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

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	THE DoJ COMPLAINT AND THE PROPOSED FINAL JUDGMENT	4
	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
	Neither DISH nor the Joint Applicants have offered any substantive evidence that the proposed divestitures of prepaid customers and the delayed divestitures of other assets to DISH will enable DISH to become an effective competitor in the national 5G wireless services market.	9
III.	DISH'S POTENTIAL TO BECOME THE FOURTH FACILITIES-BASED WIRELESS CARRIER	13
	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.	13
	Throughout this proceeding, the Joint Applicants have repeatedly claimed that neither Sprint nor T-Mobile, each standing alone, possesses the resources necessary to construct a robust nationwide 5G wireless network, yet DISH is and will be far smaller than either of these two stand-alone companies.	18
	Spectrum	19
	Scale of operations.	20
	Capital Investment (CAPEX)	23
	Physical network facilities	31



TABLE OF CONTENTS (continued)

Even under the most optimistic forecasts of the ramp-up of DISH's wireless business, the company's overall market share will still fall in the low single-digit range at the end of year 7 following the effective date of the Consent Decree.	33
Spectrum shares	34
Projected ramp-up in DISH's customer base and market share	36
Sensitivity analysis	46
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.	47
Sensitivity analysis of the ETI DISH Ramp-up Model results	50
There is no assurance that DISH has the financial capacity to raise the \$10-billion of additional capital it says it will need to invest to meet its 5G commitments.	55
The numerous limitations and restrictions associated with the various divestitures contemplated in the Proposed Final Judgment will seriously undermine DISH's ability to present any meaningful competitive challenges to the other three remaining facilities based mobile wireless carriers.	- 63
The Prepaid Assets	64
The 800 MHz Spectrum Licenses	69
The Decommissioned Sprint Retail Locations	73
The Decommissioned Sprint and T-Mobile Cell Sites	75
The PFJ's various enforcement remedies cannot assure a competitive outcome	77
Conclusion	81
DECLARATION	82



Attachment

TABLE OF CONTENTS (continued)

Tables and Figures

Table 1.	DISH Network Corporation FCC Spectrum License Acquisitions – 2008 through 3Q2019	16
Table 2.	Incumbent Wireless Carrier Capital Expenditures	27
Table 3.	Incumbent Wireless Carrier Reported Capital Expenditures 2010-2018	29
Table 4.	T-Mobile and Sprint Low- and Mid- Band Spectrum Aggregation Extracted from July 5, 2018 Amended Appendix L-1 for California Counties	35
Table 5.	Incumbent Wireless Carrier 2017 Customers and Market Shares	37
Table 6.	Incumbent Wireless Carrier Average Monthly 38churn Rates	38
Table 7.	Projected DISH Market Growth During the 2020-2026 Ramp-up Period	45
Table 8.	Sensitivity Analysis – Projected DISH Market Growth During the 2020-2026 Ramp-up Period Using Highly Optimistic "Best Case" Assumptions	47
Table 9.	Wireless Carrier California Spectrum Holdings and Adjusted Spectrum Shares, 2020-2026	49
Table 10.	California Wireless Market Projected Herfindahl-Hirschman Indices (HHIs) Resulting from Proposed Final Judgment and the Entry of DISH into theCalifornia Wireless Market, 2020-2026	50
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	51
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	52
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	53



TABLE OF CONTENTS (continued)

Table 14.	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				
	Assuming DISH Leases Half of its 600 MHz Spectrum to New				
	T-Mobile, 2020-2026	54			
Table 15.	Facilities-based Wireless Carrier EOY 2017 Cell Sites in Commercial Use	75			
Figure 1.	Wireless Carrier Capital Expenditures 2014-2017	26			
Figure 2.	DISH Class A common stock price movements over the past five years.	59			

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. 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.



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 2 of 82

- 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.
- 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
- as well as responding to Issues 1 and 7 as specified in the October 24, 2019 Assigned
- 14 Commissioner's Amended Scoping Ruling:

10

15

17

212223

24

25

26

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

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

October 24, 2019 Assigned Commissioner's Amended Scoping Ruling

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



^{2.} ALJ August 27, 2019 Ruling, at 5-6.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 3 of 82

1	IISUE 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?
17	

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 4 of 82

1	11.
2	THE DoJ COMPLAINT AND THE PROPOSED FINAL JUDGMENT
3	
4 5 6 7 8 9	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.
10	4. On July 26, 2019, the United States Department of Justice ("DoJ") together with five
11	state Attorneys General (Kansas, Nebraska, Ohio, Oklahoma and South Dakota) jointly filed a
12	Complaint in the United States District Court for the District of Columbia alleging, inter alia,
13	with respect to the mobile wireless telecommunications market, that:
14 15 16 17 18 19 20	 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
21 22 23	wireless carriers, without appropriate remedies, the merger of T-Mobile and Sprint would extinguish substantial competition.
24 25 26 27 28 29 30 31	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 afford ability. 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.
32 33	5. The merger would eliminate Sprint as an independent competitor, reducing the number of national facilities-based mobile wireless carriers from



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 5 of 82

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

Having concluded that "the merger of T-Mobile and Sprint likely would substantially lessen competition for retail mobile wireless service," the DoJ asked the Court to "permanently enjoin the proposed transaction."

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 6 of 82

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

10

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

comments on the proposed settlement to the Department of Justice and the Court. Meanwhile,

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

block the merger. 5 In their *Complaint*, California and the other fifteen states allege, *inter alia*,

14 that

15 16

17

18 19

20

21

22

23

13

The combined market share of Sprint and T-Mobile would result in an increase in market concentration that significantly exceeds the thresholds at which mergers are presumed to violate the antitrust laws" and that "[t]his increased market concentration will result in diminished competition, higher prices, and reduced quality and innovation. This increase in market concentration does not reflect fully the harm to competition that would result from the proposed transaction. Sprint and T-Mobile are close competitors. Direct competition 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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 7 of 82

the competition between Sprint and T-Mobile and will increase the ability of the three remaining MNOs to coordinate on pricing.

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

and more features for consumers. If consummated, the merger will eliminate

9

10

11

12

13

14

8

merger.⁷

1

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

15 16

17 18

19

20

The primary purpose of the proposed Final Judgment is to facilitate DISH building and operating its own mobile wireless services network by combining the Divestiture Package of assets and other relief with DISH's existing mobile wireless assets, including substantial and currently unused spectrum holdings, 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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 8 of 82

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

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

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



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 9 of 82

1 Neither DISH nor the Joint Applicants have offered any substantive evidence that the

- 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

2

- 6 9. As I shall discuss in detail in Section III of this testimony, there is in fact serious doubt
- 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
- the company "paid \$712 million to acquire certain 700 MHz wireless spectrum licenses,
- which were granted to [it] by the FCC in February 2009."¹⁰

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

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



^{10.} DISH 2014 Form 10-K, at 40.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 10 of 82

satellite TV business, the vast majority – at least \$24.5-billion (including capitalized

interest) – represent CMRS spectrum licenses acquired by DISH and by its affiliates. 12

3

4

5

6

7

8

2

(3) Despite these massive investments in wireless spectrum licenses that have spanned more

than a decade, DISH has neither constructed an operational wireless network nor has it

commenced offering any wireless services utilizing this spectrum. Moreover, if DISH does

not begin to utilize its licensed spectrum to provide service within a short period of time, it

risks forfeiture of these licenses back to the FCC.

9

11

12

13

14

15

10 (4) Of the four categories of assets that are to be divested by the Joint Applicants and acquired

by DISH under the terms of the PFJ – Sprint's Prepaid Customers, Sprint's 800 MHz

spectrum, decommissioned retail stores, and decommissioned cell sites – only the Prepaid

Customers are to be turned over to DISH immediately following entry of the court order.

Depending upon the specific category of asset, DISH would not obtain control of these other

assets from New T-Mobile for between three and five years following the date of the court

order.

17

18

19

20

21

(5) In testimony submitted by DISH on November 7, 2019 in response to the Amended Scoping

Ruling, DISH has offered no facts or other basis for the Commission to conclude that

whatever conditions have thus far prevented DISH from building out a wireless network are

materially altered by its largely delayed acquisition of spectrum, cell sites and retail

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



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 11 of 82

1

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

locations that are being essentially discarded by the Joint Applicants and whose loss the

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 12 of 82

- 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 will43.62

7

- 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.



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 13 of 82

1

DISH'S POTENTIAL TO BECOME 2 3 THE FOURTH FACILITIES-BASED WIRELESS CARRIER 4 5 The ability of DISH to assume the role of a commercially viable fourth retail facilities-6 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. 7 8 9 12. DISH Network Corporation's current and primary business activities is that of a 10 provider of direct broadcast satellite ("DBS") pay TV services. DISH's predecessor company, 11 EchoStar, began providing DBS service in 1996. DISH is one of the two principal US DBS pay 12 television service providers. Its principal competitor is DirecTV, which was acquired by AT&T 13 in 2014. The two satellite TV providers compete with each other and with one or more landline 14 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 15 16 services, in that programs are broadcast sequentially on each of the various channels at specified 17 times; viewers must either watch their desired programs at the specified broadcast dates/times, or 18 use a digital video records ("DVR") to "time-shift" the broadcast to a more convenient time. 19 20 13. The entry and growth of broadband Internet access has presented serious competitive 21 challenges to these linear video service providers. So-called "streaming" video services like 22 Netflix, Hulu, Amazon Prime, the new Apple TV+ and the new Disney+, among others, offer 23 consumers a "video on demand" ("VoD") alternative to linear video services. Not only can 24 programs, movies, and other content be viewed at times that are at the discretion of the viewer,

III.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 14 of 82

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

the video content that had previously been controlled by the linear cable and satellite services

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

providers, this same content can now be obtained a la carte and, in some cases, at no additional

charge, through the various streaming services. Linear video operators had long resisted a la

carte pricing, but are now being forced to respond to the a la carte streaming competition. A

number of content providers and linear video services – including DISH – have themselves

introduced streaming services of their own.

11

3

6

7

8

9

10

12

13

14

15

16

17

18

19

20

14. This competition from streaming services has resulted in both a net loss of subscribers

who have chosen to "cut the cord" altogether and, for those that have remained on these services,

to substitute lower-priced content packages. In 2012, DISH had 14.056-million satellite TV

subscribers; as of September 30, 2019, its satellite TV subscriber base had dropped to 9.49-

million. ¹³ Sometime around 2013, DISH began offering a streaming service of its own known as

"Sling TV." By 2018, this "Sling TV" offering had some 2.68-million subscribers, 14 thus

somewhat offsetting the satellite TV drop-off. But Sling TV packages are priced far lower than

satellite TV, so even if DISH retains the customer, it sustains a large drop in revenues from that

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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 15 of 82

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. DISH has had its sights on the mobile wireless market for some time. Beginning
- 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

^{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...)



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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 16 of 82

- 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.

4

5

6 7

8 9

10

11

16 17

18 19

20 21 22

23

24

25

26

27

28

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**

17. With the exception of DISH's Direct Broadcast Satellite licenses whose acquisition predates 2008, all of the licenses purchased from 2008 onward are associated with CMRS – mobile wireless services. In addition to the \$21.07-billion that DISH has spent acquiring these mobile wireless licenses, as of September 30, 2019 DISH's balance sheet also includes \$4.475-billion in "Capitalized Interest on FCC Authorizations" – i.e., interest payments associated with the

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.

\$20.46-billion of wireless license purchases. In fact, DISH has been capitalizing close to \$1-



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 17 of 82

- 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" 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

12

13

1415

16

17

18

19

20

21 22

23

24

25

26

27

28

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 18 of 82

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

13 14

1

2

3

4

5

6 7

8

9

10

11 12

- Notably, as of the date hereof (November 22, 2019), DISH is still not offering any facilities-
- 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

20

21

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

2223

- 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
- has enough, or the right combination of, spectrum or cell site resources to deliver the full scope
- 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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 19 of 82

- 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

Spectrum

- 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
- spectrum held by (standalone) Sprint (as of March 31, 2019) and (standalone) T-Mobile (as of
- December 31, 2018) were \$41.465-billion²¹ and \$35.559-billion, respectively.²² Since these
- 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
- 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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 20 of 82

- 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

Scale of operations.

- 22. Every type of facilities-based telecommunications service provider wireline and
- wireless, voice, data and video confronts high fixed costs. As such, all of these services are
- 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.

- 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." 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
- the PFJ, Sprint would divest its 9.033-million (or 9.3-million) prepaid subscribers to DISH,
- 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
- 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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 22 of 82

- 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
- other carriers in order to offer its customers nationwide coverage where DISH has no facilities-
- based network presence. In short, if Mr. Draper's claim that Sprint's scale of operations is too
- 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-
- merger T-Mobile's) too-small scale engenders will be compounded for DISH.

^{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.



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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 23 of 82

Capital Investment (CAPEX)

1

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
- 10 25. DISH's total gross Property and Equipment capital expenditures for 2018 were \$393.9-
- 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
- provide any details as to what remaining amount about \$168-million was spent on.. Some
- portion of it may have been used for initial development of DISH's wireless network, but
- 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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 24 of 82

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,

no more than about \$168-million, but more likely were well below that amount. In the first nine

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." 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

certainly less than that, since some portion of these "other corporate capital expenditures" almost

11 certainly had nothing to do with wireless.

12

13

14

15

16

17

18

19

10

3

4

26. I have extracted the corresponding data from each of DISH's Form 10-Ks from 2010

through 2018 and its Form 10-Q through the third quarter of 2019. Over that period, DISH

invested approximately \$7.83-billion in Property and Equipment. However, nearly 75% of that –

\$5.85-billion – was spent on pay TV and broadband customer equipment that DISH provided

(i.e., rented) to its satellite TV subscribers. The remaining \$1.75-billion was devoted to "other

corporate capital expenditures," the bulk of which were almost certainly associated with the

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.



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 25 of 82

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
1	other anastrom heldings develop was plan to unamed and armond our nativials to full 5C to

27. In DISH's 2018 Form10-K, the Company states: "We currently expect expenditures

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

11

12

13

14

15

1

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

16

^{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.



^{39.} Id., at F-52.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 26 of 82

- 4 Table 2 below summarizes Mr. Draper's figures for each company's wireless capital
- 5 expenditures over this four-year period:

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 27 of 82

BEGIN HIGHLY CONFIDENTIAL <<

Table 2 INCUMBENT WIRELESS CARRIER				
	XPENDITURE			
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	
Source: Draper Rebuttal, at Attachment F. Form 10-K amounts include a sectors, not just wireless				

>> END HIGHLY CONFIDENTIAL

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

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 28 of 82

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"

wireless MNOs, such that an examination of these firms' financial statements can reveal much

about their respective capital expenditures.

6

4

5

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

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,

unspecified) portion was for wireless network property and equipment. We do have Verizon's

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-

billion, but no further breakdown is provided. Again, a substantial portion of this amount was

undoubtedly directed toward wireless licenses and wireless property and equipment.

^{43.} AT&T 2018 Form 10-K, Exhibit 13, "Selected Financial and Operating Data," at 52.



^{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.

1 31. The NMOs do not separately report the gross book value (before depreciation and

2 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.

5

3

4

6

7 8 9

10

11

1213

1415

1617

18 19

20 21 22

232425

26

27

28

2930

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 fist half of 2019, DISH's total capex was \$7.43.-
- 32 million, of which \$3.53-million was spent on satellite TV and broadband customer equipment.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 30 of 82

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

spectrum to offer any services to any customers, and its investments in network equipment

(radios, antennas, switches, etc.) have been minimal. Thus, even if DISH is actually able to

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 guite literally be little more than a drop in the ocean when compared to

both the current level of capital spending by the incumbent carriers, not to mention the

cumulative investments that they have made in their networks and infrastructures.

10

11

13

14

15

16

18

19

8

9

3

4

5

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,

and may be able to leverage those relationships into a profitable business, as Comcast is

attempting to do with its base of cable TV and broadband subscribers. But DISH's ability to

profitably address a small fraction (less than 3%) of the national wireless services market offers

no assurance that its presence will work to discipline its larger rivals to any significant decree.

17 As noted above, Mr. Draper has described Sprint's difficulties in attracting and retaining

customers away from Verizon. There is simply no basis upon which to expect that DISH will

have any more luck with a brand new network with limited geographic reach.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 31 of 82

1 2	Physical network facilities
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 < > END HIGHLY CONFIDENTIAL California cell sites in
7	2021, growing to BEGIN HIGHLY CONFIDENTIAL < > 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	< > 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 <i>standalone Sprint</i> is expected to deploy BEGIN HIGHLY CONFIDENTIAL
15	< > 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

"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 < > 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 < > 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
- decommissioned sites to DISH.⁴⁹ However, DISH Senior Vice President of Public Policy and
- 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
- will do nothing to assist DISH in meeting these 5G deployment commitments.

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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 33 of 82

- 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
- 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
- the US population by 2022 and that it will reach the target 70% by 2023.

- 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% coveral commitment while leaving the remaining areas unserved.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 34 of 82

1

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 10	Spectrum shares
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.

DISH will be required to lease back 4 MHz of that bandwidth to New T-Mobile for two



		\ o_	88	<u>~</u> ω	60 0	880	စ္က ဝ	89	2 00	<u> </u>	000	3.4	4 O	4.3	00	စ္က ဖ	68 0	0	88	စ္က စ္	ro c	۷ <u>چ</u>	rú c	4 Q	ro w	88	စ္က စ္	88	2 0	စ္က စ္	20	5 Ci	9 %	88	8 8	900	ا بن د
	NTM	2502-2506/ 2673.5-2690	Mhz	84.7	ww	, w (ω	wu	J W	35.6		53.4	S.	84.3	, ω .	89 35.6	ω	0 77	- ω	ω ω	79.5	- w	79	- ω	79.5	ω (ω ω	ww	υ	w u		71	89	5 0	ω ω	8 12	79.5
	NTM		Mhz 67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	61.5	26	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5
ON MID-BAND	NTM PCS	1850-1990 2602-2673.5	Mhz 70	09 02	80	828	2 2	0 20	8 8	8 20	2 2 3	09	09 02	70	0 1	0 9	09 02	09	2 02	0 2	02.0	2 2	0 20	2 2	0 2	8 8	20 20	50	2 2	2 5	2 2	2 2	65 80	2 2	9 9	65	0 2 8
NSACTIO M	NTM AWS3		O S	6 0	00	000	0 6	0 0	00	00	, 6 6	200	0	00	0 0	00	0 6	5 0	00	00	000	0	0 0	00	0 0	0 (0 0	00	0	9 9	9 2	00	0 0	0 0	00	0 0	000
POST-TRANSACTION	NTM AWS1	55/	MHZ 40	ල ල	8 8	8 8	8 9 8	30	9 8	8 9	S & S	50 20	9 8 0 8	40	4 9	ଚ୍ଚ ଚ	S S	30	4 4	% 8 9	9 6	8 9	40	8 9	04 4	40	4 0	50	8 8	90	8 8	0 4 0 4	9 %	8 8	S S	30	3 4 8
	NTM 800		Ш	4 4	4 4	4 ;	4 4	4 4	4:	4 -	4 4	4 4 :	4 4	4 4	4 :	4 4	4 4	4 4	<u> </u>	4 4	4 4	4 4	4 4	<u>†</u> 4	4 4	4:	4 4	4 4	4	4 4	4:	4 4	4 4	4 :	4 4	4 4	4 4
LOW-BAND	NTM 7	8		2 2	12 5	12	0 0	12	2 2 :	2 2	12 5	2 2 5	12 2	12	12 :	12 2	27 0	5 5	7 2	12 2	12 5	12	12	12	12 2	12 :	12 2	12	12	0 5	0	12 1	12 12	0	12 12	12	4 5 5
PO	NTM 600	82		2 40 20	20	50 9	30	2 50	50 2	90 9	9 6	28 8	8 9	30	20 :	30 0	9 %	40	20 20	3 20	50 8	3 9	70	30	30	50	2 30	30	20 20	99	3 8	2 %	200	30	2 %	9 €	8 8 8
	SPR EBS	/90	Mhz 89	84.7	88	880	68	88	8 8	35.6	000	53.4	93.4	84.3	88	35.6	68	0 77	89	88	79.5	89	79.5	88	79.5	88	68 80 80	88	68	68	30	71.2	84 3	68	58 88 88	89	79.5
	SPR BRS	73.5		67.5	67.5	67.5	67.5	67.5	67.5	67.5 45	67.5	67.5	67.5	67.5	26	67.5 67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5 56	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5
Ş	SPR PCS+			9 40 30	0 4	30 8	30 40	30	8 9	40 55	9 6	8 4 8	9 9 8	30 0	900	30 0 0 0 0 0 0 0	30	40	30 00	% 9 9	30 8	90 4	30	40	9 %	40	e e	30	8 8	3 30	3 8	e e	30	30 3	9 9	30	8 8 8
MID-BAND	TMO PCS+	1850-1990		20 40	0 4	9 9	9 %	940	8 9	30 52	8 8	50 20	8 9	30 00	40	စ္က စ္က	0 0 0 0 0 0 0 0 0	20	6 4	30 40	9 6	3 6	0 40	30 9	% 9 9	40	40 0	20	4 4	40	9 9	0 4 0 4	35	4 9	0 40 0 02	32	3 4 5
Z	IMO WS3	5-1780/ 5-2180 18	0 :	6 0	00	000	0 0	00	00	00	, 6 5	D 0 (00	00	0	00	0 6	0 0	00	00	00	0	0 0	00	0 0	0	00	00	00	9 9	5 6	00	00	0 0	00	0 0	000
ANSACTION	TMO TWS1 A	0-1755/ 175 0-2155 215	MHZ 40	0 0 0 0 0 0 0 0	8 8	8 8 9	9 %	30	9 e	8 9	. S	5 20	9 8 0 0 0 0 0 0	40 20	4 9	ଚ୍ଚ ଚ	S S	30	4 4	% 90 90 90	9 6	8 9	40	8 9	04 4	9 9	0 0 0	20	8 8	99	8 8	0 0 0 4	94 0	8 8	8 8	30	3 4 8
PRE-TR	. 4	271	4 <mark>h</mark> 4 = 1	4 4	4 4 4	4 ;	4 4	4 4	4 :	4	4 ;	4 4 3	4 4	4 4	4 :	4 4	4 4	4 ,	<u> 4</u>	4 4	4 4	<u> </u>	4 5	<u>†</u> 4	4 4	4:	4 4	4 4	<u>†</u> 4	4 4	4	4 4	41	4	4 4	4 4	4 4
	SPR 800		2 825-890Mh 3 14	0 0	0.0		0 0	0.0		0 0		000		0.0			0.0	0.0		0.0			0.0		0.0		0 0	0.0		0.0			0.0		20	0.0	
QN	1MO 800		825-890Mhz 0																																		
LOW-BAND	SPR 700	808-869	Mhz																																		000
	TMO 700	808-869	Mhz																																		4 5 5
	1MO 600	622-648	Mhz 20	20 20	20	20 5	30 20	20	20 20	30	40	20 30	8 9	30	50	30	30	40	20 20	30 20	20	30 4	20	30	30	20	20 30	30	20	30	30	20 20	20	30	20 30	40	8 8 8
	STATE		S	క క	S S	5 8 8	88	& &	55	క క	8 8	5 5 5	§ §	8 8	8	క క	8 8	8 8	58	88	88	5 5	88		88			₹ 5	58	88	58	క క	₹ 5	88	88	8 8	555
	COUNTY		Alameda	Alpine Amador	Butte	Colusa	Contra Costa Del Norte	El Dorado Fresno	Glenn	Humboldt Imperial	lnyo	Kern Kings	Lake Lassen	Los Angeles Madera	Marin	Mariposa Mendocino	Merced	Mono	Monterey	Nevada Orange	Placer	Riverside	Sacramento	San Bernardino	San Diego	San Joaquin	San Luis Obispo San Mateo	Santa Barbara	Santa Cruz	Shasta	Siskiyou	Sonoma	Stanislaus	Tehama	l rinity Tulare	olumne	Yolo

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 36 of 82

1

2

3

15

Projected ramp-up in DISH's customer base and market share

decades since its birth in the early-1980s. According to FCC data, as of the end of 2017, there
were between 400-million and 427-million wireless "connections" in the US.⁵² In comparison,
the total EOY 2017 US population was 325.7-million.⁵³ UBS data cited by the FCC "shows that,
in 2017, the postpaid segment accounted for more than 60% of all connections, while the prepaid
segment accounted for less than 20%, and wholesale connections and connected devices

38. The US mobile wireless market is largely saturated at this point in the nearly four

- 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
- the end of 2017, and also provides the 2017 net additions for each carrier and their respective
- shares of these net additions.



^{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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 37 of 82

Table 5 INCUMBENT WIRELESS CARRIER 2017 CUSTOMERS AND MARKET SHARES (000)

	Total Conne	ctions	Net Additions				
Service Provider	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: ECC Communic	ations Marketnlace Ren	ort 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:

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 38 of 82

1 2			Ta	able 6							
3	INCUMBENT WIRELESS CARRIER										
4 5	AVERAGE MONTHLY 38CHURN RATES 2014-2017										
6 7	Service Provider	2014	2015	2016	2017	2018	2019				
8	Postpaid										
9	Verizon	1.04%	0.96%	1.01%	1.01%	1.03%	1.05%				
10	AT&T	1.04%	1.05% [Note 1]	1.07%	1.07%	1.12%	1.19%				
11	T-Mobile	1.58\$	1.39\$	1.30\$	1.18\$	1.01%	0.85%				
12	Sprint	2.16%	1.64%	1.62%	1.73%	1.76%	1.81%				
13	Prepaid										
14	Verizon		N	lot Separate	ely Reported	i					
15	AT&T		No	ot Separate	ly Reported						
16	T-Mobile	4.76%	4.45%	3.88%	.4.04%	3.96%	3.77%				
17	Sprint	4.12%	4.95%	5.66%	4.68%	4.50%	4.51%				
18 19 20	Source: (2014-17) – 19) – carrier 10-K and			etplace Repor	t, December 2	6, 2018 , Fig.	A-7; (2018-				
$\overline{21}$	Note 1: Extrapolated	from 2014 and	2016 data.								
22											

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

23

24

25

26

27

28

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 39 of 82

1 quickly reduce the churn rate on these prepaid services, it could lose more than half of the

customers it will be acquiring from Sprint within the first year alone.

3

12

16

17

18

2

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

overall wireless market demand is also a source of addressable customers. As shown in Table 5

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

additions. If DISH's prepaid gross additions were roughly to correspond with Sprint's 14.31%

prepaid market share, that would result in its capturing approximately 360,000 out of the 2.5-

million addressable prepaid customers each month. Over the first twelve months, DISH could

thus expect to see about 4.4-million in gross additions. However, if Sprint's 4.37% monthly

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.

^{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"



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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 40 of 82

1 42. We can learn something about DISH's likely success in attracting new customers by

looking at the recent experience of Comcast, which began offering wireless services mainly to its

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

since its launch in 2017, a realistic estimate of DISH's potential market penetration after six

years – i.e., by roughly the end date of the Proposed Final Judgment – would necessarily be

12 considerably lower.

2

3

10

11

13

15

16

18

43. I have constructed a model to estimate the potential growth in DISH's customer base

and market share during this initial ramp-up period ("ETI DISH Ramp-up Model"). The Model

covers the period 2020-2026 (years 1 through 7) and is based upon the following facts, analyses

17 and assumptions:

19 (1) DISH will only have access to "addressable" customers -i.e., the net growth in overall

wireless customers and the churn being experienced by the incumbent carriers.

^{57. &}quot;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).



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 41 of 82

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

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

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



^{58.} PFJ, § V.A.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 43 of 82

1 axcribes 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

churn rate is assumed to be 4.0% per month on prepaid services and 1.0% per month on

6 postpaid services.

7

5

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

1.5% (still much lower than Sprint's 1.81%) over the full 2020-2026 period.

11

13

14

16

17

18

20

10

12 44. The ETI DISH Ramp-up Model simulates the ramp-up of DISH's wireless business

over a seven year period. It assumes that year 1 is 2020, and that DISH starts out in January

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.

Since the 9.3-million represents roughly 14.31% of the national prepaid market, the ETI DISH

Ramp-up Model assumes that DISH will be able to acquire 14.31% of all addressable prepaid

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

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



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 44 of 82

1

21

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 about 38,000. But DISH will also experience churn of its existing customer base. The ETI 4 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

New T-Mobile, for a net availability to DISH of 9.5 MHz. That condition is assumed to persist

million – will cancel service with their existing carrier and thus be addressable by other carriers.

- 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.

3

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

67

8

Table 7 PROJECTED DISH MARKET GROWTH DURING THE 2020-2026 RAMP-UP PERIOD

Year Prepaid **Overall Market Postpaid** Total **Subscribers Subscribers Subscribers** Share 0.00% Pre-merger 0 0 0 2020 9,251 0 9,251 2.65% 2021 9,316 0 9,316 2.55% 2022 212 9,765 9,553 2.55% 2023 1.295 2.78% 9.900 11.194 2024 10,358 3,128 13,486 3.18% 2025 4,678 15,514 3.48% 10,836 2026 6,116 17.470 3.74% 11.355 Source: ETI DISH Ramp-up Modell

2021

- 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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 46 of 82

1 2	Sensitivity analysis
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

21

an overall market share of 6.58% by the end of year 7.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 47 of 82

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 48 of 82

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

alter the level of market concentration that would result from the merger without DISH's

4 presence.

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

3

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

WIRELESS CARRIER CALIFORNIA SPECTRUM HOLDINGS AND ADJUSTED SPECTRUM SHARES 2020-2026

Table 9

		Spect	rum Hol	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: F	Source: FCC Spectrum License data: ETI DISH Ramp-up Model								

Using this data, I have calculated California statewide HHIs for each year 2020-2026, in Table

26 10 below:

27

8 9

10

11 12

13

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 50 of 82

7 8

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

		Change resulting from
Year	HHI	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.



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 51 of 82

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

Spectrum Holdings **Adjusted Spectrum Shares** Year VΖ AT&T T-NTM DISH DISH-Adj ٧Z AT&T T-NTM DISH 311.01 31.66% 30.50% 37.84% 260.17 250.67 0.00 0.00 0.00% 2020 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 30.41% 29.30% 36.36% 3.92% 33.56 2023 260.17 250.67 311.01 82.01 40.05 30.19% 29.08% 36.08% 4.65% 2024 28.80 \(\overline{\pi} \) 260.17 250.67 311.01 82.01 48.40 29.90% 35.74% 5.56% 2025 260.17 250.67 311.01 54.76 29.68% 28.60% 35.48% 6.25% 86.01 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

20 Table 12 provides the projected HHIs on the basis of these "better-than-best-case" results:

21 Even when examined using what I believe are excessively optimistic assumptions – that DISH

22 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

24 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

27 of 264, which is still well above the *HMG* threshold of 200.

28

1

2

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

23

25

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 52 of 82

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

Change resulting from Merger and PFJ Year HHI Pre-merger Source: Tables 8, 11

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

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 53 of 82

- 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:

7

,

8 9 10

11 12

13 14 15

16

17 18 19

2021222324

2526

2728

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

		Spect	rum Hol	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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 54 of 82

10 11 12

19 20 21

22

Table 14

SENSITIVITY ANALYSIS C **ALIFORNIA 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

		Change resulting from
Year	HHI	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
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

28

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 55 of 82

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

2 3

7

1

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

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

independent determination as to the likelihood that DISH actually has the financial wherewithal

11 to achieve these commitments.

12

13

14

16

17

19

10

56. In my testimony for the Office of Ratepayer Advocates in the Verizon/Frontier

proceeding, A.15-03-005, in response to the *Amended Scoping Ruling*'s question seeking

information as to "the financial implications of the transaction for Frontier," I noted that, [a]ll

else equal, the above-book-value acquisition cost and the incremental debt and equity costs that

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

"operating costs for California are not expected to be reduced," noting that "[a] prime source of

20 the loss that he was now projecting resulted from the \$10.54-billion price that Frontier had

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



^{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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 56 of 82

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." 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.

- 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
- 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
- which is needed to finance ongoing operations. 63 DISH already spends about \$500-million
- 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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 57 of 82

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

needs, DISH will almost certainly have to raise the entire \$10-billion in order to finance the

planned network rollout. And if DISH does exercise its option to purchase Sprint's 800 MHz

spectrum in 2023, it will need yet another \$3.6-billion on top of that.

7

8

9

10

11

12

13

14

15

6

4

5

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

is only one of many capital requirements that DISH faces. DISH advises investors that:

16 17

18

19

20

21

22

23

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

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



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 58 of 82

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
- DISH's equity investors currently value the entire company as it exists today. If DISH were to
- raise the entirety of the \$10-billion from the equity markets, current DISH shareholders would be
- 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
 - dilution, in that it assumes that the stock price will remain at today's levels even while issuing
- more shares of DISH stock than currently exist. That the share price will remain largely
- unchanged seems extremely unlikely given that DISH stock is already trading near its 5-year
- 19 lows, as shown in Figure 2 below.

20

^{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.



^{65.} Id., emphasis supplied.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 59 of 82

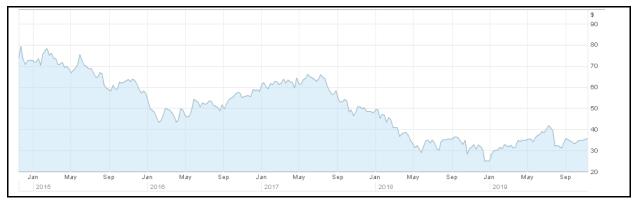


Figure 1. DISH Class A common stock price movements over the past five years.

- 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).
- 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.
 - 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." An Initial
- 11 Public Offering (IPO) of \$10-billion in new common stock could hardly qualify as a "limited
- 12 dilution."

6



^{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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 60 of 82

3

4

9

10

12

14

15

16

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-

billion of the currently-due portion of long-term debt and finance lease obligations). ⁶⁹ An

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

additional interest expenses of between \$500-million and \$786-million annually – but that

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.

