	32	80	66	0					
	Mid-Band	180	150	266.5	0					
	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
Colusa	Low Band	82	62	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	242	302.5	0	-	0.00%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	1,147,439	0.029022	0.00%
Del Norte	Low Band	82	12	44	0					
	Mid-Band	170	150	177.5	0					
	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
El Dorado	Low Band	82	74	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	302.5	0	-	0.00%	188,987	0.004780	0.00%
Fresno	Low Band	82	74	46	0					
	Mid-Band	160	180	256.5	0					
	Total	242	254	302.5	0	-	0.00%	989,255	0.025021	0.00%
Glenn	Low Band	82	62	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.000711	0.00%
Humboldt	Low Band	82	18	56	0					
	Mid-Band	170	170	203.1	0					
	Total	252	188	259.1	0	-	0.00%	136,754	0.003459	0.00%
Imperial	Low Band	82	30	63	0					
	Mid-Band	180	190	165	0					
	Total	262	220	228	0	-	0.00%	182,830	0.004624	0.00%
Inyo	Low Band	82	74	66	0					
	Mid-Band	150	130	177.5	0					
	Total	232	204	243.5	0	-	0.00%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	0					
	Mid-Band	190	180	276.5	0					
	Total	272	260	332.5	0	-	0.00%	893,119	0.022590	0.00%
Kings	Low Band	82	74	46	0					
	Mid-Band	170	210	200.9	0					
	Total	252	284	246.9	0	-	0.00%	150,101	0.003797	0.00%
Lake	Low Band	82	18	56	0					
	Mid-Band	200	150	220.9	0					
	Total	282	168	276.9	0	-	0.00%	64,246	0.001625	0.00%
Lassen	Low Band	32	12	66	0					
	Mid-Band	180	160	167.5	0					
	Total	212	172	233.5	0	-	0.00%	31,163	0.000788	0.00%
Los Angeles	Low Band	82	80	56	0					
	Mid-Band	180	180	255.8	0					
	Total	262	260	311.8	0	-	0.00%	10,163,507	0.257065	0.00%
Madera	Low Band	32	74	46	0					
	Mid-Band	140	210	236.5	0					
	Total	172	284	282.5	0	-	0.00%	156,890	0.003968	0.00%
Marin	Low Band	82	90	46	0					
	Mid-Band	200	150	255	0					
	Total	282	240	301	0	-	0.00%	260,955	0.006600	0.00%
Mariposa	Low Band	32	80	66	0					
	Mid-Band	170	170	256.5	0					
	Total	202	250	322.5	0	-	0.00%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	0					
	Mid-Band	200	150	193.1	0					
	Total	282	168	249.1	0	-	0.00%	88,018	0.002226	0.00%
Merced	Low Band	32	80	66	0					
	Mid-Band	140	200	246.5	0					
	Total	172	280	312.5	0	-	0.00%	272,673	0.006897	0.00%
Modoc	Low Band	32	12	44	0					
	Mid-Band	150	100	177.5	0					
	Total	182	112	221.5	0	-	0.00%	8,859	0.000224	0.00%

Table 3-Redline-2020 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 1 (2020)

Dish Market Sha 2.65% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	0					
	Mid-Band	150	160	167.5	0					
	Total	232	234	233.5	0	-	0.00%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	0					
	Mid-Band	170	180	225.7	0					
	Total	252	270	271.7	0	-	0.00%	437,907	0.011076	0.00%
Napa	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	140,973	0.003566	0.00%
Nevada	Low Band	82	74	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	302.5	0	-	0.00%	99,814	0.002525	0.00%
Orange	Low Band	82	80	56	0					
	Mid-Band	180	180	260.5	0					
	Total	262	260	316.5	0	-	0.00%	3,190,400	0.080695	0.00%
Placer	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Low Band	32	12	66	0					
	Mid-Band	180	160	238.7	0					
	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,423,266	0.061292	0.00%
Sacramento	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	1,530,615	0.038714	0.00%
San Benito	Low Band	32	80	66	0					
	Mid-Band	170	180	210.7	0					
	Total	202	260	276.7	0	-	0.00%	60,310	0.001525	0.00%
San Bernardino	Low Band	82	80	56	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,157,404	0.054567	0.00%
San Diego	Low Band	82	74	56	0					
	Mid-Band	150	150	257	0					
	Total	232	224	313	0	-	0.00%	3,337,685	0.084420	0.00%
San Francisco	Low Band	82	90	46	0					
	Mid-Band	200	150	246.3	0					
	Total	282	240	292.3	0	-	0.00%	884,363	0.022368	0.00%
San Joaquin	Low Band	82	90	46	0					
	Mid-Band	180	150	276.5	0					
	Total	262	240	322.5	0	-	0.00%	745,424	0.018854	0.00%
San Luis Obispo	Low Band	32	80	56	0					
	Mid-Band	180	180	246.5	0					
	Total	212	260	302.5	0	-	0.00%	283,405	0.007168	0.00%
San Mateo	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	771,410	0.019511	0.00%
Santa Barbara	Low Band	32	80	56	0					
	Mid-Band	220	150	256.5	0					
	Total	252	230	312.5	0	-	0.00%	448,150	0.011335	0.00%
Santa Clara	Low Band	82	90	46	0					
	Mid-Band	190	150	276.5	0					
	Total	272	240	322.5	0	-	0.00%	1,938,153	0.049022	0.00%
Santa Cruz	Low Band	82	90	46	0					
	Mid-Band	170	180	256.5	0					
	Total	252	270	302.5	0	-	0.00%	275,897	0.006978	0.00%
Shasta	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	179,921	0.004551	0.00%
Sierra	Low Band	82	74	66	0					
	Mid-Band	180	160	266.5	0					
	Total	262	234	332.5	0	-	0.00%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	0					
	Mid-Band	170	140	177.5	0					
	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
Solano	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
Sonoma	Low Band	82	90	46	0					
	Mid-Band	170	180	248.7	0					
	Total	252	270	294.7	0	-	0.00%	504,217	0.012753	0.00%
Stanislaus	Low Band	82	90	46	0					
	Mid-Band	150	220	261.5	0					
	Total	232	310	307.5	0	-	0.00%	547,899	0.013858	0.00%

Table 3-Redline-2020 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 1 (2020)**

Dish Market Sha 2.65% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	96,648	0.002445	0.00%
Tehama	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
Trinity	Low Band	82	18	56	0					
	Mid-Band	170	160	256.5	0					
	Total	252	178	312.5	0	-	0.00%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	0					
	Mid-Band	200	180	246.5	0					
	Total	282	254	292.5	0	-	0.00%	464,493	0.011748	0.00%
Tuolumne	Low Band	32	80	66	0					
	Mid-Band	180	180	251.5	0					
	Total	212	260	317.5	0	-	0.00%	54,248	0.001372	0.00%
Ventura	Low Band	82	80	56	0					
	Mid-Band	190	150	258.7	0					
	Total	272	230	314.7	0	-	0.00%	854,223	0.021606	0.00%
Yolo	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	219,116	0.005542	0.00%
Yuba	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%
Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county										

Table 3-Redline-2021 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 2 (2021)

Dish Market Sha 2.55% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	1,663,190	0.042067	0.00%
Alpine	Low Band	32	74	66	0					
	Mid-Band	180	160	252.2	0					
	Total	212	234	318.2	0	-	0.00%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	0					
	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
Butte	Low Band	82	74	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	224	312.5	0	-	0.00%	229,294	0.005800	0.00%
Calaveras	Low Band	32	80	66	0					
	Mid-Band	180	150	266.5	0					
	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
Colusa	Low Band	82	62	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	242	302.5	0	-	0.00%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	1,147,439	0.029022	0.00%
Del Norte	Low Band	82	12	44	0					
	Mid-Band	170	150	177.5	0					
	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
El Dorado	Low Band	82	74	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	302.5	0	-	0.00%	188,987	0.004780	0.00%
Fresno	Low Band	82	74	46	0					
	Mid-Band	160	180	256.5	0					
	Total	242	254	302.5	0	-	0.00%	989,255	0.025021	0.00%
Glenn	Low Band	82	62	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.000711	0.00%
Humboldt	Low Band	82	18	56	0					
	Mid-Band	170	170	203.1	0					
	Total	252	188	259.1	0	-	0.00%	136,754	0.003459	0.00%
Imperial	Low Band	82	30	63	0					
	Mid-Band	180	190	165	0					
	Total	262	220	228	0	-	0.00%	182,830	0.004624	0.00%
Inyo	Low Band	82	74	66	0					
	Mid-Band	150	130	177.5	0					
	Total	232	204	243.5	0	-	0.00%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	0					
	Mid-Band	190	180	276.5	0					
	Total	272	260	332.5	0	-	0.00%	893,119	0.022590	0.00%
Kings	Low Band	82	74	46	0					
	Mid-Band	170	210	200.9	0					
	Total	252	284	246.9	0	-	0.00%	150,101	0.003797	0.00%
Lake	Low Band	82	18	56	0					
	Mid-Band	200	150	220.9	0					
	Total	282	168	276.9	0	-	0.00%	64,246	0.001625	0.00%
Lassen	Low Band	32	12	66	0					
	Mid-Band	180	160	167.5	0					
	Total	212	172	233.5	0	-	0.00%	31,163	0.000788	0.00%
Los Angeles	Low Band	82	80	56	0					
	Mid-Band	180	180	255.8	0					
	Total	262	260	311.8	0	-	0.00%	10,163,507	0.257065	0.00%
Madera	Low Band	32	74	46	0					
	Mid-Band	140	210	236.5	0					
	Total	172	284	282.5	0	-	0.00%	156,890	0.003968	0.00%
Marin	Low Band	82	90	46	0					
	Mid-Band	200	150	255	0					
	Total	282	240	301	0	-	0.00%	260,955	0.006600	0.00%
Mariposa	Low Band	32	80	66	0					
	Mid-Band	170	170	256.5	0					
	Total	202	250	322.5	0	-	0.00%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	0					
	Mid-Band	200	150	193.1	0					
	Total	282	168	249.1	0	-	0.00%	88,018	0.002226	0.00%
Merced	Low Band	32	80	66	0					
	Mid-Band	140	200	246.5	0					
	Total	172	280	312.5	0	-	0.00%	272,673	0.006897	0.00%
Modoc	Low Band	32	12	44	0					
	Mid-Band	150	100	177.5	0					
	Total	182	112	221.5	0	-	0.00%	8,859	0.000224	0.00%

Table 3-Redline-2021 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 2 (2021)

Dish Market Sha 2.55% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	0					
	Mid-Band	150	160	167.5	0					
	Total	232	234	233.5	0	-	0.00%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	0					
	Mid-Band	170	180	225.7	0					
	Total	252	270	271.7	0	-	0.00%	437,907	0.011076	0.00%
Napa	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	140,973	0.003566	0.00%
Nevada	Low Band	82	74	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	302.5	0	-	0.00%	99,814	0.002525	0.00%
Orange	Low Band	82	80	56	0					
	Mid-Band	180	180	260.5	0					
	Total	262	260	316.5	0	-	0.00%	3,190,400	0.080695	0.00%
Placer	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Low Band	32	12	66	0					
	Mid-Band	180	160	238.7	0					
	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,423,266	0.061292	0.00%
Sacramento	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	1,530,615	0.038714	0.00%
San Benito	Low Band	32	80	66	0					
	Mid-Band	170	180	210.7	0					
	Total	202	260	276.7	0	-	0.00%	60,310	0.001525	0.00%
San Bernardino	Low Band	82	80	56	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,157,404	0.054567	0.00%
San Diego	Low Band	82	74	56	0					
	Mid-Band	150	150	257	0					
	Total	232	224	313	0	-	0.00%	3,337,685	0.084420	0.00%
San Francisco	Low Band	82	90	46	0					
	Mid-Band	200	150	246.3	0					
	Total	282	240	292.3	0	-	0.00%	884,363	0.022368	0.00%
San Joaquin	Low Band	82	90	46	0					
	Mid-Band	180	150	276.5	0					
	Total	262	240	322.5	0	-	0.00%	745,424	0.018854	0.00%
San Luis Obispo	Low Band	32	80	56	0					
	Mid-Band	180	180	246.5	0					
	Total	212	260	302.5	0	-	0.00%	283,405	0.007168	0.00%
San Mateo	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	771,410	0.019511	0.00%
Santa Barbara	Low Band	32	80	56	0					
	Mid-Band	220	150	256.5	0					
	Total	252	230	312.5	0	-	0.00%	448,150	0.011335	0.00%
Santa Clara	Low Band	82	90	46	0					
	Mid-Band	190	150	276.5	0					
	Total	272	240	322.5	0	-	0.00%	1,938,153	0.049022	0.00%
Santa Cruz	Low Band	82	90	46	0					
	Mid-Band	170	180	256.5	0					
	Total	252	270	302.5	0	-	0.00%	275,897	0.006978	0.00%
Shasta	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	179,921	0.004551	0.00%
Sierra	Low Band	82	74	66	0					
	Mid-Band	180	160	266.5	0					
	Total	262	234	332.5	0	-	0.00%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	0					
	Mid-Band	170	140	177.5	0					
	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
Solano	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
Sonoma	Low Band	82	90	46	0					
	Mid-Band	170	180	248.7	0					
	Total	252	270	294.7	0	-	0.00%	504,217	0.012753	0.00%
Stanislaus	Low Band	82	90	46	0					
	Mid-Band	150	220	261.5	0					
	Total	232	310	307.5	0	-	0.00%	547,899	0.013858	0.00%

Table 3-Redline-2021 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 2 (2021)

Dish Market Sha 2.55%

Dish Spectrum Share 0.00%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	96,648	0.002445	0.00%
Tehama	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
Trinity	Low Band	82	18	56	0					
	Mid-Band	170	160	256.5	0					
	Total	252	178	312.5	0	-	0.00%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	0					
	Mid-Band	200	180	246.5	0					
	Total	282	254	292.5	0	-	0.00%	464,493	0.011748	0.00%
Tuolumne	Low Band	32	80	66	0					
	Mid-Band	180	180	251.5	0					
	Total	212	260	317.5	0	-	0.00%	54,248	0.001372	0.00%
Ventura	Low Band	82	80	56	0					
	Mid-Band	190	150	258.7	0					
	Total	272	230	314.7	0	-	0.00%	854,223	0.021606	0.00%
Yolo	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	219,116	0.005542	0.00%
Yuba	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC

Table 3-Redline-2022 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 3 (2022)**

Dish Market Sha 2.55% Dish Spectrum Share 8.06% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	30					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	25.30	8.75%	1,663,190	0.042067	0.37%
Alpine	Low Band	32	74	66	6					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	56	17.71	6.83%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	0					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	50	15.82	6.14%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	0					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	50	15.82	5.89%	229,294	0.005800	0.03%
Calaveras	Low Band	32	80	66	0					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	50	15.82	6.06%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	20					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	70	22.14	7.99%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	30					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	25.30	8.75%	1,147,439	0.029022	0.25%
Del Norte	Low Band	82	12	44	6					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	56	17.71	8.10%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	20					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	70	22.14	7.88%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	26					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	76	24.04	8.69%	989,255	0.025021	0.22%
Glenn	Low Band	82	62	46	0					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	50	15.82	5.98%	28,094	0.000711	0.00%
Humboldt	Low Band	82	18	56	10					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	60	18.98	7.90%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	0					
	Mid-Band	180	190	165	50					
	Total	262	220	228	50	15.82	6.58%	182,830	0.004624	0.03%
Inyo	Low Band	82	74	66	6					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	56	17.71	7.61%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	20					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	70	22.14	7.49%	893,119	0.022590	0.17%
Kings	Low Band	82	74	46	26					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	76	24.04	8.85%	150,101	0.003797	0.03%
Lake	Low Band	82	18	56	10					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	60	18.98	7.62%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	66	26					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	76	24.04	10.96%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	20					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	70	22.14	7.75%	10,163,507	0.257065	1.99%
Madera	Low Band	32	74	46	26					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	76	24.04	9.33%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	30					
	Mid-Band	200	150	255	50					
	Total	282	240	301	80	25.30	8.86%	260,955	0.006600	0.06%
Mariposa	Low Band	32	80	66	20					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	70	22.14	8.29%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	10					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	60	18.98	7.90%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	20					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	70	22.14	8.39%	272,673	0.006897	0.06%
Modoc	Low Band	32	12	44	6					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	56	17.71	9.80%	8,859	0.000224	0.00%

Table 3-Redline-2022 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 3 (2022)

Dish Market Sha 2.55% Dish Spectrum Share 8.06% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	6					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	56	17.71	7.41%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	30					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	80	25.30	9.16%	437,907	0.011076	0.10%
Napa	Low Band	82	90	46	30					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	25.30	8.75%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	46	20					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	70	22.14	7.88%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	20					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	70	22.14	7.71%	3,190,400	0.080695	0.62%
Placer	Low Band	82	74	46	20					
	Mid-Band	180	180	257	50					
	Total	262	254	303	70	22.14	7.87%	386,166	0.009767	0.08%
Plumas	Low Band	32	12	66	6					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	56	17.71	7.52%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	20					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	70	22.14	7.65%	2,423,266	0.061292	0.47%
Sacramento	Low Band	82	74	46	20					
	Mid-Band	180	180	257	50					
	Total	262	254	303	70	22.14	7.87%	1,530,615	0.038714	0.30%
San Benito	Low Band	32	80	66	20					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	70	22.14	8.66%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	56	20					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	70	22.14	7.65%	2,157,404	0.054567	0.42%
San Diego	Low Band	82	74	56	26					
	Mid-Band	150	150	257	50					
	Total	232	224	313	76	24.04	8.99%	3,337,685	0.084420	0.76%
San Francisco	Low Band	82	90	46	30					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	80	25.30	8.95%	884,363	0.022368	0.20%
San Joaquin	Low Band	82	90	46	30					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	80	25.30	8.84%	745,424	0.018854	0.17%
San Luis Obispo	Low Band	32	80	56	20					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	70	22.14	8.29%	283,405	0.007168	0.06%
San Mateo	Low Band	82	90	46	30					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	25.30	8.75%	771,410	0.019511	0.17%
Santa Barbara	Low Band	32	80	56	20					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	70	22.14	8.10%	448,150	0.011335	0.09%
Santa Clara	Low Band	82	90	46	30					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	80	25.30	8.75%	1,938,153	0.049022	0.43%
Santa Cruz	Low Band	82	90	46	30					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	80	25.30	8.84%	275,897	0.006978	0.06%
Shasta	Low Band	82	62	44	16					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	66	20.88	7.95%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	6					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	56	17.71	6.33%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	6					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	56	17.71	8.22%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	50	15.82	5.65%	445,458	0.011267	0.06%
Sonoma	Low Band	82	90	46	30					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	80	25.30	8.92%	504,217	0.012753	0.11%
Stanislaus	Low Band	82	90	46	0					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	50	15.82	5.56%	547,899	0.013858	0.08%

Table 3-Redline-2022 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 3 (2022)**

Dish Market Sha 2.55%

Dish Spectrum Share 8.06%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	20					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	70	22.14	8.10%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	6					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	56	17.71	6.83%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	10					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	60	18.98	7.48%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	26					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	76	24.04	8.40%	464,493	0.011748	0.10%
Tuolumne	Low Band	32	80	66	20					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	70	22.14	8.14%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	20					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	70	22.14	7.89%	854,223	0.021606	0.17%
Yolo	Low Band	82	74	46	20					
	Mid-Band	180	180	257	50					
	Total	262	254	303	70	22.14	7.87%	219,116	0.005542	0.04%
Yuba	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	50	15.82	5.93%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2023 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 4 (2023)

Dish Market Sha 2.78% Dish Spectrum Share 9.08% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	27.59	9.73%	1,663,190	0.042067	0.41%
Alpine	Low Band	32	74	66	16					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	66	20.23	7.95%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	10					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	60	18.39	7.28%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	60	18.39	6.99%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	10					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	18.39	7.19%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	80	24.52	9.02%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	27.59	9.73%	1,147,439	0.029022	0.28%
Del Norte	Low Band	82	12	44	16					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	66	20.23	9.41%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	24.52	8.90%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	36					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	86	26.36	9.72%	989,255	0.025021	0.24%
Glenn	Low Band	82	62	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	60	18.39	7.09%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	56	20					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	70	21.46	9.10%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	7					
	Mid-Band	180	190	165	50					
	Total	262	220	228	57	17.47	7.43%	182,830	0.004624	0.03%
Inyo	Low Band	82	74	66	16					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	66	20.23	8.85%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	30					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	80	24.52	8.47%	893,119	0.022590	0.19%
Kings	Low Band	82	74	46	36					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	86	26.36	9.90%	150,101	0.003797	0.04%
Lake	Low Band	82	18	56	20					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	70	21.46	8.78%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	66	36					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	86	26.36	12.22%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	30					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	80	24.52	8.75%	10,163,507	0.257065	2.25%
Madera	Low Band	32	74	46	36					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	86	26.36	10.43%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	40					
	Mid-Band	200	150	255	50					
	Total	282	240	301	90	27.59	9.86%	260,955	0.006600	0.07%
Mariposa	Low Band	32	80	66	30					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	80	24.52	9.36%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	20					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	70	21.46	9.10%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	30					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	80	24.52	9.47%	272,673	0.006897	0.07%
Modoc	Low Band	32	12	44	16					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	66	20.23	11.35%	8,859	0.000224	0.00%

Table 3-Redline-2023 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 4 (2023)

Dish Market Sha 2.78% Dish Spectrum Share 9.08% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	16					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	66	20.23	8.62%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	40					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	90	27.59	10.18%	437,907	0.011076	0.11%
Napa	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	27.59	9.73%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	24.52	8.90%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	30					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	80	24.52	8.71%	3,190,400	0.080695	0.70%
Placer	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	24.52	8.90%	386,166	0.009767	0.09%
Plumas	Low Band	32	12	66	16					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	66	20.23	8.75%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	30					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	80	24.52	8.65%	2,423,266	0.061292	0.53%
Sacramento	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	24.52	8.90%	1,530,615	0.038714	0.34%
San Benito	Low Band	32	80	66	30					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	80	24.52	9.77%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	56	30					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	80	24.52	8.65%	2,157,404	0.054567	0.47%
San Diego	Low Band	82	74	56	36					
	Mid-Band	150	150	257	50					
	Total	232	224	313	86	26.36	10.06%	3,337,685	0.084420	0.85%
San Francisco	Low Band	82	90	46	40					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	90	27.59	9.95%	884,363	0.022368	0.22%
San Joaquin	Low Band	82	90	46	40					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	90	27.59	9.84%	745,424	0.018854	0.19%
San Luis Obispo	Low Band	32	80	56	30					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	80	24.52	9.36%	283,405	0.007168	0.07%
San Mateo	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	27.59	9.73%	771,410	0.019511	0.19%
Santa Barbara	Low Band	32	80	56	30					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	80	24.52	9.15%	448,150	0.011335	0.10%
Santa Clara	Low Band	82	90	46	40					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	90	27.59	9.73%	1,938,153	0.049022	0.48%
Santa Cruz	Low Band	82	90	46	40					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	90	27.59	9.84%	275,897	0.006978	0.07%
Shasta	Low Band	82	62	44	26					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	76	23.30	9.04%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	16					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	66	20.23	7.38%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	16					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	66	20.23	9.54%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	10					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	60	18.39	6.71%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	46	40					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	90	27.59	9.93%	504,217	0.012753	0.13%
Stanislaus	Low Band	82	90	46	10					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	60	18.39	6.60%	547,899	0.013858	0.09%

Table 3-Redline-2023 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 4 (2023)**

Dish Market Sha 2.78% Dish Spectrum Share 9.08% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	30					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	80	24.52	9.16%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	16					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	66	20.23	7.95%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	20					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	70	21.46	8.62%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	36					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	86	26.36	9.40%	464,493	0.011748	0.11%
Tuolumne	Low Band	32	80	66	30					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	80	24.52	9.20%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	30					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	80	24.52	8.92%	854,223	0.021606	0.19%
Yolo	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	24.52	8.90%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	10					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	60	18.39	7.03%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2024 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 5 (2024)

Dish Market Sha 3.18% Dish Spectrum Share 9.08% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	31.53	9.73%	1,663,190	0.042067	0.41%
Alpine	Low Band	32	74	66	16					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	66	23.12	7.95%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	10					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	60	21.02	7.28%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	60	21.02	6.99%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	10					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	21.02	7.19%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	80	28.02	9.02%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	31.53	9.73%	1,147,439	0.029022	0.28%
Del Norte	Low Band	82	12	44	16					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	66	23.12	9.41%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	28.02	8.90%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	36					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	86	30.13	9.72%	989,255	0.025021	0.24%
Glenn	Low Band	82	62	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	60	21.02	7.09%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	56	20					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	70	24.52	9.10%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	7					
	Mid-Band	180	190	165	50					
	Total	262	220	228	57	19.97	7.43%	182,830	0.004624	0.03%
Inyo	Low Band	82	74	66	16					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	66	23.12	8.85%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	30					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	80	28.02	8.47%	893,119	0.022590	0.19%
Kings	Low Band	82	74	46	36					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	86	30.13	9.90%	150,101	0.003797	0.04%
Lake	Low Band	82	18	56	20					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	70	24.52	8.78%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	66	36					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	86	30.13	12.22%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	30					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	80	28.02	8.75%	10,163,507	0.257065	2.25%
Madera	Low Band	32	74	46	36					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	86	30.13	10.43%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	40					
	Mid-Band	200	150	255	50					
	Total	282	240	301	90	31.53	9.86%	260,955	0.006600	0.07%
Mariposa	Low Band	32	80	66	30					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	80	28.02	9.36%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	20					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	70	24.52	9.10%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	30					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	80	28.02	9.47%	272,673	0.006897	0.07%
Modoc	Low Band	32	12	44	16					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	66	23.12	11.35%	8,859	0.000224	0.00%

Table 3-Redline-2024 Base Case

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 5 (2024)

Dish Market Sha 3.18% Dish Spectrum Share 9.08% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	16					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	66	23.12	8.62%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	40					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	90	31.53	10.18%	437,907	0.011076	0.11%
Napa	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	31.53	9.73%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	28.02	8.90%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	30					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	80	28.02	8.71%	3,190,400	0.080695	0.70%
Placer	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	28.02	8.90%	386,166	0.009767	0.09%
Plumas	Low Band	32	12	66	16					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	66	23.12	8.75%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	30					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	80	28.02	8.65%	2,423,266	0.061292	0.53%
Sacramento	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	28.02	8.90%	1,530,615	0.038714	0.34%
San Benito	Low Band	32	80	66	30					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	80	28.02	9.77%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	56	30					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	80	28.02	8.65%	2,157,404	0.054567	0.47%
San Diego	Low Band	82	74	56	36					
	Mid-Band	150	150	257	50					
	Total	232	224	313	86	30.13	10.06%	3,337,685	0.084420	0.85%
San Francisco	Low Band	82	90	46	40					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	90	31.53	9.95%	884,363	0.022368	0.22%
San Joaquin	Low Band	82	90	46	40					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	90	31.53	9.84%	745,424	0.018854	0.19%
San Luis Obispo	Low Band	32	80	56	30					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	80	28.02	9.36%	283,405	0.007168	0.07%
San Mateo	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	31.53	9.73%	771,410	0.019511	0.19%
Santa Barbara	Low Band	32	80	56	30					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	80	28.02	9.15%	448,150	0.011335	0.10%
Santa Clara	Low Band	82	90	46	40					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	90	31.53	9.73%	1,938,153	0.049022	0.48%
Santa Cruz	Low Band	82	90	46	40					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	90	31.53	9.84%	275,897	0.006978	0.07%
Shasta	Low Band	82	62	44	26					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	76	26.62	9.04%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	16					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	66	23.12	7.38%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	16					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	66	23.12	9.54%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	10					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	60	21.02	6.71%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	46	40					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	90	31.53	9.93%	504,217	0.012753	0.13%
Stanislaus	Low Band	82	90	46	10					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	60	21.02	6.60%	547,899	0.013858	0.09%

Table 3-Redline-2024 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 5 (2024)**

Dish Market Sha 3.18%

Dish Spectrum Share 9.08%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	30					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	80	28.02	9.16%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	16					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	66	23.12	7.95%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	20					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	70	24.52	8.62%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	36					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	86	30.13	9.40%	464,493	0.011748	0.11%
Tuolumne	Low Band	32	80	66	30					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	80	28.02	9.20%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	30					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	80	28.02	8.92%	854,223	0.021606	0.19%
Yolo	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	28.02	8.90%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	10					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	60	21.02	7.03%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2025 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 6 (2025)**

Dish Market Sha 3.48% Dish Spectrum Share 9.48% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	34.55	10.12%	1,663,190	0.042067	0.43%
Alpine	Low Band	32	74	66	20					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	70	25.73	8.39%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	14					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	64	23.52	7.73%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	23.52	7.42%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	14					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	23.52	7.63%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	84	30.88	9.43%	21,805	0.000552	0.01%
Contra Costa	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	34.55	10.12%	1,147,439	0.029022	0.29%
Del Norte	Low Band	82	12	44	20					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	70	25.73	9.92%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	30.88	9.31%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	40					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	90	33.08	10.13%	989,255	0.025021	0.25%
Glenn	Low Band	82	62	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	23.52	7.52%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	56	24					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	74	27.20	9.57%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	11					
	Mid-Band	180	190	165	50					
	Total	262	220	228	61	22.42	7.91%	182,830	0.004624	0.04%
Inyo	Low Band	82	74	66	20					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	70	25.73	9.34%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	34					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	84	30.88	8.86%	893,119	0.022590	0.20%
Kings	Low Band	82	74	46	40					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	90	33.08	10.31%	150,101	0.003797	0.04%
Lake	Low Band	82	18	56	24					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	74	27.20	9.24%	64,246	0.001625	0.02%
Lassen	Low Band	32	12	66	40					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	90	33.08	12.72%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	34					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	84	30.88	9.15%	10,163,507	0.257065	2.35%
Madera	Low Band	32	74	46	40					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	90	33.08	10.86%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	44					
	Mid-Band	200	150	255	50					
	Total	282	240	301	94	34.55	10.25%	260,955	0.006600	0.07%
Mariposa	Low Band	32	80	66	34					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	84	30.88	9.78%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	24					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	74	27.20	9.57%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	34					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	84	30.88	9.90%	272,673	0.006897	0.07%
Modoc	Low Band	32	12	44	20					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	70	25.73	11.96%	8,859	0.000224	0.00%

Table 3-Redline-2025 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 6 (2025)**

Dish Market Sha 3.48% Dish Spectrum Share 9.48% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	20					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	70	25.73	9.10%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	44					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	94	34.55	10.59%	437,907	0.011076	0.12%
Napa	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	34.55	10.12%	140,973	0.003566	0.04%
Nevada	Low Band	82	74	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	30.88	9.31%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	34					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	84	30.88	9.11%	3,190,400	0.080695	0.73%
Placer	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	30.88	9.30%	386,166	0.009767	0.09%
Plumas	Low Band	32	12	66	20					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	70	25.73	9.23%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	34					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	30.88	9.05%	2,423,266	0.061292	0.55%
Sacramento	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	30.88	9.30%	1,530,615	0.038714	0.36%
San Benito	Low Band	32	80	66	34					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	84	30.88	10.21%	60,310	0.001525	0.02%
San Bernardino	Low Band	82	80	56	34					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	30.88	9.05%	2,157,404	0.054567	0.49%
San Diego	Low Band	82	74	56	40					
	Mid-Band	150	150	257	50					
	Total	232	224	313	90	33.08	10.48%	3,337,685	0.084420	0.88%
San Francisco	Low Band	82	90	46	44					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	94	34.55	10.35%	884,363	0.022368	0.23%
San Joaquin	Low Band	82	90	46	44					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	94	34.55	10.23%	745,424	0.018854	0.19%
San Luis Obispo	Low Band	32	80	56	34					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	84	30.88	9.78%	283,405	0.007168	0.07%
San Mateo	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	34.55	10.12%	771,410	0.019511	0.20%
Santa Barbara	Low Band	32	80	56	34					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	84	30.88	9.56%	448,150	0.011335	0.11%
Santa Clara	Low Band	82	90	46	44					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	94	34.55	10.12%	1,938,153	0.049022	0.50%
Santa Cruz	Low Band	82	90	46	44					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	94	34.55	10.23%	275,897	0.006978	0.07%
Shasta	Low Band	82	62	44	30					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	80	29.41	9.47%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	20					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	70	25.73	7.79%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	20					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	70	25.73	10.06%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	14					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	64	23.52	7.12%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	46	44					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	94	34.55	10.32%	504,217	0.012753	0.13%
Stanislaus	Low Band	82	90	46	14					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	64	23.52	7.01%	547,899	0.013858	0.10%

Table 3-Redline-2025 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 6 (2025)**

Dish Market Sha 3.48%

Dish Spectrum Share 9.48%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	34					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	84	30.88	9.57%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	20					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	70	25.73	8.39%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	24					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	74	27.20	9.06%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	40					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	90	33.08	9.80%	464,493	0.011748	0.12%
Tuolumne	Low Band	32	80	66	34					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	84	30.88	9.62%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	34					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	84	30.88	9.33%	854,223	0.021606	0.20%
Yolo	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	30.88	9.30%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	14					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	64	23.52	7.46%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2026 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 7 (2026)**

Dish Market Sha 3.74% Dish Spectrum Share 9.48% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	37.06	10.12%	1,663,190	0.042067	0.43%
Alpine	Low Band	32	74	66	20					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	70	27.60	8.39%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	14					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	64	25.23	7.73%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	25.23	7.42%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	14					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	25.23	7.63%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	84	33.12	9.43%	21,805	0.000552	0.01%
Contra Costa	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	37.06	10.12%	1,147,439	0.029022	0.29%
Del Norte	Low Band	82	12	44	20					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	70	27.60	9.92%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	33.12	9.31%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	40					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	90	35.48	10.13%	989,255	0.025021	0.25%
Glenn	Low Band	82	62	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	25.23	7.52%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	56	24					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	74	29.17	9.57%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	11					
	Mid-Band	180	190	165	50					
	Total	262	220	228	61	24.05	7.91%	182,830	0.004624	0.04%
Inyo	Low Band	82	74	66	20					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	70	27.60	9.34%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	34					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	84	33.12	8.86%	893,119	0.022590	0.20%
Kings	Low Band	82	74	46	40					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	90	35.48	10.31%	150,101	0.003797	0.04%
Lake	Low Band	82	18	56	24					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	74	29.17	9.24%	64,246	0.001625	0.02%
Lassen	Low Band	32	12	66	40					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	90	35.48	12.72%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	34					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	84	33.12	9.15%	10,163,507	0.257065	2.35%
Madera	Low Band	32	74	46	40					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	90	35.48	10.86%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	44					
	Mid-Band	200	150	255	50					
	Total	282	240	301	94	37.06	10.25%	260,955	0.006600	0.07%
Mariposa	Low Band	32	80	66	34					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	84	33.12	9.78%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	24					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	74	29.17	9.57%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	34					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	84	33.12	9.90%	272,673	0.006897	0.07%
Modoc	Low Band	32	12	44	20					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	70	27.60	11.96%	8,859	0.000224	0.00%

Table 3-Redline-2026 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 7 (2026)**

Dish Market Sha 3.74%

Dish Spectrum Share 9.48%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	20					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	70	27.60	9.10%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	44					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	94	37.06	10.59%	437,907	0.011076	0.12%
Napa	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	37.06	10.12%	140,973	0.003566	0.04%
Nevada	Low Band	82	74	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	33.12	9.31%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	34					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	84	33.12	9.11%	3,190,400	0.080695	0.73%
Placer	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	33.12	9.30%	386,166	0.009767	0.09%
Plumas	Low Band	32	12	66	20					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	70	27.60	9.23%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	34					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	33.12	9.05%	2,423,266	0.061292	0.55%
Sacramento	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	33.12	9.30%	1,530,615	0.038714	0.36%
San Benito	Low Band	32	80	66	34					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	84	33.12	10.21%	60,310	0.001525	0.02%
San Bernardino	Low Band	82	80	56	34					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	33.12	9.05%	2,157,404	0.054567	0.49%
San Diego	Low Band	82	74	56	40					
	Mid-Band	150	150	257	50					
	Total	232	224	313	90	35.48	10.48%	3,337,685	0.084420	0.88%
San Francisco	Low Band	82	90	46	44					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	94	37.06	10.35%	884,363	0.022368	0.23%
San Joaquin	Low Band	82	90	46	44					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	94	37.06	10.23%	745,424	0.018854	0.19%
San Luis Obispo	Low Band	32	80	56	34					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	84	33.12	9.78%	283,405	0.007168	0.07%
San Mateo	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	37.06	10.12%	771,410	0.019511	0.20%
Santa Barbara	Low Band	32	80	56	34					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	84	33.12	9.56%	448,150	0.011335	0.11%
Santa Clara	Low Band	82	90	46	44					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	94	37.06	10.12%	1,938,153	0.049022	0.50%
Santa Cruz	Low Band	82	90	46	44					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	94	37.06	10.23%	275,897	0.006978	0.07%
Shasta	Low Band	82	62	44	30					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	80	31.54	9.47%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	20					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	70	27.60	7.79%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	20					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	70	27.60	10.06%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	14					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	64	25.23	7.12%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	46	44					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	94	37.06	10.32%	504,217	0.012753	0.13%
Stanislaus	Low Band	82	90	46	14					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	64	25.23	7.01%	547,899	0.013858	0.10%

Table 3-Redline-2026 Base Case

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 7 (2026)**

Dish Market Sha 3.74%

Dish Spectrum Share 9.48%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	34					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	84	33.12	9.57%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	20					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	70	27.60	8.39%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	24					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	74	29.17	9.06%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	40					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	90	35.48	9.80%	464,493	0.011748	0.12%
Tuolumne	Low Band	32	80	66	34					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	84	33.12	9.62%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	34					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	84	33.12	9.33%	854,223	0.021606	0.20%
Yolo	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	33.12	9.30%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	14					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	64	25.23	7.46%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

ETI DISH Ramp-Up Model

Best Case Sensitivity Results

Table A-1 - BEST CASE SENSITIVITY

CONSTANTS AND ASSUMPTIONS

SENSITIVITY ANALYSIS - 600 MHz Lease	Constants	Sensitivity Adjusted Factor	Constant
Market-wide prepaid monthly churn rate	4.00%	1.00	4.00%
Market-wide postpaid monthly churn rate	1.00%	1.00	1.00%
Dish prepaid monthly churn rate	4.00%	0.75	3.00%
Dish postpaid monthly churn rate	1.50%	1.00	1.50%
Monthly prepaid market growth rate	0.41%	1.00	0.41%
Monthly postpaid market growth rate	0.41%	1.00	0.41%
Dish prepaid market share (9.3-million/60-million)	20.00%	1.00	20.00%
Dish spectrum share customer acquisition multiplier		2.00	

Table A-2 - BEST CASE SENSITIVITY

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2020 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Dish Facilities-Based 5G Population Coverage	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total prepaid subscribers	65,000	65,265	65,531	65,798	66,066	66,335	66,605	66,877	67,149	67,423	67,697	67,973
Total postpaid subscribers	276,000	277,124	278,253	279,387	280,525	281,668	282,816	283,968	285,125	286,287	287,453	288,624
TOTAL MARKET	341,000	342,389	343,784	345,185	346,591	348,003	349,421	350,845	352,274	353,709	355,150	356,597
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,228	2,230	2,232	2,234	2,237	2,240	2,243	2,246	2,250	2,254	2,258	2,262
Postpaid-from churn	2,760	2,771	2,783	2,794	2,805	2,817	2,828	2,840	2,851	2,863	2,875	2,886
Prepaid from market growth	265	266	267	268	269	270	271	272	274	275	276	277
Postpaid-from market growth	1,124	1,129	1,134	1,138	1,143	1,148	1,152	1,157	1,162	1,166	1,171	1,176
Total Addressable customers	6,377	6,396	6,415	6,434	6,454	6,474	6,495	6,515	6,536	6,558	6,579	6,601
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	446	446	446	447	447	448	449	449	450	451	452	452
Postpaid from churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid from growth	53	53	53	54	54	54	54	54	55	55	55	55
Postpaid from growth	-	-	-	-	-	-	-	-	-	-	-	-
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,300	9,520	9,733	9,941	10,143	10,340	10,532	10,719	10,901	11,079	11,252	11,421
Postpaid Beginning of Month	-	-	-	-	-	-	-	-	-	-	-	-
	3,746											
Dish prepaid Churn	279	286	292	298	304	310	316	322	327	332	338	343
Dish Postpaid churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid End of Month	9,520	9,733	9,941	10,143	10,340	10,532	10,719	10,901	11,079	11,252	11,421	11,586
Postpaid End of Month	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL DISH SUBS	9,520	9,733	9,941	10,143	10,340	10,532	10,719	10,901	11,079	11,252	11,421	11,586
TOTAL DISH MARKET SHARE	2.79%	2.84%	2.89%	2.94%	2.98%	3.03%	3.07%	3.11%	3.14%	3.18%	3.22%	3.25%

Table A-2 - BEST CASE SENSITIVITY

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2021 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Dish Facilities-Based 5G Population Coverage	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total prepaid subscribers	68,250	68,528	68,807	69,088	69,369	69,652	69,935	70,220	70,506	70,794	71,082	71,372
Total postpaid subscribers	289,800	290,981	292,166	293,356	294,552	295,752	296,957	298,166	299,381	300,601	301,826	303,055
TOTAL MARKET	358,050	359,509	360,973	362,444	363,921	365,403	366,892	368,387	369,888	371,395	372,908	374,427
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,267	2,271	2,276	2,281	2,286	2,292	2,297	2,303	2,309	2,315	2,321	2,328
Postpaid-from churn	2,898	2,910	2,922	2,934	2,946	2,958	2,970	2,982	2,994	3,006	3,018	3,031
Prepaid from market growth	278	279	280	281	283	284	285	286	287	288	290	291
Postpaid-from market growth	1,181	1,185	1,190	1,195	1,200	1,205	1,210	1,215	1,220	1,225	1,230	1,235
Total Addressable customers	6,623	6,646	6,668	6,691	6,715	6,738	6,762	6,786	6,810	6,834	6,859	6,884
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	453	454	455	456	457	458	459	461	462	463	464	466
Postpaid from churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid from growth	56	56	56	56	57	57	57	57	57	58	58	58
Postpaid from growth	-	-	-	-	-	-	-	-	-	-	-	-
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	11,586	11,748	11,905	12,059	12,210	12,358	12,502	12,643	12,782	12,918	13,051	13,182
Postpaid Beginning of Month	-	-	-	-	-	-	-	-	-	-	-	-
	3,746											
Dish prepaid Churn	348	352	357	362	366	371	375	379	383	388	392	395
Dish Postpaid churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid End of Month	11,748	11,905	12,059	12,210	12,358	12,502	12,643	12,782	12,918	13,051	13,182	13,310
Postpaid End of Month	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL DISH SUBS	11,748	11,905	12,059	12,210	12,358	12,502	12,643	12,782	12,918	13,051	13,182	13,310
TOTAL DISH MARKET SHARE	3.28%	3.31%	3.34%	3.37%	3.40%	3.42%	3.45%	3.47%	3.49%	3.51%	3.53%	3.55%