64. This "debt" approach assumes that DISH could even be able to issue that much new

debt. As DISH advises its investors, its current Senior Notes carry restrictive covenants that

limit DISH's ability to: (a) incur additional debt; (b) pay dividends; and (c) make certain

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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 61 of 82

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

^{73. &}quot;Moody's places DISH Networks and DISH DBS ratings on review" https://www.moodys.com/research/Moodys-places-DISH-Networks-and-DISH-DBSs-ratings-on-review--PR_40581 5 (accessed 11/20/2019).



^{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).

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 62 of 82

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

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



20

21

22

23

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 63 of 82

1 2

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

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 64 of 82

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;
- The 800 MHz Spectrum Licenses currently being held by Sprint;
- The Decommissioned Sprint Retail Locations; and
- 12 The Decommissioned Sprint and T-Mobile Cell Sites.

13

The Prepaid Assets

14 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
- 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.



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 65 of 82

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

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

responsibility to serve these divested prepaid customers as a "Full MVNO," acquiring the

12 underlying wholesale wireless services from New T-Mobile.

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

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

the acquisition, fit-up, staffing, and the provision of all required organizational and IT support to

a network of retail locations whose activities are limited to the sale and support of the Prepaid

8

11

13

16

18



^{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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 66 of 82

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 is 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 this functions directly.

6 Following the divestiture of these prepaid accounts, DISH will need to establish its own retail

operation and insert itself in third party retail distribution channels such as Walmart and CVS

where the prepaid Boost, Virgin Mobile or Sprint-branded prepaid phones are sold. The TSA

may be extended for up to one additional year if DISH so requests it.

10

11

12

13

14

15

16

17

18

19

20

21

7

8

9

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 67 of 82

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

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

prepaid services that are to be divested to DISH, and Sprint determines not to immediately (or

ever) decommission that particular retail location, DISH will need to quickly establish a

substitute retail location for the acquired prepaid services.

13

14

15

16

17

18

20

21

10

11

4

73. Even the PFJ's reference to "Prepaid Assets Personnel" appears not to address this

specific concern. As defined, the term refers to "all employees whose jobs currently focus on

the support of the Prepaid Assets, or whose jobs have previously focused on supporting the

Prepaid Assets at any time between January 1, 2016 and the date on which the Prepaid Assets are

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

management, marketing management, distribution support, sales support, and finance."79 But

where a retail store sells both prepaid and postpaid services, there are typically no personnel

79. PFJ, § I.M.



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 68 of 82

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

does not include any significant number of retail store employees.

7

8

10

11

12

13

14

15

17

18

6

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

services, their churn rate is considerably higher than that for postpaid services, and the average

in-service life of prepaid service customers is considerably shorter than for postpaid customers.

The Joint Applicants will be divesting the least desirable customers while retaining the most

valuable postpaid customers. DISH, on the other hand, will be acquiring these same low-

revenue customers – customers who take prepaid services because they can't qualify for credit as

required for postpaid services, customers whose specific needs are time-limited, or customers

whose ability to pay for the service forces them to the low-end of the spectrum of service

offerings. There is, of course, nothing to preclude DISH from offering postpaid services as well,

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).



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 69 of 82

1 75. More generally, under the PFJ, DISH is being expected to launch a competitive

facilities-based wireless business capable of providing a substantive competitive challenge to the

larger incumbent carriers while starting off with the least desirable mix of customers.

4

2

3

The 800 MHz Spectrum Licenses

5 6

8

9

10

11

14

15

16

17

18

7 76. DISH will apparently be paying approximately \$3.59-billion for the 13.5 MHz that

Sprint currently holds in the 800 MHz spectrum band.⁸¹ Under the terms of the PFJ, New

T-Mobile is given three (3) years from the effective date of the Stipulation and Order to

effectuate and complete the transfer of those licenses to DISH.⁸² Thus, to the extent that DISH is

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

incorporate any of the to-be-divested 800 MHz spectrum into its network for the first three years

of this undertaking. The PFJ requires that DISH pay a penalty of \$360-million to the United

States if it elects not to proceed with the spectrum license purchase unless it has already

deployed a core network and is offering 5G Service to at least 20% of the US population over its

facilities-based network at that same three-year time point. 83 Of course, if by the end of three

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
- price paid by us to NTM a rate of approximately \$68 million per year."86

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
- 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
- mobile wireless services over its own facilities-based network.⁸⁷

11

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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 71 of 82

1

8

10

11

13

16

17

18

19

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

78. The basis for New T-Mobile's retention of the 800 MHz spectrum is to allow it to

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

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

it is about the specific PFJ and Asset Purchase Agreement that operates to make such deploy-

ment economically feasible following the Sprint/T-Mobile merger where it has apparently not

been economically feasible up to now.

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

the 13.5 MHz of Sprint's 800 MHz spectrum for the first three years, for years four and five it

will only have access to 9.5 MHz of that spectrum. Additionally, the PFJ's requirement that

DISH agree to lease a portion of its 600 MHz spectrum to New T-Mobile for an unspecified

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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 72 of 82

4

9

11

13

14

16

17

19

20

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

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.

10 The Decommissioned Sprint Retail Locations

80. Both Sprint and T-Mobile maintain extensive networks of retail locations where

customers can purchase handsets and accessories, initiate and modify their wireless services, and

even pay their bills. In many cases, the two companies' stores may be in close physical

proximity to one another, sometimes even on the same city block. One of the major synergies

that the Joint Applicants have posited as resulting from their merger is their ability to consolidate

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

"decommissioned within five (5) years of the closing of the divestiture of the Prepaid Assets,

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.



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 73 of 82

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

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

4

82. Moreover, the requirement to transfer these decommissioned locations is to be spread

out over a five-year period. However, DISH will be acquiring Sprint's prepaid business almost

immediately following the entry of the Order in the Federal District Court proceeding.

12

13

14

15

16

17

18

83. Sprint-branded retail stores do not typically offer the Boost, Virgin Mobile, or even the

Sprint-branded prepaid products and, in fact, it appears that Sprint has recently migrated its

Sprint-branded prepaid products to its Boost Mobile brand. 92 While Sprint does maintain a small

number of Boost Mobile storefronts, it appears that a far larger number of locations where Boost

services are sold are third-party general retailers such as Walmart, CVS, Walgreens, and

7-Eleven. For example, the Boost website identifies only three Boost-branded stores in San

^{92. &}lt;a href="https://prepaid.sprint.com/#!/">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."



^{91. &}quot;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).

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 74 of 82

- 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 mintain 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.

The Decommissioned Sprint and T-Mobile Cell Sites

11 12

10

- 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
- other to be decommissioned. New T-Mobile will be required to make no fewer than 20,000 such
- 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
- 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.



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 75 of 82

requirement has the potential of providing DISH with a useful fast-start on the establishment of 1

2 its own cell sites, provided of course that they were to become available sooner rather than later.

3	
_	

3		
4	Та	able 15
5		
6		D WIRELESS CARRIER
7	EOY 2017 CELL SITE	ES IN COMMERCIAL USE
8	Service Provider	CELL SITES
9	Verizon	61,800
10	AT&T	70,300
11	T-Mobile	61,457
12	Sprint	50,000
13 14		ons Marketplace Report, fn. 110, y Indices Year-End 2017, at 54.

15

16

17

18

19

20

21

22

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

24

25

26

23

to achieved.

86. For the same reason that New T-Mobile needs to hold on to the Sprint 800 MHz 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).

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 76 of 82

- 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

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

7 8

9

10

11

12

13

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

15

16

17

18

19

20

14

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

21



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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 77 of 82

1

17

18

2 Sprint 800 MHz spectrum to DISH. "If NTM fails to sell the spectrum to [DISH] following the satisfaction or waiver of all closing conditions, [DISH's] sole recourse will be to seek specific 3 4 performance, and if (and only if) specific performance is unavailable, to seek damages of up to approximately \$72 million." \$72-million is only 2% of the \$3.6-billion price that the PFJ 5 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 check to DISH for \$72-million. 97 To the extent that the Department of Justice views the 10 11 divestiture of the Sprint 800 MHz spectrum to DISH as essential to the creation of a fourth national facilities-based wireless carrier, there is simply no assurance that such a divestiture will 12 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

89. 800 MHz spectrum licenses. New T-Mobile is given up to three (3) years to divest the

decommissioning. Forecasted decommissionings within 180 days are to be binding on New

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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 78 of 82

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

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

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

11

12

13

14

15

16

17

18

19

7

4

91. To be sure, New T-Mobile will incur costs by delaying decommissioning of any site.

For example, if it does not own the site, it would continue to make rental payments to the site

owner. If it keeps a site in service, it foregoes the ability to redeploy any equipment at that

location for use elsewhere. I am not suggesting that New T-Mobile might simply wait out the

full five years before decommissioning any sites to DISH. But it certainly has no incentive to

pursue decommissioning in the most expeditious manner. Indeed, it appears that one aspect of

the PFJ may actually work at cross-purposes to expedited decommissioning. If a site is placed

on the 180-day rolling forecast for decommissioning and New T-Mobile fails to deliver the site

to DISH at the appointed date, it may be subject to fines of \$50,000 or \$100,000 for each such

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.

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 79 of 82

1 number of cell sites be listed on these forecasts, New T-Mobile is afforded a clear incentive to

slow-roll the process and not list any site unless and until it is absolutely available for handover

to DISH.

4

7

9

10

11

2

3

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

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

identified as candidates for decommissioning offer extremely limited coverage. 101 If DISH truly

intends to construct a robust 5G network with broad coverage and availability and do so by the

end of 2022 as Mr. Blum suggests, the decommissioned cell sites that may be made available

will be of limited value at best.

13

14

15

16

17

12

93. Retail locations. The PFJ requires that New T-Mobile make all assignable or

transferrable Retail Locations it decommissions available to DISH within five years, and that no

fewer than 400 such locations be made available to DISH immediately after decommissioning. 102

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.



Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 80 of 82

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

Conclusion

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 81 of 82

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

Reply Testimony of Lee L. Selwyn Calif. PUC A.18-07-011/012 November 22, 2019 Page 82 of 82

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



LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND Pre-Merger

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

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND Pre-Merger

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

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND Pre-Merger

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

LICENSED AND OPERATIONAL BANDWIDTH BY SPECTRUM BAND Pre-Merger

(Values shown are in MegaHertz)

County	Band	Verizon	AT&T	T-mobile	Sprint	Dish	USCOC
	Low Band	32	80	52	14	0	0
Tuolumne	Mid-Band	180	180	65	186.5	0	0
	Total	212	260	117	200.5	0	0
	Low Band	82	80	42	14	0	0
Ventura	Mid-Band	190	150	80	178.7	0	0
	Total	272	230	122	192.7	0	0
	Low Band	82	74	32	14	0	0
Yolo	Mid-Band	180	180	80	177	0	0
	Total	262	254	112	191	0	0
	Low Band	82	74	32	14	0	0
Yuba	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
2202 00.11000 2.1111100		2271100		1010212100
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
·			1 9 . 0 .	•
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
	T	I	In	
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 Adj	
SENSITIVITY ANALYSIS - 600 MHz Lease	Constants	Factor Co	nstant
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

							2020						
	Jan	Fel	b Ma	r Apr	May	Jı	une July	Au	g Sep	Oct	Nov	De	С
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

							2021						
	Jan	Feb) Mai	r Apr	Ma	ay Ju	ine July	, Au	g Se	р Ос	t Nov	/ De	ec
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

							2022						
	Jar	n Feb	Mai	Apr Apr	Ma	ay Ju	ine July	Aug	Sep	O	ct Nov	/ D	ec
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
Dish prepaid Churn	4,443	377	378	379	380	380	381	382	383	385	386	387	388
Dish Postpaid Churn		311	1	1	2	2	3	302	363 4	5	5	6	6
Distr Costpaid Giulii		-	ı	'	2	2	3	4	4	5	5	U	Ü
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

							2023						
	Jan	r Feb	Mai	r Apr	May	Jun	e July	Au	g Sep	Oct	Nov	De	С
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
	4,443												
Dish prepaid Churn		389	390	391	393	394	395	397	398	399	401	402	403
Dish Postpaid churn		7	9	12	14	16	18	21	23	25	27	29	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

						0004						
	Jan Fe	eb M	lar A _l	pr M	ay J	une Jul	у д	aug S	ер О	ct N	lov D	lec
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
4,44	43											
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

							2025						
	Jan	Feb	M	ar A _l	or Ma	ay Jur	ne July	Aug	g Sep	0	ct No	/ De	ec
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

							2026						
	Jan	Feb	Ma	ır Apr	M	lay Jı	une July	Aug	g Se	р О	ct No	v D	ec
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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	90	46	0		Onare			Ondio
Alameda	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 Mid-Band	32 180	74 160	66 252.2	0	-				
Alpine	Total	212	234	318.2	0	_	0.00%	1,120	0.000028	0.00%
	Low Band	32	74	46	0		0.007,0	.,		
Amador	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
Dutto	Low Band	82	74	46	0					
Butte	Mid-Band Total	180 262	150 224	266.5 312.5	0	_	0.00%	229,294	0.005800	0.00%
	Low Band	32	80	66	0		0.0076	223,234	0.003600	0.0078
Calaveras	Mid-Band	180	150	266.5	0					
•	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
	Low Band	82	62	46	0					
Colusa	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 Mid-Band	82 200	90 150	46 266.5	0	+				
Contra Costa	Total	282	240	312.5	0	_	0.00%	1,147,439	0.020022	0.00%
	Low Band	82	12	44	0	<u> </u>	0.00%	1,147,439	0.029022	0.00%
Del Norte	Mid-Band	170	150	177.5	0					
•	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
	Low Band	82	74	46	0					
El Dorado	Mid-Band	180	180	256.5	0					
	Total	262	254	302.5	0	-	0.00%	188,987	0.004780	0.00%
F	Low Band	82	74	46	0					
Fresno	Mid-Band	160	180	256.5	0	+	0.000/	000 055	0.005004	0.000/
	Total Low Band	242 82	254 62	302.5 46	0	-	0.00%	989,255	0.025021	0.00%
Glenn	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.000711	0.00%
	Low Band	82	18	56	0					
Humboldt	Mid-Band	170	170	203.1	0					
	Total	252	188	259.1	0	-	0.00%	136,754	0.003459	0.00%
	Low Band	82	30	63	0					
Imperial	Mid-Band	180	190	165	0	+	0.000/	100 000	0.004624	0.000/
	Total Low Band	262 82	220 74	228 66	0	-	0.00%	182,830	0.004624	0.00%
Inyo	Mid-Band	150	130	177.5	0					
,-	Total	232	204	243.5	0	_	0.00%	18,026	0.000456	0.00%
	Low Band	82	80	56	0			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Kern	Mid-Band	190	180	276.5	0					
	Total	272	260	332.5	0	-	0.00%	893,119	0.022590	0.00%
12	Low Band	82	74	46	0					
Kings	Mid-Band Total	170 252	210 284	200.9 246.9	0		0.00%	150,101	0.002707	0.00%
	Low Band	82	18	56	0	-	0.00%	130, 101	0.003797	0.00%
Lake	Mid-Band	200	150	220.9	0					
	Total	282	168	276.9	0	-	0.00%	64,246	0.001625	0.00%
	Low Band	32	12	66	0					
Lassen	Mid-Band	180	160	167.5	0		-			-
	Total	212	172	233.5	0	-	0.00%	31,163	0.000788	0.00%
Los Apreles	Low Band	82	80	56	0	1				
Los Angeles	Mid-Band Total	180 262	180 260	255.8	0	+	0.00%	10,163,507	0.257065	0.00%
	Total Low Band	32	74	311.8 46	0	-	0.00%	10, 103,307	0.042067 0.000028 0.0000977 0.0005800 0.001155 0.000552 0.0029022 0.000695 0.004780 0.0025021 0.000711 0.003459 0.004624 0.002590 0.003797 0.001625 0.000788 0.001625 0.000788 0.000788	0.00%
Madera	Mid-Band	140	210	236.5	0					
	Total	172	284	282.5	0	-	0.00%	156,890	0.003968	0.00%
	Low Band	82	90	46	0					
Marin	Mid-Band	200	150	255	0					
	Total	282	240	301	0	-	0.00%	260,955	0.006600	0.00%
Marin	Low Band	32	80	66	0					
Mariposa	Mid-Band Total	170	170 250	256.5	0	+	0.00%	17,569	0.000444	0.000/
	Total Low Band	202 82	18	322.5 56	0	-	0.00%	17,509	0.000444	0.00%
Mendocino	Mid-Band	200	150	193.1	0	+				
	Total	282	168	249.1	0	-	0.00%	88,018	0.002226	0.00%
	Low Band	32	80	66	0		2.2070	33,3.0		2.00,0
Merced	Mid-Band	140	200	246.5	0					
	Total	172	280	312.5	0	-	0.00%	272,673	0.006897	0.00%
	Low Band	32	12	44	0					
Modoc	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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	66	0		Snare			Snare
Mono	Mid-Band	150	160	167.5	0					
	Total	232	234	233.5	0	-	0.00%	14,168	0.000358	0.00%
Montorov	Low Band	82	90	46	0					
Monterey	Mid-Band Total	170 252	180 270	225.7 271.7	0	_	0.00%	437,907	0.011076	0.00%
	Low Band	82	90	46	0		0.0070	437,307	8 0.000358 7 0.011076 3 0.003566 4 0.002525 0 0.080695 6 0.009767 2 0.000474 6 0.061292 5 0.038714 0 0.001525 4 0.054567 5 0.084420 3 0.022368 4 0.018854 5 0.007168 6 0.0019511 0 0.019511 0 0.019511 0 0.019511 0 0.004551 9 0.000076	0.0070
Napa	Mid-Band	200	150	266.5	0					
-	Total	282	240	312.5	0	-	0.00%	140,973	0.003566	0.00%
	Low Band	82	74	46	0					
Nevada	Mid-Band	180	180	256.5	0	_	0.00%	99,814	0.000505	0.00%
	Total Low Band	262 82	254 80	302.5 56	0	-	0.00%	99,014	0.002525	0.00%
Orange	Mid-Band	180	180	260.5	0					
ŭ	Total	262	260	316.5	0	-	0.00%	3,190,400	0.080695	0.00%
	Low Band	82	74	46	0					
Placer	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Low Band Mid-Band	32 180	12 160	66 238.7	0					
i iuiilas	Total	212	172	304.7	0	_	0.00%	18,742	0.000474	0.00%
	Low Band	82	80	56	0	1	0.5070	10,742	3.300414	0.0070
Riverside	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,423,266	0.061292	0.00%
Coores	Low Band	82	74	46	0	-				
Sacramento	Mid-Band Total	180 262	180 254	257 303	0	-	0.00%	1.530.615	0.038714	0.00%
	Low Band	32	80	66	0	-	0.00%	1,550,615	0.036714	0.00%
San Benito	Mid-Band	170	180	210.7	0					
•	Total	202	260	276.7	0	-	0.00%	60,310	0.001525	0.00%
	Low Band	82	80	56	0					
San Bernardino	Mid-Band	180	180	266.5	0		2.222	0.455.404	0.054505	0.000/
	Total	262	260	322.5	0	-	0.00%	2,157,404	0.054567	0.00%
San Diego	Low Band Mid-Band	82 150	74 150	56 257	0					
	Total	232	224	313	0	_	0.00%	3,337,685	0.084420	0.00%
	Low Band	82	90	46	0		0.0070	0,007,000	0.004420	0.0070
San Francisco	Mid-Band	200	150	246.3	0					
	Total	282	240	292.3	0	-	0.00%	884,363	0.022368	0.00%
0 1	Low Band	82	90	46	0					
San Joaquin	Mid-Band Total	180 262	150 240	276.5 322.5	0		0.00%	745 404	0.040054	0.00%
	Low Band	32	80	56	0	-	0.00%	745,424	0.010054	0.00%
San Luis Obispo	Mid-Band	180	180	246.5	0					
	Total	212	260	302.5	0	-	0.00%	283,405	0.007168	0.00%
	Low Band	82	90	46	0					
San Mateo	Mid-Band	200	150	266.5	0		0.000/	==		
	Total	282	240	312.5	0	-	0.00%	771,410	0.019511	0.00%
Santa Barbara	Low Band Mid-Band	32 220	80 150	56 256.5	0	1				
Carna Darbara	Total	252	230	312.5	0	-	0.00%	448,150	0.011335	0.00%
	Low Band	82	90	46	0	1	2.3070	1.0,100		2.0070
Santa Clara	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	46 256 5	0	1				
Santa Cruz	Mid-Band Total	170 252	180 270	256.5 302.5	0	-	0.00%	275,897	0 006079	0.00%
	Low Band	82	62	302.5	0	<u> </u>	0.00%	213,037	0.000358 0.011076 0.003566 0.002525 0.080695 0.009767 0.000474 0.001525 0.038714 0.001525 0.054567 0.084420 0.022368 0.018854 0.018854 0.019511 0.011335 0.049022 0.006978 0.000476	0.0070
Shasta	Mid-Band	170	140	266.5	0			† †		
	Total	252	202	310.5	0	-	0.00%	179,921	0.004551	0.00%
	Low Band	82	74	66	0					
Sierra	Mid-Band	180	160	266.5	0					
	Total	262	234	332.5	0	-	0.00%	2,999	0.000076	0.00%
Siekiyou	Low Band	82 170	12	44 177.5	0			 		
Siskiyou	Mid-Band Total	252	140 152	177.5 221.5	0	-	0.00%	43.853	0.001109	0.00%
Solano	Low Band	82	90	46	0	<u> </u>	0.00 /0	40,000	0.001109	0.00/0
	Mid-Band	200	150	266.5	0	1		1		
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
	Low Band	82	90	46	0					
Sonoma	Mid-Band	170	180	248.7	0					
	Total	252	270	294.7	0	-	0.00%	504,217	0.012753	0.00%
Stanialaria	Low Band	82	90	46	0	1		 		
Stanislaus	Mid-Band Total	150	220	261.5	0	1	0.000/	E47 000	0.042050	0.000/
	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

					up Adjusted	Share	Population	Weight	Spectrm Share
ow 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%
ow 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%
ow 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%
ow 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%
ow 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%
ow 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%
ow Band	82	74	46	0					
Mid-Band	180	180	257	0					
Total	262	254	303	0	-	0.00%	219,116	0.005542	0.00%
ow 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%
	Aid-Band Total ow Band Aid-Band	Alid-Band 180 Total 262 ow Band 82 Alid-Band 170 Total 252 ow Band 82 Alid-Band 170 Total 252 ow Band 82 Alid-Band 200 Total 282 ow Band 32 Alid-Band 180 Total 212 ow Band 82 Alid-Band 190 Total 272 ow Band 82 Alid-Band 180 Total 262 ow Band 82 Mid-Band 180 Total 262 ow Band 82 Mid-Band 180	Alid-Band 180 150 Total 262 224 ow Band 82 62 Alid-Band 170 140 Total 252 202 ow Band 82 18 Alid-Band 170 160 Total 252 178 ow Band 82 74 Alid-Band 200 180 Total 282 254 ow Band 32 80 Alid-Band 180 180 Total 212 260 ow Band 82 80 Mid-Band 190 150 Total 272 230 ow Band 82 74 Alid-Band 180 180 Total 262 254 ow Band 82 74 Alid-Band 180 180 Total 262 254 ow Band 82 74 <td>Aid-Band 180 150 261.8 Total 262 224 307.8 ow Band 82 62 44 Aid-Band 170 140 266.5 Total 252 202 310.5 ow Band 82 18 56 Iid-Band 170 160 256.5 Total 252 178 312.5 ow Band 82 74 46 Aid-Band 200 180 246.5 Total 282 254 292.5 ow Band 32 80 66 Aid-Band 180 180 251.5 Total 212 260 317.5 ow Band 82 80 56 Aid-Band 190 150 258.7 Total 272 230 314.7 ow Band 82 74 46 Aid-Band 180 180 257</td> <td>Mid-Band 180 150 261.8 0 Total 262 224 307.8 0 ow Band 82 62 44 0 Mid-Band 170 140 266.5 0 Total 252 202 310.5 0 ow Band 82 18 56 0 Mid-Band 170 160 256.5 0 Total 252 178 312.5 0 ow Band 82 74 46 0 Mid-Band 200 180 246.5 0 Total 282 254 292.5 0 ow Band 32 80 66 0 Mid-Band 180 251.5 0 Total 212 260 317.5 0 ow Band 82 80 56 0 Mid-Band 190 150 258.7 0 Total 27</td> <td>Mid-Band 180 150 261.8 0 Total 262 224 307.8 0 - ow Band 82 62 44 0 - Mid-Band 170 140 266.5 0 - Total 252 202 310.5 0 - ow Band 82 18 56 0 0 - Total 252 178 312.5 0 -</td> <td>Aid-Band 180 150 261.8 0 Total 262 224 307.8 0 - 0.00% ow Band 82 62 44 0 0 - 0.00% Mid-Band 170 140 266.5 0 - 0.00% ow Band 82 18 56 0 - 0.00% ow Band 82 18 56 0 - 0.00% ow Band 82 178 312.5 0 - 0.00% ow Band 82 74 46 0 - 0.00% ow Band 82 74 46 0 - 0.00% ow Band 32 254 292.5 0 - 0.00% ow Band 32 80 66 0 - 0.00% id-Band 180 180 251.5 0 - 0.00% ow Band 82</td> <td>Aid-Band 180 150 261.8 0 0 0 96,648 Total 262 224 307.8 0 - 0.00% 96,648 ow Band 82 62 44 0 - 0.00% 96,648 Mid-Band 170 140 266.5 0 - 0.00% 63,926 ow Band 82 18 56 0 - 0.00% 63,926 ow Band 82 18 56 0 - 0.00% 63,926 ow Band 82 17 46 0 - 0.00% 12,709 ow Band 82 74 46 0 - 0.00% 12,709 ow Band 82 254 292.5 0 - 0.00% 464,493 ow Band 32 80 66 0 - 0.00% 464,493 ow Band 32 80 56 0 -</td> <td>Aid-Band 180 150 261.8 0 0.00% 96,648 0.002445 Total 262 224 307.8 0 - 0.00% 96,648 0.002445 Mid-Band 170 140 266.5 0 - 0.00% 63,926 0.001617 ow Band 82 18 56 0 - 0.00% 63,926 0.001617 ow Band 82 18 56 0 - 0.00% 63,926 0.001617 ow Band 82 18 56 0 - 0.00% 63,926 0.001617 ow Band 82 178 312.5 0 - 0.00% 12,709 0.001617 ow Band 82 74 46 0 - 0.00% 12,709 0.000321 ow Band 82 74 46 0 - 0.00% 12,709 0.000321 ow Band 32 254 292.5 <td< td=""></td<></td>	Aid-Band 180 150 261.8 Total 262 224 307.8 ow Band 82 62 44 Aid-Band 170 140 266.5 Total 252 202 310.5 ow Band 82 18 56 Iid-Band 170 160 256.5 Total 252 178 312.5 ow Band 82 74 46 Aid-Band 200 180 246.5 Total 282 254 292.5 ow Band 32 80 66 Aid-Band 180 180 251.5 Total 212 260 317.5 ow Band 82 80 56 Aid-Band 190 150 258.7 Total 272 230 314.7 ow Band 82 74 46 Aid-Band 180 180 257	Mid-Band 180 150 261.8 0 Total 262 224 307.8 0 ow Band 82 62 44 0 Mid-Band 170 140 266.5 0 Total 252 202 310.5 0 ow Band 82 18 56 0 Mid-Band 170 160 256.5 0 Total 252 178 312.5 0 ow Band 82 74 46 0 Mid-Band 200 180 246.5 0 Total 282 254 292.5 0 ow Band 32 80 66 0 Mid-Band 180 251.5 0 Total 212 260 317.5 0 ow Band 82 80 56 0 Mid-Band 190 150 258.7 0 Total 27	Mid-Band 180 150 261.8 0 Total 262 224 307.8 0 - ow Band 82 62 44 0 - Mid-Band 170 140 266.5 0 - Total 252 202 310.5 0 - ow Band 82 18 56 0 0 - Total 252 178 312.5 0 -	Aid-Band 180 150 261.8 0 Total 262 224 307.8 0 - 0.00% ow Band 82 62 44 0 0 - 0.00% Mid-Band 170 140 266.5 0 - 0.00% ow Band 82 18 56 0 - 0.00% ow Band 82 18 56 0 - 0.00% ow Band 82 178 312.5 0 - 0.00% ow Band 82 74 46 0 - 0.00% ow Band 82 74 46 0 - 0.00% ow Band 32 254 292.5 0 - 0.00% ow Band 32 80 66 0 - 0.00% id-Band 180 180 251.5 0 - 0.00% ow Band 82	Aid-Band 180 150 261.8 0 0 0 96,648 Total 262 224 307.8 0 - 0.00% 96,648 ow Band 82 62 44 0 - 0.00% 96,648 Mid-Band 170 140 266.5 0 - 0.00% 63,926 ow Band 82 18 56 0 - 0.00% 63,926 ow Band 82 18 56 0 - 0.00% 63,926 ow Band 82 17 46 0 - 0.00% 12,709 ow Band 82 74 46 0 - 0.00% 12,709 ow Band 82 254 292.5 0 - 0.00% 464,493 ow Band 32 80 66 0 - 0.00% 464,493 ow Band 32 80 56 0 -	Aid-Band 180 150 261.8 0 0.00% 96,648 0.002445 Total 262 224 307.8 0 - 0.00% 96,648 0.002445 Mid-Band 170 140 266.5 0 - 0.00% 63,926 0.001617 ow Band 82 18 56 0 - 0.00% 63,926 0.001617 ow Band 82 18 56 0 - 0.00% 63,926 0.001617 ow Band 82 18 56 0 - 0.00% 63,926 0.001617 ow Band 82 178 312.5 0 - 0.00% 12,709 0.001617 ow Band 82 74 46 0 - 0.00% 12,709 0.000321 ow Band 82 74 46 0 - 0.00% 12,709 0.000321 ow Band 32 254 292.5 <td< td=""></td<>