Table A-2 - BEST CASE SENSITIVITY

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2022 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	16.12%	16.12%	16.12%	16.12%	16.12%	16.12%	16.12%	16.12%	16.12%	16.12%	16.12%	16.12%
Dish Facilities-Based 5G Population Coverage	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Total prepaid subscribers	71,663	71,954	72,248	72,542	72,838	73,134	73,432	73,731	74,032	74,333	74,636	74,940
Total postpaid subscribers	304,290	305,530	306,774	308,024	309,279	310,539	311,804	313,075	314,350	315,631	316,917	318,208
TOTAL MARKET	375,953	377,484	379,022	380,566	382,117	383,674	385,237	386,806	388,382	389,964	391,553	393,148
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,334	2,341	2,348	2,354	2,361	2,369	2,376	2,383	2,391	2,398	2,406	2,414
Postpaid-from churn	3,043	3,054	3,066	3,078	3,090	3,101	3,113	3,125	3,137	3,149	3,162	3,174
Prepaid from market growth	292	293	294	296	297	298	299	300	302	303	304	305
Postpaid-from market growth	1,240	1,245	1,250	1,255	1,260	1,265	1,270	1,276	1,281	1,286	1,291	1,296
Total Addressable customers	6,909	6,933	6,958	6,983	7,008	7,033	7,059	7,085	7,111	7,137	7,163	7,190
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	467	468	470	471	472	474	475	477	478	480	481	483
Postpaid from churn	98	98	99	99	100	100	100	101	101	102	102	102
Prepaid from growth	58	59	59	59	59	60	60	60	60	61	61	61
Postpaid from growth	80	80	81	81	81	82	82	82	83	83	83	84
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	13,310	13,436	13,559	13,681	13,801	13,918	14,034	14,148	14,260	14,371	14,480	14,588
Postpaid Beginning of Month	-	80	159	237	315	391	467	542	616	689	762	834
Dish prepaid Churn	399	403	407	410	414	418	421	424	428	431	434	438
Dish Postpaid churn	-	1	2	4	5	6	7	8	9	10	11	13
Prepaid End of Month	13,436	13,559	13,681	13,801	13,918	14,034	14,148	14,260	14,371	14,480	14,588	14,694
Postpaid End of Month	80	159	237	315	391	467	542	616	689	762	834	905
TOTAL DISH SUBS	13,516	13,718	13,918	14,115	14,309	14,501	14,690	14,876	15,060	15,242	15,421	15,599
TOTAL DISH MARKET SHARE	3.60%	3.63%	3.67%	3.71%	3.74%	3.78%	3.81%	3.85%	3.88%	3.91%	3.94%	3.97%

Table A-2 - BEST CASE SENSITIVITY

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2023 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	75,246	75,552	75,860	76,169	76,479	76,791	77,104	77,418	77,733	78,050	78,368	78,687
Total postpaid subscribers	319,505	320,806	322,113	323,426	324,743	326,066	327,395	328,729	330,068	331,413	332,763	334,118
TOTAL MARKET	394,750	396,358	397,973	399,595	401,223	402,857	404,499	406,146	407,801	409,463	411,131	412,806
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,422	2,430	2,438	2,447	2,455	2,463	2,472	2,481	2,489	2,498	2,507	2,516
Postpaid-from churn	3,186	3,196	3,206	3,216	3,226	3,236	3,246	3,257	3,267	3,278	3,288	3,299
Prepaid from market growth	307	308	309	310	312	313	314	315	317	318	319	321
Postpaid-from market growth	1,302	1,307	1,312	1,318	1,323	1,328	1,334	1,339	1,345	1,350	1,356	1,361
Total Addressable customers	7,216	7,241	7,265	7,290	7,315	7,341	7,366	7,392	7,418	7,444	7,470	7,497
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	484	486	488	489	491	493	494	496	498	500	501	503
Postpaid from churn	405	406	407	409	410	411	413	414	415	417	418	419
Prepaid from growth	61	62	62	62	62	63	63	63	63	64	64	64
Postpaid from growth	331	332	334	335	336	338	339	340	342	343	345	346
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	14,694	14,799	14,903	15,005	15,106	15,206	15,305	15,403	15,500	15,597	15,692	15,787
Postpaid Beginning of Month	905	1,222	1,536	1,847	2,154	2,458	2,759	3,056	3,351	3,642	3,931	4,217
	3,746											
Dish prepaid Churn	441	444	447	450	453	456	459	462	465	468	471	474
Dish Postpaid churn	14	18	23	28	32	37	41	46	50	55	59	63
Prepaid End of Month	14,799	14,903	15,005	15,106	15,206	15,305	15,403	15,500	15,597	15,692	15,787	15,880
Postpaid End of Month	1,222	1,536	1,847	2,154	2,458	2,759	3,056	3,351	3,642	3,931	4,217	4,499
TOTAL DISH SUBS	16,021	16,439	16,852	17,260	17,664	18,064	18,460	18,851	19,239	19,623	20,003	20,380
TOTAL DISH MARKET SHARE	4.06%	4.15%	4.23%	4.32%	4.40%	4.48%	4.56%	4.64%	4.72%	4.79%	4.87%	4.94%

Table A-2 - BEST CASE SENSITIVITY

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2024 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%	18.16%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	79,008	79,330	79,653	79,978	80,303	80,631	80,959	81,289	81,620	81,953	82,286	82,622
Total postpaid subscribers	335,480	336,847	338,219	339,597	340,980	342,370	343,764	345,165	346,571	347,983	349,401	350,824
TOTAL MARKET	414,488	416,176	417,872	419,574	421,284	423,000	424,723	426,454	428,191	429,936	431,687	433,446
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,525	2,534	2,543	2,553	2,562	2,572	2,581	2,591	2,601	2,610	2,620	2,630
Postpaid-from churn	3,310	3,321	3,332	3,343	3,354	3,365	3,376	3,388	3,399	3,411	3,422	3,434
Prepaid from market growth	322	323	325	326	327	328	330	331	333	334	335	337
Postpaid-from market growth	1,367	1,372	1,378	1,384	1,389	1,395	1,401	1,406	1,412	1,418	1,424	1,429
Total Addressable customers	7,524	7,550	7,578	7,605	7,632	7,660	7,688	7,716	7,744	7,773	7,801	7,830
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	505	507	509	511	512	514	516	518	520	522	524	526
Postpaid from churn	421	422	423	425	426	428	429	431	432	433	435	436
Prepaid from growth	64	65	65	65	65	66	66	66	67	67	67	67
Postpaid from growth	347	349	350	352	353	355	356	357	359	360	362	363
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	15,880	15,973	16,066	16,157	16,248	16,339	16,428	16,518	16,607	16,695	16,783	16,871
Postpaid Beginning of Month	4,499	4,779	5,057	5,331	5,603	5,872	6,138	6,402	6,664	6,923	7,179	7,433
Dish prepaid Churn	476	479	482	485	487	490	493	496	498	501	503	506
Dish Postpaid churn	67	72	76	80	84	88	92	96	100	104	108	111
Prepaid End of Month	15,973	16,066	16,157	16,248	16,339	16,428	16,518	16,607	16,695	16,783	16,871	16,958
Postpaid End of Month	4,779	5,057	5,331	5,603	5,872	6,138	6,402	6,664	6,923	7,179	7,433	7,685
TOTAL DISH SUBS	20,753	21,122	21,488	21,851	22,210	22,567	22,920	23,270	23,618	23,962	24,304	24,643
TOTAL DISH MARKET SHARE	5.01%	5.08%	5.14%	5.21%	5.27%	5.33%	5.40%	5.46%	5.52%	5.57%	5.63%	5.69%

3,746

Table A-2 - BEST CASE SENSITIVITY

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2025 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	82,958	83,296	83,636	83,976	84,319	84,662	85,007	85,353	85,701	86,050	86,401	86,753
Total postpaid subscribers	352,254	353,689	355,130	356,577	358,029	359,488	360,953	362,423	363,900	365,382	366,871	368,366
TOTAL MARKET	435,212	436,985	438,765	440,553	442,348	444,150	445,960	447,777	449,601	451,433	453,272	455,118
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,640	2,650	2,660	2,670	2,681	2,691	2,701	2,712	2,722	2,733	2,743	2,754
Postpaid-from churn	3,446	3,457	3,469	3,481	3,493	3,505	3,517	3,529	3,542	3,554	3,566	3,579
Prepaid from market growth	338	339	341	342	344	345	346	348	349	351	352	353
Postpaid-from market growth	1,435	1,441	1,447	1,453	1,459	1,465	1,471	1,477	1,483	1,489	1,495	1,501
Total Addressable customers	7,859	7,888	7,917	7,946	7,976	8,005	8,035	8,065	8,096	8,126	8,156	8,187
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	528	530	532	534	536	538	540	542	544	547	549	551
Postpaid from churn	457	459	460	462	464	465	467	468	470	472	473	475
Prepaid from growth	68	68	68	68	69	69	69	70	70	70	70	71
Postpaid from growth	381	382	384	386	387	389	390	392	394	395	397	398
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	16,958	17,045	17,131	17,218	17,304	17,389	17,475	17,560	17,645	17,730	17,815	17,899
Postpaid Beginning of Month	7,685	7,951	8,214	8,475	8,733	8,989	9,243	9,495	9,744	9,992	10,237	10,480
Dish prepaid Churn	3,746	509	511	514	517	519	522	524	527	529	532	534
Dish Postpaid churn	115	119	123	127	131	135	139	142	146	150	154	157
Prepaid End of Month	17,045	17,131	17,218	17,304	17,389	17,475	17,560	17,645	17,730	17,815	17,899	17,984
Postpaid End of Month	7,951	8,214	8,475	8,733	8,989	9,243	9,495	9,744	9,992	10,237	10,480	10,721
TOTAL DISH SUBS	24,995	25,345	25,692	26,037	26,379	26,718	27,055	27,389	27,722	28,052	28,380	28,705
TOTAL DISH MARKET SHARE	5.74%	5.80%	5.86%	5.91%	5.96%	6.02%	6.07%	6.12%	6.17%	6.21%	6.26%	6.31%

Table A-2 - BEST CASE SENSITIVITY

ETI DISH RAMP-UP MODEL RESULTS

	2026											
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%	18.96%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	87,106	87,461	87,817	88,175	88,534	88,895	89,257	89,621	89,986	90,353	90,721	91,090
Total postpaid subscribers	369,866	371,373	372,886	374,405	375,931	377,462	379,000	380,544	382,095	383,651	385,214	386,784
TOTAL MARKET	456,973	458,834	460,704	462,581	464,465	466,358	468,258	470,165	472,081	474,004	475,935	477,874
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,765	2,776	2,787	2,798	2,809	2,820	2,831	2,842	2,853	2,864	2,876	2,887
Postpaid-from churn	3,591	3,604	3,617	3,630	3,643	3,656	3,669	3,682	3,695	3,708	3,722	3,735
Prepaid from market growth	355	356	358	359	361	362	364	365	367	368	370	371
Postpaid-from market growth	1,507	1,513	1,519	1,525	1,532	1,538	1,544	1,550	1,557	1,563	1,569	1,576
Total Addressable customers	8,218	8,249	8,280	8,312	8,343	8,375	8,407	8,439	8,472	8,504	8,537	8,569
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	553	555	557	560	562	564	566	568	571	573	575	577
Postpaid from churn	477	478	480	482	483	485	487	489	490	492	494	496
Prepaid from growth	71	71	72	72	72	72	73	73	73	74	74	74
Postpaid from growth	400	402	403	405	407	408	410	412	413	415	417	418
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	17,984	18,068	18,153	18,237	18,321	18,406	18,490	18,574	18,658	18,742	18,826	18,911
Postpaid Beginning of Month	10,721	10,960	11,198	11,433	11,666	11,898	12,127	12,355	12,582	12,806	13,029	13,250
	3,746											
Dish prepaid Churn	540	542	545	547	550	552	555	557	560	562	565	567
Dish Postpaid churn	161	164	168	171	175	178	182	185	189	192	195	199
Prepaid End of Month	18,068	18,153	18,237	18,321	18,406	18,490	18,574	18,658	18,742	18,826	18,911	18,995
Postpaid End of Month	10,960	11,198	11,433	11,666	11,898	12,127	12,355	12,582	12,806	13,029	13,250	13,469
TOTAL DISH SUBS	29,029	29,350	29,670	29,988	30,303	30,617	30,929	31,240	31,548	31,855	32,161	32,465
TOTAL DISH MARKET SHARE	6.35%	6.40%	6.44%	6.48%	6.52%	6.57%	6.61%	6.64%	6.68%	6.72%	6.76%	6.79%

Table 3-Redline-2020 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 1 (2020)**

Dish Market Sha 3.04% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	1,663,190	0.042067	0.00%
Alpine	Low Band	32	74	66	0					
	Mid-Band	180	160	252.2	0					
	Total	212	234	318.2	0	-	0.00%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	0					
	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
Butte	Low Band	82	74	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	224	312.5	0	-	0.00%	229,294	0.005800	0.00%
Calaveras	Low Band	32	80	66	0					
	Mid-Band	180	150	266.5	0					
	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
Colusa	Low Band	82	62	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	242	302.5	0	-	0.00%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	1,147,439	0.029022	0.00%
Del Norte	Low Band	82	12	44	0					
	Mid-Band	170	150	177.5	0					
	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
El Dorado	Low Band	82	74	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	302.5	0	-	0.00%	188,987	0.004780	0.00%
Fresno	Low Band	82	74	46	0					
	Mid-Band	160	180	256.5	0					
	Total	242	254	302.5	0	-	0.00%	989,255	0.025021	0.00%
Glenn	Low Band	82	62	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.000711	0.00%
Humboldt	Low Band	82	18	56	0					
	Mid-Band	170	170	203.1	0					
	Total	252	188	259.1	0	-	0.00%	136,754	0.003459	0.00%
Imperial	Low Band	82	30	63	0					
	Mid-Band	180	190	165	0					
	Total	262	220	228	0	-	0.00%	182,830	0.004624	0.00%
Inyo	Low Band	82	74	66	0					
	Mid-Band	150	130	177.5	0					
	Total	232	204	243.5	0	-	0.00%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	0					
	Mid-Band	190	180	276.5	0					
	Total	272	260	332.5	0	-	0.00%	893,119	0.022590	0.00%
Kings	Low Band	82	74	46	0					
	Mid-Band	170	210	200.9	0					
	Total	252	284	246.9	0	-	0.00%	150,101	0.003797	0.00%
Lake	Low Band	82	18	56	0					
	Mid-Band	200	150	220.9	0					
	Total	282	168	276.9	0	-	0.00%	64,246	0.001625	0.00%
Lassen	Low Band	32	12	66	0					
	Mid-Band	180	160	167.5	0					
	Total	212	172	233.5	0	-	0.00%	31,163	0.000788	0.00%
Los Angeles	Low Band	82	80	56	0					
	Mid-Band	180	180	255.8	0					
	Total	262	260	311.8	0	-	0.00%	10,163,507	0.257065	0.00%
Madera	Low Band	32	74	46	0					
	Mid-Band	140	210	236.5	0					
	Total	172	284	282.5	0	-	0.00%	156,890	0.003968	0.00%
Marin	Low Band	82	90	46	0					
	Mid-Band	200	150	255	0					
	Total	282	240	301	0	-	0.00%	260,955	0.006600	0.00%
Mariposa	Low Band	32	80	66	0					
	Mid-Band	170	170	256.5	0					
	Total	202	250	322.5	0	-	0.00%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	0					
	Mid-Band	200	150	193.1	0					
	Total	282	168	249.1	0	-	0.00%	88,018	0.002226	0.00%
Merced	Low Band	32	80	66	0					
	Mid-Band	140	200	246.5	0					
	Total	172	280	312.5	0	-	0.00%	272,673	0.006897	0.00%
Modoc	Low Band	32	12	44	0					
	Mid-Band	150	100	177.5	0					
	Total	182	112	221.5	0	-	0.00%	8,859	0.000224	0.00%

Table 3-Redline-2020 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 1 (2020)**

Dish Market Sha 3.04% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	0					
	Mid-Band	150	160	167.5	0					
	Total	232	234	233.5	0	-	0.00%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	0					
	Mid-Band	170	180	225.7	0					
	Total	252	270	271.7	0	-	0.00%	437,907	0.011076	0.00%
Napa	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	140,973	0.003566	0.00%
Nevada	Low Band	82	74	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	302.5	0	-	0.00%	99,814	0.002525	0.00%
Orange	Low Band	82	80	56	0					
	Mid-Band	180	180	260.5	0					
	Total	262	260	316.5	0	-	0.00%	3,190,400	0.080695	0.00%
Placer	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Low Band	32	12	66	0					
	Mid-Band	180	160	238.7	0					
	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,423,266	0.061292	0.00%
Sacramento	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	1,530,615	0.038714	0.00%
San Benito	Low Band	32	80	66	0					
	Mid-Band	170	180	210.7	0					
	Total	202	260	276.7	0	-	0.00%	60,310	0.001525	0.00%
San Bernardino	Low Band	82	80	56	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,157,404	0.054567	0.00%
San Diego	Low Band	82	74	56	0					
	Mid-Band	150	150	257	0					
	Total	232	224	313	0	-	0.00%	3,337,685	0.084420	0.00%
San Francisco	Low Band	82	90	46	0					
	Mid-Band	200	150	246.3	0					
	Total	282	240	292.3	0	-	0.00%	884,363	0.022368	0.00%
San Joaquin	Low Band	82	90	46	0					
	Mid-Band	180	150	276.5	0					
	Total	262	240	322.5	0	-	0.00%	745,424	0.018854	0.00%
San Luis Obispo	Low Band	32	80	56	0					
	Mid-Band	180	180	246.5	0					
	Total	212	260	302.5	0	-	0.00%	283,405	0.007168	0.00%
San Mateo	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	771,410	0.019511	0.00%
Santa Barbara	Low Band	32	80	56	0					
	Mid-Band	220	150	256.5	0					
	Total	252	230	312.5	0	-	0.00%	448,150	0.011335	0.00%
Santa Clara	Low Band	82	90	46	0					
	Mid-Band	190	150	276.5	0					
	Total	272	240	322.5	0	-	0.00%	1,938,153	0.049022	0.00%
Santa Cruz	Low Band	82	90	46	0					
	Mid-Band	170	180	256.5	0					
	Total	252	270	302.5	0	-	0.00%	275,897	0.006978	0.00%
Shasta	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	179,921	0.004551	0.00%
Sierra	Low Band	82	74	66	0					
	Mid-Band	180	160	266.5	0					
	Total	262	234	332.5	0	-	0.00%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	0					
	Mid-Band	170	140	177.5	0					
	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
Solano	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
Sonoma	Low Band	82	90	46	0					
	Mid-Band	170	180	248.7	0					
	Total	252	270	294.7	0	-	0.00%	504,217	0.012753	0.00%
Stanislaus	Low Band	82	90	46	0					
	Mid-Band	150	220	261.5	0					
	Total	232	310	307.5	0	-	0.00%	547,899	0.013858	0.00%

Table 3-Redline-2020 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 1 (2020)**

Dish Market Sha 3.04%

Dish Spectrum Share 0.00%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	96,648	0.002445	0.00%
Tehama	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
Trinity	Low Band	82	18	56	0					
	Mid-Band	170	160	256.5	0					
	Total	252	178	312.5	0	-	0.00%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	0					
	Mid-Band	200	180	246.5	0					
	Total	282	254	292.5	0	-	0.00%	464,493	0.011748	0.00%
Tuolumne	Low Band	32	80	66	0					
	Mid-Band	180	180	251.5	0					
	Total	212	260	317.5	0	-	0.00%	54,248	0.001372	0.00%
Ventura	Low Band	82	80	56	0					
	Mid-Band	190	150	258.7	0					
	Total	272	230	314.7	0	-	0.00%	854,223	0.021606	0.00%
Yolo	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	219,116	0.005542	0.00%
Yuba	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%
Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county										

Table 3-Redline-2021 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 2 (2021)**

Dish Market Sha 3.40% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	1,663,190	0.042067	0.00%
Alpine	Low Band	32	74	66	0					
	Mid-Band	180	160	252.2	0					
	Total	212	234	318.2	0	-	0.00%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	0					
	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
Butte	Low Band	82	74	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	224	312.5	0	-	0.00%	229,294	0.005800	0.00%
Calaveras	Low Band	32	80	66	0					
	Mid-Band	180	150	266.5	0					
	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
Colusa	Low Band	82	62	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	242	302.5	0	-	0.00%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	1,147,439	0.029022	0.00%
Del Norte	Low Band	82	12	44	0					
	Mid-Band	170	150	177.5	0					
	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
El Dorado	Low Band	82	74	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	302.5	0	-	0.00%	188,987	0.004780	0.00%
Fresno	Low Band	82	74	46	0					
	Mid-Band	160	180	256.5	0					
	Total	242	254	302.5	0	-	0.00%	989,255	0.025021	0.00%
Glenn	Low Band	82	62	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.000711	0.00%
Humboldt	Low Band	82	18	56	0					
	Mid-Band	170	170	203.1	0					
	Total	252	188	259.1	0	-	0.00%	136,754	0.003459	0.00%
Imperial	Low Band	82	30	63	0					
	Mid-Band	180	190	165	0					
	Total	262	220	228	0	-	0.00%	182,830	0.004624	0.00%
Inyo	Low Band	82	74	66	0					
	Mid-Band	150	130	177.5	0					
	Total	232	204	243.5	0	-	0.00%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	0					
	Mid-Band	190	180	276.5	0					
	Total	272	260	332.5	0	-	0.00%	893,119	0.022590	0.00%
Kings	Low Band	82	74	46	0					
	Mid-Band	170	210	200.9	0					
	Total	252	284	246.9	0	-	0.00%	150,101	0.003797	0.00%
Lake	Low Band	82	18	56	0					
	Mid-Band	200	150	220.9	0					
	Total	282	168	276.9	0	-	0.00%	64,246	0.001625	0.00%
Lassen	Low Band	32	12	66	0					
	Mid-Band	180	160	167.5	0					
	Total	212	172	233.5	0	-	0.00%	31,163	0.000788	0.00%
Los Angeles	Low Band	82	80	56	0					
	Mid-Band	180	180	255.8	0					
	Total	262	260	311.8	0	-	0.00%	10,163,507	0.257065	0.00%
Madera	Low Band	32	74	46	0					
	Mid-Band	140	210	236.5	0					
	Total	172	284	282.5	0	-	0.00%	156,890	0.003968	0.00%
Marin	Low Band	82	90	46	0					
	Mid-Band	200	150	255	0					
	Total	282	240	301	0	-	0.00%	260,955	0.006600	0.00%
Mariposa	Low Band	32	80	66	0					
	Mid-Band	170	170	256.5	0					
	Total	202	250	322.5	0	-	0.00%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	0					
	Mid-Band	200	150	193.1	0					
	Total	282	168	249.1	0	-	0.00%	88,018	0.002226	0.00%
Merced	Low Band	32	80	66	0					
	Mid-Band	140	200	246.5	0					
	Total	172	280	312.5	0	-	0.00%	272,673	0.006897	0.00%
Modoc	Low Band	32	12	44	0					
	Mid-Band	150	100	177.5	0					
	Total	182	112	221.5	0	-	0.00%	8,859	0.000224	0.00%

Table 3-Redline-2021 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 2 (2021)**

Dish Market Sha 3.40% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	0					
	Mid-Band	150	160	167.5	0					
	Total	232	234	233.5	0	-	0.00%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	0					
	Mid-Band	170	180	225.7	0					
	Total	252	270	271.7	0	-	0.00%	437,907	0.011076	0.00%
Napa	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	140,973	0.003566	0.00%
Nevada	Low Band	82	74	46	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	302.5	0	-	0.00%	99,814	0.002525	0.00%
Orange	Low Band	82	80	56	0					
	Mid-Band	180	180	260.5	0					
	Total	262	260	316.5	0	-	0.00%	3,190,400	0.080695	0.00%
Placer	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Low Band	32	12	66	0					
	Mid-Band	180	160	238.7	0					
	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,423,266	0.061292	0.00%
Sacramento	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	1,530,615	0.038714	0.00%
San Benito	Low Band	32	80	66	0					
	Mid-Band	170	180	210.7	0					
	Total	202	260	276.7	0	-	0.00%	60,310	0.001525	0.00%
San Bernardino	Low Band	82	80	56	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,157,404	0.054567	0.00%
San Diego	Low Band	82	74	56	0					
	Mid-Band	150	150	257	0					
	Total	232	224	313	0	-	0.00%	3,337,685	0.084420	0.00%
San Francisco	Low Band	82	90	46	0					
	Mid-Band	200	150	246.3	0					
	Total	282	240	292.3	0	-	0.00%	884,363	0.022368	0.00%
San Joaquin	Low Band	82	90	46	0					
	Mid-Band	180	150	276.5	0					
	Total	262	240	322.5	0	-	0.00%	745,424	0.018854	0.00%
San Luis Obispo	Low Band	32	80	56	0					
	Mid-Band	180	180	246.5	0					
	Total	212	260	302.5	0	-	0.00%	283,405	0.007168	0.00%
San Mateo	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	771,410	0.019511	0.00%
Santa Barbara	Low Band	32	80	56	0					
	Mid-Band	220	150	256.5	0					
	Total	252	230	312.5	0	-	0.00%	448,150	0.011335	0.00%
Santa Clara	Low Band	82	90	46	0					
	Mid-Band	190	150	276.5	0					
	Total	272	240	322.5	0	-	0.00%	1,938,153	0.049022	0.00%
Santa Cruz	Low Band	82	90	46	0					
	Mid-Band	170	180	256.5	0					
	Total	252	270	302.5	0	-	0.00%	275,897	0.006978	0.00%
Shasta	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	179,921	0.004551	0.00%
Sierra	Low Band	82	74	66	0					
	Mid-Band	180	160	266.5	0					
	Total	262	234	332.5	0	-	0.00%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	0					
	Mid-Band	170	140	177.5	0					
	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
Solano	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
Sonoma	Low Band	82	90	46	0					
	Mid-Band	170	180	248.7	0					
	Total	252	270	294.7	0	-	0.00%	504,217	0.012753	0.00%
Stanislaus	Low Band	82	90	46	0					
	Mid-Band	150	220	261.5	0					
	Total	232	310	307.5	0	-	0.00%	547,899	0.013858	0.00%

Table 3-Redline-2021 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 2 (2021)**

Dish Market Sha 3.40%

Dish Spectrum Share 0.00%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	96,648	0.002445	0.00%
Tehama	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
Trinity	Low Band	82	18	56	0					
	Mid-Band	170	160	256.5	0					
	Total	252	178	312.5	0	-	0.00%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	0					
	Mid-Band	200	180	246.5	0					
	Total	282	254	292.5	0	-	0.00%	464,493	0.011748	0.00%
Tuolumne	Low Band	32	80	66	0					
	Mid-Band	180	180	251.5	0					
	Total	212	260	317.5	0	-	0.00%	54,248	0.001372	0.00%
Ventura	Low Band	82	80	56	0					
	Mid-Band	190	150	258.7	0					
	Total	272	230	314.7	0	-	0.00%	854,223	0.021606	0.00%
Yolo	Low Band	82	74	46	0					
	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	219,116	0.005542	0.00%
Yuba	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC

Table 3-Redline-2022 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 3 (2022)**

Dish Market Sha 3.76% Dish Spectrum Share 8.06% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	30					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	37.27	8.75%	1,663,190	0.042067	0.37%
Alpine	Low Band	32	74	66	6					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	56	26.09	6.83%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	0					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	50	23.30	6.14%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	0					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	50	23.30	5.89%	229,294	0.005800	0.03%
Calaveras	Low Band	32	80	66	0					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	50	23.30	6.06%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	20					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	70	32.62	7.99%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	30					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	37.27	8.75%	1,147,439	0.029022	0.25%
Del Norte	Low Band	82	12	44	6					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	56	26.09	8.10%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	20					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	70	32.62	7.88%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	26					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	76	35.41	8.69%	989,255	0.025021	0.22%
Glenn	Low Band	82	62	46	0					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	50	23.30	5.98%	28,094	0.000711	0.00%
Humboldt	Low Band	82	18	56	10					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	60	27.96	7.90%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	0					
	Mid-Band	180	190	165	50					
	Total	262	220	228	50	23.30	6.58%	182,830	0.004624	0.03%
Inyo	Low Band	82	74	66	6					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	56	26.09	7.61%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	20					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	70	32.62	7.49%	893,119	0.022590	0.17%
Kings	Low Band	82	74	46	26					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	76	35.41	8.85%	150,101	0.003797	0.03%
Lake	Low Band	82	18	56	10					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	60	27.96	7.62%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	66	26					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	76	35.41	10.96%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	20					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	70	32.62	7.75%	10,163,507	0.257065	1.99%
Madera	Low Band	32	74	46	26					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	76	35.41	9.33%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	30					
	Mid-Band	200	150	255	50					
	Total	282	240	301	80	37.27	8.86%	260,955	0.006600	0.06%
Mariposa	Low Band	32	80	66	20					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	70	32.62	8.29%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	10					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	60	27.96	7.90%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	20					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	70	32.62	8.39%	272,673	0.006897	0.06%
Modoc	Low Band	32	12	44	6					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	56	26.09	9.80%	8,859	0.000224	0.00%

Table 3-Redline-2022 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 3 (2022)**

Dish Market Sha 3.76% Dish Spectrum Share 8.06% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	6					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	56	26.09	7.41%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	30					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	80	37.27	9.16%	437,907	0.011076	0.10%
Napa	Low Band	82	90	46	30					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	37.27	8.75%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	46	20					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	70	32.62	7.88%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	20					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	70	32.62	7.71%	3,190,400	0.080695	0.62%
Placer	Low Band	82	74	46	20					
	Mid-Band	180	180	257	50					
	Total	262	254	303	70	32.62	7.87%	386,166	0.009767	0.08%
Plumas	Low Band	32	12	66	6					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	56	26.09	7.52%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	20					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	70	32.62	7.65%	2,423,266	0.061292	0.47%
Sacramento	Low Band	82	74	46	20					
	Mid-Band	180	180	257	50					
	Total	262	254	303	70	32.62	7.87%	1,530,615	0.038714	0.30%
San Benito	Low Band	32	80	66	20					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	70	32.62	8.66%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	56	20					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	70	32.62	7.65%	2,157,404	0.054567	0.42%
San Diego	Low Band	82	74	56	26					
	Mid-Band	150	150	257	50					
	Total	232	224	313	76	35.41	8.99%	3,337,685	0.084420	0.76%
San Francisco	Low Band	82	90	46	30					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	80	37.27	8.95%	884,363	0.022368	0.20%
San Joaquin	Low Band	82	90	46	30					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	80	37.27	8.84%	745,424	0.018854	0.17%
San Luis Obispo	Low Band	32	80	56	20					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	70	32.62	8.29%	283,405	0.007168	0.06%
San Mateo	Low Band	82	90	46	30					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	37.27	8.75%	771,410	0.019511	0.17%
Santa Barbara	Low Band	32	80	56	20					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	70	32.62	8.10%	448,150	0.011335	0.09%
Santa Clara	Low Band	82	90	46	30					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	80	37.27	8.75%	1,938,153	0.049022	0.43%
Santa Cruz	Low Band	82	90	46	30					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	80	37.27	8.84%	275,897	0.006978	0.06%
Shasta	Low Band	82	62	44	16					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	66	30.75	7.95%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	6					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	56	26.09	6.33%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	6					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	56	26.09	8.22%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	50	23.30	5.65%	445,458	0.011267	0.06%
Sonoma	Low Band	82	90	46	30					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	80	37.27	8.92%	504,217	0.012753	0.11%
Stanislaus	Low Band	82	90	46	0					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	50	23.30	5.56%	547,899	0.013858	0.08%

Table 3-Redline-2022 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 3 (2022)**

Dish Market Sha 3.76%

Dish Spectrum Share 8.06%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	20					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	70	32.62	8.10%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	6					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	56	26.09	6.83%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	10					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	60	27.96	7.48%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	26					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	76	35.41	8.40%	464,493	0.011748	0.10%
Tuolumne	Low Band	32	80	66	20					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	70	32.62	8.14%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	20					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	70	32.62	7.89%	854,223	0.021606	0.17%
Yolo	Low Band	82	74	46	20					
	Mid-Band	180	180	257	50					
	Total	262	254	303	70	32.62	7.87%	219,116	0.005542	0.04%
Yuba	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	50	23.30	5.93%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2023 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 4 (2023)**

Dish Market Sha 4.43% Dish Spectrum Share 9.08% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	43.95	9.73%	1,663,190	0.042067	0.41%
Alpine	Low Band	32	74	66	16					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	66	32.23	7.95%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	10					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	60	29.30	7.28%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	60	29.30	6.99%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	10					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	29.30	7.19%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	80	39.06	9.02%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	43.95	9.73%	1,147,439	0.029022	0.28%
Del Norte	Low Band	82	12	44	16					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	66	32.23	9.41%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	39.06	8.90%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	36					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	86	41.99	9.72%	989,255	0.025021	0.24%
Glenn	Low Band	82	62	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	60	29.30	7.09%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	56	20					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	70	34.18	9.10%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	7					
	Mid-Band	180	190	165	50					
	Total	262	220	228	57	27.83	7.43%	182,830	0.004624	0.03%
Inyo	Low Band	82	74	66	16					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	66	32.23	8.85%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	30					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	80	39.06	8.47%	893,119	0.022590	0.19%
Kings	Low Band	82	74	46	36					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	86	41.99	9.90%	150,101	0.003797	0.04%
Lake	Low Band	82	18	56	20					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	70	34.18	8.78%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	66	36					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	86	41.99	12.22%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	30					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	80	39.06	8.75%	10,163,507	0.257065	2.25%
Madera	Low Band	32	74	46	36					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	86	41.99	10.43%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	40					
	Mid-Band	200	150	255	50					
	Total	282	240	301	90	43.95	9.86%	260,955	0.006600	0.07%
Mariposa	Low Band	32	80	66	30					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	80	39.06	9.36%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	20					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	70	34.18	9.10%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	30					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	80	39.06	9.47%	272,673	0.006897	0.07%
Modoc	Low Band	32	12	44	16					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	66	32.23	11.35%	8,859	0.000224	0.00%

Table 3-Redline-2023 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 4 (2023)**

Dish Market Sha 4.43% Dish Spectrum Share 9.08% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	16					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	66	32.23	8.62%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	40					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	90	43.95	10.18%	437,907	0.011076	0.11%
Napa	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	43.95	9.73%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	39.06	8.90%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	30					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	80	39.06	8.71%	3,190,400	0.080695	0.70%
Placer	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	39.06	8.90%	386,166	0.009767	0.09%
Plumas	Low Band	32	12	66	16					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	66	32.23	8.75%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	30					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	80	39.06	8.65%	2,423,266	0.061292	0.53%
Sacramento	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	39.06	8.90%	1,530,615	0.038714	0.34%
San Benito	Low Band	32	80	66	30					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	80	39.06	9.77%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	56	30					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	80	39.06	8.65%	2,157,404	0.054567	0.47%
San Diego	Low Band	82	74	56	36					
	Mid-Band	150	150	257	50					
	Total	232	224	313	86	41.99	10.06%	3,337,685	0.084420	0.85%
San Francisco	Low Band	82	90	46	40					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	90	43.95	9.95%	884,363	0.022368	0.22%
San Joaquin	Low Band	82	90	46	40					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	90	43.95	9.84%	745,424	0.018854	0.19%
San Luis Obispo	Low Band	32	80	56	30					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	80	39.06	9.36%	283,405	0.007168	0.07%
San Mateo	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	43.95	9.73%	771,410	0.019511	0.19%
Santa Barbara	Low Band	32	80	56	30					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	80	39.06	9.15%	448,150	0.011335	0.10%
Santa Clara	Low Band	82	90	46	40					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	90	43.95	9.73%	1,938,153	0.049022	0.48%
Santa Cruz	Low Band	82	90	46	40					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	90	43.95	9.84%	275,897	0.006978	0.07%
Shasta	Low Band	82	62	44	26					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	76	37.11	9.04%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	16					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	66	32.23	7.38%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	16					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	66	32.23	9.54%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	10					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	60	29.30	6.71%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	46	40					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	90	43.95	9.93%	504,217	0.012753	0.13%
Stanislaus	Low Band	82	90	46	10					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	60	29.30	6.60%	547,899	0.013858	0.09%

Table 3-Redline-2023 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 4 (2023)**

Dish Market Sha 4.43%

Dish Spectrum Share 9.08%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	30					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	80	39.06	9.16%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	16					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	66	32.23	7.95%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	20					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	70	34.18	8.62%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	36					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	86	41.99	9.40%	464,493	0.011748	0.11%
Tuolumne	Low Band	32	80	66	30					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	80	39.06	9.20%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	30					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	80	39.06	8.92%	854,223	0.021606	0.19%
Yolo	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	39.06	8.90%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	10					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	60	29.30	7.03%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2024 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 5 (2024)**

Dish Market Sha 5.36% Dish Spectrum Share 9.08% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	53.12	9.73%	1,663,190	0.042067	0.41%
Alpine	Low Band	32	74	66	16					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	66	38.95	7.95%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	10					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	60	35.41	7.28%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	60	35.41	6.99%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	10					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	35.41	7.19%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	80	47.22	9.02%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	53.12	9.73%	1,147,439	0.029022	0.28%
Del Norte	Low Band	82	12	44	16					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	66	38.95	9.41%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	47.22	8.90%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	36					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	86	50.76	9.72%	989,255	0.025021	0.24%
Glenn	Low Band	82	62	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	60	35.41	7.09%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	56	20					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	70	41.31	9.10%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	7					
	Mid-Band	180	190	165	50					
	Total	262	220	228	57	33.64	7.43%	182,830	0.004624	0.03%
Inyo	Low Band	82	74	66	16					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	66	38.95	8.85%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	30					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	80	47.22	8.47%	893,119	0.022590	0.19%
Kings	Low Band	82	74	46	36					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	86	50.76	9.90%	150,101	0.003797	0.04%
Lake	Low Band	82	18	56	20					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	70	41.31	8.78%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	66	36					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	86	50.76	12.22%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	30					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	80	47.22	8.75%	10,163,507	0.257065	2.25%
Madera	Low Band	32	74	46	36					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	86	50.76	10.43%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	40					
	Mid-Band	200	150	255	50					
	Total	282	240	301	90	53.12	9.86%	260,955	0.006600	0.07%
Mariposa	Low Band	32	80	66	30					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	80	47.22	9.36%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	20					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	70	41.31	9.10%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	30					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	80	47.22	9.47%	272,673	0.006897	0.07%
Modoc	Low Band	32	12	44	16					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	66	38.95	11.35%	8,859	0.000224	0.00%

Table 3-Redline-2024 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 5 (2024)**

Dish Market Sha 5.36% Dish Spectrum Share 9.08% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	16					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	66	38.95	8.62%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	40					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	90	53.12	10.18%	437,907	0.011076	0.11%
Napa	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	53.12	9.73%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	46	30					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	47.22	8.90%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	30					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	80	47.22	8.71%	3,190,400	0.080695	0.70%
Placer	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	47.22	8.90%	386,166	0.009767	0.09%
Plumas	Low Band	32	12	66	16					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	66	38.95	8.75%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	30					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	80	47.22	8.65%	2,423,266	0.061292	0.53%
Sacramento	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	47.22	8.90%	1,530,615	0.038714	0.34%
San Benito	Low Band	32	80	66	30					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	80	47.22	9.77%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	56	30					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	80	47.22	8.65%	2,157,404	0.054567	0.47%
San Diego	Low Band	82	74	56	36					
	Mid-Band	150	150	257	50					
	Total	232	224	313	86	50.76	10.06%	3,337,685	0.084420	0.85%
San Francisco	Low Band	82	90	46	40					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	90	53.12	9.95%	884,363	0.022368	0.22%
San Joaquin	Low Band	82	90	46	40					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	90	53.12	9.84%	745,424	0.018854	0.19%
San Luis Obispo	Low Band	32	80	56	30					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	80	47.22	9.36%	283,405	0.007168	0.07%
San Mateo	Low Band	82	90	46	40					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	53.12	9.73%	771,410	0.019511	0.19%
Santa Barbara	Low Band	32	80	56	30					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	80	47.22	9.15%	448,150	0.011335	0.10%
Santa Clara	Low Band	82	90	46	40					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	90	53.12	9.73%	1,938,153	0.049022	0.48%
Santa Cruz	Low Band	82	90	46	40					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	90	53.12	9.84%	275,897	0.006978	0.07%
Shasta	Low Band	82	62	44	26					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	76	44.86	9.04%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	16					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	66	38.95	7.38%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	16					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	66	38.95	9.54%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	10					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	60	35.41	6.71%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	46	40					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	90	53.12	9.93%	504,217	0.012753	0.13%
Stanislaus	Low Band	82	90	46	10					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	60	35.41	6.60%	547,899	0.013858	0.09%

Table 3-Redline-2024 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 5 (2024)**