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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	90	46	0					
Alameda	Mid-Band	200	150	266.5	0		0.000/	1 662 100	0.042067	0.000/
	Total Low Band	282 32	240 74	312.5 66	0	-	0.00%	1,663,190	0.042067	0.00%
Alpine	Mid-Band	180	160	252.2	0			1		
Alpino	Total	212	234	318.2	0	_	0.00%	1,120	0.000028	0.00%
	Low Band	32	74	46	0		0.0070	.,.20	0.000020	0.0070
Amador	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
	Low Band	82	74	46	0					
Butte	Mid-Band	180	150	266.5	0					
	Total	262	224	312.5	0	-	0.00%	229,294	0.005800	0.00%
	Low Band	32	80	66	0					
Calaveras	Mid-Band	180	150	266.5	0		0.000/	45.070	0.004455	0.000/
	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
Colusa	Low Band	82 180	62 180	46 256.5	0					
Colusa	Mid-Band Total	262	242	302.5	0	<u> </u>	0.00%	21,805	0.000552	0.00%
	Low Band	82	90	46	0	-	0.00%	21,000	0.000332	0.00%
Contra Costa	Mid-Band	200	150	266.5	0					
_ Ja 003ta	Total	282	240	312.5	0	-	0.00%	1,147,439	0.029022	0.00%
	Low Band	82	12	44	0		0.0070	.,,	J.J20022	5.0070
Del Norte	Mid-Band	170	150	177.5	0					
	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
	Low Band	82	74	46	0		/ -	,		
El Dorado	Mid-Band	180	180	256.5	0			<u> </u>		
	Total	262	254	302.5	0	-	0.00%	188,987	0.004780	0.00%
	Low Band	82	74	46	0					
Fresno	Mid-Band	160	180	256.5	0					
	Total	242	254	302.5	0	-	0.00%	989,255	0.025021	0.00%
	Low Band	82	62	46	0					
Glenn	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.042067 0.000028 0.000977 0.005800 0.001155 0.000552 0.0029022 0.000695	0.00%
	Low Band	82	18	56	0				0 0.042067 0 0.042067 0 0.000028 6 0.000977 4 0.005800 0 0.001155 5 0.000552 9 0.029022 0 0.000695 7 0.004780 5 0.025021 4 0.000711 4 0.003459 0 0.004624 6 0.000456 9 0.022590 1 0.003797 6 0.001625 3 0.000788 7 0.257065 0 0.003968 5 0.006600 9 0.000444 8 0.000226	
Humbolat	Mid-Band	170	170	203.1	0		0.000/	100.754		0.000/
	Total	252	188	259.1	0	-	0.00%	136,754	0.003459	0.00%
Imporial	Low Band	82	30	63	0					
Imperial	Mid-Band Total	180 262	190 220	165 228	0		0.00%	100 000	0.004634	0.000/
	Low Band	82	74	66	0	-	0.00%	182,830	0.004624	0.00%
Inyo	Mid-Band	150	130	177.5	0					
iiiyo	Total	232	204	243.5	0	 	0.00%	18,026	0.000456	0.00%
	Low Band	82	80	56	0		0.0070	10,020	0.000400	0.0070
Kern	Mid-Band	190	180	276.5	0					
	Total	272	260	332.5	0	_	0.00%	893,119	0.022590	0.00%
	Low Band	82	74	46	0		212270			
Kings	Mid-Band	170	210	200.9	0					
	Total	252	284	246.9	0	-	0.00%	150,101	0.003797	0.00%
	Low Band	82	18	56	0					
Lake	Mid-Band	200	150	220.9	0					
	Total	282	168	276.9	0	-	0.00%	64,246	0.001625	0.00%
	Low Band	32	12	66	0					
Lassen	Mid-Band	180	160	167.5	0					
	Total	212	172	233.5	0	-	0.00%	31,163	0.000788	0.00%
Lee Anci-li-	Low Band	82	80	56	0					
Los Angeles	Mid-Band	180	180	255.8	0		0.000/	10 100 507	90 0.042067 20 0.000028 20 0.000028 226 0.000977 294 0.005800 270 0.001155 283 0.029022 287 0.004780 287 0.004780 287 0.004780 287 0.004780 288 0.000711 288 0.000456 289 0.000456 290 0.000456 291 0.000456 292 0.000456 293 0.000456 294 0.000456 295 0.000456 296 0.000456 297 0.000788 298 0.000788 299 0.000788 299 0.000788 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968 299 0.0003968	0.000′
	Total	262	260	311.8	0	-	0.00%	10,163,507		0.00%
Madera	Low Band Mid-Band	32 140	74 210	46 236.5	0	-		 		
iviaU C I d	Total	172	284	282.5	0	_	0.00%	156,890	U UU3060	0.00%
	Low Band	82	90	46	0	<u> </u>	0.0076	130,030	0.003300	0.0076
Marin	Mid-Band	200	150	255	0					
	Total	282	240	301	0	_	0.00%	260,955	0.006600	0.00%
	Low Band	32	80	66	0	0.50%				
Mariposa	Mid-Band	170	170	256.5	0					
•	Total	202	250	322.5	0	-	0.00%	17,569	0.000444	0.00%
	Low Band	82	18	56	0			,		
Mendocino	Mid-Band	200	150	193.1	0					
	Total	282	168	249.1	0	-	0.00%	88,018	0.002226	0.00%
	Low Band	32	80	66	0					
Merced	Mid-Band	140	200	246.5	0					
	Total	172	280	312.5	0	-	0.00%	272,673	0.006897	0.00%
	Low Band	32	12	44	0					
Modoc	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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	66	0					
Mono	Mid-Band	150	160	167.5	0		0.000/	14 160	0.000350	0.000/
	Total Low Band	232 82	234 90	233.5 46	0	-	0.00%	14,168	0.000358	0.00%
Monterey	Mid-Band	170	180	225.7	0					
	Total	252	270	271.7	0	-	0.00%	437,907	0.011076	0.00%
	Low Band	82	90	46	0					
Napa	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	140,973	0.003566	0.00%
Marrada	Low Band	82	74	46	0	1				
Nevada	Mid-Band Total	180 262	180 254	256.5 302.5	0	-	0.00%	99,814	0.002525	0.00%
	Low Band	82	80	56	0	-	0.00%	99,014	0.002323	0.00%
Orange	Mid-Band	180	180	260.5	0					
	Total	262	260	316.5	0	-	0.00%	3,190,400	0.080695	0.00%
	Low Band	82	74	46	0					
Placer	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	386,166	0.009767	0.00%
Б.	Low Band	32	12	66	0					
Plumas	Mid-Band	180	160	238.7	0	1	0.000/	40.740	0.000474	0.000/
	Total	212 82	172 80	304.7	0	-	0.00%	18,742	0.000474	0.00%
Riverside	Low Band Mid-Band	180	180	56 266.5	0					
Taverside	Total	262	260	322.5	0	_	0.00%	2,423,266	0.061292	0.00%
	Low Band	82	74	46	0		0.0070	2,423,200	0.001232	0.0070
Sacramento	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	1,530,615	0.038714	0.00%
	Low Band	32	80	66	0					
San Benito	Mid-Band	170	180	210.7	0					
	Total	202	260	276.7	0	-	0.00%	60,310	0.001525	0.00%
	Low Band	82	80	56	0					
San Bernardino	Mid-Band	180	180	266.5	0		0.000/	0.457.404	0.054507	0.000/
	Total	262	260 74	322.5	0	-	0.00%	2,157,404	0.054567	0.00%
San Diego	Low Band Mid-Band	82 150	150	56 257	0					
Oan Diego	Total	232	224	313	0	-	0.00%	3,337,685	0.084420	0.00%
	Low Band	82	90	46	0		0.0070	0,007,000	0.001120	0.0070
San Francisco	Mid-Band	200	150	246.3	0					
	Total	282	240	292.3	0	-	0.00%	884,363	0.022368	0.00%
	Low Band	82	90	46	0					
San Joaquin	Mid-Band	180	150	276.5	0					
	Total	262	240	322.5	0	-	0.00%	745,424	0.018854	0.00%
0 L:- Obi	Low Band	32	80	56	0					
San Luis Obispo	Mid-Band	180	180	246.5	0	1	0.000/	000 405	0.007400	0.000/
	Total Low Band	212 82	260 90	302.5 46	0	-	0.00%	283,405	0.007168	0.00%
San Mateo	Mid-Band	200	150	266.5	0					
our mateo	Total	282	240	312.5	0	-	0.00%	771,410	0.019511	0.00%
	Low Band	32	80	56	0		0.0070	771,110	0.010011	0.0070
Santa Barbara	Mid-Band	220	150	256.5	0					
	Total	252	230	312.5	0	-	0.00%	448,150	0.011335	0.00%
	Low Band	82	90	46	0					
Santa Clara	Mid-Band	190	150	276.5	0			10		
	Total	272	240	322.5	0	-	0.00%	1,938,153	0.049022	0.00%
Santa Cruz	Low Band Mid-Band	82 170	90 180	46 256.5	0	+				
Jania Cluz	Total	252	270	302.5	0	-	0.00%	275,897	0.006978	0.00%
	Low Band	82	62	44	0	 	0.0070	210,001	0.000070	0.0070
Shasta	Mid-Band	170	140	266.5	0	1				
	Total	252	202	310.5	0	-	0.00%	179,921	0.004551	0.00%
	Low Band	82	74	66	0					
Sierra	Mid-Band	180	160	266.5	0		•		•	
	Total	262	234	332.5	0	-	0.00%	2,999	0.000076	0.00%
Cialdin	Low Band	82	12	44	0	+				
Siskiyou	Mid-Band Total	170	140	177.5	0	+	0.000/	40.050	0.001109	0.000/
	Total Low Band	252 82	152 90	221.5 46	0	-	0.00%	43,853	0.001109	0.00%
Solano	Mid-Band	200	150	266.5	0	+				
Colairo	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
	Low Band	82	90	46	0	1	0.0070	.40,400	0.011201	0.0070
Sonoma	Mid-Band	170	180	248.7	0	1				
	Total	252	270	294.7	0	-	0.00%	504,217	0.012753	0.00%
	Low Band	82	90	46	0					
Stanislaus	Mid-Band	150	220	261.5	0		•		•	
i i	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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	46	0					
Sutter	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	96,648	0.002445	0.00%
	Low Band	82	62	44	0					
Tehama	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
	Low Band	82	18	56	0					
Trinity	Mid-Band	170	160	256.5	0					
	Total	252	178	312.5	0	-	0.00%	12,709	0.000321	0.00%
	Low Band	82	74	46	0					
Tulare	Mid-Band	200	180	246.5	0					
	Total	282	254	292.5	0	-	0.00%	464,493	0.011748	0.00%
	Low Band	32	80	66	0					
Tuolumne	Mid-Band	180	180	251.5	0					
	Total	212	260	317.5	0	-	0.00%	54,248	0.001372	0.00%
	Low Band	82	80	56	0					
Ventura	Mid-Band	190	150	258.7	0					
	Total	272	230	314.7	0	-	0.00%	854,223	0.021606	0.00%
	Low Band	82	74	46	0					
Yolo	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	219,116	0.005542	0.00%
	Low Band	82	74	46	0					
Yuba	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%
Source: FCC Univ	ersal Licensing Syste	em; Joint Applicant	s' Appendix L-1 re	v. 7/5/18. NOTE: 1	The table uses da	ta 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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	90	46	30					
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	25.30	8.75%	1,663,190	0.042067	0.37%
	Low Band	32	74	66	6					
Alpine	Mid-Band	180	160	252.2	50	47.74	0.000/	4 400	0.000000	0.000/
	Total	212	234	318.2	56	17.71	6.83%	1,120	0.000028	0.00%
Amador	Low Band Mid-Band	32 180	74 180	46 251.8	0 50					
Amadoi	Total	212	254	297.8	50	15.82	6.14%	38,626	0.000977	0.01%
	Low Band	82	74	46	0	15.62	0.14%	30,020	0.000911	0.01%
Butte	Mid-Band	180	150	266.5	50					
Date	Total	262	224	312.5	50	15.82	5.89%	229,294	0.005800	0.03%
	Low Band	32	80	66	0	10.02	3.0370	223,234	0.003000	0.0370
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	50	15.82	6.06%	45,670	0.001155	0.01%
	Low Band	82	62	46	20			, , , , , , , , , , , , , , , , , , , ,		
Colusa	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	70	22.14	7.99%	21,805	0.000552	0.00%
	Low Band	82	90	46	30			·		
Contra Costa	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	25.30	8.75%	1,147,439	0.029022	0.25%
	Low Band	82	12	44	6					
Del Norte	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	56	17.71	8.10%	27,470	0.000695	0.01%
	Low Band	82	74	46	20					
El Dorado	Mid-Band	180	180	256.5	50		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·
	Total	262	254	302.5	70	22.14	7.88%	188,987	0.004780	0.04%
	Low Band	82	74	46	26					
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	76	24.04	8.69%	989,255	0.025021	0.22%
	Low Band	82	62	46	0					
Glenn	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	50	15.82	5.98%	28,094	0.000711	0.00%
	Low Band	82	18	56	10					
Humboldt	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	60	18.98	7.90%	136,754	0.003459	0.03%
	Low Band	82	30	63	0					
Imperial	Mid-Band	180	190	165	50	45.00	0.500/	100.000	0.004004	
	Total	262	220	228	50	15.82	6.58%	182,830	0.004624	0.03%
lavo	Low Band	82	74	66	6					
Inyo	Mid-Band	150	130 204	177.5	50 56	17.71	7.640/	10.000	0.000456	0.000/
	Total	232 82	80	243.5 56	20	17.71	7.61%	18,026	0.000456	0.00%
Kern	Low Band Mid-Band	190	180	276.5	50					
Rem	Total	272	260	332.5	70	22.14	7.49%	893,119	0.022590	0.17%
	Low Band	82	74	46	26	22.14	7.4370	093,119	0.022390	0.17 /0
Kings	Mid-Band	170	210	200.9	50					
rungo	Total	252	284	246.9	76	24.04	8.85%	150,101	0.003797	0.03%
	Low Band	82	18	56	10	2	0.0070	100,101	0.000.01	0.0070
Lake	Mid-Band	200	150	220.9	50	†				
	Total	282	168	276.9	60	18.98	7.62%	64,246	0.001625	0.01%
	Low Band	32	12	66	26		. = , v			, ,
Lassen	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	76	24.04	10.96%	31,163	0.000788	0.01%
	Low Band	82	80	56	20					
Los Angeles	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	70	22.14	7.75%	10,163,507	0.257065	1.99%
	Low Band	32	74	46	26					
Madera	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	76	24.04	9.33%	156,890	0.003968	0.04%
	Low Band	82	90	46	30		·			<u> </u>
Marin	Mid-Band	200	150	255	50					
	Total	282	240	301	80	25.30	8.86%	260,955	0.006600	0.06%
	Low Band	32	80	66	20	1				
Mariposa	Mid-Band	170	170	256.5	50	1				
	Total	202	250	322.5	70	22.14	8.29%	17,569	0.000444	0.00%
	Low Band	82	18	56	10	1				
Mendocino	Mid-Band	200	150	193.1	50	ļ				
	Total	282	168	249.1	60	18.98	7.90%	88,018	0.002226	0.02%
	Low Band	32	80	66	20	ļ				
Merced	Mid-Band	140	200	246.5	50	ļ				
	Total	172	280	312.5	70	22.14	8.39%	272,673	0.006897	0.06%
	Low Band	32	12	44	6					
Modoc	Mid-Band	150	100	177.5	50	4771	0.000/	0.050	0.000001	0.000/
	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 Spectrum Share

Dish Market Sha

2.55%

Dish BW Adj Factor

0.00000

(Values shown are in MegaHertz)

8.06%

Section Section Control Cont											
Monte Mont	County	Band	Verizon	AT&T	New T-Mobile	Dish					Dish Wtd Spectrm Share
Total								Onaro			- Critical Control
Low Sand S2 90 46 30	Mono						47.74	7.440/	44.400	0.000050	0.000/
Morie							17.71	7.41%	14,168	0.000358	0.00%
Total	Monterey										
Name	Workerey						25.30	9.16%	437.907	0.011076	0.10%
Total									,,,,,,		
Low Band 82 74 46 20	Napa	Mid-Band	200								
Micheand 180 180 286.5 50 2 7.85% 99.814 0.002525 0.02%							25.30	8.75%	140,973	0.003566	0.03%
Total	Navada										
Low Band S2	Nevada						00.44	7.000/	00.044	0.000505	0.000/
Mile Band 180 180 200 S 50							22.14	7.88%	99,814	0.002525	0.02%
Total 262 260 316.5 70 22.14 7.71% 3.190.400 0.08096\$ 0.62%	Orange						+				
Low Band 82	o.ago						22.14	7.71%	3.190.400	0.080695	0.62%
Total									, , , , , ,		
Low Band 32	Placer	Mid-Band	180	180	257	50					
Pluma							22.14	7.87%	386,166	0.009767	0.08%
Total											
Low Band 82 80 56 20	Plumas							= ===:	10 = 10		
Riverside Mid-Band 180 180 266.5 50							17./1	7.52%	18,742	0.000474	0.00%
Total 262 260 322.5 70 22.14 7.65% 2.423.266 0.061292 0.47%	Riverside										
Low Band 82 74 46 20	MVGISIUC						22 1/1	7.65%	2 423 266	0.061202	0.47%
Sarramento							22.14	7.03/0	۷,۶۷۵,۷۵۵	0.001232	0.41/0
Low Band 32 80 66 20	Sacramento						1				
San Benito				254			22.14	7.87%	1,530,615	0.038714	0.30%
Total		Low Band			66	20			, ,		
Low Band Regregation Reg	San Benito	Mid-Band	170	180	210.7	50					
Mid-Band 180 180 266.5 50							22.14	8.66%	60,310	0.001525	0.01%
Total											
Low Band 82 74 56 26	San Bernardino							= 0=0/	0.455.404	0.054505	0.100/
San Diego							22.14	7.65%	2,157,404	0.054567	0.42%
Total 232 224 313 76 24.04 8.99% 3,337,885 0.084420 0.76%	San Diogo						-				
San Francisco	San Diego						24.04	8 99%	3 337 685	0.084420	0.76%
Mid-Band 200 150 246.3 50							24.04	0.5576	3,557,005	0.004420	0.7070
San Joaquin Total 282 240 292.3 80 25.30 8.95% 884,363 0.022368 0.20%	San Francisco						1				
San Joaquin							25.30	8.95%	884,363	0.022368	0.20%
Total 262 240 322.5 80 25.30 8.84% 745,424 0.018854 0.17%		Low Band	82	90	46	30			,		
Low Band	San Joaquin	Mid-Band	180			50					
An Luis Obispo Mid-Band Total Total 212 260 302.5 70 22.14 8.29% 283,405 0.007168 0.06% Low Band 82 90 46 30 Mid-Band Total 282 240 312.5 80 25.30 8.75% 771,410 0.019511 0.17% Santa Barbara Low Band 32 80 56 20 Low Band 32 80 56 20 Low Band 82 90 46 30 Low Band 82 90 46 30 Santa Barbara Mid-Band 190 150 2552 230 312.5 70 22.14 8.10% 448,150 0.011335 0.09% Low Band 82 90 46 30 Santa Clara 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 Clara Mid-Band 170 180 256.5 50 Total 252 270 302.5 80 25.30 8.75% 1,938,153 0.049022 0.43% Santa Clara Mid-Band 170 180 256.5 50 Total 252 270 302.5 80 25.30 8.84% 275,897 0.006978 0.06% Shasta Mid-Band 170 140 266.5 50 Total 262 234 332.5 56 17.71 6.33% 2,999 0.004551 0.04% Siskiyou Mid-Band 180 190 160 266.5 50 Total 262 234 332.5 56 17.71 6.33% 2,999 0.00076 0.00% Siskiyou Mid-Band 170 140 177.5 50 10 10 10 10 10 177.5 50 10 10 10 10 10 10 10 10 10 10 10 10 10							25.30	8.84%	745,424	0.018854	0.17%
Total							1				
San Mate	an Luis Obispo						00.11	0.000/	000 405	0.007400	0.000/
Santa Barbara Mid-Band 200 150 266.5 50							22.14	8.29%	283,405	0.007168	0.06%
Total 282 240 312.5 80 25.30 8.75% 771,410 0.019511 0.17%	San Mateo										
Combined Combined	Carr Mateo						25.30	8 75%	771 410	0.019511	0.17%
Mid-Band 220							20.00	0.7070	771,410	0.010011	0.1770
Low Band Record	Santa Barbara										
Santa Clara Mid-Band 190 150 276.5 50 25.30 8.75% 1,938,153 0.049022 0.43% Santa Cruz Mid-Band 82 90 46 30	İ	Total	252	230	312.5	70	22.14	8.10%	448,150	0.011335	0.09%
Total 272 240 322.5 80 25.30 8.75% 1,938,153 0.049022 0.43%		Low Band	82	90	46	30					
Santa Cruz Mid-Band 170 180 256.5 50	Santa Clara										
Santa Cruz Mid-Band Total 170 180 256.5 50 25.30 8.84% 275,897 0.006978 0.06% Total 252 270 302.5 80 25.30 8.84% 275,897 0.006978 0.06% Bohata Mid-Band 170 140 266.5 50 <					1.0		25.30	8.75%	1,938,153	0.049022	0.43%
Total 252 270 302.5 80 25.30 8.84% 275,897 0.006978 0.06%	04- 0						1				
Shasta Low Band 82 62 44 16	Santa Cruz						05.00	0 0 40/	075 007	0.000070	0.000/
Shasta Mid-Band 170 140 266.5 50 Companies Companies <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>25.30</td><td>0.84%</td><td>2/5,89/</td><td>0.006978</td><td>0.06%</td></t<>							25.30	0.84%	2/5,89/	0.006978	0.06%
Total 252 202 310.5 66 20.88 7.95% 179,921 0.004551 0.04%	Shaeta						+				
Sierra Low Band 82 74 66 6	Gilasta						20.88	7 95%	179 921	0.004551	0.04%
Sierra Mid-Band 180 160 266.5 50 Total 262 234 332.5 56 17.71 6.33% 2,999 0.000076 0.00% Siskiyou Mid-Band 170 140 177.5 50							20.00	1.00/0	110,021	0.004001	J.UT /0
Total 262 234 332.5 56 17.71 6.33% 2,999 0.000076 0.00%	Sierra						1				
Siskiyou Low Band Mid-Band 82 12 44 6 17.75 50 17.71 8.22% 43,853 0.001109 0.01% 0.01% 0.001109 0.01% 0.01% 0.001109 0.01% 0.01 0.01% 0.01 0.01% 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>17.71</td> <td>6.33%</td> <td>2,999</td> <td>0.000076</td> <td>0.00%</td>							17.71	6.33%	2,999	0.000076	0.00%
Total 252 152 221.5 56 17.71 8.22% 43,853 0.001109 0.01%		Low Band	82	12	44	6					
Solano 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% Low Band 82 90 46 30	Siskiyou										-
Solano Mid-Band 200 150 266.5 50 15.82 5.65% 445,458 0.011267 0.06% Total 282 240 312.5 50 15.82 5.65% 445,458 0.011267 0.06% Low Band 82 90 46 30							17.71	8.22%	43,853	0.001109	0.01%
Total 282 240 312.5 50 15.82 5.65% 445,458 0.011267 0.06%							1				
Sonoma Low Band 82 90 46 30 Mid-Band 170 180 248.7 50	Solano						,	F 0=0:			
Sonoma Mid-Band 170 180 248.7 50							15.82	5.65%	445,458	0.011267	0.06%
Total 252 270 294.7 80 25.30 8.92% 504,217 0.012753 0.11% Low Band 82 90 46 0 <td< td=""><td>Sonoma</td><td></td><td></td><td></td><td></td><td></td><td>+</td><td></td><td></td><td></td><td></td></td<>	Sonoma						+				
Low Band 82 90 46 0 Stanislaus Mid-Band 150 220 261.5 50	Suriuma						05.00	0.000/	E04 047	0.040750	0.440/
Stanislaus Mid-Band 150 220 261.5 50							∠5.30	0.92%	504,217	0.012753	0.11%
	Stanislaus						+				
	314	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

(Values shown are in MegaHertz)

0.00000

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

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

							Dish			Dish Wto
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum Share	County Population	Population Weight	Spectrm Share
	Low Band	82	90	46	40		Snare			Snare
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	27.59	9.73%	1,663,190	0.042067	0.41%
	Low Band	32	74	66	16					
Alpine	Mid-Band	180	160	252.2	50	20.00	7.050/	4.400	0.000028	0.000/
	Total Low Band	212 32	234 74	318.2 46	66 10	20.23	7.95%	1,120	0.000028	0.00%
Amador	Mid-Band	180	180	251.8	50	+				
7 11110001	Total	212	254	297.8	60	18.39	7.28%	38,626	0.000977	0.01%
	Low Band	82	74	46	10	10.00				
Butte	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	60	18.39	6.99%	229,294	0.005800	0.04%
ļ	Low Band	32	80	66	10					
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	18.39	7.19%	45,670	0.001155	0.01%
Caluan	Low Band	82	62	46	30	+				
Colusa	Mid-Band Total	180	180	256.5	50	24.52	9.02%	24 905	0.000552	0.00%
	Low Band	262 82	242 90	302.5 46	80 40	24.52	9.02%	21,805	0.000552	0.00%
Contra Costa	Mid-Band	200	150	266.5	50	+				
23 300.00	Total	282	240	312.5	90	27.59	9.73%	1,147,439	0.029022	0.28%
	Low Band	82	12	44	16	27.00	/0	.,,400	3.023022	5.2070
Del Norte	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	66	20.23	9.41%	27,470	0.000695	0.01%
	Low Band	82	74	46	30					
El Dorado	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	24.52	8.90%	188,987	0.004780	0.04%
_	Low Band	82	74	46	36					
Fresno	Mid-Band	160	180	256.5	50	00.00	0.700/	000.055	0.005004	0.040/
	Total	242 82	254 62	302.5 46	86 10	26.36	9.72%	989,255	0.025021	0.24%
Glenn	Low Band Mid-Band	180	150	266.5	50	+				
Gleilii	Total	262	212	312.5	60	18.39	7.09%	28,094	0.000711	0.01%
	Low Band	82	18	56	20	10.00	7.0370	20,034	0.000711	0.0170
Humboldt	Mid-Band	170	170	203.1	50					
İ	Total	252	188	259.1	70	21.46	9.10%	136,754	0.003459	0.03%
	Low Band	82	30	63	7					
Imperial	Mid-Band	180	190	165	50					
	Total	262	220	228	57	17.47	7.43%	182,830	0.004624	0.03%
	Low Band	82	74	66	16					
Inyo	Mid-Band	150	130	177.5	50	00.00	0.050/	10.000	0.000450	0.000/
	Total	232	204	243.5	66	20.23	8.85%	18,026	0.000456	0.00%
Kern	Low Band Mid-Band	82 190	80 180	56 276.5	30 50	+				
Kem	Total	272	260	332.5	80	24.52	8.47%	893,119	0.022590	0.19%
	Low Band	82	74	46	36	24.32	0.4776	093,119	0.022390	0.1370
Kings	Mid-Band	170	210	200.9	50					
9-	Total	252	284	246.9	86	26.36	9.90%	150,101	0.003797	0.04%
	Low Band	82	18	56	20					
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	70	21.46	8.78%	64,246	0.001625	0.01%
ļ	Low Band	32	12	66	36					
Lassen	Mid-Band	180	160	167.5	50	200-	10.0007	24.42	0.000=0-	
	Total	212	172	233.5	86	26.36	12.22%	31,163	0.000788	0.01%
Los Angolos	Low Band	82	80	56	30	+ -				
Los Angeles	Mid-Band Total	180 262	180 260	255.8 311.8	50 80	24.52	8.75%	10,163,507	0.257065	2.25%
	Low Band	32	74	46	36	24.02	0.7370	10, 103,307	0.201005	2.20%
Madera	Mid-Band	140	210	236.5	50	+				
	Total	172	284	282.5	86	26.36	10.43%	156,890	0.003968	0.04%
	Low Band	82	90	46	40	25.50		.55,550	2.200000	3.0.7
Marin	Mid-Band	200	150	255	50					
	Total	282	240	301	90	27.59	9.86%	260,955	0.006600	0.07%
	Low Band	32	80	66	30					-
Mariposa	Mid-Band	170	170	256.5	50	1				
	Total	202	250	322.5	80	24.52	9.36%	17,569	0.000444	0.00%
Manda :	Low Band	82	18	56	20	1				
Mendocino	Mid-Band	200	150	193.1	50	04.40	0.400/	00.040	0.000000	0.000*
	Total	282	168	249.1	70	21.46	9.10%	88,018	0.002226	0.02%
Merced	Low Band Mid-Band	32	80	66 246 5	30	+				
ivierceu	Mid-Band Total	140 172	200 280	246.5 312.5	50 80	24.52	9.47%	272,673	0.006897	0.07%
	Low Band	32	12	312.5	16	24.52	9.4170	212,013	0.000097	0.07%
Modoc	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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	66	16					
Mono	Mid-Band Total	150 232	160 234	167.5 233.5	50 66	20.23	8.62%	14,168	0.000358	0.00%
	Low Band	82	90	46	40	20.23	0.02 /6	14,100	0.000330	0.00 /6
Monterey	Mid-Band	170	180	225.7	50					
-	Total	252	270	271.7	90	27.59	10.18%	437,907	0.011076	0.11%
	Low Band	82	90	46	40					
Napa	Mid-Band	200	150	266.5	50	07.50	0.700/	440.070	0.000500	0.000/
	Total Low Band	282 82	240 74	312.5 46	90 30	27.59	9.73%	140,973	0.003566	0.03%
Nevada	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	24.52	8.90%	99,814	0.002525	0.02%
	Low Band	82	80	56	30					
Orange	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 Mid-Band	82 180	74 180	46 257	30 50					
riacei	Total	262	254	303	80	24.52	8.90%	386,166	0.009767	0.09%
	Low Band	32	12	66	16	24.02	0.5070	300,100	0.003707	0.0370
Plumas	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	66	20.23	8.75%	18,742	0.000474	0.00%
	Low Band	82	80	56	30					<u> </u>
Riverside	Mid-Band	180	180	266.5	50			0.455.55		
	Total	262	260	322.5	80	24.52	8.65%	2,423,266	0.061292	0.53%
Sacramonto	Low Band Mid-Band	82 180	74 180	46 257	30 50					
Sacramento	Mid-Band Total	180 262	180 254	303	80	24.52	8.90%	1,530,615	0.038714	0.34%
	Low Band	32	80	66	30	24.32	0.9076	1,550,015	0.030714	0.34 /6
San Benito	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	80	24.52	9.77%	60,310	0.001525	0.01%
	Low Band	82	80	56	30					
San Bernardino	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	80	24.52	8.65%	2,157,404	0.054567	0.47%
O Di	Low Band	82	74	56	36					
San Diego	Mid-Band Total	150 232	150 224	257 313	50 86	26.36	10.06%	3,337,685	0.084420	0.85%
	Low Band	82	90	46	40	20.30	10.00%	3,337,000	0.064420	0.65%
San Francisco	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	90	27.59	9.95%	884,363	0.022368	0.22%
	Low Band	82	90	46	40					
San Joaquin	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	90	27.59	9.84%	745,424	0.018854	0.19%
O Luis Obissa	Low Band	32	80	56	30					
San Luis Obispo	Mid-Band	180	180	246.5	50 80	24.52	0.260/	202 405	0.007160	0.070/
	Total Low Band	212 82	260 90	302.5 46	40	24.52	9.36%	283,405	0.007168	0.07%
San Mateo	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	27.59	9.73%	771,410	0.019511	0.19%
	Low Band	32	80	56	30			,		
Santa Barbara	Mid-Band	220	150	256.5	50					
	Total	252	230	312.5	80	24.52	9.15%	448,150	0.011335	0.10%
Cont- Ol	Low Band	82	90	46	40					
Santa Clara	Mid-Band Total	190 272	150 240	276.5 322.5	50 90	27.59	9.73%	1,938,153	0.049022	0.48%
	Low Band	82	90	322.5 46	40	21.59	3.13%	1,330,103	0.049022	0.40%
Santa Cruz	Mid-Band	170	180	256.5	50	1				
	Total	252	270	302.5	90	27.59	9.84%	275,897	0.006978	0.07%
	Low Band	82	62	44	26					
Shasta	Mid-Band	170	140	266.5	50		·			
	Total	252	202	310.5	76	23.30	9.04%	179,921	0.004551	0.04%
0:-	Low Band	82	74	66	16	 				
Sierra	Mid-Band	180	160	266.5	50	20.22	7 200/	2.000	0.000070	0.000/
	Total Low Band	262 82	234 12	332.5 44	66 16	20.23	7.38%	2,999	0.000076	0.00%
Siskiyou	Mid-Band	170	140	177.5	50					
,	Total	252	152	221.5	66	20.23	9.54%	43,853	0.001109	0.01%
	Low Band	82	90	46	10			,		
Solano	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	60	18.39	6.71%	445,458	0.011267	0.08%
	Low Band	82	90	46	40					
Sonoma	Mid-Band	170	180	248.7	50		0.0007	F0.1.0.1=	0.010==	0.4004
Sonoma		252	270	294.7	90	27.59	9.93%	504,217	0.012753	0.13%
Johnna	Total				40	1				
Stanislaus	Low Band Mid-Band	82 150	90 220	46 261.5	10 50					

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

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

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 Adi

Dish BW Adj Factor

0.00000

							Dish			Dish Wto
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum	County Population	Population Weight	Spectrm
	Low Band	82	90	46	40		Share			Share
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	31.53	9.73%	1,663,190	0.042067	0.41%
	Low Band	32	74	66	16					
Alpine	Mid-Band	180	160	252.2	50	20.10		4 400		
	Total	212	234	318.2	66	23.12	7.95%	1,120	0.000028	0.00%
Amadar	Low Band	32	74	46	10 50	+				
Amador	Mid-Band Total	180 212	180 254	251.8 297.8	60	21.02	7.28%	38,626	0.000977	0.01%
	Low Band	82	74	46	10	21.02	1.2070	30,020	0.000377	0.0170
Butte	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	60	21.02	6.99%	229,294	0.005800	0.04%
	Low Band	32	80	66	10			, ,		
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	21.02	7.19%	45,670	0.001155	0.01%
	Low Band	82	62	46	30					
Colusa	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	80	28.02	9.02%	21,805	0.000552	0.00%
	Low Band	82	90	46	40					
Contra Costa	Mid-Band	200	150	266.5	50	04.50	0.700/	4 4 4 7 400	0.000000	0.0001
	Total	282	240	312.5	90	31.53	9.73%	1,147,439	0.029022	0.28%
Del Norte	Low Band	82 170	12 150	44 177.5	16 50	+				
Del Morte	Mid-Band Total	252	162	177.5 221.5	66	23.12	9.41%	27,470	0.000695	0.01%
	Low Band	82	74	221.5 46	30	23.12	5.41%	21,410	0.000095	0.01%
El Dorado	Mid-Band	180	180	256.5	50	+ +				
Li Dorado	Total	262	254	302.5	80	28.02	8.90%	188,987	0.004780	0.04%
	Low Band	82	74	46	36	20.02	0.0070	100,007	0.004700	0.0470
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	86	30.13	9.72%	989,255	0.025021	0.24%
	Low Band	82	62	46	10					
Glenn	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	60	21.02	7.09%	28,094	0.000711	0.01%
	Low Band	82	18	56	20					
Humboldt	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	70	24.52	9.10%	136,754	0.003459	0.03%
	Low Band	82	30	63	7					
Imperial	Mid-Band	180	190	165	50					
	Total	262	220	228	57	19.97	7.43%	182,830	0.004624	0.03%
	Low Band	82	74	66	16					
Inyo	Mid-Band	150	130	177.5	50	00.10	0.050/	10.000		
	Total	232	204	243.5	66	23.12	8.85%	18,026	0.000456	0.00%
I/ a wa	Low Band	82	80	56	30	+				
Kern	Mid-Band	190	180	276.5	50	20.02	0.470/	002 440	0.000500	0.100/
	Total Low Band	272 82	260 74	332.5 46	80 36	28.02	8.47%	893,119	0.022590	0.19%
Kings	Mid-Band	170	210	200.9	50	+				
rungs	Total	252	284	246.9	86	30.13	9.90%	150,101	0.003797	0.04%
	Low Band	82	18	56	20	30.13	3.3070	150,101	0.003737	0.0470
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	70	24.52	8.78%	64,246	0.001625	0.01%
	Low Band	32	12	66	36			,		
Lassen	Mid-Band	180	160	167.5	50	1				
	Total	212	172	233.5	86	30.13	12.22%	31,163	0.000788	0.01%
	Low Band	82	80	56	30					
Los Angeles	Mid-Band	180	180	255.8	50					
	Total	262	260	311.8	80	28.02	8.75%	10,163,507	0.257065	2.25%
	Low Band	32	74	46	36	1				
Madera	Mid-Band	140	210	236.5	50	 		,		
	Total	172	284	282.5	86	30.13	10.43%	156,890	0.003968	0.04%
Morie	Low Band	82	90	46	40	+ +				
Marin	Mid-Band	200	150	255	50	04.50	0.000/	200.055	0.000000	0.070/
	Total	282	240	301	90	31.53	9.86%	260,955	0.006600	0.07%
Mariposa	Low Band Mid-Band	32 170	80 170	66 256 5	30 50	+ +				
iviai ipusid		170	170	256.5 322.5		20.02	0.360/	17,569	0.000444	0.000/
	Total Low Band	202 82	250 18	322.5 56	80 20	28.02	9.36%	17,009	0.000444	0.00%
Mendocino	Mid-Band	200	150	193.1	50	+ +				
Mendodilo	Total	282	168	249.1	70	24.52	9.10%	88,018	0.002226	0.02%
	Low Band	32	80	66	30	24.02	J. 10 /0	00,016	0.002220	0.02 /0
Merced	Mid-Band	140	200	246.5	50	+				
	Total	172	280	312.5	80	28.02	9.47%	272,673	0.006897	0.07%
	Low Band	32	12	44	16	20.02	J17/0	212,013	0.000007	0.01 /0
Modoc	Mid-Band	150	100	177.5	50	1				
= =	Total	182	112	221.5	66	23.12	11.35%	8,859	0.000224	0.00%
								, 3,000		2.00/