Dish Market Sha 5.36%

Dish Spectrum Share 9.08%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	30					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	80	47.22	9.16%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	16					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	66	38.95	7.95%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	20					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	70	41.31	8.62%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	36					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	86	50.76	9.40%	464,493	0.011748	0.11%
Tuolumne	Low Band	32	80	66	30					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	80	47.22	9.20%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	30					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	80	47.22	8.92%	854,223	0.021606	0.19%
Yolo	Low Band	82	74	46	30					
	Mid-Band	180	180	257	50					
	Total	262	254	303	80	47.22	8.90%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	10					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	60	35.41	7.03%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2025 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 6 (2025)**

Dish Market Sha 6.03% Dish Spectrum Share 9.48% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	59.84	10.12%	1,663,190	0.042067	0.43%
Alpine	Low Band	32	74	66	20					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	70	44.56	8.39%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	14					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	64	40.74	7.73%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	40.74	7.42%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	14					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	40.74	7.63%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	84	53.48	9.43%	21,805	0.000552	0.01%
Contra Costa	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	59.84	10.12%	1,147,439	0.029022	0.29%
Del Norte	Low Band	82	12	44	20					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	70	44.56	9.92%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	53.48	9.31%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	40					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	90	57.30	10.13%	989,255	0.025021	0.25%
Glenn	Low Band	82	62	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	40.74	7.52%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	56	24					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	74	47.11	9.57%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	11					
	Mid-Band	180	190	165	50					
	Total	262	220	228	61	38.84	7.91%	182,830	0.004624	0.04%
Inyo	Low Band	82	74	66	20					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	70	44.56	9.34%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	34					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	84	53.48	8.86%	893,119	0.022590	0.20%
Kings	Low Band	82	74	46	40					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	90	57.30	10.31%	150,101	0.003797	0.04%
Lake	Low Band	82	18	56	24					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	74	47.11	9.24%	64,246	0.001625	0.02%
Lassen	Low Band	32	12	66	40					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	90	57.30	12.72%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	34					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	84	53.48	9.15%	10,163,507	0.257065	2.35%
Madera	Low Band	32	74	46	40					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	90	57.30	10.86%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	44					
	Mid-Band	200	150	255	50					
	Total	282	240	301	94	59.84	10.25%	260,955	0.006600	0.07%
Mariposa	Low Band	32	80	66	34					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	84	53.48	9.78%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	24					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	74	47.11	9.57%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	34					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	84	53.48	9.90%	272,673	0.006897	0.07%
Modoc	Low Band	32	12	44	20					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	70	44.56	11.96%	8,859	0.000224	0.00%

Table 3-Redline-2025 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 6 (2025)**

Dish Market Sha 6.03% Dish Spectrum Share 9.48% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	20					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	70	44.56	9.10%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	44					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	94	59.84	10.59%	437,907	0.011076	0.12%
Napa	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	59.84	10.12%	140,973	0.003566	0.04%
Nevada	Low Band	82	74	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	53.48	9.31%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	34					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	84	53.48	9.11%	3,190,400	0.080695	0.73%
Placer	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	53.48	9.30%	386,166	0.009767	0.09%
Plumas	Low Band	32	12	66	20					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	70	44.56	9.23%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	34					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	53.48	9.05%	2,423,266	0.061292	0.55%
Sacramento	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	53.48	9.30%	1,530,615	0.038714	0.36%
San Benito	Low Band	32	80	66	34					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	84	53.48	10.21%	60,310	0.001525	0.02%
San Bernardino	Low Band	82	80	56	34					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	53.48	9.05%	2,157,404	0.054567	0.49%
San Diego	Low Band	82	74	56	40					
	Mid-Band	150	150	257	50					
	Total	232	224	313	90	57.30	10.48%	3,337,685	0.084420	0.88%
San Francisco	Low Band	82	90	46	44					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	94	59.84	10.35%	884,363	0.022368	0.23%
San Joaquin	Low Band	82	90	46	44					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	94	59.84	10.23%	745,424	0.018854	0.19%
San Luis Obispo	Low Band	32	80	56	34					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	84	53.48	9.78%	283,405	0.007168	0.07%
San Mateo	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	59.84	10.12%	771,410	0.019511	0.20%
Santa Barbara	Low Band	32	80	56	34					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	84	53.48	9.56%	448,150	0.011335	0.11%
Santa Clara	Low Band	82	90	46	44					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	94	59.84	10.12%	1,938,153	0.049022	0.50%
Santa Cruz	Low Band	82	90	46	44					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	94	59.84	10.23%	275,897	0.006978	0.07%
Shasta	Low Band	82	62	44	30					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	80	50.93	9.47%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	20					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	70	44.56	7.79%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	20					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	70	44.56	10.06%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	14					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	64	40.74	7.12%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	46	44					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	94	59.84	10.32%	504,217	0.012753	0.13%
Stanislaus	Low Band	82	90	46	14					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	64	40.74	7.01%	547,899	0.013858	0.10%

Table 3-Redline-2025 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 6 (2025)**

Dish Market Sha 6.03%

Dish Spectrum Share 9.48%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	34					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	84	53.48	9.57%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	20					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	70	44.56	8.39%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	24					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	74	47.11	9.06%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	40					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	90	57.30	9.80%	464,493	0.011748	0.12%
Tuolumne	Low Band	32	80	66	34					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	84	53.48	9.62%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	34					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	84	53.48	9.33%	854,223	0.021606	0.20%
Yolo	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	53.48	9.30%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	14					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	64	40.74	7.46%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2026 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 7 (2026)**

Dish Market Sha 6.58% Dish Spectrum Share 9.48% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	65.25	10.12%	1,663,190	0.042067	0.43%
Alpine	Low Band	32	74	66	20					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	70	48.59	8.39%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	14					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	64	44.43	7.73%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	44.43	7.42%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	14					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	44.43	7.63%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	84	58.31	9.43%	21,805	0.000552	0.01%
Contra Costa	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	65.25	10.12%	1,147,439	0.029022	0.29%
Del Norte	Low Band	82	12	44	20					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	70	48.59	9.92%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	58.31	9.31%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	46	40					
	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	90	62.48	10.13%	989,255	0.025021	0.25%
Glenn	Low Band	82	62	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	44.43	7.52%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	56	24					
	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	74	51.37	9.57%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	11					
	Mid-Band	180	190	165	50					
	Total	262	220	228	61	42.35	7.91%	182,830	0.004624	0.04%
Inyo	Low Band	82	74	66	20					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	70	48.59	9.34%	18,026	0.000456	0.00%
Kern	Low Band	82	80	56	34					
	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	84	58.31	8.86%	893,119	0.022590	0.20%
Kings	Low Band	82	74	46	40					
	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	90	62.48	10.31%	150,101	0.003797	0.04%
Lake	Low Band	82	18	56	24					
	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	74	51.37	9.24%	64,246	0.001625	0.02%
Lassen	Low Band	32	12	66	40					
	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	90	62.48	12.72%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	56	34					
	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	84	58.31	9.15%	10,163,507	0.257065	2.35%
Madera	Low Band	32	74	46	40					
	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	90	62.48	10.86%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	44					
	Mid-Band	200	150	255	50					
	Total	282	240	301	94	65.25	10.25%	260,955	0.006600	0.07%
Mariposa	Low Band	32	80	66	34					
	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	84	58.31	9.78%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	56	24					
	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	74	51.37	9.57%	88,018	0.002226	0.02%
Merced	Low Band	32	80	66	34					
	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	84	58.31	9.90%	272,673	0.006897	0.07%
Modoc	Low Band	32	12	44	20					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	70	48.59	11.96%	8,859	0.000224	0.00%

Table 3-Redline-2026 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 7 (2026)**

Dish Market Sha 6.58% Dish Spectrum Share 9.48% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	20					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	70	48.59	9.10%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	46	44					
	Mid-Band	170	180	225.7	50					
	Total	252	270	271.7	94	65.25	10.59%	437,907	0.011076	0.12%
Napa	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	65.25	10.12%	140,973	0.003566	0.04%
Nevada	Low Band	82	74	46	34					
	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	58.31	9.31%	99,814	0.002525	0.02%
Orange	Low Band	82	80	56	34					
	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	84	58.31	9.11%	3,190,400	0.080695	0.73%
Placer	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	58.31	9.30%	386,166	0.009767	0.09%
Plumas	Low Band	32	12	66	20					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	70	48.59	9.23%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	34					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	58.31	9.05%	2,423,266	0.061292	0.55%
Sacramento	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	58.31	9.30%	1,530,615	0.038714	0.36%
San Benito	Low Band	32	80	66	34					
	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	84	58.31	10.21%	60,310	0.001525	0.02%
San Bernardino	Low Band	82	80	56	34					
	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	58.31	9.05%	2,157,404	0.054567	0.49%
San Diego	Low Band	82	74	56	40					
	Mid-Band	150	150	257	50					
	Total	232	224	313	90	62.48	10.48%	3,337,685	0.084420	0.88%
San Francisco	Low Band	82	90	46	44					
	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	94	65.25	10.35%	884,363	0.022368	0.23%
San Joaquin	Low Band	82	90	46	44					
	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	94	65.25	10.23%	745,424	0.018854	0.19%
San Luis Obispo	Low Band	32	80	56	34					
	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	84	58.31	9.78%	283,405	0.007168	0.07%
San Mateo	Low Band	82	90	46	44					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	65.25	10.12%	771,410	0.019511	0.20%
Santa Barbara	Low Band	32	80	56	34					
	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	84	58.31	9.56%	448,150	0.011335	0.11%
Santa Clara	Low Band	82	90	46	44					
	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	94	65.25	10.12%	1,938,153	0.049022	0.50%
Santa Cruz	Low Band	82	90	46	44					
	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	94	65.25	10.23%	275,897	0.006978	0.07%
Shasta	Low Band	82	62	44	30					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	80	55.53	9.47%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	20					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	70	48.59	7.79%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	20					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	70	48.59	10.06%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	14					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	64	44.43	7.12%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	46	44					
	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	94	65.25	10.32%	504,217	0.012753	0.13%
Stanislaus	Low Band	82	90	46	14					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	64	44.43	7.01%	547,899	0.013858	0.10%

Table 3-Redline-2026 Best Case Sensitivity

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 7 (2026)**

Dish Market Sha 6.58%

Dish Spectrum Share 9.48%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	46	34					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	84	58.31	9.57%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	20					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	70	48.59	8.39%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	56	24					
	Mid-Band	170	160	256.5	50					
	Total	252	178	312.5	74	51.37	9.06%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	46	40					
	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	90	62.48	9.80%	464,493	0.011748	0.12%
Tuolumne	Low Band	32	80	66	34					
	Mid-Band	180	180	251.5	50					
	Total	212	260	317.5	84	58.31	9.62%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	56	34					
	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	84	58.31	9.33%	854,223	0.021606	0.20%
Yolo	Low Band	82	74	46	34					
	Mid-Band	180	180	257	50					
	Total	262	254	303	84	58.31	9.30%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	14					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	64	44.43	7.46%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

ETI DISH Ramp-Up Model

DISH 600 MHz Lease

to New T-Mobile

Sensitivity Results

Table A-1 - 600 MHz LEASE

CONSTANTS AND ASSUMPTIONS

SENSITIVITY ANALYSIS - 600 MHz Lease	Constants	Sensitivity Adjusted Factor	Constant
Market-wide prepaid monthly churn rate	4.00%	1.00	4.00%
Market-wide postpaid monthly churn rate	1.00%	1.00	1.00%
Dish prepaid monthly churn rate	4.00%	1.00	4.00%
Dish postpaid monthly churn rate	1.50%	1.00	1.50%
Monthly prepaid market growth rate	0.41%	1.00	0.41%
Monthly postpaid market growth rate	0.41%	1.00	0.41%
Dish prepaid market share (9.3-million/60-million)	14.31%	1.00	14.31%
Dish spectrum share customer acquisition multiplier		1.00	0.00%

Table A-2 - 600 MHz LEASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2020 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Dish Facilities-Based 5G Population Coverage	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total prepaid subscribers	65,000	65,265	65,531	65,798	66,066	66,335	66,605	66,877	67,149	67,423	67,697	67,973
Total postpaid subscribers	276,000	277,124	278,253	279,387	280,525	281,668	282,816	283,968	285,125	286,287	287,453	288,624
TOTAL MARKET	341,000	342,389	343,784	345,185	346,591	348,003	349,421	350,845	352,274	353,709	355,150	356,597
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,228	2,239	2,250	2,261	2,273	2,284	2,295	2,305	2,316	2,327	2,338	2,349
Postpaid-from churn	2,760	2,771	2,783	2,794	2,805	2,817	2,828	2,840	2,851	2,863	2,875	2,886
Prepaid from market growth	265	266	267	268	269	270	271	272	274	275	276	277
Postpaid-from market growth	1,124	1,129	1,134	1,138	1,143	1,148	1,152	1,157	1,162	1,166	1,171	1,176
Total Addressable customers	6,377	6,405	6,434	6,462	6,490	6,518	6,546	6,575	6,603	6,631	6,660	6,688
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	319	320	322	324	325	327	328	330	331	333	335	336
Postpaid from churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid from growth	38	38	38	38	39	39	39	39	39	39	39	40
Postpaid from growth	-	-	-	-	-	-	-	-	-	-	-	-
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,300	9,285	9,272	9,261	9,252	9,246	9,242	9,239	9,238	9,239	9,242	9,246
Postpaid Beginning of Month	-	-	-	-	-	-	-	-	-	-	-	-
	4,443											
Dish prepaid Churn	372	371	371	370	370	370	370	370	370	370	370	370
Dish Postpaid churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid End of Month	9,285	9,272	9,261	9,252	9,246	9,242	9,239	9,238	9,239	9,242	9,246	9,252
Postpaid End of Month	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL DISH SUBS	9,285	9,272	9,261	9,252	9,246	9,242	9,239	9,238	9,239	9,242	9,246	9,252
TOTAL DISH MARKET SHARE	2.72%	2.71%	2.69%	2.68%	2.67%	2.66%	2.64%	2.63%	2.62%	2.61%	2.60%	2.59%

Table A-2 - 600 MHz LEASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2021 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Dish Facilities-Based 5G Population Coverage	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total prepaid subscribers	68,250	68,528	68,807	69,088	69,369	69,652	69,935	70,220	70,506	70,794	71,082	71,372
Total postpaid subscribers	289,800	290,981	292,166	293,356	294,552	295,752	296,957	298,166	299,381	300,601	301,826	303,055
TOTAL MARKET	358,050	359,509	360,973	362,444	363,921	365,403	366,892	368,387	369,888	371,395	372,908	374,427
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,360	2,371	2,382	2,392	2,403	2,414	2,425	2,436	2,446	2,457	2,468	2,479
Postpaid-from churn	2,898	2,910	2,922	2,934	2,946	2,958	2,970	2,982	2,994	3,006	3,018	3,031
Prepaid from market growth	278	279	280	281	283	284	285	286	287	288	290	291
Postpaid-from market growth	1,181	1,185	1,190	1,195	1,200	1,205	1,210	1,215	1,220	1,225	1,230	1,235
Total Addressable customers	6,717	6,745	6,774	6,803	6,831	6,860	6,889	6,918	6,947	6,976	7,005	7,035
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	338	339	341	342	344	345	347	348	350	352	353	355
Postpaid from churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid from growth	40	40	40	40	40	41	41	41	41	41	41	42
Postpaid from growth	-	-	-	-	-	-	-	-	-	-	-	-
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,252	9,260	9,268	9,278	9,290	9,303	9,316	9,332	9,348	9,365	9,383	9,402
Postpaid Beginning of Month	-	-	-	-	-	-	-	-	-	-	-	-
	4,443											
Dish prepaid Churn	370	370	371	371	372	372	373	373	374	375	375	376
Dish Postpaid churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid End of Month	9,260	9,268	9,278	9,290	9,303	9,316	9,332	9,348	9,365	9,383	9,402	9,422
Postpaid End of Month	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL DISH SUBS	9,260	9,268	9,278	9,290	9,303	9,316	9,332	9,348	9,365	9,383	9,402	9,422
TOTAL DISH MARKET SHARE	2.59%	2.58%	2.57%	2.56%	2.56%	2.55%	2.54%	2.54%	2.53%	2.53%	2.52%	2.52%

Table A-2 - 600 MHz LEASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2022 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	6.88%	6.88%	6.88%	6.88%	6.88%	6.88%	6.88%	6.88%	6.88%	6.88%	6.88%	6.88%
Dish Facilities-Based 5G Population Coverage	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Total prepaid subscribers	71,663	71,954	72,248	72,542	72,838	73,134	73,432	73,731	74,032	74,333	74,636	74,940
Total postpaid subscribers	304,290	305,530	306,774	308,024	309,279	310,539	311,804	313,075	314,350	315,631	316,917	318,208
TOTAL MARKET	375,953	377,484	379,022	380,566	382,117	383,674	385,237	386,806	388,382	389,964	391,553	393,148
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,490	2,500	2,511	2,522	2,533	2,544	2,555	2,566	2,577	2,588	2,599	2,610
Postpaid-from churn	3,043	3,055	3,067	3,079	3,091	3,104	3,116	3,128	3,141	3,153	3,166	3,179
Prepaid from market growth	292	293	294	296	297	298	299	300	302	303	304	305
Postpaid-from market growth	1,240	1,245	1,250	1,255	1,260	1,265	1,270	1,276	1,281	1,286	1,291	1,296
Total Addressable customers	7,064	7,093	7,123	7,152	7,181	7,211	7,240	7,270	7,300	7,330	7,360	7,390
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	356	358	359	361	362	364	366	367	369	370	372	373
Postpaid from churn	42	42	42	42	43	43	43	43	43	43	44	44
Prepaid from growth	42	42	42	42	42	43	43	43	43	43	44	44
Postpaid from growth	34	34	34	35	35	35	35	35	35	35	36	36
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,422	9,444	9,466	9,488	9,512	9,536	9,561	9,587	9,614	9,641	9,669	9,698
Postpaid Beginning of Month	-	34	68	101	134	167	199	231	263	294	325	356
	4,443											
Dish prepaid Churn	377	378	379	380	380	381	382	383	385	386	387	388
Dish Postpaid churn	-	1	1	2	2	3	3	3	4	4	5	5
Prepaid End of Month	9,444	9,466	9,488	9,512	9,536	9,561	9,587	9,614	9,641	9,669	9,698	9,727
Postpaid End of Month	34	68	101	134	167	199	231	263	294	325	356	386
TOTAL DISH SUBS	9,478	9,533	9,590	9,646	9,703	9,761	9,819	9,877	9,935	9,994	10,053	10,113
TOTAL DISH MARKET SHARE	2.52%	2.53%	2.53%	2.53%	2.54%	2.54%	2.55%	2.55%	2.56%	2.56%	2.57%	2.57%

Table A-2 - 600 MHz LEASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2023 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	75,246	75,552	75,860	76,169	76,479	76,791	77,104	77,418	77,733	78,050	78,368	78,687
Total postpaid subscribers	319,505	320,806	322,113	323,426	324,743	326,066	327,395	328,729	330,068	331,413	332,763	334,118
TOTAL MARKET	394,750	396,358	397,973	399,595	401,223	402,857	404,499	406,146	407,801	409,463	411,131	412,806
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,621	2,632	2,643	2,654	2,665	2,676	2,688	2,699	2,710	2,721	2,733	2,744
Postpaid-from churn	3,191	3,203	3,215	3,226	3,238	3,250	3,262	3,274	3,286	3,298	3,311	3,323
Prepaid from market growth	307	308	309	310	312	313	314	315	317	318	319	321
Postpaid-from market growth	1,302	1,307	1,312	1,318	1,323	1,328	1,334	1,339	1,345	1,350	1,356	1,361
Total Addressable customers	7,420	7,449	7,479	7,508	7,538	7,568	7,598	7,628	7,658	7,688	7,718	7,749
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	375	377	378	380	381	383	385	386	388	389	391	393
Postpaid from churn	177	177	178	179	179	180	181	181	182	183	183	184
Prepaid from growth	44	44	44	44	45	45	45	45	45	45	46	46
Postpaid from growth	144	145	145	146	147	147	148	148	149	150	150	151
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,727	9,757	9,787	9,818	9,849	9,881	9,914	9,947	9,980	10,014	10,048	10,083
Postpaid Beginning of Month	386	525	661	797	931	1,063	1,194	1,324	1,453	1,580	1,706	1,830
Dish prepaid Churn	4,443	389	390	391	393	394	395	397	398	399	401	403
Dish Postpaid churn		6	8	10	12	14	16	18	20	22	24	27
Prepaid End of Month	9,757	9,787	9,818	9,849	9,881	9,914	9,947	9,980	10,014	10,048	10,083	10,118
Postpaid End of Month	525	661	797	931	1,063	1,194	1,324	1,453	1,580	1,706	1,830	1,954
TOTAL DISH SUBS	10,281	10,448	10,615	10,780	10,945	11,108	11,271	11,433	11,594	11,754	11,913	12,072
TOTAL DISH MARKET SHARE	2.60%	2.64%	2.67%	2.70%	2.73%	2.76%	2.79%	2.81%	2.84%	2.87%	2.90%	2.92%