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

							Diek			Dieb W/s
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share
	Low Band	82	74	66	16		Snare			Snare
Mono	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	66	23.12	8.62%	14,168	0.000358	0.00%
	Low Band	82	90	46	40					
Monterey	Mid-Band	170	180	225.7	50	0.4.50	10.100/	40=00=	0.0110=0	0.4404
	Total	252	270	271.7	90	31.53	10.18%	437,907	0.011076	0.11%
None	Low Band Mid-Band	82 200	90 150	46 266.5	40 50					
Napa	Total	282	240	312.5	90	31.53	9.73%	140,973	0.003566	0.03%
	Low Band	82	74	46	30	31.33	3.7370	140,573	0.000000	0.0070
Nevada	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	28.02	8.90%	99,814	0.002525	0.02%
	Low Band	82	80	56	30					
Orange	Mid-Band	180	180	260.5	50					
	Total	262	260	316.5	80	28.02	8.71%	3,190,400	0.080695	0.70%
	Low Band	82	74	46	30					
Placer	Mid-Band	180	180	257	50					
	Total	262	254	303	80	28.02	8.90%	386,166	0.009767	0.09%
	Low Band	32	12	66	16					
Plumas	Mid-Band	180	160	238.7	50	00.40	0.750/	10.710	0.000477	0.0001
	Total	212	172	304.7	66	23.12	8.75%	18,742	0.000474	0.00%
Riverside	Low Band	82 180	80 180	56 266 5	30 50	+		 		
rviverside	Mid-Band Total	180 262	260	266.5 322.5	80	28.02	8.65%	2,423,266	0.061292	0.53%
	Low Band	82	74	322.5 46	30	28.02	0.05%	2,423,266	0.061292	0.53%
Sacramento	Mid-Band	180	180	257	50	1				
Cacramento	Total	262	254	303	80	28.02	8.90%	1,530,615	0.038714	0.34%
	Low Band	32	80	66	30	20.02	0.5070	1,000,010	0.0007 14	0.0470
San Benito	Mid-Band	170	180	210.7	50					
•	Total	202	260	276.7	80	28.02	9.77%	60,310	0.001525	0.01%
	Low Band	82	80	56	30					
an Bernardino	Mid-Band	180	180	266.5	50					
•	Total	262	260	322.5	80	28.02	8.65%	2,157,404	0.054567	0.47%
	Low Band	82	74	56	36					
San Diego	Mid-Band	150	150	257	50					
	Total	232	224	313	86	30.13	10.06%	3,337,685	0.084420	0.85%
	Low Band	82	90	46	40					
San Francisco	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	90	31.53	9.95%	884,363	0.022368	0.22%
	Low Band	82	90	46	40					
San Joaquin	Mid-Band	180	150	276.5	50	0.4.50	0.040/	=1=101	0.0100=1	0.400/
	Total	262	240	322.5	90	31.53	9.84%	745,424	0.018854	0.19%
an Luis Obispo	Low Band	32	80	56	30					
an Luis Obispo	Mid-Band Total	180	180	246.5 302.5	50 80	28.02	9.36%	283,405	0.007168	0.070/
	Low Band	212 82	260 90	46	40	20.02	9.30%	203,405	0.007 100	0.07%
San Mateo	Mid-Band	200	150	266.5	50	1				
Carr Matco	Total	282	240	312.5	90	31.53	9.73%	771,410	0.019511	0.19%
	Low Band	32	80	56	30	01.00	0.7070	771,410	0.010011	0.1070
Santa Barbara	Mid-Band	220	150	256.5	50	1				
	Total	252	230	312.5	80	28.02	9.15%	448,150	0.011335	0.10%
	Low Band	82	90	46	40				-	
Santa Clara	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	90	31.53	9.73%	1,938,153	0.049022	0.48%
	Low Band	82	90	46	40					
Santa Cruz	Mid-Band	170	180	256.5	50					
	Total	252	270	302.5	90	31.53	9.84%	275,897	0.006978	0.07%
	Low Band	82	62	44	26	1				
Shasta	Mid-Band	170	140	266.5	50		0.0407	4=0.00:	0.00.1==:	0.01
	Total	252	202	310.5	76	26.62	9.04%	179,921	0.004551	0.04%
Siorro	Low Band	82	74	66	16	1		 		
Sierra	Mid-Band Total	180	160	266.5	50	22.42	7.38%	2,999	0.000076	0.000/
	Total Low Band	262 82	234 12	332.5 44	66 16	23.12	1.30%	2,999	0.000076	0.00%
Siskiyou	Mid-Band	170	140	177.5	50	1		 		
Jiskiyou	Total	252	152	221.5	66	23.12	9.54%	43,853	0.001109	0.01%
	Low Band	82	90	46	10	23.12	3.5470	43,003	0.001109	0.01%
Solano	Mid-Band	200	150	266.5	50	1		 		
00.0.10	Total	282	240	312.5	60	21.02	6.71%	445,458	0.011267	0.08%
	Low Band	82	90	46	40	21.02	0.7 170	-75,750	0.011201	0.00 /0
Sonoma	Mid-Band	170	180	248.7	50	1				
	Total	252	270	294.7	90	31.53	9.93%	504,217	0.012753	0.13%
	Low Band	82	90	46	10	31.00	2.0070	337,217	5.5.2700	5.1070
Stanislaus	Mid-Band	150	220	261.5	50	1		†		
	Total	232	310	307.5	60	21.02	6.60%	547,899	0.013858	0.09%
	101						070	,000	2.2.0000	3.007

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

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

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

							Dish			Dish Wt
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum Share	County Population	Population Weight	Spectrn Share
	Low Band	82	90	46	44		Snare			Snare
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	34.55	10.12%	1,663,190	0.042067	0.43%
	Low Band	32	74	66	20					
Alpine	Mid-Band	180	160	252.2	50	05.70	0.000/	4.400	0.000000	0.000/
	Total Low Band	212 32	234 74	318.2 46	70 14	25.73	8.39%	1,120	0.000028	0.00%
Amador	Mid-Band	180	180	251.8	50	+				
7 tilladoi	Total	212	254	297.8	64	23.52	7.73%	38,626	0.000977	0.01%
	Low Band	82	74	46	14			22,122		
Butte	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	23.52	7.42%	229,294	0.005800	0.04%
	Low Band	32	80	66	14					
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	23.52	7.63%	45,670	0.001155	0.01%
0.1	Low Band	82	62	46	34					
Colusa	Mid-Band	180	180	256.5	50	22.22	0.100/	24.225		0.010
	Total	262	242	302.5	84	30.88	9.43%	21,805	0.000552	0.01%
Contra Costa	Low Band	82	90	46	50 50	+				
COINIA CUSIA	Mid-Band Total	200 282	150 240	266.5 312.5	94	34.55	10.12%	1,147,439	0.029022	0.29%
	Low Band	82	12	312.5	20	ა4.აა	10.1270	1, 141,438	0.023022	0.23%
Del Norte	Mid-Band	170	150	177.5	50	+				
	Total	252	162	221.5	70	25.73	9.92%	27,470	0.000695	0.01%
	Low Band	82	74	46	34	200	0.0270	27,110	0.00000	0.017
El Dorado	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	30.88	9.31%	188,987	0.004780	0.04%
	Low Band	82	74	46	40					
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	90	33.08	10.13%	989,255	0.025021	0.25%
	Low Band	82	62	46	14					
Glenn	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	23.52	7.52%	28,094	0.000711	0.01%
	Low Band	82	18	56	24					
Humboldt	Mid-Band	170	170	203.1	50	07.00	0.570/	400 754	0.000450	0.000
	Total	252	188	259.1	74	27.20	9.57%	136,754	0.003459	0.03%
lean arial	Low Band	82	30	63	11	1				
Imperial	Mid-Band	180 262	190 220	165 228	50 61	22.42	7.040/	100 000	0.004634	0.040/
	Total Low Band	82	74	66	20	22.42	7.91%	182,830	0.004624	0.04%
Inyo	Mid-Band	150	130	177.5	50	+				
iliyo	Total	232	204	243.5	70	25.73	9.34%	18,026	0.000456	0.00%
	Low Band	82	80	56	34	20.10	3.3470	10,020	0.000430	0.00 /(
Kern	Mid-Band	190	180	276.5	50					
-	Total	272	260	332.5	84	30.88	8.86%	893,119	0.022590	0.20%
	Low Band	82	74	46	40			,		
Kings	Mid-Band	170	210	200.9	50					
-	Total	252	284	246.9	90	33.08	10.31%	150,101	0.003797	0.04%
	Low Band	82	18	56	24					
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	74	27.20	9.24%	64,246	0.001625	0.02%
	Low Band	32	12	66	40					
Lassen	Mid-Band	180	160	167.5	50	20.00	10.700/	04.400	0.000700	0.040
	Total	212	172	233.5	90	33.08	12.72%	31,163	0.000788	0.01%
Los Angeles	Low Band Mid-Band	82 180	80 180	56 255.8	34 50	+				
LUS AI IYEIES	Total	262	260	311.8	84	30.88	9.15%	10,163,507	0.257065	2.35%
	Low Band	32	74	46	40	30.00	J. 1J /0	10, 100,007	0.201000	2.007
Madera	Mid-Band	140	210	236.5	50	+				
	Total	172	284	282.5	90	33.08	10.86%	156,890	0.003968	0.04%
	Low Band	82	90	46	44	55.50		.55,550	2.200000	3.017
Marin	Mid-Band	200	150	255	50					
	Total	282	240	301	94	34.55	10.25%	260,955	0.006600	0.07%
	Low Band	32	80	66	34					
Mariposa	Mid-Band	170	170	256.5	50					
_	Total	202	250	322.5	84	30.88	9.78%	17,569	0.000444	0.00%
	Low Band	82	18	56	24					
Mendocino	Mid-Band	200	150	193.1	50		·			
	Total	282	168	249.1	74	27.20	9.57%	88,018	0.002226	0.02%
	Low Band	32	80	66	34	1				
Merced	Mid-Band	140	200	246.5	50	1				
	Total	172	280	312.5	84	30.88	9.90%	272,673	0.006897	0.07%
	Low Band	32	12	44	20	1				
Modoc	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%

.48% Dish BW Adj Factor

0.00000

							Disk			Disk WA
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share
	Low Band	82	74	66	20		Snare			Snare
Mono	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	70	25.73	9.10%	14,168	0.000358	0.00%
	Low Band	82	90	46	44					
Monterey	Mid-Band Total	170 252	180 270	225.7 271.7	50 94	34.55	10.59%	437,907	0.011076	0.100/
	Low Band	82	90	46	44	34.55	10.59%	437,907	0.011076	0.12%
Napa	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	34.55	10.12%	140,973	0.003566	0.04%
	Low Band	82	74	46	34					
Nevada	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	30.88	9.31%	99,814	0.002525	0.02%
	Low Band	82	80	56	34					
Orange	Mid-Band	180	180 260	260.5	50 84	20.00	0.110/	2 100 100	0.080695	0.720/
	Total Low Band	262 82	74	316.5 46	34	30.88	9.11%	3,190,400	0.060695	0.73%
Placer	Mid-Band	180	180	257	50					
	Total	262	254	303	84	30.88	9.30%	386,166	0.009767	0.09%
	Low Band	32	12	66	20	22.22		555,.55	3,333,31	
Plumas	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	70	25.73	9.23%	18,742	0.000474	0.00%
	Low Band	82	80	56	34					
Riverside	Mid-Band	180	180	266.5	50		0.0551	0.400.000	0.00/227	0.555
	Total Low Band	262 82	260 74	322.5 46	84 34	30.88	9.05%	2,423,266	0.061292	0.55%
Sacramento	Mid-Band	180	180	257	50	+				
Sacramento	Total	262	254	303	84	30.88	9.30%	1,530,615	0.038714	0.36%
	Low Band	32	80	66	34	00.00	0.0070	1,000,010	0.0007 14	0.0070
San Benito	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	84	30.88	10.21%	60,310	0.001525	0.02%
	Low Band	82	80	56	34					
an Bernardino	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	30.88	9.05%	2,157,404	0.054567	0.49%
O Di	Low Band	82	74	56	40					
San Diego	Mid-Band Total	150 232	150 224	257 313	50 90	33.08	10.48%	3,337,685	0.084420	0.88%
	Low Band	82	90	46	44	33.06	10.46%	3,337,000	0.064420	0.00%
San Francisco	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	94	34.55	10.35%	884,363	0.022368	0.23%
	Low Band	82	90	46	44			, , , , , , , , , , , , , , , , , , , ,		
San Joaquin	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	94	34.55	10.23%	745,424	0.018854	0.19%
	Low Band	32	80	56	34					
an Luis Obispo	Mid-Band	180	180	246.5	50	00.00	0.700/	000 405	0.007400	0.070/
	Total Low Band	212 82	260 90	302.5 46	84 44	30.88	9.78%	283,405	0.007168	0.07%
San Mateo	Mid-Band	200	150	266.5	50			1		
Oan Mateo	Total	282	240	312.5	94	34.55	10.12%	771.410	0.019511	0.20%
	Low Band	32	80	56	34	04.00	10.1270	771,410	0.010011	0.2070
Santa Barbara	Mid-Band	220	150	256.5	50					
İ	Total	252	230	312.5	84	30.88	9.56%	448,150	0.011335	0.11%
	Low Band	82	90	46	44					
Santa Clara	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 Cri-	Low Band	82	90	46	44	+				
Santa Cruz	Mid-Band Total	170 252	180 270	256.5 302.5	50 94	34.55	10.23%	275,897	0.006978	0.07%
	Low Band	82	62	302.5 44	30	34.00	10.23%	213,031	0.000870	0.01%
Shasta	Mid-Band	170	140	266.5	50	+				
	Total	252	202	310.5	80	29.41	9.47%	179,921	0.004551	0.04%
	Low Band	82	74	66	20					
Sierra	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	70	25.73	7.79%	2,999	0.000076	0.00%
G: 1.	Low Band	82	12	44	20	ļ				
Siskiyou	Mid-Band	170	140	177.5	50		40.0007	10.055	0.004105	0.010
	Total	252	152	221.5	70	25.73	10.06%	43,853	0.001109	0.01%
Solano	Low Band Mid-Band	82 200	90 150	46 266.5	14 50	+		 		
Julai IU	Total	282	240	312.5	64	23.52	7.12%	445,458	0.011267	0.08%
	Low Band	82	90	46	44	20.02	1.12/0	-75,750	0.011201	0.0070
Sonoma	Mid-Band	170	180	248.7	50	† †				
	Total	252	270	294.7	94	34.55	10.32%	504,217	0.012753	0.13%
	Low Band	82	90	46	14					
Stanislaus	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

(Values shown are in MegaHertz)

0.00000

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

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

							Dish			Dish Wt
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum	County Population	Population Weight	Spectrn
	Low Band	82	90	46	44		Share			Share
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	37.06	10.12%	1,663,190	0.042067	0.43%
	Low Band	32	74	66	20					
Alpine	Mid-Band	180	160	252.2	50	07.00				0.000
	Total	212	234	318.2	70	27.60	8.39%	1,120	0.000028	0.00%
Amadar	Low Band	32	74	46	14 50					
Amador	Mid-Band Total	180 212	180 254	251.8 297.8	64	25.23	7.73%	38,626	0.000977	0.01%
	Low Band	82	74	46	14	20.20	1.1370	30,020	0.000377	0.017
Butte	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	25.23	7.42%	229,294	0.005800	0.04%
	Low Band	32	80	66	14			-, -		
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	25.23	7.63%	45,670	0.001155	0.01%
	Low Band	82	62	46	34					
Colusa	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	84	33.12	9.43%	21,805	0.000552	0.01%
	Low Band	82	90	46	44					
Contra Costa	Mid-Band	200	150	266.5	50	07.00	10.100/	4 4 4 7 400		
	Total	282	240	312.5	94	37.06	10.12%	1,147,439	0.029022	0.29%
Del Norte	Low Band	82 170	12 150	44 177.5	20 50	+				
Delinoite	Mid-Band Total	252	162	177.5 221.5	70	27.60	9.92%	27,470	0.000695	0.01%
	Low Band	82 82	74	221.5 46	34	27.00	შ.შ∠%	21,410	0.000095	0.01%
El Dorado	Mid-Band	180	180	256.5	50	+ +				
Li Doiado	Total	262	254	302.5	84	33.12	9.31%	188,987	0.004780	0.04%
	Low Band	82	74	46	40	00.12	0.0170	100,007	0.004700	0.047
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	90	35.48	10.13%	989,255	0.025021	0.25%
	Low Band	82	62	46	14					
Glenn	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	25.23	7.52%	28,094	0.000711	0.01%
	Low Band	82	18	56	24					
Humboldt	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	74	29.17	9.57%	136,754	0.003459	0.03%
	Low Band	82	30	63	11					
Imperial	Mid-Band	180	190	165	50					
	Total	262	220	228	61	24.05	7.91%	182,830	0.004624	0.04%
	Low Band	82	74	66	20					
Inyo	Mid-Band	150	130	177.5	50	07.00		40.000		
	Total	232	204	243.5	70	27.60	9.34%	18,026	0.000456	0.00%
Konn	Low Band	82	80	56	34					
Kern	Mid-Band	190	180	276.5	50	22.42	0.000/	002 110	0.000500	0.200/
	Total Low Band	272 82	260 74	332.5 46	84 40	33.12	8.86%	893,119	0.022590	0.20%
Kings	Mid-Band	170	210	200.9	50					
Kings	Total	252	284	246.9	90	35.48	10.31%	150,101	0.003797	0.04%
	Low Band	82	18	56	24	55.40	10.5170	130,101	0.003737	0.047
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	74	29.17	9.24%	64,246	0.001625	0.02%
	Low Band	32	12	66	40			2 .,0		
Lassen	Mid-Band	180	160	167.5	50					
ļ	Total	212	172	233.5	90	35.48	12.72%	31,163	0.000788	0.01%
İ	Low Band	82	80	56	34					
Los Angeles	Mid-Band	180	180	255.8	50		<u>-</u>			
	Total	262	260	311.8	84	33.12	9.15%	10,163,507	0.257065	2.35%
п. П	Low Band	32	74	46	40					
Madera	Mid-Band	140	210	236.5	50	1				
	Total	172	284	282.5	90	35.48	10.86%	156,890	0.003968	0.04%
NAi	Low Band	82	90	46	44	1				1
Marin	Mid-Band	200	150	255	50	07.00	10.050/	000.055	0.000000	0.070
	Total	282	240	301	94	37.06	10.25%	260,955	0.006600	0.07%
Mariposa	Low Band	32	80	66 256 5	34	+ -				
iviai iposa	Mid-Band	170	170	256.5	50	22.40	0.700/	47 ECO	0.000444	0.000
	Total	202	250	322.5 56	84	33.12	9.78%	17,569	0.000444	0.00%
Mendocino	Low Band Mid-Band	82 200	18 150	56 193.1	24 50	+ -				·
MEHADORITO	Total	282	168	193.1 249.1	74	29.17	9.57%	88,018	0.002226	0.02%
	Low Band	32	80	66	34	23.17	3.31 70	00,010	0.002220	0.02%
Merced	Mid-Band	140	200	246.5	50	+ +				
Moroda	Total	172	280	312.5	84	33.12	9.90%	272,673	0.006897	0.07%
	Low Band	32	12	312.5	20	33.12	3.3070	212,013	0.000037	0.01%
Modoc	Mid-Band	150	100	177.5	50	+ -				
	Total	182	112	221.5	70	27.60	11.96%	8,859	0.000224	0.00%
	i Viai	102	1 14	££ 1.0	, 0	27.00	1 1.00 /0	0,000	0.000224	0.007

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

							Dieb			Dieb W/s
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share
	Low Band	82	74	66	20		Silare			Silare
Mono	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	70	27.60	9.10%	14,168	0.000358	0.00%
Montorou	Low Band	82 170	90 180	46 225.7	<u>44</u> 50	+				
Monterey	Mid-Band Total	252	270	271.7	94	37.06	10.59%	437,907	0.011076	0.12%
	Low Band	82	90	46	44	37.00	10.5576	437,307	0.011070	0.12/0
Napa	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	37.06	10.12%	140,973	0.003566	0.04%
	Low Band	82	74	46	34					
Nevada	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	33.12	9.31%	99,814	0.002525	0.02%
	Low Band	82	80	56	34					
Orange	Mid-Band Total	180 262	180 260	260.5 316.5	50 84	33.12	9.11%	3,190,400	0.080695	0.73%
	Low Band	82	74	46	34	33.12	9.11%	3,190,400	0.060695	0.73%
Placer	Mid-Band	180	180	257	50					
- 1.0.00	Total	262	254	303	84	33.12	9.30%	386,166	0.009767	0.09%
	Low Band	32	12	66	20		,	222,.22		
Plumas	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	70	27.60	9.23%	18,742	0.000474	0.00%
	Low Band	82	80	56	34					
Riverside	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 Mid-Band	82 180	74 180	46 257	34 50	+				
Sacramento	Total	262	254	303	84	33.12	9.30%	1,530,615	0.038714	0.36%
	Low Band	32	80	66	34	33.12	9.30%	1,550,615	0.0367 14	0.30 %
San Benito	Mid-Band	170	180	210.7	50	+				
	Total	202	260	276.7	84	33.12	10.21%	60,310	0.001525	0.02%
	Low Band	82	80	56	34			,		
San Bernardino	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	84	33.12	9.05%	2,157,404	0.054567	0.49%
	Low Band	82	74	56	40					
San Diego	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	+				
Sali Flancisco	Mid-Band Total	200 282	150 240	246.3 292.3	50 94	37.06	10.35%	884,363	0.022368	0.23%
	Low Band	82	90	46	44	37.00	10.33%	004,303	0.022300	0.23 %
San Joaquin	Mid-Band	180	150	276.5	50	+				
	Total	262	240	322.5	94	37.06	10.23%	745,424	0.018854	0.19%
	Low Band	32	80	56	34					
San Luis Obispo	Mid-Band	180	180	246.5	50					
	Total	212	260	302.5	84	33.12	9.78%	283,405	0.007168	0.07%
	Low Band	82	90	46	44					
San Mateo	Mid-Band	200	150	266.5	50	07.00	10.100/	774 440	0.040544	0.000/
	Total	282	240	312.5	94	37.06	10.12%	771,410	0.019511	0.20%
Santa Barbara	Low Band Mid-Band	32 220	80 150	56 256.5	34 50	+				
Carita Darbara	Total	252	230	312.5	84	33.12	9.56%	448,150	0.011335	0.11%
	Low Band	82	90	46	44	00.12	0.0070	440,100	0.011000	0.1170
Santa Clara	Mid-Band	190	150	276.5	50	†				
	Total	272	240	322.5	94	37.06	10.12%	1,938,153	0.049022	0.50%
	Low Band	82	90	46	44					
Santa Cruz	Mid-Band	170	180	256.5	50				_	
	Total	252	270	302.5	94	37.06	10.23%	275,897	0.006978	0.07%
05	Low Band	82	62	44	30	+ +				
Shasta	Mid-Band	170	140	266.5	50	04.54	0.470/	170 001	0.004551	0.040/
	Total Low Band	252 82	202 74	310.5 66	80 20	31.54	9.47%	179,921	0.004551	0.04%
Sierra	Mid-Band	180	160	266.5	50	+				
Ololla	Total	262	234	332.5	70	27.60	7.79%	2,999	0.000076	0.00%
	Low Band	82	12	44	20	27.50	0 /0	2,000	5.500070	3.00 /0
Siskiyou	Mid-Band	170	140	177.5	50	1				
<u> </u>	Total	252	152	221.5	70	27.60	10.06%	43,853	0.001109	0.01%
	Low Band	82	90	46	14					
Solano	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	64	25.23	7.12%	445,458	0.011267	0.08%
0	Low Band	82	90	46	44	1				
Sonoma	Mid-Band	170	180	248.7	50	07.00	40.000/	504.04=	0.010752	0.1001
	Total Low Band	252 82	270 90	294.7 46	94 14	37.06	10.32%	504,217	0.012753	0.13%
Stanislaus	Mid-Band	150	220	261.5	50	+				
Otal libiado	Total	232	310	307.5	64	25.23	7.01%	547,899	0.013858	0.10%
	10101	202	J 10	007.0	JT	20.20	7.01/0	UT1,000	0.010000	J. 10 /0

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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	46	34					
Sutter	Mid-Band	180	150	261.8	50					
	Total	262	224	307.8	84	33.12	9.57%	96,648	0.002445	0.02%
	Low Band	82	62	44	20					
Tehama	Mid-Band	170	140	266.5	50					1
	Total	252	202	310.5	70	27.60	8.39%	63,926	0.001617	0.01%
	Low Band	82	18	56	24					1
Trinity	Mid-Band	170	160	256.5	50					1
	Total	252	178	312.5	74	29.17	9.06%	12,709	0.000321	0.00%
	Low Band	82	74	46	40					
Tulare	Mid-Band	200	180	246.5	50					
	Total	282	254	292.5	90	35.48	9.80%	464,493	0.011748	0.12%
	Low Band	32	80	66	34					
Tuolumne	Mid-Band	180	180	251.5	50					1
	Total	212	260	317.5	84	33.12	9.62%	54,248	0.001372	0.01%
	Low Band	82	80	56	34					1
Ventura	Mid-Band	190	150	258.7	50					
	Total	272	230	314.7	84	33.12	9.33%	854,223	0.021606	0.20%
	Low Band	82	74	46	34					1
Yolo	Mid-Band	180	180	257	50					1
	Total	262	254	303	84	33.12	9.30%	219,116	0.005542	0.05%
	Low Band	82	74	46	14					1
Yuba	Mid-Band	180	150	261.8	50					1
	Total	262	224	307.8	64	25.23	7.46%	77,031	0.001948	0.01%
	versal Licensing System ot .include bandwidth inc		ducational Broadb	and System (EBS) b						

ETI DISH Ramp-Up Model

Best Case Sensitivity Results

Table A-1 - BEST CASE SENSITIVITY

CONSTANTS AND ASSUMPTIONS

		Sensitivity Adj	usted
SENSITIVITY ANALYSIS - 600 MHz Lease	Constants	Factor Co	nstant
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

						202	20					
	Jan	Feb	Mar A	pr M	lay	June Ju	uly A	ug Se	р С	oct N	ov D	ec
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	65,00	0 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	276,00	0 277,124	278,253	279,387	280,525	281,668	282,816	283,968	285,125	286,287	287,453	288,624
TOTAL MARKET	341,00	00 342,389	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	2,22	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	2,76	0 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	26	5 266	267	268	269	270	271	272	274	275	276	277
Postpaid-from market growth	1,12	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	6,37	7 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	44	6 446	446	447	447	448	449	449	450	451	452	452
Postpaid from churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid from growth	5	53	53	54	54	54	54	54	55	55	55	55
Postpaid from growth	-	-	-	-	-	-	-	-	-	-	-	-
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	9,30	0 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	27	9 286	292	298	304	310	316	322	327	332	338	343
Dish Postpaid churn	-	-	-	-	-	-	-	-	-	-	-	-
Prepaid End of Month	9,52	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	9,52	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	9% 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

							2021						
	Jan	Feb		Mar	Apr I	May .	June Ju	ıly A	ug S	Sep C	Oct N	lov D	ec
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	71,37
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	303,05
TOTAL MARKET	;	358,050	359,509	360,973	362,444	363,921	365,403	366,892	368,387	369,888	371,395	372,908	374,42
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	2,32
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	3,03
Prepaid from market growth		278	279	280	281	283	284	285	286	287	288	290	29
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	1,23
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	6,88
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH													
Prepaid from churn		453	454	455	456	457	458	459	461	462	463	464	46
Postpaid from churn		-	-	-	-	-	-	-	-	-	-	-	-
Prepaid from growth		56	56	56	56	57	57	57	57	57	58	58	5
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	13,18
Postpaid Beginning of Month	0.740	-	-	-	-	-	-	-	-	-	-	-	-
Dish prepaid Churn	3,746	348	352	357	362	366	371	375	379	383	388	392	39
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	13,31
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	13,31
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

							2022						
	Jai	n Feb		Mar A	or M	ay Jı	une July	A	ug Se	ер О	ct N	ov D	ec
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
Fotal prepaid subscribers		71,663	71,954	72,248	72,542	72,838	73,134	73,432	73,731	74,032	74,333	74,636	74,94
otal postpaid subscribers		304,290	305,530	306,774	308,024	309,279	310,539	311,804	313,075	314,350	315,631	316,917	318,20
TOTAL MARKET		375,953	377,484	379,022	380,566	382,117	383,674	385,237	386,806	388,382	389,964	391,553	393,14
DDRESSABLE NON-DISH CUSTOMERS													
repaid-from churn		2,334	2,341	2,348	2,354	2,361	2,369	2,376	2,383	2,391	2,398	2,406	2,4
ostpaid-from churn		3,043	3,054	3,066	3,078	3,090	3,101	3,113	3,125	3,137	3,149	3,162	3,1
repaid from market growth		292	293	294	296	297	298	299	300	302	303	304	30
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	1,29
otal Addressable customers		6,909	6,933	6,958	6,983	7,008	7,033	7,059	7,085	7,111	7,137	7,163	7,19
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH													
repaid from churn		467	468	470	471	472	474	475	477	478	480	481	48
ostpaid from churn		98	98	99	99	100	100	100	101	101	102	102	10
repaid from growth		58	59	59	59	59	60	60	60	60	61	61	(
ostpaid from growth		80	80	81	81	81	82	82	82	83	83	83	
DISH CUSTOMER COUNT													
repaid 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	14,58
ostpaid Beginning of Month		-	80	159	237	315	391	467	542	616	689	762	83
ish prepaid Churn	3,746	399	403	407	410	414	418	421	424	428	431	434	43
lish Postpaid churn		-	1	2	4	5	6	7	8	9	10	11	
repaid 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	14,6
ostpaid End of Month		80	159	237	315	391	467	542	616	689	762	834	9
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	15,5
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%	3.9

Table A-2 - BEST CASE SENSITIVITY

	Jan	Feb	Mar	Apr M	Мау	June J		ug S	ep O	ct	Nov D	ec
Dish Spectrum Share	18.1	6% 18.169	% 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	70.0				70.00%		70.00%	70.00%	70.00%	70.00%	70.00%	70.00
Total prepaid subscribers	75,2	46 75,552	75,860	76,169	76,479	76,791	77,104	77,418	77,733	78,050	78,368	78,68
Total postpaid subscribers	319,5			323,426	324,743	326,066	327,395	328,729	330,068	331,413	332,763	334,11
TOTAL MARKET	394,7	50 396,358	397,973	399,595	401,223	402,857	404,499	406,146	407,801	409,463	411,131	412,80
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn		22 2,430		2,447	2,455	2,463	2,472	2,481	2,489	2,498	2,507	2,51
Postpaid-from churn	3,1			3,216	3,226	3,236	3,246	3,257	3,267	3,278	3,288	3,29
Prepaid from market growth	3	107 308	309	310	312	313	314	315	317	318	319	32
Postpaid-from market growth	1,3	1,307	1,312	1,318	1,323	1,328	1,334	1,339	1,345	1,350	1,356	1,36
Total Addressable customers	7,2	16 7,24	7,265	7,290	7,315	7,341	7,366	7,392	7,418	7,444	7,470	7,49
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
Prepaid from churn	4	84 486	488	489	491	493	494	496	498	500	501	50
Postpaid from churn	4	05 406	3 407	409	410	411	413	414	415	417	418	41
Prepaid from growth		61 62	62	62	62	63	63	63	63	64	64	6
Postpaid from growth	3	331 332	2 334	335	336	338	339	340	342	343	345	34
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	14,6	94 14.799	14,903	15,005	15,106	15,206	15,305	15,403	15,500	15,597	15,692	15,78
Postpaid Beginning of Month		05 1,222		1,847	2,154	2,458	2,759	3,056	3,351	3,642	3,931	4,21
	3.746		,	,-		,	,	.,	-,		-,	,
Dish prepaid Churn		41 444	447	450	453	456	459	462	465	468	471	47
Dish Postpaid churn		14 18	3 23	28	32	37	41	46	50	55	59	6
Prepaid End of Month	14.7	99 14.903	15.005	15.106	15.206	15.305	15.403	15,500	15,597	15.692	15.787	15,88
Postpaid End of Month	1,2			2,154	2,458	2,759	3,056	3,351	3,642	3,931	4,217	4,49
TOTAL DISH SUBS	16,0			17,260	17,664	18,064	18,460	18,851	19,239	19,623	20,003	20,38
TOTAL DISH MARKET SHARE	4.0	06% 4.159	% 4.23%	4.32%	4.40%	4.48%	4.56%	4.64%	4.72%	4.79%	4.87%	4.9