Table A-2 - 600 MHz LEASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2024 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%	7.91%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	79,008	79,330	79,653	79,978	80,303	80,631	80,959	81,289	81,620	81,953	82,286	82,622
Total postpaid subscribers	335,480	336,847	338,219	339,597	340,980	342,370	343,764	345,165	346,571	347,983	349,401	350,824
TOTAL MARKET	414,488	416,176	417,872	419,574	421,284	423,000	424,723	426,454	428,191	429,936	431,687	433,446
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,756	2,767	2,779	2,790	2,802	2,813	2,825	2,837	2,848	2,860	2,872	2,884
Postpaid-from churn	3,335	3,348	3,360	3,373	3,385	3,398	3,411	3,424	3,437	3,450	3,463	3,476
Prepaid from market growth	322	323	325	326	327	328	330	331	333	334	335	337
Postpaid-from market growth	1,367	1,372	1,378	1,384	1,389	1,395	1,401	1,406	1,412	1,418	1,424	1,429
Total Addressable customers	7,780	7,810	7,841	7,872	7,903	7,935	7,966	7,998	8,030	8,061	8,093	8,125
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	394	396	398	399	401	403	404	406	408	409	411	413
Postpaid from churn	185	185	186	187	187	188	189	190	190	191	192	192
Prepaid from growth	46	46	46	47	47	47	47	47	48	48	48	48
Postpaid from growth	151	152	153	153	154	154	155	156	156	157	158	158
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	10,118	10,154	10,190	10,226	10,263	10,300	10,337	10,375	10,414	10,452	10,491	10,530
Postpaid Beginning of Month	1,954	2,076	2,196	2,316	2,435	2,552	2,668	2,783	2,897	3,010	3,122	3,233
Dish prepaid Churn	405	406	408	409	411	412	413	415	417	418	420	421
Dish Postpaid churn	29	31	33	35	37	38	40	42	43	45	47	48
Prepaid End of Month	10,154	10,190	10,226	10,263	10,300	10,337	10,375	10,414	10,452	10,491	10,530	10,570
Postpaid End of Month	2,076	2,196	2,316	2,435	2,552	2,668	2,783	2,897	3,010	3,122	3,233	3,343
TOTAL DISH SUBS	12,229	12,386	12,542	12,697	12,852	13,006	13,159	13,311	13,462	13,613	13,763	13,912
TOTAL DISH MARKET SHARE	2.95%	2.98%	3.00%	3.03%	3.05%	3.07%	3.10%	3.12%	3.14%	3.17%	3.19%	3.21%

4,443

Table A-2 - 600 MHz LEASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2025 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	82,958	83,296	83,636	83,976	84,319	84,662	85,007	85,353	85,701	86,050	86,401	86,753
Total postpaid subscribers	352,254	353,689	355,130	356,577	358,029	359,488	360,953	362,423	363,900	365,382	366,871	368,366
TOTAL MARKET	435,212	436,985	438,765	440,553	442,348	444,150	445,960	447,777	449,601	451,433	453,272	455,118
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,896	2,907	2,919	2,931	2,944	2,956	2,968	2,980	2,992	3,004	3,017	3,029
Postpaid-from churn	3,489	3,502	3,516	3,529	3,542	3,556	3,569	3,583	3,597	3,610	3,624	3,638
Prepaid from market growth	338	339	341	342	344	345	346	348	349	351	352	353
Postpaid-from market growth	1,435	1,441	1,447	1,453	1,459	1,465	1,471	1,477	1,483	1,489	1,495	1,501
Total Addressable customers	8,158	8,190	8,223	8,255	8,288	8,321	8,354	8,387	8,420	8,454	8,488	8,521
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	414	416	418	419	421	423	425	426	428	430	432	433
Postpaid from churn	203	204	205	205	206	207	208	209	209	210	211	212
Prepaid from growth	48	49	49	49	49	49	50	50	50	50	50	51
Postpaid from growth	167	168	168	169	170	171	171	172	173	173	174	175
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	10,570	10,610	10,650	10,690	10,731	10,772	10,813	10,855	10,897	10,939	10,982	11,024
Postpaid Beginning of Month	3,343	3,460	3,575	3,690	3,804	3,917	4,029	4,139	4,249	4,358	4,466	4,573
	4,443											
Dish prepaid Churn	423	424	426	428	429	431	433	434	436	438	439	441
Dish Postpaid churn	50	52	54	55	57	59	60	62	64	65	67	69
Prepaid End of Month	10,610	10,650	10,690	10,731	10,772	10,813	10,855	10,897	10,939	10,982	11,024	11,067
Postpaid End of Month	3,460	3,575	3,690	3,804	3,917	4,029	4,139	4,249	4,358	4,466	4,573	4,679
TOTAL DISH SUBS	14,069	14,225	14,380	14,535	14,689	14,842	14,994	15,146	15,297	15,448	15,597	15,747
TOTAL DISH MARKET SHARE	3.23%	3.26%	3.28%	3.30%	3.32%	3.34%	3.36%	3.38%	3.40%	3.42%	3.44%	3.46%

Table A-2 - 600 MHz LEASE

ETI DISH RAMP-UP MODEL RESULTS

	Jan	Feb	Mar	Apr	May	June	2026 July	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%
Dish Facilities-Based 5G Population Coverage	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	87,106	87,461	87,817	88,175	88,534	88,895	89,257	89,621	89,986	90,353	90,721	91,090
Total postpaid subscribers	369,866	371,373	372,886	374,405	375,931	377,462	379,000	380,544	382,095	383,651	385,214	386,784
TOTAL MARKET	456,973	458,834	460,704	462,581	464,465	466,358	468,258	470,165	472,081	474,004	475,935	477,874
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	3,042	3,054	3,067	3,079	3,092	3,104	3,117	3,130	3,143	3,155	3,168	3,181
Postpaid-from churn	3,652	3,666	3,680	3,694	3,708	3,723	3,737	3,751	3,766	3,781	3,795	3,810
Prepaid from market growth	355	356	358	359	361	362	364	365	367	368	370	371
Postpaid-from market growth	1,507	1,513	1,519	1,525	1,532	1,538	1,544	1,550	1,557	1,563	1,569	1,576
Total Addressable customers	8,555	8,589	8,623	8,658	8,692	8,727	8,762	8,797	8,832	8,867	8,903	8,938
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	435	437	439	441	442	444	446	448	450	451	453	455
Postpaid from churn	213	213	214	215	216	217	218	218	219	220	221	222
Prepaid from growth	51	51	51	51	52	52	52	52	52	53	53	53
Postpaid from growth	175	176	177	178	178	179	180	181	181	182	183	183
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	11,067	11,111	11,154	11,198	11,242	11,286	11,331	11,376	11,421	11,466	11,511	11,557
Postpaid Beginning of Month	4,679	4,784	4,889	4,992	5,095	5,197	5,298	5,398	5,498	5,597	5,695	5,792
	4,443											
Dish prepaid Churn	443	444	446	448	450	451	453	455	457	459	460	462
Dish Postpaid churn	70	72	73	75	76	78	79	81	82	84	85	87
Prepaid End of Month	11,111	11,154	11,198	11,242	11,286	11,331	11,376	11,421	11,466	11,511	11,557	11,603
Postpaid End of Month	4,784	4,889	4,992	5,095	5,197	5,298	5,398	5,498	5,597	5,695	5,792	5,889
TOTAL DISH SUBS	15,895	16,043	16,190	16,337	16,483	16,629	16,774	16,918	17,063	17,206	17,349	17,492
TOTAL DISH MARKET SHARE	3.48%	3.50%	3.51%	3.53%	3.55%	3.57%	3.58%	3.60%	3.61%	3.63%	3.65%	3.66%

Table 3-Redline-2020 600 MHz Lease

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 1 (2020)

Dish Market Sha 2.65% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	61	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	327.5	0	-	0.00%	1,663,190	0.042067	0.00%
Alpine	Low Band	32	74	66	0					
	Mid-Band	180	160	252.2	0					
	Total	212	234	318.2	0	-	0.00%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	0					
	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
Butte	Low Band	82	74	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	224	312.5	0	-	0.00%	229,294	0.005800	0.00%
Calaveras	Low Band	32	80	66	0					
	Mid-Band	180	150	266.5	0					
	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
Colusa	Low Band	82	62	56	0					
	Mid-Band	180	180	256.5	0					
	Total	262	242	312.5	0	-	0.00%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	61	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	327.5	0	-	0.00%	1,147,439	0.029022	0.00%
Del Norte	Low Band	82	12	44	0					
	Mid-Band	170	150	177.5	0					
	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
El Dorado	Low Band	82	74	56	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	312.5	0	-	0.00%	188,987	0.004780	0.00%
Fresno	Low Band	82	74	56	0					
	Mid-Band	160	180	256.5	0					
	Total	242	254	312.5	0	-	0.00%	989,255	0.025021	0.00%
Glenn	Low Band	82	62	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.000711	0.00%
Humboldt	Low Band	82	18	61	0					
	Mid-Band	170	170	203.1	0					
	Total	252	188	264.1	0	-	0.00%	136,754	0.003459	0.00%
Imperial	Low Band	82	30	63	0					
	Mid-Band	180	190	165	0					
	Total	262	220	228	0	-	0.00%	182,830	0.004624	0.00%
Inyo	Low Band	82	74	66	0					
	Mid-Band	150	130	177.5	0					
	Total	232	204	243.5	0	-	0.00%	18,026	0.000456	0.00%
Kern	Low Band	82	80	66	0					
	Mid-Band	190	180	276.5	0					
	Total	272	260	342.5	0	-	0.00%	893,119	0.022590	0.00%
Kings	Low Band	82	74	56	0					
	Mid-Band	170	210	200.9	0					
	Total	252	284	256.9	0	-	0.00%	150,101	0.003797	0.00%
Lake	Low Band	82	18	61	0					
	Mid-Band	200	150	220.9	0					
	Total	282	168	281.9	0	-	0.00%	64,246	0.001625	0.00%
Lassen	Low Band	32	12	76	0					
	Mid-Band	180	160	167.5	0					
	Total	212	172	243.5	0	-	0.00%	31,163	0.000788	0.00%
Los Angeles	Low Band	82	80	66	0					
	Mid-Band	180	180	255.8	0					
	Total	262	260	321.8	0	-	0.00%	10,163,507	0.257065	0.00%
Madera	Low Band	32	74	56	0					
	Mid-Band	140	210	236.5	0					
	Total	172	284	292.5	0	-	0.00%	156,890	0.003968	0.00%
Marin	Low Band	82	90	61	0					
	Mid-Band	200	150	255	0					
	Total	282	240	316	0	-	0.00%	260,955	0.006600	0.00%
Mariposa	Low Band	32	80	76	0					
	Mid-Band	170	170	256.5	0					
	Total	202	250	332.5	0	-	0.00%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	61	0					
	Mid-Band	200	150	193.1	0					
	Total	282	168	254.1	0	-	0.00%	88,018	0.002226	0.00%
Merced	Low Band	32	80	76	0					
	Mid-Band	140	200	246.5	0					
	Total	172	280	322.5	0	-	0.00%	272,673	0.006897	0.00%
Modoc	Low Band	32	12	44	0					
	Mid-Band	150	100	177.5	0					
	Total	182	112	221.5	0	-	0.00%	8,859	0.000224	0.00%

Table 3-Redline-2020 600 MHz Lease

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 1 (2020)

Dish Market Sha 2.65% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	0					
	Mid-Band	150	160	167.5	0					
	Total	232	234	233.5	0	-	0.00%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	61	0					
	Mid-Band	170	180	225.7	0					
	Total	252	270	286.7	0	-	0.00%	437,907	0.011076	0.00%
Napa	Low Band	82	90	61	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	327.5	0	-	0.00%	140,973	0.003566	0.00%
Nevada	Low Band	82	74	56	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	312.5	0	-	0.00%	99,814	0.002525	0.00%
Orange	Low Band	82	80	66	0					
	Mid-Band	180	180	260.5	0					
	Total	262	260	326.5	0	-	0.00%	3,190,400	0.080695	0.00%
Placer	Low Band	82	74	56	0					
	Mid-Band	180	180	257	0					
	Total	262	254	313	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Low Band	32	12	66	0					
	Mid-Band	180	160	238.7	0					
	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	66	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	332.5	0	-	0.00%	2,423,266	0.061292	0.00%
Sacramento	Low Band	82	74	56	0					
	Mid-Band	180	180	257	0					
	Total	262	254	313	0	-	0.00%	1,530,615	0.038714	0.00%
San Benito	Low Band	32	80	76	0					
	Mid-Band	170	180	210.7	0					
	Total	202	260	286.7	0	-	0.00%	60,310	0.001525	0.00%
San Bernardino	Low Band	82	80	66	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	332.5	0	-	0.00%	2,157,404	0.054567	0.00%
San Diego	Low Band	82	74	66	0					
	Mid-Band	150	150	257	0					
	Total	232	224	323	0	-	0.00%	3,337,685	0.084420	0.00%
San Francisco	Low Band	82	90	61	0					
	Mid-Band	200	150	246.3	0					
	Total	282	240	307.3	0	-	0.00%	884,363	0.022368	0.00%
San Joaquin	Low Band	82	90	61	0					
	Mid-Band	180	150	276.5	0					
	Total	262	240	337.5	0	-	0.00%	745,424	0.018854	0.00%
San Luis Obispo	Low Band	32	80	66	0					
	Mid-Band	180	180	246.5	0					
	Total	212	260	312.5	0	-	0.00%	283,405	0.007168	0.00%
San Mateo	Low Band	82	90	61	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	327.5	0	-	0.00%	771,410	0.019511	0.00%
Santa Barbara	Low Band	32	80	66	0					
	Mid-Band	220	150	256.5	0					
	Total	252	230	322.5	0	-	0.00%	448,150	0.011335	0.00%
Santa Clara	Low Band	82	90	61	0					
	Mid-Band	190	150	276.5	0					
	Total	272	240	337.5	0	-	0.00%	1,938,153	0.049022	0.00%
Santa Cruz	Low Band	82	90	61	0					
	Mid-Band	170	180	256.5	0					
	Total	252	270	317.5	0	-	0.00%	275,897	0.006978	0.00%
Shasta	Low Band	82	62	49	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	315.5	0	-	0.00%	179,921	0.004551	0.00%
Sierra	Low Band	82	74	66	0					
	Mid-Band	180	160	266.5	0					
	Total	262	234	332.5	0	-	0.00%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	0					
	Mid-Band	170	140	177.5	0					
	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
Solano	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
Sonoma	Low Band	82	90	61	0					
	Mid-Band	170	180	248.7	0					
	Total	252	270	309.7	0	-	0.00%	504,217	0.012753	0.00%
Stanislaus	Low Band	82	90	46	0					
	Mid-Band	150	220	261.5	0					
	Total	232	310	307.5	0	-	0.00%	547,899	0.013858	0.00%

Table 3-Redline-2020 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 1 (2020)**

Dish Market Sha 2.65% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	56	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	317.8	0	-	0.00%	96,648	0.002445	0.00%
Tehama	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
Trinity	Low Band	82	18	61	0					
	Mid-Band	170	160	256.5	0					
	Total	252	178	317.5	0	-	0.00%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	56	0					
	Mid-Band	200	180	246.5	0					
	Total	282	254	302.5	0	-	0.00%	464,493	0.011748	0.00%
Tuolumne	Low Band	32	80	76	0					
	Mid-Band	180	180	251.5	0					
	Total	212	260	327.5	0	-	0.00%	54,248	0.001372	0.00%
Ventura	Low Band	82	80	66	0					
	Mid-Band	190	150	258.7	0					
	Total	272	230	324.7	0	-	0.00%	854,223	0.021606	0.00%
Yolo	Low Band	82	74	56	0					
	Mid-Band	180	180	257	0					
	Total	262	254	313	0	-	0.00%	219,116	0.005542	0.00%
Yuba	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%
Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county										

Table 3-Redline-2021 600 MHz Lease

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 2 (2021)

Dish Market Sha 2.55% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	61	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	327.5	0	-	0.00%	1,663,190	0.042067	0.00%
Alpine	Low Band	32	74	66	0					
	Mid-Band	180	160	252.2	0					
	Total	212	234	318.2	0	-	0.00%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	0					
	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
Butte	Low Band	82	74	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	224	312.5	0	-	0.00%	229,294	0.005800	0.00%
Calaveras	Low Band	32	80	66	0					
	Mid-Band	180	150	266.5	0					
	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
Colusa	Low Band	82	62	56	0					
	Mid-Band	180	180	256.5	0					
	Total	262	242	312.5	0	-	0.00%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	61	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	327.5	0	-	0.00%	1,147,439	0.029022	0.00%
Del Norte	Low Band	82	12	44	0					
	Mid-Band	170	150	177.5	0					
	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
El Dorado	Low Band	82	74	56	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	312.5	0	-	0.00%	188,987	0.004780	0.00%
Fresno	Low Band	82	74	56	0					
	Mid-Band	160	180	256.5	0					
	Total	242	254	312.5	0	-	0.00%	989,255	0.025021	0.00%
Glenn	Low Band	82	62	46	0					
	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.000711	0.00%
Humboldt	Low Band	82	18	61	0					
	Mid-Band	170	170	203.1	0					
	Total	252	188	264.1	0	-	0.00%	136,754	0.003459	0.00%
Imperial	Low Band	82	30	63	0					
	Mid-Band	180	190	165	0					
	Total	262	220	228	0	-	0.00%	182,830	0.004624	0.00%
Inyo	Low Band	82	74	66	0					
	Mid-Band	150	130	177.5	0					
	Total	232	204	243.5	0	-	0.00%	18,026	0.000456	0.00%
Kern	Low Band	82	80	66	0					
	Mid-Band	190	180	276.5	0					
	Total	272	260	342.5	0	-	0.00%	893,119	0.022590	0.00%
Kings	Low Band	82	74	56	0					
	Mid-Band	170	210	200.9	0					
	Total	252	284	256.9	0	-	0.00%	150,101	0.003797	0.00%
Lake	Low Band	82	18	61	0					
	Mid-Band	200	150	220.9	0					
	Total	282	168	281.9	0	-	0.00%	64,246	0.001625	0.00%
Lassen	Low Band	32	12	76	0					
	Mid-Band	180	160	167.5	0					
	Total	212	172	243.5	0	-	0.00%	31,163	0.000788	0.00%
Los Angeles	Low Band	82	80	66	0					
	Mid-Band	180	180	255.8	0					
	Total	262	260	321.8	0	-	0.00%	10,163,507	0.257065	0.00%
Madera	Low Band	32	74	56	0					
	Mid-Band	140	210	236.5	0					
	Total	172	284	292.5	0	-	0.00%	156,890	0.003968	0.00%
Marin	Low Band	82	90	61	0					
	Mid-Band	200	150	255	0					
	Total	282	240	316	0	-	0.00%	260,955	0.006600	0.00%
Mariposa	Low Band	32	80	76	0					
	Mid-Band	170	170	256.5	0					
	Total	202	250	332.5	0	-	0.00%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	61	0					
	Mid-Band	200	150	193.1	0					
	Total	282	168	254.1	0	-	0.00%	88,018	0.002226	0.00%
Merced	Low Band	32	80	76	0					
	Mid-Band	140	200	246.5	0					
	Total	172	280	322.5	0	-	0.00%	272,673	0.006897	0.00%
Modoc	Low Band	32	12	44	0					
	Mid-Band	150	100	177.5	0					
	Total	182	112	221.5	0	-	0.00%	8,859	0.000224	0.00%

Table 3-Redline-2021 600 MHz Lease

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 2 (2021)

Dish Market Sha 2.55% Dish Spectrum Share 0.00% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	0					
	Mid-Band	150	160	167.5	0					
	Total	232	234	233.5	0	-	0.00%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	61	0					
	Mid-Band	170	180	225.7	0					
	Total	252	270	286.7	0	-	0.00%	437,907	0.011076	0.00%
Napa	Low Band	82	90	61	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	327.5	0	-	0.00%	140,973	0.003566	0.00%
Nevada	Low Band	82	74	56	0					
	Mid-Band	180	180	256.5	0					
	Total	262	254	312.5	0	-	0.00%	99,814	0.002525	0.00%
Orange	Low Band	82	80	66	0					
	Mid-Band	180	180	260.5	0					
	Total	262	260	326.5	0	-	0.00%	3,190,400	0.080695	0.00%
Placer	Low Band	82	74	56	0					
	Mid-Band	180	180	257	0					
	Total	262	254	313	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Low Band	32	12	66	0					
	Mid-Band	180	160	238.7	0					
	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	66	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	332.5	0	-	0.00%	2,423,266	0.061292	0.00%
Sacramento	Low Band	82	74	56	0					
	Mid-Band	180	180	257	0					
	Total	262	254	313	0	-	0.00%	1,530,615	0.038714	0.00%
San Benito	Low Band	32	80	76	0					
	Mid-Band	170	180	210.7	0					
	Total	202	260	286.7	0	-	0.00%	60,310	0.001525	0.00%
San Bernardino	Low Band	82	80	66	0					
	Mid-Band	180	180	266.5	0					
	Total	262	260	332.5	0	-	0.00%	2,157,404	0.054567	0.00%
San Diego	Low Band	82	74	66	0					
	Mid-Band	150	150	257	0					
	Total	232	224	323	0	-	0.00%	3,337,685	0.084420	0.00%
San Francisco	Low Band	82	90	61	0					
	Mid-Band	200	150	246.3	0					
	Total	282	240	307.3	0	-	0.00%	884,363	0.022368	0.00%
San Joaquin	Low Band	82	90	61	0					
	Mid-Band	180	150	276.5	0					
	Total	262	240	337.5	0	-	0.00%	745,424	0.018854	0.00%
San Luis Obispo	Low Band	32	80	66	0					
	Mid-Band	180	180	246.5	0					
	Total	212	260	312.5	0	-	0.00%	283,405	0.007168	0.00%
San Mateo	Low Band	82	90	61	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	327.5	0	-	0.00%	771,410	0.019511	0.00%
Santa Barbara	Low Band	32	80	66	0					
	Mid-Band	220	150	256.5	0					
	Total	252	230	322.5	0	-	0.00%	448,150	0.011335	0.00%
Santa Clara	Low Band	82	90	61	0					
	Mid-Band	190	150	276.5	0					
	Total	272	240	337.5	0	-	0.00%	1,938,153	0.049022	0.00%
Santa Cruz	Low Band	82	90	61	0					
	Mid-Band	170	180	256.5	0					
	Total	252	270	317.5	0	-	0.00%	275,897	0.006978	0.00%
Shasta	Low Band	82	62	49	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	315.5	0	-	0.00%	179,921	0.004551	0.00%
Sierra	Low Band	82	74	66	0					
	Mid-Band	180	160	266.5	0					
	Total	262	234	332.5	0	-	0.00%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	0					
	Mid-Band	170	140	177.5	0					
	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
Solano	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
Sonoma	Low Band	82	90	61	0					
	Mid-Band	170	180	248.7	0					
	Total	252	270	309.7	0	-	0.00%	504,217	0.012753	0.00%
Stanislaus	Low Band	82	90	46	0					
	Mid-Band	150	220	261.5	0					
	Total	232	310	307.5	0	-	0.00%	547,899	0.013858	0.00%