Table A-2 - BEST CASE SENSITIVITY

						202	24					
	Jan	Feb	Mar	Apr	May			Aug S	Sep C	Oct I	Nov I	Dec
Dish Spectrum Share	18.16	18.169	% 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	70.009	% 70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%	70.00%
Total prepaid subscribers	79,00	8 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	335,48			339,597	340,980	342,370	343,764	345,165	346,571	347,983	349,401	350,824
TOTAL MARKET	414,48	8 416,176	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	2,52	5 2,534	1 2,543	2,553	2,562	2,572	2,581	2,591	2,601	2,610	2,620	2,630
Postpaid-from churn	3,31	0 3,321	1 3,332	3,343	3,354	3,365	3,376	3,388	3,399	3,411	3,422	3,434
Prepaid from market growth	32	2 323	325	326	327	328	330	331	333	334	335	337
Postpaid-from market growth	1,36	7 1,372	2 1,378	1,384	1,389	1,395	1,401	1,406	1,412	1,418	1,424	1,429
Total Addressable customers	7,52	4 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	50	5 507	7 509	511	512	514	516	518	520	522	524	526
Postpaid from churn	42	1 422	2 423	425	426	428	429	431	432	433	435	436
Prepaid from growth	6			65	65	66	66	66	67	67	67	67
Postpaid from growth	34	7 349	350	352	353	355	356	357	359	360	362	363
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	15,88	0 15,973	3 16,066	16,157	16,248	16,339	16,428	16,518	16,607	16,695	16,783	16,871
Postpaid Beginning of Month	4,49	9 4,779	5,057	5,331	5,603	5,872	6,138	6,402	6,664	6,923	7,179	7,433
3,7	746											
Dish prepaid Churn	47			485	487	490	493	496	498	501	503	506
Dish Postpaid churn	6	7 72	2 76	80	84	88	92	96	100	104	108	111
Prepaid End of Month	15,97	3 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	4,77	9 5,057	7 5,331	5,603	5,872	6,138	6,402	6,664	6,923	7,179	7,433	7,685
TOTAL DISH SUBS	20,75	3 21,122	2 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	% 5.089	% 5.14%	5.21%	5.27%	5.33%	5.40%	5.46%	5.52%	5.57%	5.63%	5.69%

Table A-2 - BEST CASE SENSITIVITY

ETI DISH RAMP-UP MODEL RESULTS

							2025						
	Jan	r Feb	Mai	r Apr	May	/ Jun	e July	Aug	Sep	0	ct Nov	, De	ec
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
	3,746												
Dish prepaid Churn		509	511	514	517	519	522	524	527	529	532	534	537
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

							202	26					
	Jan	Feb		Mar	Apr I	May	June .	July /	Aug	Sep C	Oct I	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		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		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		2,798	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		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		560	562	564	566	568	571	573	575	577
Postpaid from churn		477	478		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		18,237	18,321	18,406	18,490	18,574	18,658	18,742	18,826	18,911
Postpaid Beginning of Month	3,746	10,721	10,960	11,198	11,433	11,666	11,898	12,127	12,355	12,582	12,806	13,029	13,250
Dish prepaid Churn	3,740	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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp-	Dish Spectrum	County	Population	Dish Wtd Spectrm
,						up Adjusted	Share	Population	Weight	Share
Alameda	Low Band Mid-Band	82 200	90 150	46 266.5	0					
Alameda	Total	282	240	312.5	0	_	0.00%	1,663,190	0.042067	0.00%
	Low Band	32	74	66	0			, ,		
Alpine	Mid-Band	180	160	252.2	0					
	Total Low Band	212 32	234 74	318.2 46	0	-	0.00%	1,120	0.000028	0.00%
Amador	Mid-Band	180	180	251.8	0	+				
, and do	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
	Low Band	82	74	46	0					
Butte	Mid-Band	180	150	266.5	0		0.000/	222.224		
	Total	262 32	224	312.5 66	0	-	0.00%	229,294	0.005800	0.00%
Calaveras	Low Band Mid-Band	180	80 150	266.5	0	+				
	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
	Low Band	82	62	46	0			·		
Colusa	Mid-Band	180	180	256.5	0		0.000/	24.225		
	Total	262	242 90	302.5 46	0	-	0.00%	21,805	0.000552	0.00%
Contra Costa	Low Band Mid-Band	82 200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	1,147,439	0.029022	0.00%
	Low Band	82	12	44	0			, ,		
Del Norte	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 Mid-Band	82 180	74 180	46 256.5	0	+				
Li Doiado	Total	262	254	302.5	0	-	0.00%	188,987	0.004780	0.00%
	Low Band	82	74	46	0		0.007,0	,		
Fresno	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					
Gierin	Mid-Band Total	180 262	150 212	266.5 312.5	0	 -	0.00%	28,094	0.000711	0.00%
	Low Band	82	18	56	0		0.0070	20,004	0.000711	0.0070
Humboldt	Mid-Band	170	170	203.1	0					,
	Total	252	188	259.1	0	-	0.00%	136,754	0.003459	0.00%
	Low Band	82	30	63	0					
Imperial	Mid-Band Total	180 262	190 220	165 228	0	 -	0.00%	182,830	0.004624	0.00%
	Low Band	82	74	66	0	 	0.00%	162,630	0.004024	0.00%
Inyo	Mid-Band	150	130	177.5	0					
-	Total	232	204	243.5	0	-	0.00%	18,026	0.000456	0.00%
	Low Band	82	80	56	0					
Kern	Mid-Band Total	190 272	180 260	276.5 332.5	0	_	0.00%	893,119	0.022590	0.00%
	Low Band	82	74	46	0	-	0.00%	693,119	0.022390	0.00%
Kings	Mid-Band	170	210	200.9	0					
_	Total	252	284	246.9	0	-	0.00%	150,101	0.003797	0.00%
	Low Band	82	18	56	0					
Lake	Mid-Band Total	200 282	150 168	220.9 276.9	0	_	0.00%	64.246	0.001625	0.00%
	Low Band	32	12	66	0	-	0.00%	04,240	0.001625	0.00%
Lassen	Mid-Band	180	160	167.5	0					
	Total	212	172	233.5	0	-	0.00%	31,163	0.000788	0.00%
Lee Appele	Low Band	82	80	56	0	 				
Los Angeles	Mid-Band Total	180	180 260	255.8	0	_	0.00%	10,163,507	0.257065	0.000/
	Total Low Band	262 32	74	311.8 46	0	 	0.00%	10,103,507	0.23/005	0.00%
Madera	Mid-Band	140	210	236.5	0	1				
	Total	172	284	282.5	0	-	0.00%	156,890	0.003968	0.00%
	Low Band	82	90	46	0	1				
Marin	Mid-Band	200	150	255	0	+	0.000/	200.055	0.000000	0.000/
	Total Low Band	282 32	240 80	301 66	0	-	0.00%	260,955	0.006600	0.00%
Mariposa	Mid-Band	170	170	256.5	0	+				
	Total	202	250	322.5	0	-	0.00%	17,569	0.000444	0.00%
	Low Band	82	18	56	0					
Mendocino	Mid-Band	200	150	193.1	0	1	0.0007	20.01-	0.00000	0.000
	Total	282	168	249.1	0	-	0.00%	88,018	0.002226	0.00%
Merced	Low Band Mid-Band	32 140	80 200	66 246.5	0	+				
Wichold	Total	172	280	312.5	0	-	0.00%	272,673	0.006897	0.00%
	Low Band	32	12	44	0			,		
Modoc	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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	66	0		Snare			Snare
Mono	Mid-Band	150	160	167.5	0					
	Total	232	234	233.5	0	-	0.00%	14,168	0.000358	0.00%
Montorov	Low Band	82	90	46	0					
Monterey	Mid-Band Total	170 252	180 270	225.7 271.7	0	_	0.00%	437,907	0.011076	0.00%
	Low Band	82	90	46	0		0.0070	437,307	0.011070	0.0070
Napa	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	140,973	0.003566	0.00%
	Low Band	82	74	46	0					
Nevada	Mid-Band	180	180	256.5	0	_	0.00%	99,814	0.002525	0.00%
	Total Low Band	262 82	254 80	302.5 56	0	-	0.00%	99,014	0.002525	0.00%
Orange	Mid-Band	180	180	260.5	0					
ŭ	Total	262	260	316.5	0	-	0.00%	3,190,400	0.080695	0.00%
	Low Band	82	74	46	0					
Placer	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Low Band Mid-Band	32 180	12 160	66 238.7	0					
i iuiilas	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
	Low Band	82	80	56	0	1	0.5070	10,142	3.300414	3.0070
Riverside	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,423,266	0.061292	0.00%
	Low Band	82	74	46	0					
Sacramento	Mid-Band Total	180	180 254	257 303	0	1	0.00%	1.530.615	0.038714	0.000/
	Low Band	262 32	254 80	66	0	-	0.00%	1,530,615	0.038714	0.00%
San Benito	Mid-Band	170	180	210.7	0					
Can Donito	Total	202	260	276.7	0	-	0.00%	60,310	0.001525	0.00%
	Low Band	82	80	56	0		3.33,0	22,212		*******
San Bernardino	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,157,404	0.054567	0.00%
0 5:	Low Band	82	74	56	0					
San Diego	Mid-Band	150	150	257	0		0.000/	2 227 225	0.004400	0.000/
	Total Low Band	232 82	224 90	313 46	0	-	0.00%	3,337,685	0.084420	0.00%
San Francisco	Mid-Band	200	150	246.3	0					
	Total	282	240	292.3	0	-	0.00%	884,363	0.022368	0.00%
	Low Band	82	90	46	0			, , , , , , , , , , , , , , , , , , , ,		
San Joaquin	Mid-Band	180	150	276.5	0					
	Total	262	240	322.5	0	-	0.00%	745,424	0.018854	0.00%
San Luia Obiana	Low Band	32	80	56	0					
San Luis Obispo	Mid-Band Total	180 212	180 260	246.5 302.5	0	_	0.00%	283,405	0.007168	0.00%
	Low Band	82	90	46	0	-	0.00%	263,403	0.007 100	0.00%
San Mateo	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	771,410	0.019511	0.00%
	Low Band	32	80	56	0					
Santa Barbara	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	1				
Santa Clara	Mid-Band Total	190 272	150 240	276.5 322.5	0	-	0.00%	1,938,153	0.049022	0.00%
	Low Band	82	90	46	0	-	0.00 /0	1,550,155	0.043022	0.0070
Santa Cruz	Mid-Band	170	180	256.5	0			1		
	Total	252	270	302.5	0	-	0.00%	275,897	0.006978	0.00%
	Low Band	82	62	44	0					
Shasta	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	179,921	0.004551	0.00%
Siorro	Low Band	82	74	66	0	1				
Sierra	Mid-Band Total	180 262	160 234	266.5 332.5	0	-	0.00%	2,999	0.000076	0.00%
	Low Band	82	12	332.5	0	-	0.00%	2,559	0.000076	0.00%
Siskiyou	Mid-Band	170	140	177.5	0			†		
,	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
	Low Band	82	90	46	0					
Solano	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
Ţ	Low Band	82	90	46	0					
Sonoma	Mid-Band	170	180	248.7	0		0.000	50.10	0.010===	0.000:
	Total	252	270	294.7	0	-	0.00%	504,217	0.012753	0.00%
Stanislaus	Low Band Mid-Band	82 150	90 220	46 261.5	0			 		
Jamaaas	Total	232	310	307.5	0	-	0.00%	547,899	0.013858	0.00%
	ıvlaı	232	310	JUI .J	U		0.0070	541,039	0.013030	0.00%

Table 3-Redline-2020 Best Case Sensitivity

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

Dish Spectrum Share

Dish Market Sha

3.04%

Dish BW Adj Factor

0.00000

(Values shown are in MegaHertz)

0.00%

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	46	0					
Sutter	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	96,648	0.002445	0.00%
	Low Band	82	62	44	0					
Tehama	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
	Low Band	82	18	56	0					
Trinity	Mid-Band	170	160	256.5	0					
	Total	252	178	312.5	0	-	0.00%	12,709	0.000321	0.00%
	Low Band	82	74	46	0					
Tulare	Mid-Band	200	180	246.5	0					
	Total	282	254	292.5	0	-	0.00%	464,493	0.011748	0.00%
	Low Band	32	80	66	0					
Tuolumne	Mid-Band	180	180	251.5	0					
	Total	212	260	317.5	0	-	0.00%	54,248	0.001372	0.00%
	Low Band	82	80	56	0					
Ventura	Mid-Band	190	150	258.7	0					
	Total	272	230	314.7	0	-	0.00%	854,223	0.021606	0.00%
	Low Band	82	74	46	0					
Yolo	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	219,116	0.005542	0.00%
	Low Band	82	74	46	0					
Yuba	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%
Source: FCC Univ	Total versal Licensing Syst	262 em; Joint Applicar n licensed in the E	224 ats' Appendix L-1 i ducational Broadl	307.8 rev. 7/5/18. NOTE:	0 The table uses	data from the FCC	0.00%	77,031	0.001948	0.0

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

Alameda	County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
Tools											
Approx	Alameda							0.00%	1 663 100	0.042067	0.00%
Mode							-	0.00%	1,003,190	0.042007	0.00%
Low Band 32	Alpine										
Amador Mol-Band 180 180 251.8 0							-	0.00%	1,120	0.000028	0.00%
Trotal 212 254 297.8 0											
Low Band 82	Amador							0.000/	20 626	0.000077	0.000/
Mot-Band 180							-	0.00%	38,626	0.000977	0.00%
Total 262 224 312.5 0 - 0.00% 229.294 0.05800 0.00%	Butte										
Cale							-	0.00%	229,294	0.005800	0.00%
Total			32		66	0					
Column	Calaveras										
Column							-	0.00%	45,670	0.001155	0.00%
Total 822 942 300.5 0 - 0.00% 21.806 0.000552 0.00%	Colusa										
Contra Costa	Oolusa						_	0.00%	21 805	0.000552	0.00%
Total 282 240 312.5 0								0.0070	21,000	0.000002	0.0070
Del Norte	Contra Costa	Mid-Band	200	150	266.5	0					
Del Note Mid-Band 170 150 177.5 0							-	0.00%	1,147,439	0.029022	0.00%
Total	Dal No. 1										
El Dorado El Dorado Mid-Band Total 262 254 302.5 0 0 0.00% 188,987 0.004790 0.00% Fresno Mid-Band 160 180 256.5 0 0 0.00% 188,987 0.004790 0.00% Fresno Mid-Band 160 180 256.5 0 0 0.00% Mid-Band 160 180 256.5 0 0 0.00% Mid-Band 180 180 180 180 180 180 180 18	Del Norte							0.000/	07 470	0.00000	0.000/
El Dorado Total 262 254 302.5 0 - 0.00% 188.967 0.004780 0.00% Fresno Mid-Band 160 180 256.5 0 - 0.00% 188.967 0.004780 0.00% Mid-Band 160 180 256.5 0 - 0.00% 989.255 0.025021 0.00% Glenn Total 242 254 302.5 0 - 0.00% 989.255 0.025021 0.00% Glenn Mid-Band 180 150 266.5 0 - 0.00% 28.094 0.00711 0.00% Mid-Band 180 150 266.5 0 - 0.00% 28.094 0.00711 0.00% Humbold Mid-Band 82 18 56 0 - 0.00% 28.094 0.00711 0.00% Humbold Mid-Band 180 150 265.5 0 - 0.00% 28.094 0.00711 0.00% Humbold Mid-Band 180 150 265.5 0 - 0.00% 136.784 0.003459 0.00% Low Band 82 18 56 0 - 0.00% 136.784 0.003459 0.00% Imperial Low Band 180 190 165 0 - 0.00% 18.2830 0.004624 0.00% Imperial 262 220 228 0 - 0.00% 18.2830 0.004624 0.00% Imperial 262 220 228 0 - 0.00% 18.2830 0.004624 0.00% Mid-Band 180 190 190 165 0 - 0.00% 18.00% Mid-Band 150 130 177.5 0 - 0.00% 18.006 0.00% Kern Mid-Band 150 130 177.5 0 - 0.00% 18.026 0.00046 0.00% Kern Mid-Band 190 180 276.5 0 - 0.00% 893.119 0.022590 0.00% Kings Mid-Band 190 180 276.5 0 - 0.00% 893.119 0.022590 0.00% Kings Mid-Band 170 210 200.9 0 - 0.00% 150.101 0.003797 0.00% Lake Mid-Band 170 210 200.9 0 - 0.00% 150.101 0.003797 0.00% Lake Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Lake Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Lake Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Lake Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Lake Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Low Band 82 18 56 0 - 0.00% 150.101 0.003797 0.00% Low Band 82 18 56 0 - 0.00% 150.101 0.003797 0.00% Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Lake Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Mid-Band 180 180 256.5 0 - 0.00% 150.101 0.003797 0.00% Mid-Band 180 180 256.5 0 - 0.00% 150.000 0.00% 150.000 0.00% Mid-Band 140 200 150 255 0 - 0.000% 150.000 0.00% 1							-	0.00%	27,470	0.000695	0.00%
Total 262 254 302.5 0 - 0.00% 188.997 0.00780 0.00%	El Dorado										
Fresno Mid-Band 160 180 296.5 0 0 0.00% 989.255 0.025021 0.00% 180 296.5 0 0 0.00% 989.255 0.025021 0.00% 180 296.5 0 0 0.00% 989.255 0.025021 0.00% 180 296.5 0 0 0.00% 989.255 0.025021 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0.00% 180 286.5 0 0.00% 180 28	2. 20.000						-	0.00%	188,987	0.004780	0.00%
Total		Low Band	82	74	46	0					
Cient Cien	Fresno										
Glenn							-	0.00%	989,255	0.025021	0.00%
Total 262 212 312.5 0 - 0.00% 28,094 0.0071 0.00%	01										
Humbold Humb	Glenn							0.009/	29 004	0.000711	0.00%
Humboldt							-	0.00%	20,094	0.000711	0.00%
Total	Humboldt										
Imperial Mid-Band 180 190 165 0 - 0.00% 182,830 0.004624 0.00%							-	0.00%	136,754	0.003459	0.00%
Total 262 220 228 0 - 0,00% 182,830 0,004624 0,00% 180,830 0,004624 0,00% 180,830 0,004624 0,00% 180,830 150 130 177,5 0 0 0,00% 180,026 0,000% 180,026		Low Band	82	30	63	0					
Inyo	Imperial										
Inyo							-	0.00%	182,830	0.004624	0.00%
Total 232 204 243.5 0 - 0.00% 18,026 0.00456 0.00%	Invo										
Low Band	iriyo						_	0.00%	18 026	0.000456	0.00%
Kern Mid-Band 190 180 276.5 0 —							-	0.0076	10,020	0.000430	0.00 /6
Low Band Right R	Kern										
Mid-Band 170		Total	272	260		0	-	0.00%	893,119	0.022590	0.00%
Total 252 284 246.9 0 - 0.00% 150,101 0.003797 0.00%											
Low Band 82	Kings										
Lake Mid-Band 200 150 220.9 0 -							-	0.00%	150,101	0.003797	0.00%
Total	l ako										
Low Band 32 12 66 0	Lake						_	0.00%	64 246	0.001625	0.00%
Lassen								//	5.,2.0	2.30.020	2.2070
Low Band 82 80 56 0	Lassen	Mid-Band	180	160	167.5						
Mid-Band 180 180 255.8 0							-	0.00%	31,163	0.000788	0.00%
Total 262 260 311.8 0 - 0.00% 10,163,507 0.257065 0.00%	Lee Arreles						ļ				
Madera Low Band 32 74 46 0	Los Angeles							0.009/	10 162 507	0.257065	0.000/
Madera Mid-Band 140 210 236.5 0 - 0.00% 156,890 0.003968 0.00% Marin Mid-Band 82 90 46 0 - 0.00% 156,890 0.003968 0.00% Marin Mid-Band 200 150 255 0 - 0.00% 260,955 0.006600 0.00% Low Band 32 80 66 0 - 0.00% 260,955 0.006600 0.00% Mariposa Mid-Band 170 170 256.5 0 - 0.00% 260,955 0.006600 0.00% Mariposa Total 202 250 322.5 0 - 0.00% 17,569 0.00444 0.00% Mendocino Mid-Band 82 18 56 0 - 0.00% 17,569 0.00444 0.00% Mendocino Mid-Band 200 193.1 0 - 0.00% 88,018 0							-	0.00%	10,163,507	0.25/065	0.00%
Total	Madera										
Marin							-	0.00%	156,890	0.003968	0.00%
Total 282 240 301 0 - 0.00% 260,955 0.006600 0.00%											
Mariposa Low Band Mid-Band 32 80 66 0<	Marin	Mid-Band	200								
Mariposa Mid-Band 170 170 256.5 0 - 0.00% 17,569 0.000444 0.00% Low Band 82 18 56 0 - 0.00% 17,569 0.000444 0.00% Mendocino Mid-Band 200 150 193.1 0 - 0.00% 88,018 0.002226 0.00% Merced Low Band 32 80 66 0 - 0.00% 88,018 0.002226 0.00% Mid-Band 140 200 246.5 0 - 0.00% 272,673 0.006897 0.00% Low Band 32 12 44 0 - 0.00% 272,673 0.006897 0.00% Modoc Mid-Band 150 100 177.5 0 - 0.00% - 0.00%							-	0.00%	260,955	0.006600	0.00%
Total 202 250 322.5 0 - 0.00% 17,569 0.00444 0.00%	Mania										
Low Band 82 18 56 0	iviariposa							0.009/	17 560	0.000444	0.000/
Mendocino Mid-Band 200 150 193.1 0 - 0.00% 88,018 0.00226 0.00% Low Band 32 80 66 0 - 0.00% 88,018 0.00226 0.00% Mid-Band 140 200 246.5 0 - 0.00% 272,673 0.006897 0.00% Low Band 32 12 44 0 - 0.00% 272,673 0.006897 0.00% Modoc Mid-Band 150 100 177.5 0 - 0.00% -							-	0.00%	17,509	0.000444	0.00%
Total 282 168 249.1 0 - 0.00% 88,018 0.002226 0.00%	Mendocino										
Low Band 32 80 66 0							-	0.00%	88,018	0.002226	0.00%
Total 172 280 312.5 0 - 0.00% 272,673 0.006897 0.00% Low Band 32 12 44 0 <td></td> <td>Low Band</td> <td>32</td> <td>80</td> <td>66</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td>		Low Band	32	80	66	0					
Low Band 32 12 44 0 Image: Control of the contro	Merced							· ·			
Modoc Mid-Band 150 100 177.5 0							-	0.00%	272,673	0.006897	0.00%
	Mad										
	IVIOCOC	Mid-Band Total	150 182	100 112	177.5 221.5	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

(Values shown are in MegaHertz)

0.00000

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	66	0					
Mono	Mid-Band	150	160	167.5	0		0.000/	14 160	0.000350	0.000/
	Total Low Band	232 82	234 90	233.5 46	0	-	0.00%	14,168	0.000358	0.00%
Monterey	Mid-Band	170	180	225.7	0					
,	Total	252	270	271.7	0	-	0.00%	437,907	0.011076	0.00%
	Low Band	82	90	46	0					
Napa	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	140,973	0.003566	0.00%
Marrada	Low Band	82	74	46	0	1				
Nevada	Mid-Band Total	180 262	180 254	256.5 302.5	0	+	0.00%	99,814	0.002525	0.00%
	Low Band	82	80	56	0	-	0.00%	99,014	0.002323	0.00%
Orange	Mid-Band	180	180	260.5	0					
9-	Total	262	260	316.5	0	-	0.00%	3,190,400	0.080695	0.00%
	Low Band	82	74	46	0					
Placer	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	386,166	0.009767	0.00%
	Low Band	32	12	66	0					
Plumas	Mid-Band	180	160	238.7	0		0.000/	10 = 10		
	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
Riverside	Low Band	82	80	56	0	-				
IVIACIPING	Mid-Band Total	180 262	180 260	266.5 322.5	0	 -	0.00%	2,423,266	0.061292	0.00%
	Low Band	82	74	322.5 46	0	 	0.00%	۷,423,200	0.001282	0.00%
Sacramento	Mid-Band	180	180	257	0	†				
	Total	262	254	303	0	-	0.00%	1,530,615	0.038714	0.00%
	Low Band	32	80	66	0					
San Benito	Mid-Band	170	180	210.7	0					
	Total	202	260	276.7	0	-	0.00%	60,310	0.001525	0.00%
	Low Band	82	80	56	0					
San Bernardino	Mid-Band	180	180	266.5	0					
	Total	262	260	322.5	0	-	0.00%	2,157,404	0.054567	0.00%
San Diago	Low Band	82	74	56	0	+				
San Diego	Mid-Band Total	150 232	150 224	257 313	0	-	0.00%	3,337,685	0.084420	0.00%
	Low Band	82	90	46	0	 	0.0076	3,337,003	0.004420	0.00 /6
San Francisco	Mid-Band	200	150	246.3	0					
	Total	282	240	292.3	0	-	0.00%	884,363	0.022368	0.00%
	Low Band	82	90	46	0			,		
San Joaquin	Mid-Band	180	150	276.5	0					
	Total	262	240	322.5	0	-	0.00%	745,424	0.018854	0.00%
	Low Band	32	80	56	0					
San Luis Obispo	Mid-Band	180	180	246.5	0					
	Total	212	260	302.5	0	-	0.00%	283,405	0.007168	0.00%
Con Motos	Low Band	82	90	46	0					
San Mateo	Mid-Band Total	200 282	150 240	266.5 312.5	0	-	0.00%	771,410	0.019511	0.00%
	Low Band	32	80	56	0	-	0.00%	771,410	0.019311	0.00%
Santa Barbara	Mid-Band	220	150	256.5	0					
	Total	252	230	312.5	0	_	0.00%	448,150	0.011335	0.00%
	Low Band	82	90	46	0			.2,.20		,-
Santa Clara	Mid-Band	190	150	276.5	0					
	Total	272	240	322.5	0	-	0.00%	1,938,153	0.049022	0.00%
	Low Band	82	90	46	0					
Santa Cruz	Mid-Band	170	180	256.5	0	_	0.0007	0== 00=	0.00007-	0.000
	Total	252	270	302.5	0	-	0.00%	275,897	0.006978	0.00%
Chaste	Low Band	82	62	44 266 5	0	+				
Shasta	Mid-Band Total	170	140 202	266.5 310.5	0	+	0.00%	179.921	0.004551	0.000/
	Low Band	252 82	74	66	0	-	0.00%	179,921	0.004001	0.00%
Sierra	Mid-Band	180	160	266.5	0	+				
J.J.14	Total	262	234	332.5	0	-	0.00%	2,999	0.000076	0.00%
	Low Band	82	12	44	0	1		_,		
Siskiyou	Mid-Band	170	140	177.5	0					
·	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
	Low Band	82	90	46	0					
Solano	Mid-Band	200	150	266.5	0					
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
0	Low Band	82	90	46	0					
Sonoma	Mid-Band	170	180	248.7	0	+	0.000′	504.04	0.040750	0.000/
	Total	252	270 90	294.7	0	-	0.00%	504,217	0.012753	0.00%
	Low Band Mid-Band	82 150	220	46 261.5	0	+				
Stanislaus						•				

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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	46	0					
Sutter	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	96,648	0.002445	0.00%
	Low Band	82	62	44	0					
Tehama	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
	Low Band	82	18	56	0					
Trinity	Mid-Band	170	160	256.5	0					
	Total	252	178	312.5	0	-	0.00%	12,709	0.000321	0.00%
	Low Band	82	74	46	0					
Tulare	Mid-Band	200	180	246.5	0					
	Total	282	254	292.5	0	-	0.00%	464,493	0.011748	0.00%
	Low Band	32	80	66	0					
Tuolumne	Mid-Band	180	180	251.5	0					
	Total	212	260	317.5	0	-	0.00%	54,248	0.001372	0.00%
	Low Band	82	80	56	0					
Ventura	Mid-Band	190	150	258.7	0					
	Total	272	230	314.7	0	-	0.00%	854,223	0.021606	0.00%
	Low Band	82	74	46	0					
Yolo	Mid-Band	180	180	257	0					
	Total	262	254	303	0	-	0.00%	219,116	0.005542	0.00%
	Low Band	82	74	46	0					
Yuba	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%
Source: FCC Univ	versal Licensing Syste	em; Joint Applican	ts' Appendix L-1 re	ev. 7/5/18. NOTE:	The table uses d	ata 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

							Dish			Dish Wt
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum Share	County Population	Population Weight	Spectrn Share
	Low Band	82	90	46	30		Silare			Silare
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	37.27	8.75%	1,663,190	0.042067	0.37%
	Low Band	32	74	66	6					
Alpine	Mid-Band	180	160	252.2	50	00.00	0.000/	4.400	0.000028	0.000/
	Total Low Band	212 32	234 74	318.2 46	56 0	26.09	6.83%	1,120	0.000028	0.00%
Amador	Mid-Band	180	180	251.8	50	+				
, unadoi	Total	212	254	297.8	50	23.30	6.14%	38,626	0.000977	0.01%
	Low Band	82	74	46	0		211170	22,122		
Butte	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	50	23.30	5.89%	229,294	0.005800	0.03%
	Low Band	32	80	66	0					
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	50	23.30	6.06%	45,670	0.001155	0.01%
	Low Band	82	62	46	20					
Colusa	Mid-Band	180	180	256.5	50	00.00	7.000/	04.005	0.000550	0.000
	Total	262	242	302.5	70	32.62	7.99%	21,805	0.000552	0.00%
Contra Costa	Low Band Mid-Band	82 200	90 150	46 266.5	30 50	+				
Contra Costa	Total	282	240	312.5	80	37.27	8.75%	1,147,439	0.029022	0.25%
	Low Band	82	12	44	6	51.21	0.7370	1,147,400	0.023022	0.20 /(
Del Norte	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	56	26.09	8.10%	27,470	0.000695	0.01%
	Low Band	82	74	46	20	20.00	20,0		2.200000	3.0.7
El Dorado	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	70	32.62	7.88%	188,987	0.004780	0.04%
	Low Band	82	74	46	26					
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	76	35.41	8.69%	989,255	0.025021	0.22%
	Low Band	82	62	46	0					
Glenn	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	50	23.30	5.98%	28,094	0.000711	0.00%
	Low Band	82	18	56	10					
Humboldt	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	60	27.96	7.90%	136,754	0.003459	0.03%
	Low Band	82	30	63	0					
Imperial	Mid-Band	180	190	165	50	00.00	0.500/	400.000	0.004004	0.000
	Total	262 82	220	228 66	50 6	23.30	6.58%	182,830	0.004624	0.03%
Inyo	Low Band Mid-Band	150	74 130	177.5	50	+				
iliyo	Total	232	204	243.5	56	26.09	7.61%	18,026	0.000456	0.00%
	Low Band	82	80	56	20	20.09	7.0176	10,020	0.000430	0.00 /0
Kern	Mid-Band	190	180	276.5	50	+				
	Total	272	260	332.5	70	32.62	7.49%	893,119	0.022590	0.17%
	Low Band	82	74	46	26	02.02	111070	000,110	0.022000	
Kings	Mid-Band	170	210	200.9	50					
ŭ	Total	252	284	246.9	76	35.41	8.85%	150,101	0.003797	0.03%
	Low Band	82	18	56	10					
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	60	27.96	7.62%	64,246	0.001625	0.01%
	Low Band	32	12	66	26					
Lassen	Mid-Band	180	160	167.5	50	1				
	Total	212	172	233.5	76	35.41	10.96%	31,163	0.000788	0.01%
	Low Band	82	80	56	20	1				
Los Angeles	Mid-Band	180	180	255.8	50	20.00	7 750/	10 100 507	0.057005	4.000
	Total	262	260	311.8	70	32.62	7.75%	10,163,507	0.257065	1.99%
Madoro	Low Band	32	74	46 236.5	26	+				
Madera	Mid-Band Total	140 172	210 284	236.5 282.5	50 76	35.41	9.33%	156,890	0.003968	0.04%
	Low Band	82	90	46	30	30.41	3.3370	130,080	0.003800	0.047
Marin	Mid-Band	200	150	255	50	+ +				
	Total	282	240	301	80	37.27	8.86%	260,955	0.006600	0.06%
	Low Band	32	80	66	20	01.21	0.0070	200,000	2.200000	3.00 /
Mariposa	Mid-Band	170	170	256.5	50	†				
	Total	202	250	322.5	70	32.62	8.29%	17,569	0.000444	0.00%
	Low Band	82	18	56	10	32.02		,555		2.007
Mendocino	Mid-Band	200	150	193.1	50	1				
İ	Total	282	168	249.1	60	27.96	7.90%	88,018	0.002226	0.02%
	Low Band	32	80	66	20					
Merced	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	70	32.62	8.39%	272,673	0.006897	0.06%
	Low Band	32	12	44	6					
Modoc	Mid-Band	150	100	177.5	50			<u> </u>		
	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

							Dieb			Diele 1874
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share
	Low Band	82	74	66	6		Silare			Snare
Mono	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	56	26.09	7.41%	14,168	0.000358	0.00%
Montorou	Low Band	82 170	90 180	46 225.7	30 50	+				
Monterey	Mid-Band Total	252	270	271.7	80	37.27	9.16%	437,907	0.011076	0.10%
	Low Band	82	90	46	30	31.21	9.1076	437,307	0.011070	0.1076
Napa	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	80	37.27	8.75%	140,973	0.003566	0.03%
	Low Band	82	74	46	20					
Nevada	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	70	32.62	7.88%	99,814	0.002525	0.02%
0	Low Band	82	80	56	20					
Orange	Mid-Band Total	180 262	180 260	260.5 316.5	50 70	32.62	7.71%	3,190,400	0.080695	0.62%
1	Low Band	82	74	46	20	32.02	1.1170	3,190,400	0.060693	0.02 %
Placer	Mid-Band	180	180	257	50					
	Total	262	254	303	70	32.62	7.87%	386,166	0.009767	0.08%
	Low Band	32	12	66	6					
Plumas	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	56	26.09	7.52%	18,742	0.000474	0.00%
Ţ Ţ	Low Band	82	80	56	20	1				
Riverside	Mid-Band	180	180	266.5	50	20.00	7.050/	0.400.000	0.001000	0.4701
	Total Low Band	262 82	260 74	322.5 46	70 20	32.62	7.65%	2,423,266	0.061292	0.47%
Sacramento	Mid-Band	180	180	46 257	50	+				
Jacramento	Total	262	254	303	70	32.62	7.87%	1,530,615	0.038714	0.30%
	Low Band	32	80	66	20	52.02	7.0770	1,000,010	0.0307 14	0.50 /0
San Benito	Mid-Band	170	180	210.7	50					
Ī	Total	202	260	276.7	70	32.62	8.66%	60,310	0.001525	0.01%
	Low Band	82	80	56	20					
San Bernardino	Mid-Band	180	180	266.5	50					
	Total	262	260	322.5	70	32.62	7.65%	2,157,404	0.054567	0.42%
	Low Band	82	74	56	26					
San Diego	Mid-Band	150	150	257	50	25.44	0.000/	2 227 605	0.004400	0.700/
	Total Low Band	232 82	224 90	313 46	76 30	35.41	8.99%	3,337,685	0.084420	0.76%
San Francisco	Mid-Band	200	150	246.3	50	+				
Carri Tarroloco	Total	282	240	292.3	80	37.27	8.95%	884,363	0.022368	0.20%
	Low Band	82	90	46	30	01.27	0.0070	004,000	0.022000	0.2070
San Joaquin	Mid-Band	180	150	276.5	50					
	Total	262	240	322.5	80	37.27	8.84%	745,424	0.018854	0.17%
	Low Band	32	80	56	20					
San Luis Obispo	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 Mid-Band	82 200	90 150	46 266.5	30 50	-				
Sail Mateu	Total	282	240	312.5	80	37.27	8.75%	771,410	0.019511	0.17%
	Low Band	32	80	56	20	51.21	0.7370	771,410	0.013311	0.17 /0
Santa Barbara	Mid-Band	220	150	256.5	50					
Ī	Total	252	230	312.5	70	32.62	8.10%	448,150	0.011335	0.09%
	Low Band	82	90	46	30					
Santa Clara	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 C:::-	Low Band	82	90	46	30	+ +				
Santa Cruz	Mid-Band Total	170	180 270	256.5	50 80	37.27	Ω Ω 4 0 /	275,897	0.006978	0.06%
-	Total Low Band	252 82	62	302.5 44	80 16	31.21	8.84%	2/5,89/	0.00978	0.06%
Shasta	Mid-Band	170	140	266.5	50	+ +				
JJ.u	Total	252	202	310.5	66	30.75	7.95%	179,921	0.004551	0.04%
	Low Band	82	74	66	6	330		., 0,021	2.201001	2.0.70
Sierra	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	56	26.09	6.33%	2,999	0.000076	0.00%
	Low Band	82	12	44	6		· · · · · · · · · · · · · · · · · · ·			
Siskiyou	Mid-Band	170	140	177.5	50	1				
	Total	252	152	221.5	56	26.09	8.22%	43,853	0.001109	0.01%
Solana	Low Band	82	90	46	0	+ +				
Solano	Mid-Band Total	200	150	266.5	50 50	22.20	5.65%	AAE 4E0	0.011267	0.060/
+	Total Low Band	282 82	240 90	312.5 46	50 30	23.30	5.05%	445,458	U.U11207	0.06%
Sonoma	Mid-Band	170	180	248.7	50	+ +				
Conoma	Total	252	270	294.7	80	37.27	8.92%	504,217	0.012753	0.11%
	Low Band	82	90	46	0	51.21	0.02/0	507,217	0.012700	J.11/0
Stanislaus	Mid-Band	150	220	261.5	50	1				
ļ	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 Spectrum Share

Dish Market Sha

3.76%

Dish BW Adj Factor

0.00000

(Values shown are in MegaHertz)

8.06%

Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
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%
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%
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%
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%
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%
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%
Low Band	82	74	46	20				İ	
Mid-Band	180	180	257	50					
Total	262	254	303	70	32.62	7.87%	219,116	0.005542	0.04%
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%
	Low Band Mid-Band Total Low Band Mid-Band Total Low Band Mid-Band Total Low Band Mid-Band Total Low Band Mid-Band Total Low Band Mid-Band Total Low Band Mid-Band Total Low Band Mid-Band Total Low Band Mid-Band Total Low Band Mid-Band Total Low Band Mid-Band Mid-Band Total Low Band Mid-Band	Low Band 82 Mid-Band 180 Total 262 Low Band 82 Mid-Band 170 Total 252 Low Band 82 Mid-Band 170 Total 252 Low Band 82 Mid-Band 200 Total 282 Low Band 32 Mid-Band 180 Total 212 Low Band 82 Mid-Band 190 Total 272 Low Band 82 Mid-Band 180 Total 262 Low Band 82 Mid-Band 180 Total 262 Low Band 82 Mid-Band 180	Low Band 82 74 Mid-Band 180 150 Total 262 224 Low Band 82 62 Mid-Band 170 140 Total 252 202 Low Band 82 18 Mid-Band 170 160 Total 252 178 Low Band 82 74 Mid-Band 200 180 Total 282 254 Low Band 32 80 Mid-Band 180 180 Total 212 260 Low Band 82 80 Mid-Band 190 150 Total 272 230 Low Band 82 74 Mid-Band 180 180 Total 262 254 Low Band 82 74 Mid-Band 180 180 Total 262 254 </td <td>Low Band 82 74 46 Mid-Band 180 150 261.8 Total 262 224 307.8 Low Band 82 62 44 Mid-Band 170 140 266.5 Total 252 202 310.5 Low Band 82 18 56 Mid-Band 170 160 256.5 Total 252 178 312.5 Low Band 82 74 46 Mid-Band 200 180 246.5 Total 282 254 292.5 Low Band 32 80 66 Mid-Band 180 180 251.5 Total 212 260 317.5 Low Band 82 80 56 Mid-Band 190 150 258.7 Total 272 230 314.7 Low Band 82 74 46 <tr< td=""><td>Low Band 82 74 46 20 Mid-Band 180 150 261.8 50 Total 262 224 307.8 70 Low Band 82 62 44 6 Mid-Band 170 140 266.5 50 Total 252 202 310.5 56 Low Band 82 18 56 10 Mid-Band 170 160 256.5 50 Total 252 178 312.5 60 Low Band 82 74 46 26 Mid-Band 200 180 246.5 50 Total 282 254 292.5 76 Low Band 32 80 66 20 Mid-Band 180 251.5 50 Total 212 260 317.5 70 Low Band 82 80 56 20 Mid-Band<!--</td--><td> Low Band 82 74 46 20 </td><td> Low Band 82 74 46 20 261.8 50 Total 262 224 307.8 70 32.62 8.10% Low Band 82 62 44 6 6 Mid-Band 170 140 266.5 50 Total 252 202 310.5 56 26.09 6.83% Low Band 82 18 56 10 Mid-Band 170 160 256.5 50 Total 252 178 312.5 60 27.96 7.48% Low Band 82 74 46 26 Mid-Band 200 180 246.5 50 Total 282 254 292.5 76 35.41 8.40% Low Band 32 80 66 20 Mid-Band 180 180 251.5 70 32.62 8.14% Low Band 82 74 46 20 Mid-Band 180 150 258.7 50 Total 212 220 317.5 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 258.7 50 Total 272 230 314.7 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 257 50 Total 272 230 314.7 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 257 50 Total 262 254 303 70 32.62 7.87% Low Band 82 74 46 0 Mid-Band 180 180 257 50 Total 262 254 303 70 32.62 7.87% Low Band 82 74 46 0 Mid-Band 180 150 261.8 50 </td><td> Low Band 82 74 46 20 </td><td> Low Band 82 74 46 20 </td></td></tr<></td>	Low Band 82 74 46 Mid-Band 180 150 261.8 Total 262 224 307.8 Low Band 82 62 44 Mid-Band 170 140 266.5 Total 252 202 310.5 Low Band 82 18 56 Mid-Band 170 160 256.5 Total 252 178 312.5 Low Band 82 74 46 Mid-Band 200 180 246.5 Total 282 254 292.5 Low Band 32 80 66 Mid-Band 180 180 251.5 Total 212 260 317.5 Low Band 82 80 56 Mid-Band 190 150 258.7 Total 272 230 314.7 Low Band 82 74 46 <tr< td=""><td>Low Band 82 74 46 20 Mid-Band 180 150 261.8 50 Total 262 224 307.8 70 Low Band 82 62 44 6 Mid-Band 170 140 266.5 50 Total 252 202 310.5 56 Low Band 82 18 56 10 Mid-Band 170 160 256.5 50 Total 252 178 312.5 60 Low Band 82 74 46 26 Mid-Band 200 180 246.5 50 Total 282 254 292.5 76 Low Band 32 80 66 20 Mid-Band 180 251.5 50 Total 212 260 317.5 70 Low Band 82 80 56 20 Mid-Band<!--</td--><td> Low Band 82 74 46 20 </td><td> Low Band 82 74 46 20 261.8 50 Total 262 224 307.8 70 32.62 8.10% Low Band 82 62 44 6 6 Mid-Band 170 140 266.5 50 Total 252 202 310.5 56 26.09 6.83% Low Band 82 18 56 10 Mid-Band 170 160 256.5 50 Total 252 178 312.5 60 27.96 7.48% Low Band 82 74 46 26 Mid-Band 200 180 246.5 50 Total 282 254 292.5 76 35.41 8.40% Low Band 32 80 66 20 Mid-Band 180 180 251.5 70 32.62 8.14% Low Band 82 74 46 20 Mid-Band 180 150 258.7 50 Total 212 220 317.5 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 258.7 50 Total 272 230 314.7 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 257 50 Total 272 230 314.7 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 257 50 Total 262 254 303 70 32.62 7.87% Low Band 82 74 46 0 Mid-Band 180 180 257 50 Total 262 254 303 70 32.62 7.87% Low Band 82 74 46 0 Mid-Band 180 150 261.8 50 </td><td> Low Band 82 74 46 20 </td><td> Low Band 82 74 46 20 </td></td></tr<>	Low Band 82 74 46 20 Mid-Band 180 150 261.8 50 Total 262 224 307.8 70 Low Band 82 62 44 6 Mid-Band 170 140 266.5 50 Total 252 202 310.5 56 Low Band 82 18 56 10 Mid-Band 170 160 256.5 50 Total 252 178 312.5 60 Low Band 82 74 46 26 Mid-Band 200 180 246.5 50 Total 282 254 292.5 76 Low Band 32 80 66 20 Mid-Band 180 251.5 50 Total 212 260 317.5 70 Low Band 82 80 56 20 Mid-Band </td <td> Low Band 82 74 46 20 </td> <td> Low Band 82 74 46 20 261.8 50 Total 262 224 307.8 70 32.62 8.10% Low Band 82 62 44 6 6 Mid-Band 170 140 266.5 50 Total 252 202 310.5 56 26.09 6.83% Low Band 82 18 56 10 Mid-Band 170 160 256.5 50 Total 252 178 312.5 60 27.96 7.48% Low Band 82 74 46 26 Mid-Band 200 180 246.5 50 Total 282 254 292.5 76 35.41 8.40% Low Band 32 80 66 20 Mid-Band 180 180 251.5 70 32.62 8.14% Low Band 82 74 46 20 Mid-Band 180 150 258.7 50 Total 212 220 317.5 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 258.7 50 Total 272 230 314.7 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 257 50 Total 272 230 314.7 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 257 50 Total 262 254 303 70 32.62 7.87% Low Band 82 74 46 0 Mid-Band 180 180 257 50 Total 262 254 303 70 32.62 7.87% Low Band 82 74 46 0 Mid-Band 180 150 261.8 50 </td> <td> Low Band 82 74 46 20 </td> <td> Low Band 82 74 46 20 </td>	Low Band 82 74 46 20	Low Band 82 74 46 20 261.8 50 Total 262 224 307.8 70 32.62 8.10% Low Band 82 62 44 6 6 Mid-Band 170 140 266.5 50 Total 252 202 310.5 56 26.09 6.83% Low Band 82 18 56 10 Mid-Band 170 160 256.5 50 Total 252 178 312.5 60 27.96 7.48% Low Band 82 74 46 26 Mid-Band 200 180 246.5 50 Total 282 254 292.5 76 35.41 8.40% Low Band 32 80 66 20 Mid-Band 180 180 251.5 70 32.62 8.14% Low Band 82 74 46 20 Mid-Band 180 150 258.7 50 Total 212 220 317.5 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 258.7 50 Total 272 230 314.7 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 257 50 Total 272 230 314.7 70 32.62 7.89% Low Band 82 74 46 20 Mid-Band 180 180 257 50 Total 262 254 303 70 32.62 7.87% Low Band 82 74 46 0 Mid-Band 180 180 257 50 Total 262 254 303 70 32.62 7.87% Low Band 82 74 46 0 Mid-Band 180 150 261.8 50	Low Band 82 74 46 20	Low Band 82 74 46 20

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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	90	46	40		Onare			Onaro
Alameda	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 Mid-Band	32 180	74 160	66 252.2	16 50					
Aipine	Total	212	234	318.2	66	32.23	7.95%	1,120	0.000028	0.00%
	Low Band	32	74	46	10	02.20	7.0070	1,120	0.000020	0.0070
Amador	Mid-Band	180	180	251.8	50					
	Total	212	254	297.8	60	29.30	7.28%	38,626	0.000977	0.01%
D #	Low Band	82	74	46	10					
Butte	Mid-Band	180	150	266.5	50	20.20	0.000/	229.294	0.005800	0.040/
	Total Low Band	262 32	224 80	312.5 66	60 10	29.30	6.99%	229,294	0.005800	0.04%
Calaveras	Mid-Band	180	150	266.5	50	+				
	Total	212	230	332.5	60	29.30	7.19%	45,670	0.001155	0.01%
	Low Band	82	62	46	30					
Colusa	Mid-Band	180	180	256.5	50					
	Total	262	242	302.5	80	39.06	9.02%	21,805	0.000552	0.00%
0	Low Band	82	90	46	40					
Contra Costa	Mid-Band Total	200 282	150 240	266.5	50 90	43.95	9.73%	1 147 420	0.029022	0.28%
	Low Band	82	12	312.5 44	16	43.95	9.73%	1,147,439	0.029022	0.26%
Del Norte	Mid-Band	170	150	177.5	50	+				
	Total	252	162	221.5	66	32.23	9.41%	27,470	0.000695	0.01%
	Low Band	82	74	46	30			,		
El Dorado	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	39.06	8.90%	188,987	0.004780	0.04%
F	Low Band	82	74	46	36					
Fresno	Mid-Band Total	160 242	180 254	256.5 302.5	50 86	41.99	9.72%	989,255	0.025021	0.24%
	Low Band	82	62	46	10	41.99	9.7270	969,255	0.023021	0.24 %
Glenn	Mid-Band	180	150	266.5	50	+				
	Total	262	212	312.5	60	29.30	7.09%	28,094	0.000711	0.01%
	Low Band	82	18	56	20					
Humboldt	Mid-Band	170	170	203.1	50					
	Total	252	188	259.1	70	34.18	9.10%	136,754	0.003459	0.03%
lean arial	Low Band	82	30	63	7					
Imperial	Mid-Band Total	180 262	190 220	165 228	50 57	27.83	7.43%	182,830	0.004624	0.03%
	Low Band	82	74	66	16	21.03	1.43%	102,030	0.004624	0.03%
Inyo	Mid-Band	150	130	177.5	50					
,	Total	232	204	243.5	66	32.23	8.85%	18,026	0.000456	0.00%
	Low Band	82	80	56	30					
Kern	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 Mid-Band	82 170	74 210	46 200.9	36 50	+				
Kings	Total	252	284	246.9	86	41.99	9.90%	150,101	0.003797	0.04%
	Low Band	82	18	56	20	41.00	0.0070	100,101	0.000707	0.0470
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	70	34.18	8.78%	64,246	0.001625	0.01%
	Low Band	32	12	66	36					
Lassen	Mid-Band	180	160	167.5	50	11.00	10.000/	04.400		
	Total	212	172	233.5	86	41.99	12.22%	31,163	0.000788	0.01%
Los Angeles	Low Band Mid-Band	180	180	56 255.8	30 50	+				
Los Angeles	Total	262	260	311.8	80	39.06	8.75%	10,163,507	0.257065	2.25%
	Low Band	32	74	46	36	30.00	/0	, ,	3.207000	
Madera	Mid-Band	140	210	236.5	50					
	Total	172	284	282.5	86	41.99	10.43%	156,890	0.003968	0.04%
	Low Band	82	90	46	40					
Marin	Mid-Band	200	150	255	50	40.0-	0.000/	000.055	0.00000	0.070/
	Total	282	240	301	90	43.95	9.86%	260,955	0.006600	0.07%
Mariposa	Low Band Mid-Band	32 170	80 170	66 256.5	30 50	+				
aripoda	Total	202	250	322.5	80	39.06	9.36%	17,569	0.000444	0.00%
	Low Band	82	18	56	20	55.50	0.0070	17,000	3.300114	0.0070
Mendocino	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	70	34.18	9.10%	88,018	0.002226	0.02%
	Low Band	32	80	66	30					-
Merced	Mid-Band	140	200	246.5	50	<u> </u>				
	Total	172	280	312.5	80	39.06	9.47%	272,673	0.006897	0.07%
Modoc	Low Band Mid-Band	32 150	12 100	44 177.5	16 50	+				
IVIOUOG	Total	150 182	112	221.5	66	32.23	11.35%	8,859	0.000224	0.00%
	iolai	102	114	44 I.U	JU	32.23	11.00/0	0,039	0.000224	0.00 /0

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

	Dish Dawn Dish County Deputation Dish											
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share		
	Low Band	82	74	66	16		Silare			Silare		
Mono	Mid-Band	150	160	167.5	50							
	Total	232	234	233.5	66	32.23	8.62%	14,168	0.000358	0.00%		
Montorou	Low Band	82 170	90 180	46 225.7	40 50	+						
Monterey	Mid-Band Total	252	270	271.7	90	43.95	10.18%	437,907	0.011076	0.11%		
	Low Band	82	90	46	40	40.00	10.1070	401,001	0.011070	0.1170		
Napa	Mid-Band	200	150	266.5	50							
· ·	Total	282	240	312.5	90	43.95	9.73%	140,973	0.003566	0.03%		
	Low Band	82	74	46	30							
Nevada	Mid-Band	180	180	256.5	50							
	Total	262	254	302.5	80	39.06	8.90%	99,814	0.002525	0.02%		
Oranga	Low Band Mid-Band	82 180	80 180	56 260.5	30 50	+						
Orange	Total	262	260	316.5	80	39.06	8.71%	3,190,400	0.080695	0.70%		
	Low Band	82	74	46	30	55.00	0.7 170	3,130,400	0.000033	0.7070		
Placer	Mid-Band	180	180	257	50							
F	Total	262	254	303	80	39.06	8.90%	386,166	0.009767	0.09%		
	Low Band	32	12	66	16							
Plumas	Mid-Band	180	160	238.7	50							
	Total	212	172	304.7	66	32.23	8.75%	18,742	0.000474	0.00%		
Diverside	Low Band	82	80	56	30	+						
Riverside	Mid-Band Total	180 262	180 260	266.5 322.5	50 80	39.06	8.65%	2,423,266	0.061292	0.53%		
	Low Band	82	74	322.5 46	30	39.06	0.00%	Z,4Z3,Z00	0.001292	0.53%		
Sacramento	Mid-Band	180	180	257	50	+						
	Total	262	254	303	80	39.06	8.90%	1,530,615	0.038714	0.34%		
	Low Band	32	80	66	30							
San Benito	Mid-Band	170	180	210.7	50							
	Total	202	260	276.7	80	39.06	9.77%	60,310	0.001525	0.01%		
	Low Band	82	80	56	30							
San Bernardino	Mid-Band	180	180	266.5	50	00.00	0.050/	0.457.404	0.054507	0.470/		
	Total Low Band	262 82	260 74	322.5 56	80 36	39.06	8.65%	2,157,404	0.054567	0.47%		
San Diego	Mid-Band	150	150	257	50	+						
Cuil Biogo	Total	232	224	313	86	41.99	10.06%	3,337,685	0.084420	0.85%		
	Low Band	82	90	46	40	11.00	10.0070	0,007,000	0.001120	0.0070		
San Francisco	Mid-Band	200	150	246.3	50							
	Total	282	240	292.3	90	43.95	9.95%	884,363	0.022368	0.22%		
	Low Band	82	90	46	40							
San Joaquin	Mid-Band	180	150	276.5	50	10.05		= . =	0.0100=1	0.100/		
	Total	262	240	322.5	90	43.95	9.84%	745,424	0.018854	0.19%		
San Luis Obispo	Low Band Mid-Band	32 180	80 180	56 246.5	30 50	+						
Dan Luis Obispo	Total	212	260	302.5	80	39.06	9.36%	283,405	0.007168	0.07%		
	Low Band	82	90	46	40	00.00	0.0070	200,400	0.007 100	0.01 /0		
San Mateo	Mid-Band	200	150	266.5	50							
	Total	282	240	312.5	90	43.95	9.73%	771,410	0.019511	0.19%		
	Low Band	32	80	56	30							
Santa Barbara	Mid-Band	220	150	256.5	50	1						
	Total	252	230	312.5	80	39.06	9.15%	448,150	0.011335	0.10%		
Santa Clara	Low Band Mid-Band	82 190	90 150	46 276.5	40 50	+						
Jania Clara	Total	272	240	322.5	90	43.95	9.73%	1,938,153	0.049022	0.48%		
	Low Band	82	90	46	40	40.00	5.15/0	1,000,100	0.043022	0.40 /0		
Santa Cruz	Mid-Band	170	180	256.5	50	1						
	Total	252	270	302.5	90	43.95	9.84%	275,897	0.006978	0.07%		
	Low Band	82	62	44	26		-					
Shasta	Mid-Band	170	140	266.5	50	↓						
	Total	252	202	310.5	76	37.11	9.04%	179,921	0.004551	0.04%		
Siorra	Low Band	82	74	66	16	+ +						
Sierra	Mid-Band Total	180 262	160 234	266.5 332.5	50 66	32.23	7.38%	2,999	0.000076	0.00%		
	Low Band	82	12	332.5	16	32.23	1.30%	2,559	0.000076	0.00%		
Siskiyou	Mid-Band	170	140	177.5	50	†						
	Total	252	152	221.5	66	32.23	9.54%	43,853	0.001109	0.01%		
	Low Band	82	90	46	10			,				
Solano	Mid-Band	200	150	266.5	50							
	Total	282	240	312.5	60	29.30	6.71%	445,458	0.011267	0.08%		
	Low Band	82	90	46	40							
Sonoma	Mid-Band	170	180	248.7	50	 						
	Total	252	270	294.7	90	43.95	9.93%	504,217	0.012753	0.13%		
Staniolous	Low Band	82	90	46	10	+ +						
Stanislaus	Mid-Band Total	150 232	220	261.5 307.5	50 60	20.20	6 60%	547 000	0.013858	U UU0/		
	rolar	232	310	301.5	υυ	29.30	6.60%	547,899	0.013038	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

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

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

							Dish			Dish Wto
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum	County Population	Population Weight	Spectrm
	Low Band	82	90	46	40		Share			Share
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	90	53.12	9.73%	1,663,190	0.042067	0.41%
	Low Band	32	74	66	16					
Alpine	Mid-Band	180	160	252.2	50		= 0=0/			
	Total	212	234	318.2	66	38.95	7.95%	1,120	0.000028	0.00%
Amadar	Low Band	32	74	46	10 50	-				
Amador	Mid-Band Total	180 212	180 254	251.8 297.8	60	35.41	7.28%	38,626	0.000977	0.01%
	Low Band	82	74	46	10	55.41	1.2070	30,020	0.000377	0.0170
Butte	Mid-Band	180	150	266.5	50					
Ì	Total	262	224	312.5	60	35.41	6.99%	229,294	0.005800	0.04%
	Low Band	32	80	66	10					
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	35.41	7.19%	45,670	0.001155	0.01%
	Low Band	82	62	46	30					
Colusa	Mid-Band	180	180	256.5	50	17.00		24.225		
	Total	262	242	302.5	80	47.22	9.02%	21,805	0.000552	0.00%
Contra Costa	Low Band	82	90 150	46 266.5	40 50	-				
Contra Costa	Mid-Band Total	200 282	240	312.5	90	53.12	9.73%	1,147,439	0.029022	0.28%
	Low Band	82	12	44	16	33.12	3.7376	1,147,439	0.029022	0.20 /0
Del Norte	Mid-Band	170	150	177.5	50	+				
	Total	252	162	221.5	66	38.95	9.41%	27,470	0.000695	0.01%
	Low Band	82	74	46	30			,		
El Dorado	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	80	47.22	8.90%	188,987	0.004780	0.04%
	Low Band	82	74	46	36					
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	86	50.76	9.72%	989,255	0.025021	0.24%
01	Low Band	82	62	46	10					
Glenn	Mid-Band	180	150	266.5	50 60	25.44	7.09%	20.004	0.000711	0.010/
	Total Low Band	262 82	212 18	312.5 56	20	35.41	7.09%	28,094	0.000711	0.01%
Humboldt	Mid-Band	170	170	203.1	50	+				
. idinibolat	Total	252	188	259.1	70	41.31	9.10%	136,754	0.003459	0.03%
	Low Band	82	30	63	7			,		
Imperial	Mid-Band	180	190	165	50					
	Total	262	220	228	57	33.64	7.43%	182,830	0.004624	0.03%
	Low Band	82	74	66	16					
Inyo	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	66	38.95	8.85%	18,026	0.000456	0.00%
I/ aun	Low Band	82	80	56	30	1				
Kern	Mid-Band Total	190 272	180 260	276.5 332.5	50 80	47.22	8.47%	893,119	0.022590	0.100/
	Low Band	82	74	46	36	41.22	0.47 70	093,119	0.022390	0.19%
Kings	Mid-Band	170	210	200.9	50	+				
rungo	Total	252	284	246.9	86	50.76	9.90%	150,101	0.003797	0.04%
	Low Band	82	18	56	20	1		,		
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	276.9	70	41.31	8.78%	64,246	0.001625	0.01%
	Low Band	32	12	66	36					
Lassen	Mid-Band	180	160	167.5	50					
	Total	212	172	233.5	86	50.76	12.22%	31,163	0.000788	0.01%
Lee Anci-li-	Low Band	82	80	56	30	+ +				
Los Angeles	Mid-Band Total	180	180 260	255.8 311.8	50 80	47.22	8.75%	10,163,507	0.257065	2.25%
	Total Low Band	262 32	74	46	36	41.22	0.75%	10,163,507	0.257065	2.25%
Madera	Mid-Band	140	210	236.5	50	+ +				
iviaucia	Total	172	284	282.5	86	50.76	10.43%	156,890	0.003968	0.04%
	Low Band	82	90	46	40	55.76	10 /0	.50,550	5.500000	J.U-17(
Marin	Mid-Band	200	150	255	50	1				
ļ	Total	282	240	301	90	53.12	9.86%	260,955	0.006600	0.07%
İ	Low Band	32	80	66	30					
Mariposa	Mid-Band	170	170	256.5	50		· · · · · · · · · · · · · · · · · · ·			
	Total	202	250	322.5	80	47.22	9.36%	17,569	0.000444	0.00%
	Low Band	82	18	56	20					
Mendocino	Mid-Band	200	150	193.1	50	1				
	Total	282	168	249.1	70	41.31	9.10%	88,018	0.002226	0.02%
Marrar	Low Band	32	80	66	30	+				
Merced	Mid-Band	140	200	246.5	50	47.00	0.470/	070 070	0.00000=	0.070
	Total	172	280	312.5	80	47.22	9.47%	272,673	0.006897	0.07%
Modoc	Low Band	32 150	12	44 177.5	16	+				
IVIOUOC	Mid-Band Total	150 182	100 112	177.5 221.5	50 66	38.95	11.35%	8,859	0.000224	0.00%
	IUIAI	102	112	6.1 22	UU	30.93	11.33%	0,009	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

	Disk Disk											
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share		
	Low Band	82	74	66	16		Silare			Silare		
Mono	Mid-Band	150	160	167.5	50							
	Total	232	234	233.5	66	38.95	8.62%	14,168	0.000358	0.00%		
Mantana	Low Band	82 170	90 180	46 225.7	40 50	+						
Monterey	Mid-Band Total	252	270	271.7	90	53.12	10.18%	437,907	0.011076	0.11%		
	Low Band	82	90	46	40	33.12	10.1070	437,307	0.011070	0.1170		
Napa	Mid-Band	200	150	266.5	50							
	Total	282	240	312.5	90	53.12	9.73%	140,973	0.003566	0.03%		
	Low Band	82	74	46	30							
Nevada	Mid-Band	180	180	256.5	50							
	Total	262	254	302.5	80	47.22	8.90%	99,814	0.002525	0.02%		
0	Low Band	82	80	56	30							
Orange	Mid-Band Total	180 262	180 260	260.5 316.5	50 80	47.22	8.71%	3,190,400	0.080695	0.70%		
	Total Low Band	82	74	46	30	41.22	0.7 1%	3,190,400	0.060695	0.70%		
Placer	Mid-Band	180	180	257	50							
- 1.0.00	Total	262	254	303	80	47.22	8.90%	386,166	0.009767	0.09%		
	Low Band	32	12	66	16		2.22,0	222,.22				
Plumas	Mid-Band	180	160	238.7	50							
	Total	212	172	304.7	66	38.95	8.75%	18,742	0.000474	0.00%		
	Low Band	82	80	56	30							
Riverside	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 Mid-Band	82 180	74 180	46 257	30 50	+ +						
Jaciamento	Total	262	180 254	303	80	47.22	8.90%	1,530,615	0.038714	0.34%		
	Low Band	32	80	66	30	41.22	0.3070	1,030,015	0.0307 14	0.34%		
San Benito	Mid-Band	170	180	210.7	50							
	Total	202	260	276.7	80	47.22	9.77%	60,310	0.001525	0.01%		
	Low Band	82	80	56	30			,				
San Bernardino	Mid-Band	180	180	266.5	50							
	Total	262	260	322.5	80	47.22	8.65%	2,157,404	0.054567	0.47%		
	Low Band	82	74	56	36							
San Diego	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	+						
Sali Flancisco	Mid-Band Total	200 282	150 240	246.3 292.3	50 90	53.12	9.95%	884,363	0.022368	0.22%		
	Low Band	82	90	46	40	55.12	9.95%	004,303	0.022300	0.22 /0		
San Joaquin	Mid-Band	180	150	276.5	50							
	Total	262	240	322.5	90	53.12	9.84%	745,424	0.018854	0.19%		
	Low Band	32	80	56	30							
San Luis Obispo	Mid-Band	180	180	246.5	50							
	Total	212	260	302.5	80	47.22	9.36%	283,405	0.007168	0.07%		
	Low Band	82	90	46	40							
San Mateo	Mid-Band	200	150	266.5	50	50.40	0.700/	774 440	0.040544	0.400/		
	Total	282	240	312.5	90	53.12	9.73%	771,410	0.019511	0.19%		
Santa Barbara	Low Band Mid-Band	32 220	80 150	56 256.5	30 50	+						
Carita Darbara	Total	252	230	312.5	80	47.22	9.15%	448,150	0.011335	0.10%		
	Low Band	82	90	46	40	77.22	0.1070	440,100	0.011000	0.1070		
Santa Clara	Mid-Band	190	150	276.5	50	1						
-	Total	272	240	322.5	90	53.12	9.73%	1,938,153	0.049022	0.48%		
	Low Band	82	90	46	40							
Santa Cruz	Mid-Band	170	180	256.5	50							
	Total	252	270	302.5	90	53.12	9.84%	275,897	0.006978	0.07%		
05	Low Band	82	62	44	26	+ +						
Shasta	Mid-Band	170	140	266.5	50	44.00	0.040/	170 001	0.004551	0.040/		
	Total Low Band	252 82	202 74	310.5 66	76 16	44.86	9.04%	179,921	0.004551	0.04%		
Sierra	Mid-Band	180	160	266.5	50	+						
Ololla	Total	262	234	332.5	66	38.95	7.38%	2,999	0.000076	0.00%		
	Low Band	82	12	44	16	30.33	00 /0	2,000	3.000070	0.00 /0		
Siskiyou	Mid-Band	170	140	177.5	50	1						
· •	Total	252	152	221.5	66	38.95	9.54%	43,853	0.001109	0.01%		
	Low Band	82	90	46	10							
Solano	Mid-Band	200	150	266.5	50							
	Total	282	240	312.5	60	35.41	6.71%	445,458	0.011267	0.08%		
	Low Band	82	90	46	40	1						
Sonoma	Mid-Band	170	180	248.7	50		0.000:		0.015==-			
	Total	252	270	294.7	90	53.12	9.93%	504,217	0.012753	0.13%		
Stanislaus	Low Band	82 150	90	46 261.5	10	+						
Statilislaus	Mid-Band Total	150 232	220 310	261.5 307.5	50 60	35.41	6.60%	547,899	0.013858	0.09%		
	าบเสเ	232	310	JU1.5	υυ	35.41	0.00%	547,099	0.013038	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