Table 3-Redline-2021 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 2 (2021)**

Dish Market Sha 2.55%

Dish Spectrum Share 0.00%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	56	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	317.8	0	-	0.00%	96,648	0.002445	0.00%
Tehama	Low Band	82	62	44	0					
	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
Trinity	Low Band	82	18	61	0					
	Mid-Band	170	160	256.5	0					
	Total	252	178	317.5	0	-	0.00%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	56	0					
	Mid-Band	200	180	246.5	0					
	Total	282	254	302.5	0	-	0.00%	464,493	0.011748	0.00%
Tuolumne	Low Band	32	80	76	0					
	Mid-Band	180	180	251.5	0					
	Total	212	260	327.5	0	-	0.00%	54,248	0.001372	0.00%
Ventura	Low Band	82	80	66	0					
	Mid-Band	190	150	258.7	0					
	Total	272	230	324.7	0	-	0.00%	854,223	0.021606	0.00%
Yolo	Low Band	82	74	56	0					
	Mid-Band	180	180	257	0					
	Total	262	254	313	0	-	0.00%	219,116	0.005542	0.00%
Yuba	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC

Table 3-Redline-2022 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 3 (2022)**

Dish Market Sha 2.54% Dish Spectrum Share 6.88% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	61	15					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	65	24.01	7.11%	1,663,190	0.042067	0.30%
Alpine	Low Band	32	74	66	6					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	56	20.69	6.83%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	0					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	50	18.47	6.14%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	0					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	50	18.47	5.89%	229,294	0.005800	0.03%
Calaveras	Low Band	32	80	66	0					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	50	18.47	6.06%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	56	10					
	Mid-Band	180	180	256.5	50					
	Total	262	242	312.5	60	22.17	6.85%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	61	15					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	65	24.01	7.11%	1,147,439	0.029022	0.21%
Del Norte	Low Band	82	12	44	6					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	56	20.69	8.10%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	56	10					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	60	22.17	6.75%	188,987	0.004780	0.03%
Fresno	Low Band	82	74	56	16					
	Mid-Band	160	180	256.5	50					
	Total	242	254	312.5	66	24.38	7.55%	989,255	0.025021	0.19%
Glenn	Low Band	82	62	46	0					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	50	18.47	5.98%	28,094	0.000711	0.00%
Humboldt	Low Band	82	18	61	5					
	Mid-Band	170	170	203.1	50					
	Total	252	188	264.1	55	20.32	7.25%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	0					
	Mid-Band	180	190	165	50					
	Total	262	220	228	50	18.47	6.58%	182,830	0.004624	0.03%
Inyo	Low Band	82	74	66	6					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	56	20.69	7.61%	18,026	0.000456	0.00%
Kern	Low Band	82	80	66	10					
	Mid-Band	190	180	276.5	50					
	Total	272	260	342.5	60	22.17	6.42%	893,119	0.022590	0.15%
Kings	Low Band	82	74	56	16					
	Mid-Band	170	210	200.9	50					
	Total	252	284	256.9	66	24.38	7.68%	150,101	0.003797	0.03%
Lake	Low Band	82	18	61	5					
	Mid-Band	200	150	220.9	50					
	Total	282	168	281.9	55	20.32	6.99%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	76	16					
	Mid-Band	180	160	167.5	50					
	Total	212	172	243.5	66	24.38	9.52%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	66	10					
	Mid-Band	180	180	255.8	50					
	Total	262	260	321.8	60	22.17	6.64%	10,163,507	0.257065	1.71%
Madera	Low Band	32	74	56	16					
	Mid-Band	140	210	236.5	50					
	Total	172	284	292.5	66	24.38	8.10%	156,890	0.003968	0.03%
Marin	Low Band	82	90	61	15					
	Mid-Band	200	150	255	50					
	Total	282	240	316	65	24.01	7.20%	260,955	0.006600	0.05%
Mariposa	Low Band	32	80	76	10					
	Mid-Band	170	170	256.5	50					
	Total	202	250	332.5	60	22.17	7.10%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	61	5					
	Mid-Band	200	150	193.1	50					
	Total	282	168	254.1	55	20.32	7.25%	88,018	0.002226	0.02%
Merced	Low Band	32	80	76	10					
	Mid-Band	140	200	246.5	50					
	Total	172	280	322.5	60	22.17	7.19%	272,673	0.006897	0.05%
Modoc	Low Band	32	12	44	6					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	56	20.69	9.80%	8,859	0.000224	0.00%

Table 3-Redline-2022 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 3 (2022)**

Dish Market Sha 2.54% Dish Spectrum Share 6.88% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	6					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	56	20.69	7.41%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	61	15					
	Mid-Band	170	180	225.7	50					
	Total	252	270	286.7	65	24.01	7.44%	437,907	0.011076	0.08%
Napa	Low Band	82	90	61	15					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	65	24.01	7.11%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	56	10					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	60	22.17	6.75%	99,814	0.002525	0.02%
Orange	Low Band	82	80	66	10					
	Mid-Band	180	180	260.5	50					
	Total	262	260	326.5	60	22.17	6.60%	3,190,400	0.080695	0.53%
Placer	Low Band	82	74	56	10					
	Mid-Band	180	180	257	50					
	Total	262	254	313	60	22.17	6.75%	386,166	0.009767	0.07%
Plumas	Low Band	32	12	66	6					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	56	20.69	7.52%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	66	10					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	60	22.17	6.56%	2,423,266	0.061292	0.40%
Sacramento	Low Band	82	74	56	10					
	Mid-Band	180	180	257	50					
	Total	262	254	313	60	22.17	6.75%	1,530,615	0.038714	0.26%
San Benito	Low Band	32	80	76	10					
	Mid-Band	170	180	210.7	50					
	Total	202	260	286.7	60	22.17	7.42%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	66	10					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	60	22.17	6.56%	2,157,404	0.054567	0.36%
San Diego	Low Band	82	74	66	16					
	Mid-Band	150	150	257	50					
	Total	232	224	323	66	24.38	7.81%	3,337,685	0.084420	0.66%
San Francisco	Low Band	82	90	61	15					
	Mid-Band	200	150	246.3	50					
	Total	282	240	307.3	65	24.01	7.27%	884,363	0.022368	0.16%
San Joaquin	Low Band	82	90	61	15					
	Mid-Band	180	150	276.5	50					
	Total	262	240	337.5	65	24.01	7.19%	745,424	0.018854	0.14%
San Luis Obispo	Low Band	32	80	66	10					
	Mid-Band	180	180	246.5	50					
	Total	212	260	312.5	60	22.17	7.10%	283,405	0.007168	0.05%
San Mateo	Low Band	82	90	61	15					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	65	24.01	7.11%	771,410	0.019511	0.14%
Santa Barbara	Low Band	32	80	66	10					
	Mid-Band	220	150	256.5	50					
	Total	252	230	322.5	60	22.17	6.94%	448,150	0.011335	0.08%
Santa Clara	Low Band	82	90	61	15					
	Mid-Band	190	150	276.5	50					
	Total	272	240	337.5	65	24.01	7.11%	1,938,153	0.049022	0.35%
Santa Cruz	Low Band	82	90	61	15					
	Mid-Band	170	180	256.5	50					
	Total	252	270	317.5	65	24.01	7.19%	275,897	0.006978	0.05%
Shasta	Low Band	82	62	49	11					
	Mid-Band	170	140	266.5	50					
	Total	252	202	315.5	61	22.53	7.34%	179,921	0.004551	0.03%
Sierra	Low Band	82	74	66	6					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	56	20.69	6.33%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	6					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	56	20.69	8.22%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	0					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	50	18.47	5.65%	445,458	0.011267	0.06%
Sonoma	Low Band	82	90	61	15					
	Mid-Band	170	180	248.7	50					
	Total	252	270	309.7	65	24.01	7.25%	504,217	0.012753	0.09%
Stanislaus	Low Band	82	90	46	0					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	50	18.47	5.56%	547,899	0.013858	0.08%

Table 3-Redline-2022 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 3 (2022)**

Dish Market Sha 2.54%

Dish Spectrum Share 6.88%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	56	10					
	Mid-Band	180	150	261.8	50					
	Total	262	224	317.8	60	22.17	6.95%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	6					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	56	20.69	6.83%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	61	5					
	Mid-Band	170	160	256.5	50					
	Total	252	178	317.5	55	20.32	6.85%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	56	16					
	Mid-Band	200	180	246.5	50					
	Total	282	254	302.5	66	24.38	7.30%	464,493	0.011748	0.09%
Tuolumne	Low Band	32	80	76	10					
	Mid-Band	180	180	251.5	50					
	Total	212	260	327.5	60	22.17	6.98%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	66	10					
	Mid-Band	190	150	258.7	50					
	Total	272	230	324.7	60	22.17	6.77%	854,223	0.021606	0.15%
Yolo	Low Band	82	74	56	10					
	Mid-Band	180	180	257	50					
	Total	262	254	313	60	22.17	6.75%	219,116	0.005542	0.04%
Yuba	Low Band	82	74	46	0					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	50	18.47	5.93%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2023 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 4 (2023)**

Dish Market Sha 2.74% Dish Spectrum Share 7.91% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	61	25					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	25.98	8.11%	1,663,190	0.042067	0.34%
Alpine	Low Band	32	74	66	16					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	66	22.86	7.95%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	10					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	60	20.78	7.28%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	60	20.78	6.99%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	10					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	20.78	7.19%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	56	20					
	Mid-Band	180	180	256.5	50					
	Total	262	242	312.5	70	24.24	7.90%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	61	25					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	25.98	8.11%	1,147,439	0.029022	0.24%
Del Norte	Low Band	82	12	44	16					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	66	22.86	9.41%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	56	20					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	70	24.24	7.79%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	56	26					
	Mid-Band	160	180	256.5	50					
	Total	242	254	312.5	76	26.32	8.59%	989,255	0.025021	0.21%
Glenn	Low Band	82	62	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	60	20.78	7.09%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	61	15					
	Mid-Band	170	170	203.1	50					
	Total	252	188	264.1	65	22.51	8.45%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	7					
	Mid-Band	180	190	165	50					
	Total	262	220	228	57	19.74	7.43%	182,830	0.004624	0.03%
Inyo	Low Band	82	74	66	16					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	66	22.86	8.85%	18,026	0.000456	0.00%
Kern	Low Band	82	80	66	20					
	Mid-Band	190	180	276.5	50					
	Total	272	260	342.5	70	24.24	7.41%	893,119	0.022590	0.17%
Kings	Low Band	82	74	56	26					
	Mid-Band	170	210	200.9	50					
	Total	252	284	256.9	76	26.32	8.75%	150,101	0.003797	0.03%
Lake	Low Band	82	18	61	15					
	Mid-Band	200	150	220.9	50					
	Total	282	168	281.9	65	22.51	8.16%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	76	26					
	Mid-Band	180	160	167.5	50					
	Total	212	172	243.5	76	26.32	10.80%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	66	20					
	Mid-Band	180	180	255.8	50					
	Total	262	260	321.8	70	24.24	7.66%	10,163,507	0.257065	1.97%
Madera	Low Band	32	74	56	26					
	Mid-Band	140	210	236.5	50					
	Total	172	284	292.5	76	26.32	9.22%	156,890	0.003968	0.04%
Marin	Low Band	82	90	61	25					
	Mid-Band	200	150	255	50					
	Total	282	240	316	75	25.98	8.21%	260,955	0.006600	0.05%
Mariposa	Low Band	32	80	76	20					
	Mid-Band	170	170	256.5	50					
	Total	202	250	332.5	70	24.24	8.19%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	61	15					
	Mid-Band	200	150	193.1	50					
	Total	282	168	254.1	65	22.51	8.45%	88,018	0.002226	0.02%
Merced	Low Band	32	80	76	20					
	Mid-Band	140	200	246.5	50					
	Total	172	280	322.5	70	24.24	8.29%	272,673	0.006897	0.06%
Modoc	Low Band	32	12	44	16					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	66	22.86	11.35%	8,859	0.000224	0.00%

Table 3-Redline-2023 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 4 (2023)**

Dish Market Sha 2.74% Dish Spectrum Share 7.91% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	16					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	66	22.86	8.62%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	61	25					
	Mid-Band	170	180	225.7	50					
	Total	252	270	286.7	75	25.98	8.49%	437,907	0.011076	0.09%
Napa	Low Band	82	90	61	25					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	25.98	8.11%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	56	20					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	70	24.24	7.79%	99,814	0.002525	0.02%
Orange	Low Band	82	80	66	20					
	Mid-Band	180	180	260.5	50					
	Total	262	260	326.5	70	24.24	7.62%	3,190,400	0.080695	0.61%
Placer	Low Band	82	74	56	20					
	Mid-Band	180	180	257	50					
	Total	262	254	313	70	24.24	7.79%	386,166	0.009767	0.08%
Plumas	Low Band	32	12	66	16					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	66	22.86	8.75%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	66	20					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	70	24.24	7.57%	2,423,266	0.061292	0.46%
Sacramento	Low Band	82	74	56	20					
	Mid-Band	180	180	257	50					
	Total	262	254	313	70	24.24	7.79%	1,530,615	0.038714	0.30%
San Benito	Low Band	32	80	76	20					
	Mid-Band	170	180	210.7	50					
	Total	202	260	286.7	70	24.24	8.55%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	66	20					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	70	24.24	7.57%	2,157,404	0.054567	0.41%
San Diego	Low Band	82	74	66	26					
	Mid-Band	150	150	257	50					
	Total	232	224	323	76	26.32	8.89%	3,337,685	0.084420	0.75%
San Francisco	Low Band	82	90	61	25					
	Mid-Band	200	150	246.3	50					
	Total	282	240	307.3	75	25.98	8.29%	884,363	0.022368	0.19%
San Joaquin	Low Band	82	90	61	25					
	Mid-Band	180	150	276.5	50					
	Total	262	240	337.5	75	25.98	8.20%	745,424	0.018854	0.15%
San Luis Obispo	Low Band	32	80	66	20					
	Mid-Band	180	180	246.5	50					
	Total	212	260	312.5	70	24.24	8.19%	283,405	0.007168	0.06%
San Mateo	Low Band	82	90	61	25					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	25.98	8.11%	771,410	0.019511	0.16%
Santa Barbara	Low Band	32	80	66	20					
	Mid-Band	220	150	256.5	50					
	Total	252	230	322.5	70	24.24	8.00%	448,150	0.011335	0.09%
Santa Clara	Low Band	82	90	61	25					
	Mid-Band	190	150	276.5	50					
	Total	272	240	337.5	75	25.98	8.11%	1,938,153	0.049022	0.40%
Santa Cruz	Low Band	82	90	61	25					
	Mid-Band	170	180	256.5	50					
	Total	252	270	317.5	75	25.98	8.20%	275,897	0.006978	0.06%
Shasta	Low Band	82	62	49	21					
	Mid-Band	170	140	266.5	50					
	Total	252	202	315.5	71	24.59	8.45%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	16					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	66	22.86	7.38%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	16					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	66	22.86	9.54%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	10					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	60	20.78	6.71%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	61	25					
	Mid-Band	170	180	248.7	50					
	Total	252	270	309.7	75	25.98	8.27%	504,217	0.012753	0.11%
Stanislaus	Low Band	82	90	46	10					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	60	20.78	6.60%	547,899	0.013858	0.09%

Table 3-Redline-2023 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 4 (2023)**

Dish Market Sha 2.74%

Dish Spectrum Share 7.91%

Dish BW Adj Factor 0.00000

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	56	20					
	Mid-Band	180	150	261.8	50					
	Total	262	224	317.8	70	24.24	8.01%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	16					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	66	22.86	7.95%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	61	15					
	Mid-Band	170	160	256.5	50					
	Total	252	178	317.5	65	22.51	8.00%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	56	26					
	Mid-Band	200	180	246.5	50					
	Total	282	254	302.5	76	26.32	8.31%	464,493	0.011748	0.10%
Tuolumne	Low Band	32	80	76	20					
	Mid-Band	180	180	251.5	50					
	Total	212	260	327.5	70	24.24	8.05%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	66	20					
	Mid-Band	190	150	258.7	50					
	Total	272	230	324.7	70	24.24	7.81%	854,223	0.021606	0.17%
Yolo	Low Band	82	74	56	20					
	Mid-Band	180	180	257	50					
	Total	262	254	313	70	24.24	7.79%	219,116	0.005542	0.04%
Yuba	Low Band	82	74	46	10					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	60	20.78	7.03%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2024 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 5 (2024)**

Dish Market Sha 3.08% Dish Spectrum Share 7.91% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	61	25					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	29.24	8.11%	1,663,190	0.042067	0.34%
Alpine	Low Band	32	74	66	16					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	66	25.73	7.95%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	10					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	60	23.39	7.28%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	60	23.39	6.99%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	10					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	23.39	7.19%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	56	20					
	Mid-Band	180	180	256.5	50					
	Total	262	242	312.5	70	27.29	7.90%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	61	25					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	29.24	8.11%	1,147,439	0.029022	0.24%
Del Norte	Low Band	82	12	44	16					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	66	25.73	9.41%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	56	20					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	70	27.29	7.79%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	56	26					
	Mid-Band	160	180	256.5	50					
	Total	242	254	312.5	76	29.63	8.59%	989,255	0.025021	0.21%
Glenn	Low Band	82	62	46	10					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	60	23.39	7.09%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	61	15					
	Mid-Band	170	170	203.1	50					
	Total	252	188	264.1	65	25.34	8.45%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	7					
	Mid-Band	180	190	165	50					
	Total	262	220	228	57	22.22	7.43%	182,830	0.004624	0.03%
Inyo	Low Band	82	74	66	16					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	66	25.73	8.85%	18,026	0.000456	0.00%
Kern	Low Band	82	80	66	20					
	Mid-Band	190	180	276.5	50					
	Total	272	260	342.5	70	27.29	7.41%	893,119	0.022590	0.17%
Kings	Low Band	82	74	56	26					
	Mid-Band	170	210	200.9	50					
	Total	252	284	256.9	76	29.63	8.75%	150,101	0.003797	0.03%
Lake	Low Band	82	18	61	15					
	Mid-Band	200	150	220.9	50					
	Total	282	168	281.9	65	25.34	8.16%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	76	26					
	Mid-Band	180	160	167.5	50					
	Total	212	172	243.5	76	29.63	10.80%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	66	20					
	Mid-Band	180	180	255.8	50					
	Total	262	260	321.8	70	27.29	7.66%	10,163,507	0.257065	1.97%
Madera	Low Band	32	74	56	26					
	Mid-Band	140	210	236.5	50					
	Total	172	284	292.5	76	29.63	9.22%	156,890	0.003968	0.04%
Marin	Low Band	82	90	61	25					
	Mid-Band	200	150	255	50					
	Total	282	240	316	75	29.24	8.21%	260,955	0.006600	0.05%
Mariposa	Low Band	32	80	76	20					
	Mid-Band	170	170	256.5	50					
	Total	202	250	332.5	70	27.29	8.19%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	61	15					
	Mid-Band	200	150	193.1	50					
	Total	282	168	254.1	65	25.34	8.45%	88,018	0.002226	0.02%
Merced	Low Band	32	80	76	20					
	Mid-Band	140	200	246.5	50					
	Total	172	280	322.5	70	27.29	8.29%	272,673	0.006897	0.06%
Modoc	Low Band	32	12	44	16					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	66	25.73	11.35%	8,859	0.000224	0.00%

Table 3-Redline-2024 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 5 (2024)**