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

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

							Dish			Dish Wt
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum Share	County Population	Population Weight	Spectrn Share
	Low Band	82	90	46	44		Snare			Snare
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	59.84	10.12%	1,663,190	0.042067	0.43%
	Low Band	32	74	66	20					
Alpine	Mid-Band	180	160	252.2	50	44.50	0.000/	4.400	0.000028	0.000/
	Total Low Band	212 32	234 74	318.2 46	70 14	44.56	8.39%	1,120	0.000028	0.00%
Amador	Mid-Band	180	180	251.8	50					
, unadoi	Total	212	254	297.8	64	40.74	7.73%	38,626	0.000977	0.01%
	Low Band	82	74	46	14			22,122		
Butte	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	40.74	7.42%	229,294	0.005800	0.04%
	Low Band	32	80	66	14					
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	40.74	7.63%	45,670	0.001155	0.01%
	Low Band	82	62	46	34					
Colusa	Mid-Band	180	180	256.5	50	50.40	0.400/	04.005	0.000550	0.040/
	Total	262	242	302.5 46	84 44	53.48	9.43%	21,805	0.000552	0.01%
Contra Costa	Low Band Mid-Band	82 200	90 150	266.5	50					
Contra Costa	Total	282	240	312.5	94	59.84	10.12%	1,147,439	0.029022	0.29%
	Low Band	82	12	44	20	33.04	10.12/0	1,147,400	0.023022	0.23 /
Del Norte	Mid-Band	170	150	177.5	50					
İ	Total	252	162	221.5	70	44.56	9.92%	27,470	0.000695	0.01%
	Low Band	82	74	46	34			,		
El Dorado	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	53.48	9.31%	188,987	0.004780	0.04%
	Low Band	82	74	46	40					
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	90	57.30	10.13%	989,255	0.025021	0.25%
	Low Band	82	62	46	14					
Glenn	Mid-Band	180	150	266.5	50	10.71	7.500/	00.004	0.000744	0.040
	Total	262	212	312.5	64 24	40.74	7.52%	28,094	0.000711	0.01%
Humboldt	Low Band	82	18 170	56 203.1	50					
Hullibolut	Mid-Band Total	170 252	188	259.1	74	47.11	9.57%	136,754	0.003459	0.03%
	Low Band	82	30	63	11	77.11	3.31 /0	100,704	0.000400	0.007
Imperial	Mid-Band	180	190	165	50					
,	Total	262	220	228	61	38.84	7.91%	182,830	0.004624	0.04%
	Low Band	82	74	66	20			,,,,,,		
Inyo	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	70	44.56	9.34%	18,026	0.000456	0.00%
ļ	Low Band	82	80	56	34					
Kern	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	84	53.48	8.86%	893,119	0.022590	0.20%
IZ:	Low Band	82	74	46	40					
Kings	Mid-Band	170 252	210 284	200.9 246.9	50 90	57.30	10.31%	150,101	0.003797	0.04%
	Total Low Band	82	18	56	24	57.30	10.31%	150, 101	0.003797	0.04%
Lake	Mid-Band	200	150	220.9	50					
Luno	Total	282	168	276.9	74	47.11	9.24%	64,246	0.001625	0.02%
	Low Band	32	12	66	40		0.2.70	01,210	0.001020	0.027
Lassen	Mid-Band	180	160	167.5	50					
ļ	Total	212	172	233.5	90	57.30	12.72%	31,163	0.000788	0.01%
İ	Low Band	82	80	56	34					
Los Angeles	Mid-Band	180	180	255.8	50		· · · · · · · · · · · · · · · · · · ·			
	Total	262	260	311.8	84	53.48	9.15%	10,163,507	0.257065	2.35%
	Low Band	32	74	46	40	1				
Madera	Mid-Band	140	210	236.5	50		10.0007	4=0.00-	0.00000	
	Total	172	284	282.5	90	57.30	10.86%	156,890	0.003968	0.04%
Marin	Low Band	82	90	46	44	+				
Marin	Mid-Band Total	200 282	150 240	255 301	50 94	59.84	10.25%	260,955	0.006600	0.07%
	Low Band	32	80	66	34	J9.04	10.23%	200,900	0.000000	0.07%
Mariposa	Mid-Band	170	170	256.5	50	+				
a. ipoda	Total	202	250	322.5	84	53.48	9.78%	17,569	0.000444	0.00%
	Low Band	82	18	56	24	55.76	0.7070	17,509	0.000774	3.00 /
Mendocino	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	74	47.11	9.57%	88,018	0.002226	0.02%
	Low Band	32	80	66	34	1		23,0.0	3.22.22.3	
Merced	Mid-Band	140	200	246.5	50					
	Total	172	280	312.5	84	53.48	9.90%	272,673	0.006897	0.07%
	Low Band	32	12	44	20			,		
Modoc	Mid-Band	150	100	177.5	50			<u> </u>		
ļ	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

(Values shown are in MegaHertz)

0.00000

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	66	20					
Mono	Mid-Band Total	150 232	160 234	167.5 233.5	50 70	44.56	9.10%	14,168	0.000358	0.00%
	Low Band	82	90	46	44	44.50	9.10%	14,100	0.000336	0.00%
Monterey	Mid-Band	170	180	225.7	50					
,	Total	252	270	271.7	94	59.84	10.59%	437,907	0.011076	0.12%
	Low Band	82	90	46	44					
Napa	Mid-Band	200	150	266.5	50	50.04	10 100/	140.072	0.003566	0.049/
	Total Low Band	282 82	240 74	312.5 46	94 34	59.84	10.12%	140,973	0.003566	0.04%
Nevada	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	53.48	9.31%	99,814	0.002525	0.02%
	Low Band	82	80	56	34					
Orange	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 Mid-Band	82 180	74 180	46 257	34 50					
i iacci	Total	262	254	303	84	53.48	9.30%	386,166	0.009767	0.09%
	Low Band	32	12	66	20	00.10	0.0070	000,100	0.000101	0.0070
Plumas	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	70	44.56	9.23%	18,742	0.000474	0.00%
D: :1	Low Band	82	80	56	34					
Riverside	Mid-Band	180	180	266.5	50	F0 40	0.050/	2 402 000	0.064000	0 550/
	Total Low Band	262 82	260 74	322.5 46	84 34	53.48	9.05%	2,423,266	0.061292	0.55%
Sacramento	Mid-Band	180	180	257	50					
Cacramento	Total	262	254	303	84	53.48	9.30%	1,530,615	0.038714	0.36%
	Low Band	32	80	66	34			1,000,010		
San Benito	Mid-Band	170	180	210.7	50					
	Total	202	260	276.7	84	53.48	10.21%	60,310	0.001525	0.02%
	Low Band	82	80	56	34					
San Bernardino	Mid-Band	180	180	266.5	50	50.40	0.050/	0.457.404	0.054507	0.400/
	Total Low Band	262 82	260 74	322.5 56	84 40	53.48	9.05%	2,157,404	0.054567	0.49%
San Diego	Mid-Band	150	150	257	50					
Cuil Blogo	Total	232	224	313	90	57.30	10.48%	3,337,685	0.084420	0.88%
	Low Band	82	90	46	44			2,221,222		
San Francisco	Mid-Band	200	150	246.3	50					
	Total	282	240	292.3	94	59.84	10.35%	884,363	0.022368	0.23%
	Low Band	82	90	46	44					
San Joaquin	Mid-Band	180	150 240	276.5 322.5	50 94	50.04	10.23%	745 404	0.010054	0.100/
	Total Low Band	262 32	80	56	34	59.84	10.23%	745,424	0.018854	0.19%
San Luis Obispo	Mid-Band	180	180	246.5	50					
·	Total	212	260	302.5	84	53.48	9.78%	283,405	0.007168	0.07%
	Low Band	82	90	46	44					
San Mateo	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	59.84	10.12%	771,410	0.019511	0.20%
Canta Barbara	Low Band	32	80	56	34					
Santa Barbara	Mid-Band Total	220 252	150 230	256.5 312.5	50 84	53.48	9.56%	448,150	0.011335	0.11%
	Low Band	82	90	46	44	33.40	J.JU/0	770,130	0.011000	J.11/0
Santa Clara	Mid-Band	190	150	276.5	50					
	Total	272	240	322.5	94	59.84	10.12%	1,938,153	0.049022	0.50%
	Low Band	82	90	46	44		-			
Santa Cruz	Mid-Band	170	180	256.5	50		10.000	0== 00=	0.00007	0.0707
	Total	252	270	302.5	94	59.84	10.23%	275,897	0.006978	0.07%
Shasta	Low Band Mid-Band	82 170	62 140	44 266.5	30 50	 				
บแสงเส	Total	252	202	310.5	80	50.93	9.47%	179,921	0.004551	0.04%
	Low Band	82	74	66	20	50.83	J.71 /0	113,321	J.UU-1JJ I	J.UT /0
Sierra	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	70	44.56	7.79%	2,999	0.000076	0.00%
	Low Band	82	12	44	20					
Siskiyou	Mid-Band	170	140	177.5	50		10.000	10.0=-	0.00110-	0.0101
	Total	252	152	221.5	70	44.56	10.06%	43,853	0.001109	0.01%
Solano	Low Band Mid-Band	82 200	90 150	46 266.5	14 50	1				
Julano	Total	282	240	312.5	64	40.74	7.12%	445,458	0.011267	0.08%
	Low Band	82	90	46	44	70.74	1.12/0	-70,700	0.011207	0.0070
Sonoma	Mid-Band	170	180	248.7	50					
	Total	252	270	294.7	94	59.84	10.32%	504,217	0.012753	0.13%
	Low Band	82	90	46	14		_			
Stanislaus	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

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

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

							Dish			Dish Wt
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum Share	County Population	Population Weight	Spectrn Share
	Low Band	82	90	46	44		Snare			Snare
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	94	65.25	10.12%	1,663,190	0.042067	0.43%
	Low Band	32	74	66	20					
Alpine	Mid-Band	180	160	252.2	50	40.50	0.000/	4.400	0.000028	0.000/
	Total Low Band	212 32	234 74	318.2 46	70 14	48.59	8.39%	1,120	0.000028	0.00%
Amador	Mid-Band	180	180	251.8	50					
7 tilladoi	Total	212	254	297.8	64	44.43	7.73%	38,626	0.000977	0.01%
	Low Band	82	74	46	14	1		22,122		
Butte	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	44.43	7.42%	229,294	0.005800	0.04%
	Low Band	32	80	66	14					
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	44.43	7.63%	45,670	0.001155	0.01%
0.1	Low Band	82	62	46	34					
Colusa	Mid-Band	180	180	256.5	50	50.04	0.400/	04.005	0.000550	0.040/
	Total	262	242	302.5	84	58.31	9.43%	21,805	0.000552	0.01%
Contra Costa	Low Band	82	90 150	46 266.5	50 50					
Contra Costa	Mid-Band Total	200 282	240	312.5	94	65.25	10.12%	1,147,439	0.029022	0.29%
	Low Band	82	12	44	20	00.20	10.12/0	1,177,700	0.020022	3.23/0
Del Norte	Mid-Band	170	150	177.5	50	† †				
	Total	252	162	221.5	70	48.59	9.92%	27,470	0.000695	0.01%
	Low Band	82	74	46	34		–			
El Dorado	Mid-Band	180	180	256.5	50					
	Total	262	254	302.5	84	58.31	9.31%	188,987	0.004780	0.04%
	Low Band	82	74	46	40					
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	302.5	90	62.48	10.13%	989,255	0.025021	0.25%
	Low Band	82	62	46	14					
Glenn	Mid-Band	180	150	266.5	50	11.10		22.22.4		
	Total	262	212	312.5	64	44.43	7.52%	28,094	0.000711	0.01%
I I consideratella	Low Band	82	18	56	24					
Humboldt	Mid-Band	170	170	203.1	50 74	F1 27	0.570/	120.754	0.003459	0.020/
	Total Low Band	252 82	188 30	259.1 63	11	51.37	9.57%	136,754	0.003459	0.03%
Imperial	Mid-Band	180	190	165	50					
Imperial	Total	262	220	228	61	42.35	7.91%	182,830	0.004624	0.04%
	Low Band	82	74	66	20	42.00	7.5170	102,030	0.004024	0.047
Inyo	Mid-Band	150	130	177.5	50					
,	Total	232	204	243.5	70	48.59	9.34%	18,026	0.000456	0.00%
	Low Band	82	80	56	34			-,-		
Kern	Mid-Band	190	180	276.5	50					
	Total	272	260	332.5	84	58.31	8.86%	893,119	0.022590	0.20%
	Low Band	82	74	46	40					
Kings	Mid-Band	170	210	200.9	50					
	Total	252	284	246.9	90	62.48	10.31%	150,101	0.003797	0.04%
	Low Band	82	18	56	24					
Lake	Mid-Band	200	150	220.9	50	54.07	0.040/	04.040	0.004005	0.000
	Total	282	168	276.9	74	51.37	9.24%	64,246	0.001625	0.02%
Lassen	Low Band Mid-Band	32 180	12 160	66 167.5	40 50	+ -				
Lassen	Total	212	172	233.5	90	62.48	12.72%	31,163	0.000788	0.01%
	Low Band	82	80	233.5 56	34	02.40	12.1270	31,103	0.000766	0.01%
Los Angeles	Mid-Band	180	180	255.8	50	+				
2	Total	262	260	311.8	84	58.31	9.15%	10,163,507	0.257065	2.35%
	Low Band	32	74	46	40	55.51	21.070	12,100,007	2.20.000	2.007
Madera	Mid-Band	140	210	236.5	50	1				
	Total	172	284	282.5	90	62.48	10.86%	156,890	0.003968	0.04%
	Low Band	82	90	46	44					
Marin	Mid-Band	200	150	255	50					
	Total	282	240	301	94	65.25	10.25%	260,955	0.006600	0.07%
	Low Band	32	80	66	34					-
Mariposa	Mid-Band	170	170	256.5	50					
	Total	202	250	322.5	84	58.31	9.78%	17,569	0.000444	0.00%
	Low Band	82	18	56	24					
Mendocino	Mid-Band	200	150	193.1	50					
	Total	282	168	249.1	74	51.37	9.57%	88,018	0.002226	0.02%
Mana	Low Band	32	80	66	34	1				
Merced	Mid-Band	140	200	246.5	50		0.0007	0=0 0=-	0.00000	
	Total	172	280	312.5	84	58.31	9.90%	272,673	0.006897	0.07%
Mad	Low Band	32	12	44	20	1				
Modoc	Mid-Band	150	100	177.5	50	40.50	14.000/	0.050	0.000001	0.000
	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

	Dish Down Dish County Downletton Dish V											
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share		
	Low Band	82	74	66	20		Silare			Snare		
Mono	Mid-Band	150	160	167.5	50							
	Total	232	234	233.5	70	48.59	9.10%	14,168	0.000358	0.00%		
Montorou	Low Band	82 170	90 180	46 225.7	<u>44</u> 50	+						
Monterey	Mid-Band Total	252	270	271.7	94	65.25	10.59%	437,907	0.011076	0.12%		
	Low Band	82	90	46	44	03.23	10.5570	437,307	0.011070	0.1270		
Napa	Mid-Band	200	150	266.5	50							
· ·	Total	282	240	312.5	94	65.25	10.12%	140,973	0.003566	0.04%		
	Low Band	82	74	46	34							
Nevada	Mid-Band	180	180	256.5	50							
	Total	262	254	302.5	84	58.31	9.31%	99,814	0.002525	0.02%		
0	Low Band	82	80	56	34							
Orange	Mid-Band Total	180 262	180 260	260.5 316.5	50 84	58.31	9.11%	3.190.400	0.080695	0.73%		
1	Low Band	82	74	46	34	36.31	9.1170	3,190,400	0.060693	0.73%		
Placer	Mid-Band	180	180	257	50							
	Total	262	254	303	84	58.31	9.30%	386,166	0.009767	0.09%		
	Low Band	32	12	66	20							
Plumas	Mid-Band	180	160	238.7	50							
	Total	212	172	304.7	70	48.59	9.23%	18,742	0.000474	0.00%		
Diversity	Low Band	82	80	56	34	1						
Riverside	Mid-Band	180	180	266.5	50	50.04	0.050/	0.400.000	0.004000	0.550		
-	Total Low Band	262 82	260 74	322.5 46	84 34	58.31	9.05%	2,423,266	0.061292	0.55%		
Sacramento	Mid-Band	180	180	257	50	+				1		
Sacramento	Total	262	254	303	84	58.31	9.30%	1,530,615	0.038714	0.36%		
	Low Band	32	80	66	34	00.01	0.0070	1,000,010	0.0007 14	0.0070		
San Benito	Mid-Band	170	180	210.7	50							
Ī	Total	202	260	276.7	84	58.31	10.21%	60,310	0.001525	0.02%		
	Low Band	82	80	56	34							
San Bernardino	Mid-Band	180	180	266.5	50							
	Total	262	260	322.5	84	58.31	9.05%	2,157,404	0.054567	0.49%		
0 5:	Low Band	82	74	56	40							
San Diego	Mid-Band	150	150	257	50	00.40	40.400/	2 227 605	0.004400	0.000/		
	Total Low Band	232 82	224 90	313 46	90 44	62.48	10.48%	3,337,685	0.084420	0.88%		
San Francisco	Mid-Band	200	150	246.3	50	+						
Carri Tarioloco	Total	282	240	292.3	94	65.25	10.35%	884,363	0.022368	0.23%		
	Low Band	82	90	46	44	00.20	10.0070	004,000	0.022000	0.2070		
San Joaquin	Mid-Band	180	150	276.5	50							
	Total	262	240	322.5	94	65.25	10.23%	745,424	0.018854	0.19%		
	Low Band	32	80	56	34							
San Luis Obispo	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	82 200	90 150	46	50 50	+						
San wateo	Mid-Band Total	282	240	266.5 312.5	94	65.25	10.12%	771,410	0.019511	0.20%		
	Low Band	32	80	56	34	03.23	10.12 /0	771,410	0.019311	0.20 /0		
Santa Barbara	Mid-Band	220	150	256.5	50							
Ī	Total	252	230	312.5	84	58.31	9.56%	448,150	0.011335	0.11%		
	Low Band	82	90	46	44							
Santa Clara	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 C:::-	Low Band	82	90	46	44	+ +						
Santa Cruz	Mid-Band Total	170	180	256.5	50	65.0F	10.23%	275,897	0.006978	0.07%		
+	Total Low Band	252 82	270 62	302.5 44	94 30	65.25	10.23%	2/5,89/	0.00978	0.07%		
Shasta	Mid-Band	170	140	266.5	50	+ +						
Ondota	Total	252	202	310.5	80	55.53	9.47%	179,921	0.004551	0.04%		
	Low Band	82	74	66	20	55.50		., 0,021	2.201001	2.0.70		
Sierra	Mid-Band	180	160	266.5	50							
	Total	262	234	332.5	70	48.59	7.79%	2,999	0.000076	0.00%		
	Low Band	82	12	44	20							
Siskiyou	Mid-Band	170	140	177.5	50	1						
	Total	252	152	221.5	70	48.59	10.06%	43,853	0.001109	0.01%		
Solana	Low Band	82	90	46	14	+ +						
Solano	Mid-Band Total	200	150	266.5	50 64	44.43	7.12%	AAE 4E0	0.011267	0.000/		
+	Total Low Band	282 82	240 90	312.5 46	64 44	44.43	1.12%	445,458	U.U11207	0.08%		
Sonoma	Mid-Band	170	180	248.7	50	+ +						
Contonia	Total	252	270	294.7	94	65.25	10.32%	504,217	0.012753	0.13%		
	Low Band	82	90	46	14	00.20	10.02 /0	507,217	0.012700	J. 10 /0		
Stanislaus	Mid-Band	150	220	261.5	50	1						
ţ	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

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

ETI DISH Ramp-Up Model

to New T-Mobile
Sensitivity Results



Table A-1 - 600 MHz LEASE

CONSTANTS AND ASSUMPTIONS

		Sensitivity Adj	usted
SENSITIVITY ANALYSIS - 600 MHz Lease	Constants	Factor Co	nstant
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

							202	0					
	Jan	Feb	Ma	ar Ap	or Ma	y ,	June Ju	lly A	ug S	ер О	ct N	ov D)ec
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%	0.009
Total prepaid subscribers	65,	000 6	5,265	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 27	7,124	278,253	279,387	280,525	281,668	282,816	283,968	285,125	286,287	287,453	288,624
TOTAL MARKET	341,	000 34	2,389	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	4
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	4.440	-	-	-	-	-	-	-	-	-	-	-	-
Dish prepaid Churn	4,443	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	9,25
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 N	Лаv	June 202		Aua S	Sep C	Oct N	lov D)ec
	Jan	reu		iviai <i>i</i>	Api i	Лау	June .	July /	aug c	оер С	oct N	OV D	ec .
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	71,37
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	303,05
TOTAL MARKET		358,050	359,509	360,973	362,444	363,921	365,403	366,892	368,387	369,888	371,395	372,908	374,42
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	2,47
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	3,03
Prepaid from market growth		278	279	280	281	283	284	285	286	287	288	290	29
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	1,23
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	7,03
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH													
Prepaid from churn		338	339	341	342	344	345	347	348	350	352	353	35
Postpaid from churn		-	-	-	-	-	-	-	-	-	-	-	-
Prepaid from growth		40	40	40	40	40	41	41	41	41	41	41	4
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	9,40
Postpaid Beginning of Month	4.440	-	-	-	-	-	-	-	-	-	-	-	-
Dish prepaid Churn	4,443	370	370	371	371	372	372	373	373	374	375	375	37
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	9,42
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	9,42
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

							2022						
	Jan	Feb		Mar Ap	r M	ay J	lune July	Aug	g Se	р О	ct No	ov D	lec
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

						2023						
	Jan	Feb M	/lar A	pr Ma	ay J	une Jul	ly A	ug Se	ер О	ct N	lov D	ec
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%	7.919
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%	70.009
Total prepaid subscribers	75,24		75,860	76,169	76,479	76,791	77,104	77,418	77,733	78,050	78,368	78,687
otal postpaid subscribers	319,50	5 320,806	322,113	323,426	324,743	326,066	327,395	328,729	330,068	331,413	332,763	334,118
TOTAL MARKET	394,75	396,358	397,973	399,595	401,223	402,857	404,499	406,146	407,801	409,463	411,131	412,806
DDRESSABLE NON-DISH CUSTOMERS												
repaid-from churn	2,62	1 2,632	2,643	2,654	2,665	2,676	2,688	2,699	2,710	2,721	2,733	2,744
ostpaid-from churn	3,19		3,215	3,226	3,238	3,250	3,262	3,274	3,286	3,298	3,311	3,323
repaid from market growth	30	7 308	309	310	312	313	314	315	317	318	319	32
Postpaid-from market growth	1,30	2 1,307	1,312	1,318	1,323	1,328	1,334	1,339	1,345	1,350	1,356	1,36
otal Addressable customers	7,42	7,449	7,479	7,508	7,538	7,568	7,598	7,628	7,658	7,688	7,718	7,74
ADDRESSABLE CUSTOMERS AVAILABLE TO DISH												
repaid from churn	37		378	380	381	383	385	386	388	389	391	39
ostpaid from churn	17		178	179	179	180	181	181	182	183	183	18
repaid from growth	4		44	44	45	45	45	45	45	45	46	4
Postpaid from growth	14	4 145	145	146	147	147	148	148	149	150	150	15
DISH CUSTOMER COUNT												
repaid Beginning of Month	9,72		9,787	9,818	9,849	9,881	9,914	9,947	9,980	10,014	10,048	10,08
ostpaid Beginning of Month	38	6 525	661	797	931	1,063	1,194	1,324	1,453	1,580	1,706	1,83
	4,443											
ish prepaid Churn	38		391	393	394	395	397	398	399	401	402	40
ish Postpaid churn		6 8	10	12	14	16	18	20	22	24	26	2
repaid End of Month	9,75		9,818	9,849	9,881	9,914	9,947	9,980	10,014	10,048	10,083	10,11
ostpaid End of Month	52		797	931	1,063	1,194	1,324	1,453	1,580	1,706	1,830	1,95
TOTAL DISH SUBS	10,28	10,448	10,615	10,780	10,945	11,108	11,271	11,433	11,594	11,754	11,913	12,07
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

							024					
	Jan	Feb	Mar	Apr	May	June	July /	Aug	Sep	Oct	Nov	Dec
Dish Spectrum Share	7.9	1% 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	70.0	0% 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	79,0			79,978		80,631	80,959	81,289	81,620	81,953	82,286	82,622
Total postpaid subscribers TOTAL MARKET	335,4 414,4			339,597 419,574		342,370 423,000	343,764 424,723	345,165 426,454	346,571 428,191	347,983 429,936	349,401 431,687	350,824 433,446
ADDRESSABLE NON-DISH CUSTOMERS												
Prepaid-from churn	2,7			2,790		2,813	2,825	2,837	2,848	2,860	2,872	2,884
Postpaid-from churn	3,3			3,373		3,398	3,411	3,424	3,437	3,450	3,463	3,476
Prepaid from market growth		22 32		326		328	330	331	333	334	335	337
Postpaid-from market growth	1,3	67 1,37	2 1,378	1,384	1,389	1,395	1,401	1,406	1,412	1,418	1,424	1,429
Total Addressable customers	7,7	80 7,81	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		94 39		399		403	404	406	408	409	411	413
Postpaid from churn		85 18		187		188	189	190	190	191	192	192
Prepaid from growth		46 4		47		47	47	47	48	48	48	48
Postpaid from growth	1	51 15	2 153	153	3 154	154	155	156	156	157	158	158
DISH CUSTOMER COUNT												
Prepaid Beginning of Month	10,1			10,226		10,300	10,337	10,375	10,414	10,452	10,491	10,530
Postpaid Beginning of Month 4.4	1,9	54 2,07	6 2,196	2,316	3 2,435	2,552	2,668	2,783	2,897	3,010	3,122	3,233
Dish prepaid Churn	-	05 40	6 408	409	9 411	412	413	415	417	418	420	421
Dish Postpaid churn		29 3	1 33	35	37	38	40	42	43	45	47	48
Prepaid End of Month	10,1			10,263		10,337	10,375	10,414	10,452	10,491	10,530	10,570
Postpaid End of Month	2,0			2,435		2,668	2,783	2,897	3,010	3,122	3,233	3,343
TOTAL DISH SUBS	12,2	29 12,38	6 12,542	12,697	12,852	13,006	13,159	13,311	13,462	13,613	13,763	13,912
TOTAL DISH MARKET SHARE	2.9	5% 2.98	% 3.00%	3.03%	% 3.05%	3.07%	3.10%	3.12%	3.14%	3.17%	3.19%	3.21%

Table A-2 - 600 MHz LEASE

ETI DISH RAMP-UP MODEL RESULTS

							2025						
	Jan	Feb	Ma	ar Ap	r Ma	ay Jur	ne July	Aug	g Sep	0	ct No	v De	ec
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

							2026						
	Jan	Feb	Mar	Apr	May	June	e July	Aug	Sep	Oct	Nov	De	C
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 Spectrum Share

Dish Market Sha

2.65%

0.00%

Dish BW Adj Factor

0.00000

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	90	61	0		0.1.0.0			
Alameda	Mid-Band	200 282	150 240	266.5	0	_	0.00%	1 662 100	0.042067	0.00%
	Total Low Band	32	74	327.5 66	0	-	0.00%	1,663,190	0.042067	0.00%
Alpine	Mid-Band	180	160	252.2	0					
·	Total	212	234	318.2	0	-	0.00%	1,120	0.000028	0.00%
	Low Band	32	74	46	0					
Amador	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
Butte	Low Band Mid-Band	82 180	74 150	46 266.5	0					
Dutte	Total	262	224	312.5	0	_	0.00%	229,294	0.005800	0.00%
	Low Band	32	80	66	0		0.0070	220,204	0.000000	0.0070
Calaveras	Mid-Band	180	150	266.5	0					
	Total	212	230	332.5	0	-	0.00%	45,670	0.001155	0.00%
	Low Band	82	62	56	0					
Colusa	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 Mid-Band	82 200	90 150	61 266.5	0					
Contra Costa	Total	282	240	327.5	0	_	0.00%	1,147,439	0.029022	0.00%
	Low Band	82	12	44	0		0.0070	1,147,400	0.023022	0.0070
Del Norte	Mid-Band	170	150	177.5	0					
	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
	Low Band	82	74	56	0					
El Dorado	Mid-Band	180	180	256.5	0					
	Total	262	254	312.5	0	-	0.00%	188,987	0.004780	0.00%
F	Low Band	82	74	56	0					
Fresno	Mid-Band Total	160 242	180 254	256.5 312.5	0	_	0.00%	989,255	0.025021	0.009/
	Low Band	82	62	46	0	-	0.00%	969,255	0.025021	0.00%
Glenn	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.000711	0.00%
	Low Band	82	18	61	0			, , , , , , , , , , , , , , , , , , , ,		
Humboldt	Mid-Band	170	170	203.1	0					
	Total	252	188	264.1	0	-	0.00%	136,754	0.003459	0.00%
	Low Band	82	30	63	0					
Imperial	Mid-Band	180	190	165	0		0.000/	400.000	0.004004	0.000/
	Total Low Band	262 82	220 74	228 66	0	-	0.00%	182,830	0.004624	0.00%
Inyo	Mid-Band	150	130	177.5	0					
myo	Total	232	204	243.5	0	-	0.00%	18,026	0.000456	0.00%
	Low Band	82	80	66	0		0.0070	10,020	0.000.00	0.0070
Kern	Mid-Band	190	180	276.5	0					
	Total	272	260	342.5	0	-	0.00%	893,119	0.022590	0.00%
	Low Band	82	74	56	0					
Kings	Mid-Band	170	210	200.9	0		0.000/	450 404	0.000707	0.000/
	Total	252	284	256.9	0	-	0.00%	150,101	0.003797	0.00%
Lake	Low Band Mid-Band	82 200	18 150	61 220.9	0					
Lake	Total	282	168	281.9	0	-	0.00%	64,246	0.001625	0.00%
	Low Band	32	12	76	0		3.5070	54,240	0.001020	0.0070
Lassen	Mid-Band	180	160	167.5	0					
	Total	212	172	243.5	0	-	0.00%	31,163	0.000788	0.00%
	Low Band	82	80	66	0					
Los Angeles	Mid-Band	180	180	255.8	0		0.0	10.1		
	Total	262	260	321.8	0	-	0.00%	10,163,507	0.257065	0.00%
Madera	Low Band Mid-Band	32 140	74 210	56 236.5	0	-				
iviautia	Total	172	284	292.5	0	_	0.00%	156,890	0.003968	0.00%
	Low Band	82	90	61	0	_	0.0070	130,030	0.000000	0.0070
Marin	Mid-Band	200	150	255	0					
	Total	282	240	316	0	-	0.00%	260,955	0.006600	0.00%
	Low Band	32	80	76	0		· ·			
Mariposa	Mid-Band	170	170	256.5	0					
	Total	202	250	332.5	0	-	0.00%	17,569	0.000444	0.00%
Mande -:	Low Band	82	18	61	0	-				
Mendocino	Mid-Band	200	150	193.1	0	1	0.000/	00.040	0.000000	0.000/
	Total Low Band	282 32	168 80	254.1 76	0	-	0.00%	88,018	0.002226	0.00%
Merced	Mid-Band	140	200	246.5	0	+				
MICIOCU	Total	172	280	322.5	0	_	0.00%	272,673	0.006897	0.00%
	Low Band	32	12	44	0	_	0.0070	212,013	0.00007	0.0070
Modoc	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

Country	Band	Varian	ATOT	New T. Makil	Diet	Dish Ramp-	Dish	County	Population	Dish Wtd
County	Band	Verizon	AT&T	New T-Mobile	Dish	up Adjusted	Spectrum Share	Population	Weight	Spectrm Share
	Low Band	82	74	66	0		Onarc			Onare
Mono	Mid-Band	150	160	167.5	0		0.000/	11.100		
	Total Low Band	232 82	234 90	233.5 61	0	-	0.00%	14,168	0.000358	0.00%
Monterey	Mid-Band	170	180	225.7	0					
	Total	252	270	286.7	0	-	0.00%	437,907	0.011076	0.00%
	Low Band	82	90	61	0			,		
Napa	Mid-Band	200	150	266.5	0					
	Total	282	240	327.5	0	-	0.00%	140,973	0.003566	0.00%
Nevedo	Low Band	82	74	56	0					
Nevada	Mid-Band Total	180 262	180 254	256.5 312.5	0	-	0.00%	99,814	0.002525	0.00%
	Low Band	82	80	66	0		0.0070	33,014	0.002323	0.0070
Orange	Mid-Band	180	180	260.5	0					
	Total	262	260	326.5	0	-	0.00%	3,190,400	0.080695	0.00%
	Low Band	82	74	56	0					
Placer	Mid-Band	180	180	257	0		0.000/	200.400	0.000707	0.000/
	Total Low Band	262 32	254 12	313 66	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Mid-Band	180	160	238.7	0					
	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
	Low Band	82	80	66	0					
Riverside	Mid-Band	180	180	266.5	0					
	Total	262	260	332.5	0	-	0.00%	2,423,266	0.061292	0.00%
Cooromonto	Low Band	82	74	56	0					
Sacramento	Mid-Band Total	180 262	180 254	257 313	0	 -	0.00%	1,530,615	0.038714	0.00%
	Low Band	32	80	76	0	-	0.00%	1,550,615	0.0367 14	0.00 %
San Benito	Mid-Band	170	180	210.7	0					
	Total	202	260	286.7	0	-	0.00%	60,310	0.001525	0.00%
	Low Band	82	80	66	0					
San Bernardino	Mid-Band	180	180	266.5	0					
	Total	262	260	332.5	0	-	0.00%	2,157,404	0.054567	0.00%
0 5:	Low Band	82	74	66	0					
San Diego	Mid-Band	150	150	257	0		0.000/	2 227 605	0.004400	0.000/
	Total Low Band	232 82	224 90	323 61	0	-	0.00%	3,337,685	0.084420	0.00%
San Francisco	Mid-Band	200	150	246.3	0	+				
Can i i anoloco	Total	282	240	307.3	0	-	0.00%	884,363	0.022368	0.00%
	Low Band	82	90	61	0		0.0070	55.,555		
San Joaquin	Mid-Band	180	150	276.5	0					
	Total	262	240	337.5	0	-	0.00%	745,424	0.018854	0.00%
	Low Band	32	80	66	0					
San Luis Obispo	Mid-Band	180	180	246.5	0		0.000/	202 405	0.007169	0.000/
	Total Low Band	212 82	260 90	312.5 61	0	-	0.00%	283,405	0.007168	0.00%
San Mateo	Mid-Band	200	150	266.5	0	+				
our mator	Total	282	240	327.5	0	-	0.00%	771,410	0.019511	0.00%
	Low Band	32	80	66	0			,		
Santa Barbara	Mid-Band	220	150	256.5	0					
	Total	252	230	322.5	0	-	0.00%	448,150	0.011335	0.00%
	Low Band	82	90	61	0					
Santa Clara	Mid-Band	190	150	276.5	0	+	0.000/	1 020 450	0.040022	0.000/
	Total Low Band	272 82	240 90	337.5 61	0	 -	0.00%	1,938,153	0.049022	0.00%
Santa Cruz	Mid-Band	170	180	256.5	0	+				
-	Total	252	270	317.5	0	-	0.00%	275,897	0.006978	0.00%
	Low Band	82	62	49	0					
Shasta	Mid-Band	170	140	266.5	0					
	Total	252	202	315.5	0	-	0.00%	179,921	0.004551	0.00%
0:	Low Band	82	74	66	0					
Sierra	Mid-Band	180	160	266.5	0	+	0.000/	0.000	0.000070	0.000′
	Total Low Band	262 82	234 12	332.5 44	0	-	0.00%	2,999	0.000076	0.00%
Siskiyou	Mid-Band	170	140	177.5	0	+				
Cioniyou	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
	Low Band	82	90	46	0	1	3.5070	40,000	5.561166	5.0070
Solano	Mid-Band	200	150	266.5	0	1				
	Total	282	240	312.5	0	-	0.00%	445,458	0.011267	0.00%
	Low Band	82	90	61	0					
Sonoma	Mid-Band	170	180	248.7	0		-			
	Total	252	270	309.7	0	-	0.00%	504,217	0.012753	0.00%
Otensial	Low Band	82	90	46	0					
Stanislaus	Mid-Band	150	220	261.5	0	+	0.000/	E 47 000	0.040050	0.000/
	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