Dish Market Sha 3.08% Dish Spectrum Share 7.91% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	16					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	66	25.73	8.62%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	61	25					
	Mid-Band	170	180	225.7	50					
	Total	252	270	286.7	75	29.24	8.49%	437,907	0.011076	0.09%
Napa	Low Band	82	90	61	25					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	29.24	8.11%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	56	20					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	70	27.29	7.79%	99,814	0.002525	0.02%
Orange	Low Band	82	80	66	20					
	Mid-Band	180	180	260.5	50					
	Total	262	260	326.5	70	27.29	7.62%	3,190,400	0.080695	0.61%
Placer	Low Band	82	74	56	20					
	Mid-Band	180	180	257	50					
	Total	262	254	313	70	27.29	7.79%	386,166	0.009767	0.08%
Plumas	Low Band	32	12	66	16					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	66	25.73	8.75%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	66	20					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	70	27.29	7.57%	2,423,266	0.061292	0.46%
Sacramento	Low Band	82	74	56	20					
	Mid-Band	180	180	257	50					
	Total	262	254	313	70	27.29	7.79%	1,530,615	0.038714	0.30%
San Benito	Low Band	32	80	76	20					
	Mid-Band	170	180	210.7	50					
	Total	202	260	286.7	70	27.29	8.55%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	66	20					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	70	27.29	7.57%	2,157,404	0.054567	0.41%
San Diego	Low Band	82	74	66	26					
	Mid-Band	150	150	257	50					
	Total	232	224	323	76	29.63	8.89%	3,337,685	0.084420	0.75%
San Francisco	Low Band	82	90	61	25					
	Mid-Band	200	150	246.3	50					
	Total	282	240	307.3	75	29.24	8.29%	884,363	0.022368	0.19%
San Joaquin	Low Band	82	90	61	25					
	Mid-Band	180	150	276.5	50					
	Total	262	240	337.5	75	29.24	8.20%	745,424	0.018854	0.15%
San Luis Obispo	Low Band	32	80	66	20					
	Mid-Band	180	180	246.5	50					
	Total	212	260	312.5	70	27.29	8.19%	283,405	0.007168	0.06%
San Mateo	Low Band	82	90	61	25					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	29.24	8.11%	771,410	0.019511	0.16%
Santa Barbara	Low Band	32	80	66	20					
	Mid-Band	220	150	256.5	50					
	Total	252	230	322.5	70	27.29	8.00%	448,150	0.011335	0.09%
Santa Clara	Low Band	82	90	61	25					
	Mid-Band	190	150	276.5	50					
	Total	272	240	337.5	75	29.24	8.11%	1,938,153	0.049022	0.40%
Santa Cruz	Low Band	82	90	61	25					
	Mid-Band	170	180	256.5	50					
	Total	252	270	317.5	75	29.24	8.20%	275,897	0.006978	0.06%
Shasta	Low Band	82	62	49	21					
	Mid-Band	170	140	266.5	50					
	Total	252	202	315.5	71	27.68	8.45%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	16					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	66	25.73	7.38%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	16					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	66	25.73	9.54%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	10					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	60	23.39	6.71%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	61	25					
	Mid-Band	170	180	248.7	50					
	Total	252	270	309.7	75	29.24	8.27%	504,217	0.012753	0.11%
Stanislaus	Low Band	82	90	46	10					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	60	23.39	6.60%	547,899	0.013858	0.09%

Table 3-Redline-2024 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 5 (2024)**

Dish Market Sha 3.08% Dish Spectrum Share 7.91% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	56	20					
	Mid-Band	180	150	261.8	50					
	Total	262	224	317.8	70	27.29	8.01%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	16					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	66	25.73	7.95%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	61	15					
	Mid-Band	170	160	256.5	50					
	Total	252	178	317.5	65	25.34	8.00%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	56	26					
	Mid-Band	200	180	246.5	50					
	Total	282	254	302.5	76	29.63	8.31%	464,493	0.011748	0.10%
Tuolumne	Low Band	32	80	76	20					
	Mid-Band	180	180	251.5	50					
	Total	212	260	327.5	70	27.29	8.05%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	66	20					
	Mid-Band	190	150	258.7	50					
	Total	272	230	324.7	70	27.29	7.81%	854,223	0.021606	0.17%
Yolo	Low Band	82	74	56	20					
	Mid-Band	180	180	257	50					
	Total	262	254	313	70	27.29	7.79%	219,116	0.005542	0.04%
Yuba	Low Band	82	74	46	10					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	60	23.39	7.03%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2025 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 6 (2025)**

Dish Market Sha 3.35% Dish Spectrum Share 8.32% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	61	29					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	79	31.82	8.51%	1,663,190	0.042067	0.36%
Alpine	Low Band	32	74	66	20					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	70	28.19	8.39%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	14					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	64	25.78	7.73%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	25.78	7.42%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	14					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	25.78	7.63%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	56	24					
	Mid-Band	180	180	256.5	50					
	Total	262	242	312.5	74	29.81	8.31%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	61	29					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	79	31.82	8.51%	1,147,439	0.029022	0.25%
Del Norte	Low Band	82	12	44	20					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	70	28.19	9.92%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	56	24					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	74	29.81	8.20%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	56	30					
	Mid-Band	160	180	256.5	50					
	Total	242	254	312.5	80	32.22	9.00%	989,255	0.025021	0.23%
Glenn	Low Band	82	62	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	25.78	7.52%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	61	19					
	Mid-Band	170	170	203.1	50					
	Total	252	188	264.1	69	27.79	8.93%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	11					
	Mid-Band	180	190	165	50					
	Total	262	220	228	61	24.57	7.91%	182,830	0.004624	0.04%
Inyo	Low Band	82	74	66	20					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	70	28.19	9.34%	18,026	0.000456	0.00%
Kern	Low Band	82	80	66	24					
	Mid-Band	190	180	276.5	50					
	Total	272	260	342.5	74	29.81	7.80%	893,119	0.022590	0.18%
Kings	Low Band	82	74	56	30					
	Mid-Band	170	210	200.9	50					
	Total	252	284	256.9	80	32.22	9.16%	150,101	0.003797	0.03%
Lake	Low Band	82	18	61	19					
	Mid-Band	200	150	220.9	50					
	Total	282	168	281.9	69	27.79	8.62%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	76	30					
	Mid-Band	180	160	167.5	50					
	Total	212	172	243.5	80	32.22	11.31%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	66	24					
	Mid-Band	180	180	255.8	50					
	Total	262	260	321.8	74	29.81	8.06%	10,163,507	0.257065	2.07%
Madera	Low Band	32	74	56	30					
	Mid-Band	140	210	236.5	50					
	Total	172	284	292.5	80	32.22	9.66%	156,890	0.003968	0.04%
Marin	Low Band	82	90	61	29					
	Mid-Band	200	150	255	50					
	Total	282	240	316	79	31.82	8.62%	260,955	0.006600	0.06%
Mariposa	Low Band	32	80	76	24					
	Mid-Band	170	170	256.5	50					
	Total	202	250	332.5	74	29.81	8.62%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	61	19					
	Mid-Band	200	150	193.1	50					
	Total	282	168	254.1	69	27.79	8.93%	88,018	0.002226	0.02%
Merced	Low Band	32	80	76	24					
	Mid-Band	140	200	246.5	50					
	Total	172	280	322.5	74	29.81	8.72%	272,673	0.006897	0.06%
Modoc	Low Band	32	12	44	20					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	70	28.19	11.96%	8,859	0.000224	0.00%

Table 3-Redline-2025 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 6 (2025)**

Dish Market Sha 3.35% Dish Spectrum Share 8.32% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	20					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	70	28.19	9.10%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	61	29					
	Mid-Band	170	180	225.7	50					
	Total	252	270	286.7	79	31.82	8.90%	437,907	0.011076	0.10%
Napa	Low Band	82	90	61	29					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	79	31.82	8.51%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	56	24					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	74	29.81	8.20%	99,814	0.002525	0.02%
Orange	Low Band	82	80	66	24					
	Mid-Band	180	180	260.5	50					
	Total	262	260	326.5	74	29.81	8.02%	3,190,400	0.080695	0.65%
Placer	Low Band	82	74	56	24					
	Mid-Band	180	180	257	50					
	Total	262	254	313	74	29.81	8.19%	386,166	0.009767	0.08%
Plumas	Low Band	32	12	66	20					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	70	28.19	9.23%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	66	24					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	74	29.81	7.97%	2,423,266	0.061292	0.49%
Sacramento	Low Band	82	74	56	24					
	Mid-Band	180	180	257	50					
	Total	262	254	313	74	29.81	8.19%	1,530,615	0.038714	0.32%
San Benito	Low Band	32	80	76	24					
	Mid-Band	170	180	210.7	50					
	Total	202	260	286.7	74	29.81	8.99%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	66	24					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	74	29.81	7.97%	2,157,404	0.054567	0.43%
San Diego	Low Band	82	74	66	30					
	Mid-Band	150	150	257	50					
	Total	232	224	323	80	32.22	9.31%	3,337,685	0.084420	0.79%
San Francisco	Low Band	82	90	61	29					
	Mid-Band	200	150	246.3	50					
	Total	282	240	307.3	79	31.82	8.70%	884,363	0.022368	0.19%
San Joaquin	Low Band	82	90	61	29					
	Mid-Band	180	150	276.5	50					
	Total	262	240	337.5	79	31.82	8.60%	745,424	0.018854	0.16%
San Luis Obispo	Low Band	32	80	66	24					
	Mid-Band	180	180	246.5	50					
	Total	212	260	312.5	74	29.81	8.62%	283,405	0.007168	0.06%
San Mateo	Low Band	82	90	61	29					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	79	31.82	8.51%	771,410	0.019511	0.17%
Santa Barbara	Low Band	32	80	66	24					
	Mid-Band	220	150	256.5	50					
	Total	252	230	322.5	74	29.81	8.42%	448,150	0.011335	0.10%
Santa Clara	Low Band	82	90	61	29					
	Mid-Band	190	150	276.5	50					
	Total	272	240	337.5	79	31.82	8.51%	1,938,153	0.049022	0.42%
Santa Cruz	Low Band	82	90	61	29					
	Mid-Band	170	180	256.5	50					
	Total	252	270	317.5	79	31.82	8.60%	275,897	0.006978	0.06%
Shasta	Low Band	82	62	49	25					
	Mid-Band	170	140	266.5	50					
	Total	252	202	315.5	75	30.21	8.88%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	20					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	70	28.19	7.79%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	20					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	70	28.19	10.06%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	14					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	64	25.78	7.12%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	61	29					
	Mid-Band	170	180	248.7	50					
	Total	252	270	309.7	79	31.82	8.67%	504,217	0.012753	0.11%
Stanislaus	Low Band	82	90	46	14					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	64	25.78	7.01%	547,899	0.013858	0.10%

Table 3-Redline-2025 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 6 (2025)**

Dish Market Sha 3.35% Dish Spectrum Share 8.32% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	56	24					
	Mid-Band	180	150	261.8	50					
	Total	262	224	317.8	74	29.81	8.43%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	20					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	70	28.19	8.39%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	61	19					
	Mid-Band	170	160	256.5	50					
	Total	252	178	317.5	69	27.79	8.45%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	56	30					
	Mid-Band	200	180	246.5	50					
	Total	282	254	302.5	80	32.22	8.71%	464,493	0.011748	0.10%
Tuolumne	Low Band	32	80	76	24					
	Mid-Band	180	180	251.5	50					
	Total	212	260	327.5	74	29.81	8.47%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	66	24					
	Mid-Band	190	150	258.7	50					
	Total	272	230	324.7	74	29.81	8.22%	854,223	0.021606	0.18%
Yolo	Low Band	82	74	56	24					
	Mid-Band	180	180	257	50					
	Total	262	254	313	74	29.81	8.19%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	14					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	64	25.78	7.46%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county

Table 3-Redline-2026 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 7 (2026)**

Dish Market Sha 3.57% Dish Spectrum Share 8.32% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Alameda	Low Band	82	90	61	29					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	79	33.93	8.51%	1,663,190	0.042067	0.36%
Alpine	Low Band	32	74	66	20					
	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	70	30.07	8.39%	1,120	0.000028	0.00%
Amador	Low Band	32	74	46	14					
	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	64	27.49	7.73%	38,626	0.000977	0.01%
Butte	Low Band	82	74	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	27.49	7.42%	229,294	0.005800	0.04%
Calaveras	Low Band	32	80	66	14					
	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	27.49	7.63%	45,670	0.001155	0.01%
Colusa	Low Band	82	62	56	24					
	Mid-Band	180	180	256.5	50					
	Total	262	242	312.5	74	31.78	8.31%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90	61	29					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	79	33.93	8.51%	1,147,439	0.029022	0.25%
Del Norte	Low Band	82	12	44	20					
	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	70	30.07	9.92%	27,470	0.000695	0.01%
El Dorado	Low Band	82	74	56	24					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	74	31.78	8.20%	188,987	0.004780	0.04%
Fresno	Low Band	82	74	56	30					
	Mid-Band	160	180	256.5	50					
	Total	242	254	312.5	80	34.36	9.00%	989,255	0.025021	0.23%
Glenn	Low Band	82	62	46	14					
	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	27.49	7.52%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18	61	19					
	Mid-Band	170	170	203.1	50					
	Total	252	188	264.1	69	29.64	8.93%	136,754	0.003459	0.03%
Imperial	Low Band	82	30	63	11					
	Mid-Band	180	190	165	50					
	Total	262	220	228	61	26.20	7.91%	182,830	0.004624	0.04%
Inyo	Low Band	82	74	66	20					
	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	70	30.07	9.34%	18,026	0.000456	0.00%
Kern	Low Band	82	80	66	24					
	Mid-Band	190	180	276.5	50					
	Total	272	260	342.5	74	31.78	7.80%	893,119	0.022590	0.18%
Kings	Low Band	82	74	56	30					
	Mid-Band	170	210	200.9	50					
	Total	252	284	256.9	80	34.36	9.16%	150,101	0.003797	0.03%
Lake	Low Band	82	18	61	19					
	Mid-Band	200	150	220.9	50					
	Total	282	168	281.9	69	29.64	8.62%	64,246	0.001625	0.01%
Lassen	Low Band	32	12	76	30					
	Mid-Band	180	160	167.5	50					
	Total	212	172	243.5	80	34.36	11.31%	31,163	0.000788	0.01%
Los Angeles	Low Band	82	80	66	24					
	Mid-Band	180	180	255.8	50					
	Total	262	260	321.8	74	31.78	8.06%	10,163,507	0.257065	2.07%
Madera	Low Band	32	74	56	30					
	Mid-Band	140	210	236.5	50					
	Total	172	284	292.5	80	34.36	9.66%	156,890	0.003968	0.04%
Marin	Low Band	82	90	61	29					
	Mid-Band	200	150	255	50					
	Total	282	240	316	79	33.93	8.62%	260,955	0.006600	0.06%
Mariposa	Low Band	32	80	76	24					
	Mid-Band	170	170	256.5	50					
	Total	202	250	332.5	74	31.78	8.62%	17,569	0.000444	0.00%
Mendocino	Low Band	82	18	61	19					
	Mid-Band	200	150	193.1	50					
	Total	282	168	254.1	69	29.64	8.93%	88,018	0.002226	0.02%
Merced	Low Band	32	80	76	24					
	Mid-Band	140	200	246.5	50					
	Total	172	280	322.5	74	31.78	8.72%	272,673	0.006897	0.06%
Modoc	Low Band	32	12	44	20					
	Mid-Band	150	100	177.5	50					
	Total	182	112	221.5	70	30.07	11.96%	8,859	0.000224	0.00%

Table 3-Redline-2026 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 7 (2026)**

Dish Market Sha 3.57% Dish Spectrum Share 8.32% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Mono	Low Band	82	74	66	20					
	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	70	30.07	9.10%	14,168	0.000358	0.00%
Monterey	Low Band	82	90	61	29					
	Mid-Band	170	180	225.7	50					
	Total	252	270	286.7	79	33.93	8.90%	437,907	0.011076	0.10%
Napa	Low Band	82	90	61	29					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	79	33.93	8.51%	140,973	0.003566	0.03%
Nevada	Low Band	82	74	56	24					
	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	74	31.78	8.20%	99,814	0.002525	0.02%
Orange	Low Band	82	80	66	24					
	Mid-Band	180	180	260.5	50					
	Total	262	260	326.5	74	31.78	8.02%	3,190,400	0.080695	0.65%
Placer	Low Band	82	74	56	24					
	Mid-Band	180	180	257	50					
	Total	262	254	313	74	31.78	8.19%	386,166	0.009767	0.08%
Plumas	Low Band	32	12	66	20					
	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	70	30.07	9.23%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	66	24					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	74	31.78	7.97%	2,423,266	0.061292	0.49%
Sacramento	Low Band	82	74	56	24					
	Mid-Band	180	180	257	50					
	Total	262	254	313	74	31.78	8.19%	1,530,615	0.038714	0.32%
San Benito	Low Band	32	80	76	24					
	Mid-Band	170	180	210.7	50					
	Total	202	260	286.7	74	31.78	8.99%	60,310	0.001525	0.01%
San Bernardino	Low Band	82	80	66	24					
	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	74	31.78	7.97%	2,157,404	0.054567	0.43%
San Diego	Low Band	82	74	66	30					
	Mid-Band	150	150	257	50					
	Total	232	224	323	80	34.36	9.31%	3,337,685	0.084420	0.79%
San Francisco	Low Band	82	90	61	29					
	Mid-Band	200	150	246.3	50					
	Total	282	240	307.3	79	33.93	8.70%	884,363	0.022368	0.19%
San Joaquin	Low Band	82	90	61	29					
	Mid-Band	180	150	276.5	50					
	Total	262	240	337.5	79	33.93	8.60%	745,424	0.018854	0.16%
San Luis Obispo	Low Band	32	80	66	24					
	Mid-Band	180	180	246.5	50					
	Total	212	260	312.5	74	31.78	8.62%	283,405	0.007168	0.06%
San Mateo	Low Band	82	90	61	29					
	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	79	33.93	8.51%	771,410	0.019511	0.17%
Santa Barbara	Low Band	32	80	66	24					
	Mid-Band	220	150	256.5	50					
	Total	252	230	322.5	74	31.78	8.42%	448,150	0.011335	0.10%
Santa Clara	Low Band	82	90	61	29					
	Mid-Band	190	150	276.5	50					
	Total	272	240	337.5	79	33.93	8.51%	1,938,153	0.049022	0.42%
Santa Cruz	Low Band	82	90	61	29					
	Mid-Band	170	180	256.5	50					
	Total	252	270	317.5	79	33.93	8.60%	275,897	0.006978	0.06%
Shasta	Low Band	82	62	49	25					
	Mid-Band	170	140	266.5	50					
	Total	252	202	315.5	75	32.21	8.88%	179,921	0.004551	0.04%
Sierra	Low Band	82	74	66	20					
	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	70	30.07	7.79%	2,999	0.000076	0.00%
Siskiyou	Low Band	82	12	44	20					
	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	70	30.07	10.06%	43,853	0.001109	0.01%
Solano	Low Band	82	90	46	14					
	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	64	27.49	7.12%	445,458	0.011267	0.08%
Sonoma	Low Band	82	90	61	29					
	Mid-Band	170	180	248.7	50					
	Total	252	270	309.7	79	33.93	8.67%	504,217	0.012753	0.11%
Stanislaus	Low Band	82	90	46	14					
	Mid-Band	150	220	261.5	50					
	Total	232	310	307.5	64	27.49	7.01%	547,899	0.013858	0.10%

Table 3-Redline-2026 600 MHz Lease

**LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND
Post-Merger Year 7 (2026)**

Dish Market Sha 3.57% Dish Spectrum Share 8.32% Dish BW Adj Factor 0.00000
(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Sutter	Low Band	82	74	56	24					
	Mid-Band	180	150	261.8	50					
	Total	262	224	317.8	74	31.78	8.43%	96,648	0.002445	0.02%
Tehama	Low Band	82	62	44	20					
	Mid-Band	170	140	266.5	50					
	Total	252	202	310.5	70	30.07	8.39%	63,926	0.001617	0.01%
Trinity	Low Band	82	18	61	19					
	Mid-Band	170	160	256.5	50					
	Total	252	178	317.5	69	29.64	8.45%	12,709	0.000321	0.00%
Tulare	Low Band	82	74	56	30					
	Mid-Band	200	180	246.5	50					
	Total	282	254	302.5	80	34.36	8.71%	464,493	0.011748	0.10%
Tuolumne	Low Band	32	80	76	24					
	Mid-Band	180	180	251.5	50					
	Total	212	260	327.5	74	31.78	8.47%	54,248	0.001372	0.01%
Ventura	Low Band	82	80	66	24					
	Mid-Band	190	150	258.7	50					
	Total	272	230	324.7	74	31.78	8.22%	854,223	0.021606	0.18%
Yolo	Low Band	82	74	56	24					
	Mid-Band	180	180	257	50					
	Total	262	254	313	74	31.78	8.19%	219,116	0.005542	0.05%
Yuba	Low Band	82	74	46	14					
	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	64	27.49	7.46%	77,031	0.001948	0.01%

Source: FCC Universal Licensing System; Joint Applicants' Appendix L-1 rev. 7/5/18. NOTE: The table uses data from the FCC ULS and does not include bandwidth licensed in the Educational Broadband System (EBS) because precise coverage areas included within such licenses was not identified by county