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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share
	Low Band	82	90	61	0					
Alameda	Mid-Band	200	150	266.5	0		0.000/	1 662 100	0.042067	0.000/
	Total Low Band	282 32	240 74	327.5 66	0	-	0.00%	1,663,190	0.042067	0.00%
Alpine	Mid-Band	180	160	252.2	0					
Alpino	Total	212	234	318.2	0	_	0.00%	1,120	0.000028	0.00%
	Low Band	32	74	46	0		0.0070	.,.20	0.000020	0.0070
Amador	Mid-Band	180	180	251.8	0					
	Total	212	254	297.8	0	-	0.00%	38,626	0.000977	0.00%
	Low Band	82	74	46	0					
Butte	Mid-Band	180	150	266.5	0					
	Total	262	224	312.5	0	-	0.00%	229,294	0.005800	0.00%
	Low Band	32	80	66	0					
Calaveras	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	62 180	56 256.5	0					
Colusa	Mid-Band Total	180	242	312.5	0	_	0.00%	21,805	0.000552	0.00%
	Low Band	262 82	90	61	0	-	0.00%	21,005	0.000552	0.00%
Contra Costa	Mid-Band	200	150	266.5	0					
_ 5a 003ta	Total	282	240	327.5	0	_	0.00%	1,147,439	0.029022	0.00%
	Low Band	82	12	44	0		0.0070	.,,,-00	J.J20022	5.00 /0
Del Norte	Mid-Band	170	150	177.5	0		Ì			
	Total	252	162	221.5	0	-	0.00%	27,470	0.000695	0.00%
	Low Band	82	74	56	0		/ -	,		. , . , .
El Dorado	Mid-Band	180	180	256.5	0					
	Total	262	254	312.5	0	-	0.00%	188,987	0.004780	0.00%
	Low Band	82	74	56	0					
Fresno	Mid-Band	160	180	256.5	0					
	Total	242	254	312.5	0	-	0.00%	989,255	0.025021	0.00%
	Low Band	82	62	46	0					
Glenn	Mid-Band	180	150	266.5	0					
	Total	262	212	312.5	0	-	0.00%	28,094	0.000711	0.00%
	Low Band	82	18	61	0					
Humboldt	Mid-Band	170	170	203.1	0		0.000/	400.754	0.000450	0.000/
	Total	252	188	264.1	0	-	0.00%	136,754	0.003459	0.00%
Imperial	Low Band Mid-Band	82 180	30 190	63 165	0					
Impenai	Total	262	220	228	0	-	0.00%	182,830	0.004624	0.00%
	Low Band	82	74	66	0	-	0.00%	102,030	0.004624	0.00 %
Inyo	Mid-Band	150	130	177.5	0					
myo	Total	232	204	243.5	0	_	0.00%	18,026	0.000456	0.00%
	Low Band	82	80	66	0		0.0070	10,020	0.000-100	0.0070
Kern	Mid-Band	190	180	276.5	0					
	Total	272	260	342.5	0	-	0.00%	893,119	0.022590	0.00%
	Low Band	82	74	56	0					
Kings	Mid-Band	170	210	200.9	0					
	Total	252	284	256.9	0	-	0.00%	150,101	0.003797	0.00%
	Low Band	82	18	61	0					
Lake	Mid-Band	200	150	220.9	0					
	Total	282	168	281.9	0	-	0.00%	64,246	0.001625	0.00%
	Low Band	32	12	76	0					
Lassen	Mid-Band	180	160	167.5	0	1	0.000/	04.400	0.000700	0.0001
	Total	212	172	243.5	0	-	0.00%	31,163	0.000788	0.00%
Los Angolos	Low Band	82	80	66	0	+		-		
Los Angeles	Mid-Band Total	180 262	180 260	255.8 321.8	0	_	0.00%	10,163,507	0.257065	0.00%
	Low Band	32	74	56	0	†	0.0076	10, 103,307	0.207000	0.00%
Madera	Mid-Band	140	210	236.5	0			1		
	Total	172	284	292.5	0	-	0.00%	156,890	0.003968	0.00%
	Low Band	82	90	61	0		2.3070	.55,550	2.200000	5.0070
Marin	Mid-Band	200	150	255	0			1		
	Total	282	240	316	0	-	0.00%	260,955	0.006600	0.00%
	Low Band	32	80	76	0					
Mariposa	Mid-Band	170	170	256.5	0					
	Total	202	250	332.5	0	-	0.00%	17,569	0.000444	0.00%
	Low Band	82	18	61	0					
Mendocino	Mid-Band	200	150	193.1	0					
	Total	282	168	254.1	0	-	0.00%	88,018	0.002226	0.00%
	Low Band	32	80	76	0					
	Mid-Band	140	200	246.5	0					
Merced			200	322.5	0	-	0.00%	272,673	0.006897	0.00%
Merced	Total	172	280							
Merced	Total Low Band Mid-Band	32 150	12 100	44 177.5	0		3.00,0			3,53,7

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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	66	0					
Mono	Mid-Band Total	150 232	160 234	167.5 233.5	0	_	0.00%	14,168	0.000358	0.00%
	Low Band	82	90	61	0		0.0070	14,100	0.000330	0.0070
Monterey	Mid-Band	170	180	225.7	0					
	Total	252	270	286.7	0	-	0.00%	437,907	0.011076	0.00%
Napa	Low Band Mid-Band	82 200	90 150	61 266.5	0					
Napa	Total	282	240	327.5	0	-	0.00%	140,973	0.003566	0.00%
	Low Band	82	74	56	0					
Nevada	Mid-Band	180	180	256.5	0		0.000/	00.044		0.000/
	Total Low Band	262 82	254 80	312.5 66	0	-	0.00%	99,814	0.002525	0.00%
Orange	Mid-Band	180	180	260.5	0					
3	Total	262	260	326.5	0	-	0.00%	3,190,400	0.080695	0.00%
	Low Band	82	74	56	0					
Placer	Mid-Band	180	180	257	0		0.000/	206 466	0.000767	0.000/
	Total Low Band	262 32	254 12	313 66	0	-	0.00%	386,166	0.009767	0.00%
Plumas	Mid-Band	180	160	238.7	0					
	Total	212	172	304.7	0	-	0.00%	18,742	0.000474	0.00%
Diversity	Low Band	82	80	66	0					
Riverside	Mid-Band Total	180 262	180 260	266.5 332.5	0	1	0.00%	2 422 266	0.061202	0.00%
	Low Band	82	74	332.5 56	0	-	0.00%	2,423,266	0.061292	0.00%
Sacramento	Mid-Band	180	180	257	0					
	Total	262	254	313	0	-	0.00%	1,530,615	0.038714	0.00%
0 0 1	Low Band	32	80	76	0					
San Benito	Mid-Band Total	170 202	180 260	210.7 286.7	0	_	0.00%	60,310	0.001525	0.00%
	Low Band	82	80	66	0	-	0.00%	60,310	0.001525	0.00%
San Bernardino	Mid-Band	180	180	266.5	0					
	Total	262	260	332.5	0	-	0.00%	2,157,404	0.054567	0.00%
0 B:	Low Band	82	74	66	0					
San Diego	Mid-Band Total	150 232	150 224	257 323	0	_	0.00%	3,337,685	0.084420	0.00%
	Low Band	82	90	61	0	-	0.0076	3,337,003	0.004420	0.0076
San Francisco	Mid-Band	200	150	246.3	0					
	Total	282	240	307.3	0	-	0.00%	884,363	0.022368	0.00%
0 1	Low Band	82	90	61	0					
San Joaquin	Mid-Band Total	180 262	150 240	276.5 337.5	0	_	0.00%	745,424	0.018854	0.00%
	Low Band	32	80	66	0	-	0.0076	745,424	0.010034	0.0076
San Luis Obispo	Mid-Band	180	180	246.5	0					
	Total	212	260	312.5	0	-	0.00%	283,405	0.007168	0.00%
Son Motoo	Low Band	82	90	61	0					
San Mateo	Mid-Band Total	200 282	150 240	266.5 327.5	0	 _	0.00%	771,410	0.019511	0.00%
	Low Band	32	80	66	0		0.0070	771,110	0.010011	0.0070
Santa Barbara	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 Mid-Band	82 190	90 150	61 276.5	0	 				
Janu Jiaia	Total	272	240	337.5	0	-	0.00%	1,938,153	0.049022	0.00%
	Low Band	82	90	61	0					
Santa Cruz	Mid-Band	170	180	256.5	0	<u> </u>	0.000′	075.005	0.0000=0	0.000′
	Total Low Band	252 82	270 62	317.5 49	0	-	0.00%	275,897	0.006978	0.00%
Shasta	Mid-Band	170	140	266.5	0	1				
	Total	252	202	315.5	0	-	0.00%	179,921	0.004551	0.00%
	Low Band	82	74	66	0				-	
Sierra	Mid-Band	180	160	266.5	0	-	0.000/	0.000	0.000070	0.000/
	Total Low Band	262 82	234 12	332.5 44	0	-	0.00%	2,999	0.000076	0.00%
Siskiyou	Mid-Band	170	140	177.5	0	1				
	Total	252	152	221.5	0	-	0.00%	43,853	0.001109	0.00%
-	Low Band	82	90	46	0					
Solano	Mid-Band	200	150	266.5	0	1	0.000/	44E 4EC	0.044007	0.000/
	Total Low Band	282 82	240 90	312.5 61	0	-	0.00%	445,458	0.011267	0.00%
Sonoma	Mid-Band	170	180	248.7	0	1				
	Total	252	270	309.7	0	-	0.00%	504,217	0.012753	0.00%
	Low Band	82	90	46	0					
Stanislaus	Mid-Band	150	220	261.5	0	1	0.000/	E47.000	0.040050	0.000/
	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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	56	0		•			•
Sutter	Mid-Band	180	150	261.8	0					
	Total	262	224	317.8	0	-	0.00%	96,648	0.002445	0.00%
	Low Band	82	62	44	0					
Tehama	Mid-Band	170	140	266.5	0					
	Total	252	202	310.5	0	-	0.00%	63,926	0.001617	0.00%
	Low Band	82	18	61	0					
Trinity	Mid-Band	170	160	256.5	0					
	Total	252	178	317.5	0	-	0.00%	12,709	0.000321	0.00%
	Low Band	82	74	56	0					
Tulare	Mid-Band	200	180	246.5	0					
	Total	282	254	302.5	0	-	0.00%	464,493	0.011748	0.00%
	Low Band	32	80	76	0					
Tuolumne	Mid-Band	180	180	251.5	0					
	Total	212	260	327.5	0	-	0.00%	54,248	0.001372	0.00%
	Low Band	82	80	66	0					
Ventura	Mid-Band	190	150	258.7	0					
	Total	272	230	324.7	0	-	0.00%	854,223	0.021606	0.00%
	Low Band	82	74	56	0					
Yolo	Mid-Band	180	180	257	0					
	Total	262	254	313	0	-	0.00%	219,116	0.005542	0.00%
	Low Band	82	74	46	0					
Yuba	Mid-Band	180	150	261.8	0					
	Total	262	224	307.8	0	-	0.00%	77,031	0.001948	0.00%
ource: FCC Univ	versal Licensing System	em; Joint Applican	ts' Appendix L-1 re	ev. 7/5/18. NOTE:	The table uses d	ata 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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	90	61	15		Onuro			Gridie
Alameda	Mid-Band	200	150	266.5	50	04.04	7.440/	1 000 100	0.040007	0.000/
	Total Low Band	282 32	240 74	327.5 66	65 6	24.01	7.11%	1,663,190	0.042067	0.30%
Alpine	Mid-Band	180	160	252.2	50					
	Total	212	234	318.2	56	20.69	6.83%	1,120	0.000028	0.00%
	Low Band	32	74	46	0					
Amador	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 Mid-Band	82 180	74 150	46 266.5	0 50	+				
Dutto	Total	262	224	312.5	50	18.47	5.89%	229.294	0.005800	0.03%
	Low Band	32	80	66	0		3.55,0			
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	50	18.47	6.06%	45,670	0.001155	0.01%
0-1	Low Band	82	62	56	10					
Colusa	Mid-Band	180	180	256.5	50	20.47	6.050/	24.005	0.000553	0.000/
	Total Low Band	262 82	90 90	312.5 61	60 15	22.17	6.85%	21,805	0.000552	0.00%
Contra Costa	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	65	24.01	7.11%	1,147,439	0.029022	0.21%
	Low Band	82	12	44	6					
Del Norte	Mid-Band	170	150	177.5	50		·			
	Total	252	162	221.5	56	20.69	8.10%	27,470	0.000695	0.01%
El Danada	Low Band	82	74	56	10					
El Dorado	Mid-Band	180	180	256.5	50	22.17	C 7E0/	100 007	0.004780	0.030/
	Total Low Band	262 82	254 74	312.5 56	60 16	22.17	6.75%	188,987	0.004780	0.03%
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	312.5	66	24.38	7.55%	989,255	0.025021	0.19%
	Low Band	82	62	46	0					
Glenn	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	50	18.47	5.98%	28,094	0.000711	0.00%
	Low Band	82	18	61	5					
Humboldt	Mid-Band	170	170	203.1	50	20.20	7.050/	400.754	0.000450	0.000/
	Total Low Band	252 82	188 30	264.1 63	55 0	20.32	7.25%	136,754	0.003459	0.03%
Imperial	Mid-Band	180	190	165	50	+				
porta.	Total	262	220	228	50	18.47	6.58%	182,830	0.004624	0.03%
	Low Band	82	74	66	6		212270	,		
Inyo	Mid-Band	150	130	177.5	50					
	Total	232	204	243.5	56	20.69	7.61%	18,026	0.000456	0.00%
17	Low Band	82	80	66	10					
Kern	Mid-Band	190	180	276.5	50	00.47	0.400/	000 440	0.000500	0.450/
	Total Low Band	272 82	260 74	342.5 56	60 16	22.17	6.42%	893,119	0.022590	0.15%
Kings	Mid-Band	170	210	200.9	50	+				
rungo	Total	252	284	256.9	66	24.38	7.68%	150,101	0.003797	0.03%
	Low Band	82	18	61	5			,		
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	281.9	55	20.32	6.99%	64,246	0.001625	0.01%
	Low Band	32	12	76	16	1				
Lassen	Mid-Band	180	160	167.5	50	04.00	0.500/	24 400	0.000700	0.040/
	Total	212 82	172 80	243.5 66	66 10	24.38	9.52%	31,163	0.000788	0.01%
Los Angeles	Low Band Mid-Band	180	180	255.8	10 50	+ +				
90.00	Total	262	260	321.8	60	22.17	6.64%	10,163,507	0.257065	1.71%
	Low Band	32	74	56	16			., 22,231		
Madera	Mid-Band	140	210	236.5	50					
	Total	172	284	292.5	66	24.38	8.10%	156,890	0.003968	0.03%
	Low Band	82	90	61	15	1				
Marin	Mid-Band	200	150	255	50	04.04	7.000/	200.055	0.000000	0.050/
	Total Low Band	282 32	240 80	316 76	65 10	24.01	7.20%	260,955	0.006600	0.05%
Mariposa	Mid-Band	170	170	256.5	50	+ +				
anposa	Total	202	250	332.5	60	22.17	7.10%	17,569	0.000444	0.00%
	Low Band	82	18	61	5		, ,	,550	2.300	2.0070
Mendocino	Mid-Band	200	150	193.1	50					
	Total	282	168	254.1	55	20.32	7.25%	88,018	0.002226	0.02%
	Low Band	32	80	76	10					
Merced	Mid-Band	140	200	246.5	50					•
	Total	172	280	322.5	60	22.17	7.19%	272,673	0.006897	0.05%
Madas	Low Band	32	12	44	6	+ +				
Modoc	Mid-Band	150	100	177.5	50 56	20.60	0 800/	0 050	0.000224	0.000/
	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

							Dieb			Dieb W/s
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share
	Low Band	82	74	66	6		Silare			Silare
Mono	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	56	20.69	7.41%	14,168	0.000358	0.00%
Mantana	Low Band	82 170	90 180	61 225.7	15 50	+ +				
Monterey	Mid-Band Total	252	270	286.7	65	24.01	7.44%	437,907	0.011076	0.08%
	Low Band	82	90	61	15	24.01	7.4470	437,307	0.011070	0.00 /6
Napa	Mid-Band	200	150	266.5	50					
· ·	Total	282	240	327.5	65	24.01	7.11%	140,973	0.003566	0.03%
	Low Band	82	74	56	10					
Nevada	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	60	22.17	6.75%	99,814	0.002525	0.02%
0	Low Band	82	80	66	10					
Orange	Mid-Band Total	180 262	180 260	260.5 326.5	50 60	22.17	6.60%	3,190,400	0.080695	0.53%
	Total Low Band	82	74	56	10	22.17	0.00%	3,190,400	0.060695	0.53%
Placer	Mid-Band	180	180	257	50					
- 1.0.00	Total	262	254	313	60	22.17	6.75%	386,166	0.009767	0.07%
	Low Band	32	12	66	6			555,.55	3,333,31	
Plumas	Mid-Band	180	160	238.7	50					
	Total	212	172	304.7	56	20.69	7.52%	18,742	0.000474	0.00%
	Low Band	82	80	66	10					
Riverside	Mid-Band	180	180	266.5	50	1				
	Total	262	260	332.5	60	22.17	6.56%	2,423,266	0.061292	0.40%
Sacramento	Low Band Mid-Band	82 180	74 180	56 257	10 50	+ +				
Jaciamento	Total	262	180 254	313	60	22.17	6.75%	1,530,615	0.038714	0.26%
	Low Band	32	80	76	10	22.11	0.75%	1,550,615	0.0367 14	0.20%
San Benito	Mid-Band	170	180	210.7	50					
	Total	202	260	286.7	60	22.17	7.42%	60,310	0.001525	0.01%
	Low Band	82	80	66	10		•			
San Bernardino	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	60	22.17	6.56%	2,157,404	0.054567	0.36%
	Low Band	82	74	66	16					
San Diego	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	+				
Sali Flancisco	Mid-Band Total	200 282	150 240	246.3 307.3	50 65	24.01	7.27%	884,363	0.022368	0.16%
	Low Band	82	90	61	15	24.01	1.2170	004,303	0.022306	0.10%
San Joaquin	Mid-Band	180	150	276.5	50					
	Total	262	240	337.5	65	24.01	7.19%	745,424	0.018854	0.14%
	Low Band	32	80	66	10					
San Luis Obispo	Mid-Band	180	180	246.5	50					
	Total	212	260	312.5	60	22.17	7.10%	283,405	0.007168	0.05%
	Low Band	82	90	61	15					
San Mateo	Mid-Band	200	150	266.5	50	04.04	7.440/	774 440	0.040544	0.440/
	Total	282	240	327.5	65	24.01	7.11%	771,410	0.019511	0.14%
Santa Barbara	Low Band Mid-Band	32 220	80 150	66 256.5	10 50	+				
Canta Darbara	Total	252	230	322.5	60	22.17	6.94%	448,150	0.011335	0.08%
	Low Band	82	90	61	15	22.17	0.0470	440,100	0.011000	0.0070
Santa Clara	Mid-Band	190	150	276.5	50	1				
	Total	272	240	337.5	65	24.01	7.11%	1,938,153	0.049022	0.35%
	Low Band	82	90	61	15	<u> </u>				
Santa Cruz	Mid-Band	170	180	256.5	50		· · ·		_	
	Total	252	270	317.5	65	24.01	7.19%	275,897	0.006978	0.05%
05	Low Band	82	62	49	11	+ +				
Shasta	Mid-Band	170	140	266.5	50	00.50	7.040/	170 001	0.004554	0.0007
	Total Low Band	252 82	202 74	315.5 66	61 6	22.53	7.34%	179,921	0.004551	0.03%
Sierra	Mid-Band	180	160	266.5	50	+ +				
Oleita	Total	262	234	332.5	56	20.69	6.33%	2,999	0.000076	0.00%
	Low Band	82	12	44	6	20.03	0.0070	2,559	5.555070	0.00 /0
Siskiyou	Mid-Band	170	140	177.5	50	† †				
· •	Total	252	152	221.5	56	20.69	8.22%	43,853	0.001109	0.01%
	Low Band	82	90	46	0					
Solano	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	50	18.47	5.65%	445,458	0.011267	0.06%
	Low Band	82	90	61	15	↓				
Sonoma	Mid-Band	170	180	248.7	50		7.050	=0	0.015===	
	Total	252	270	309.7	65	24.01	7.25%	504,217	0.012753	0.09%
Stanislaus	Low Band	82 150	90	46 261.5	50	+				
Statilislaus	Mid-Band Total	150 232	220 310	261.5 307.5	50 50	18.47	5.56%	547,899	0.013858	0.08%
	ı uldı	232	310	301.5	30	10.47	J.J0%	547,099	0.013038	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

(Values shown are in MegaHertz)

0.00000

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

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

Country Cand								Dish			Dish Wt
Alleneds	County	Band	Verizon	AT&T	New T-Mobile	Dish		Spectrum			Spectrn
Total 282 240 327.5 75 258 8.11% 1,669.190 0,042007 0,341		Low Band	82	90	61	25		Share			Snare
Apine	Alameda	Mid-Band									
Aprile							25.98	8.11%	1,663,190	0.042067	0.34%
Total											
Amador Mc Band 32	Alpine						00.00	7.050/	4.400	0.000000	0.000/
Mind-Sand 190 180 2518 50							22.86	7.95%	1,120	0.000028	0.00%
Total	Amador						+				
Buttle	7 (1110001						20.78	7.28%	38.626	0.000977	0.01%
Mid-Band 190									22,122		
Low Band 32 80 66 10	Butte										
Calaveras		Total	262	224	312.5	60	20.78	6.99%	229,294	0.005800	0.04%
Total											
Low Band S2	Calaveras										
Column							20.78	7.19%	45,670	0.001155	0.01%
Total											
Low Band 82 90 61 25 25 25 25 25 25 25 2	Colusa						04.04	7.000/	04.005	0.000550	0.000
Control Costa							24.24	7.90%	21,805	0.000552	0.00%
Total	Contra Costa						+				
Low Band 82 12 44 16	Contra Costa						25 98	8 11%	1 147 430	0 029022	0.24%
Del Norte Mid-Band 170 150 177.5 50							20.00	0.11/0	1,177,700	0.020022	J.27 /
Total 252 162 221.5 66 22.6 9.41% 27.470 0.000665 0.015 Et Dorado Mid-Band 180 180 256.5 50	Del Norte						†				
El Dorado El Dorado Hid-Band 180 180 256.5 50 50 180 180, 256.5 50 50 180, 24 7.79% 188,987 0.004780 0.04780 180, 256.5 50 50 180, 242 180, 254 180, 256.5 50 180, 256.5 5							22.86	9.41%	27,470	0.000695	0.01%
Fresho Fr		Low Band			56						
Fresho Hid-Band 160 180 256.5 50	El Dorado	Mid-Band	180	180	256.5	50					
Freshor Mid-Band 160 180 256.5 50 26.3 5.9% 989,255 0.025021 0.219							24.24	7.79%	188,987	0.004780	0.04%
Total	ļ										
Columber Columber	Fresno						1				
Mil-Band 180							26.32	8.59%	989,255	0.025021	0.21%
Total 262 212 312.5 60 20.78 7.09% 28,094 0.00711 0.019	0.										
Low Band	Glenn						00.70	7.000/	00.004	0.000744	0.040/
Humbold Mid-Band							20.78	7.09%	28,094	0.000711	0.01%
Total	Humboldt						+				
Mind-Band	Humbolat						22 51	8.45%	136 754	0.003459	0.03%
Michand							22.01	0.4070	100,704	0.000400	0.007
Total	Imperial										
Inyo	,						19.74	7.43%	182.830	0.004624	0.03%
Total									,,,,,,		
Low Band Ref	Inyo	Mid-Band	150	130	177.5	50					
Kern Mid-Band Mid-Band 190 180 276.5 50 9 1 2 7 1 2 2 260 342.5 70 24.24 7.41% 893,119 0.022590 0.179 Kings Mid-Band Mid-Band 170 210 200.9 50 20 24.24 7.41% 893,119 0.022590 0.179 Lake Mid-Band Mid-Band 170 210 200.9 50 20 25.2 284 256.9 76 26.32 8.75% 150,101 0.003797 0.039 Lake Mid-Band 82 18 61 15 15 150 150 20.99 50 150 20.99 50 150 150 10.003797 0.039 Lake Mid-Band 82 18 61 15 15 150 150 150 10.003797 10.003797 10.003797 10.003797 10.003797 10.003797 10.003797 10.003797 10.003797		Total	232				22.86	8.85%	18,026	0.000456	0.00%
Total 272 260 342.5 70 24.24 7.41% 893,119 0.022590 0.179	ļ										
Low Band Record	Kern										
Mid-Band							24.24	7.41%	893,119	0.022590	0.17%
Total 252 284 256.9 76 26.32 8.75% 150,101 0.003797 0.039	16										
Lake Lake Low Band B2 18	Kings						00.00	0.750/	450 404	0.000707	0.000/
Lake Mid-Band 200 150 220.9 50							26.32	8.75%	150,101	0.003797	0.03%
Total 282 168 281.9 65 22.51 8.16% 64,246 0.001625 0.019	Lako										
Low Band 32 12 76 26	Lake						22 51	8 16%	64 246	0.001625	0.01%
Lassen Mid-Band 180 160 167.5 50							22.01	0070	34,240	5.501020	3.017
Total 212 172 243.5 76 26.32 10.80% 31,163 0.000788 0.019	Lassen						1				
Low Band							26.32	10.80%	31,163	0.000788	0.01%
Low Band 180 180 255.8 50											
Madera Low Band 32 74 56 26	Los Angeles	Mid-Band									
Madera Mid-Band 140 210 236.5 50 Total 172 284 292.5 76 26.32 9.22% 156,890 0.003968 0.049 Marin Mid-Band 200 150 255 50 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>24.24</td><td>7.66%</td><td>10,163,507</td><td>0.257065</td><td>1.97%</td></td<>							24.24	7.66%	10,163,507	0.257065	1.97%
Total 172 284 292.5 76 26.32 9.22% 156,890 0.003968 0.049											
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 0.059 Low Band 32 80 76 20	Madera						 				
Marin Mid-Band 200 150 255 50 Total 282 240 316 75 25.98 8.21% 260,955 0.006600 0.059 Mariposa Mid-Band 170 170 256.5 50 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>26.32</td><td>9.22%</td><td>156,890</td><td>0.003968</td><td>0.04%</td></td<>							26.32	9.22%	156,890	0.003968	0.04%
Total 282 240 316 75 25.98 8.21% 260,955 0.006600 0.059 Mariposa Mid-Band 170 170 256.5 50 Total 202 250 332.5 70 24.24 8.19% 17,569 0.000444 0.009 Mendocino Mid-Band 200 150 193.1 50 Total 282 168 254.1 65 22.51 8.45% 88,018 0.002226 0.029 Merced Mid-Band 140 200 246.5 50 Merced Mid-Band 172 280 322.5 70 24.24 8.29% 272,673 0.006897 0.069 Modoc Mid-Band 150 100 177.5 50	Mori-						+ +				
Mariposa Low Band Mid-Band 170 32 80 76 20 Mid-Band 170 170 256.5 50	ıvıarı⊓						25.00	0 240/	200.055	0.000000	0.050
Mariposa Mid-Band 170 170 256.5 50 Total 202 250 332.5 70 24.24 8.19% 17,569 0.000444 0.009 Mendocino Low Band 82 18 61 15							25.98	0.21%	∠00,955	0.00ช000.0	0.05%
Total 202 250 332.5 70 24.24 8.19% 17,569 0.000444 0.009	Marinosa						+				
Mendocino Low Band 82 18 61 15 Section 15 <td>νιαπρυδα</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>24.24</td> <td>8 10%</td> <td>17 560</td> <td>0.000444</td> <td>0 000/</td>	νιαπρυδα						24.24	8 10%	17 560	0.000444	0 000/
Mendocino Mid-Band 200 150 193.1 50							24.24	0.13/0	17,309	0.000444	0.00%
Total 282 168 254.1 65 22.51 8.45% 88,018 0.002226 0.029	Mendocino						+ +				
Merced Low Band 32 80 76 20 Mid-Band 140 200 246.5 50 50 Total 172 280 322.5 70 24.24 8.29% 272,673 0.006897 0.069 Low Band 32 12 44 16							22 51	8.45%	88 018	0.002226	0.02%
Merced Mid-Band 140 200 246.5 50							22.01	J J / J	30,010	5.502220	3.02 /
Total 172 280 322.5 70 24.24 8.29% 272,673 0.006897 0.069 Low Band 32 12 44 16	Merced						1				
Low Band 32 12 44 16 Modoc Mid-Band 150 100 177.5 50							24.24	8.29%	272.673	0.006897	0.06%
Modoc Mid-Band 150 100 177.5 50								2.20,0	, 0	2.200001	3.007
	Modoc										
	İ	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

							B: 1			D: 1 14/4 1
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	66	16		Snare			Share
Mono	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	66	22.86	8.62%	14,168	0.000358	0.00%
	Low Band	82	90	61	25					
Monterey	Mid-Band Total	170 252	180 270	225.7 286.7	50 75	25.98	8.49%	437,907	0.011076	0.09%
	Low Band	82	90	61	25	25.96	0.4976	437,907	0.011076	0.09%
Napa	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	25.98	8.11%	140,973	0.003566	0.03%
	Low Band	82	74	56	20					
Nevada	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	70	24.24	7.79%	99,814	0.002525	0.02%
0	Low Band	82	80	66	20	1				
Orange	Mid-Band Total	180 262	180 260	260.5 326.5	50 70	24.24	7.62%	3,190,400	0.080695	0.61%
	Low Band	82	74	56	20	24.24	7.02/0	3,130,400	0.000033	0.0176
Placer	Mid-Band	180	180	257	50					
	Total	262	254	313	70	24.24	7.79%	386,166	0.009767	0.08%
	Low Band	32	12	66	16					
Plumas	Mid-Band	180	160	238.7	50		•			•
	Total	212	172	304.7	66	22.86	8.75%	18,742	0.000474	0.00%
Diverside	Low Band	82	80	66	20					
Riverside	Mid-Band	180	180	266.5	50	24.24	7.570/	2 422 262	0.064300	0.469/
	Total Low Band	262 82	260 74	332.5 56	70 20	24.24	7.57%	2,423,266	0.061292	0.46%
Sacramento	Mid-Band	180	180	257	50	1				
Cacramento	Total	262	254	313	70	24.24	7.79%	1,530,615	0.038714	0.30%
	Low Band	32	80	76	20			1,222,212		
San Benito	Mid-Band	170	180	210.7	50					
	Total	202	260	286.7	70	24.24	8.55%	60,310	0.001525	0.01%
	Low Band	82	80	66	20					
San Bernardino	Mid-Band	180	180	266.5	50	2121		0.155.101	0.054505	0.1101
	Total	262	260	332.5	70	24.24	7.57%	2,157,404	0.054567	0.41%
San Diego	Low Band Mid-Band	82 150	74 150	66 257	26 50	-				
San Diego	Total	232	224	323	76	26.32	8.89%	3,337,685	0.084420	0.75%
	Low Band	82	90	61	25	20.02	0.0070	0,007,000	0.001120	0.7070
San Francisco	Mid-Band	200	150	246.3	50					
	Total	282	240	307.3	75	25.98	8.29%	884,363	0.022368	0.19%
	Low Band	82	90	61	25					
San Joaquin	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 Mid-Band	32 180	80 180	66 246.5	20 50	-				
San Luis Obispo	Total	212	260	312.5	70	24.24	8.19%	283,405	0.007168	0.06%
	Low Band	82	90	61	25	27.27	0.1370	200,400	0.007 100	0.0070
San Mateo	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	25.98	8.11%	771,410	0.019511	0.16%
	Low Band	32	80	66	20					
Santa Barbara	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	82 190	90 150	61 276.5	25 50					
Santa Clara	Mid-Band Total	272	240	337.5	75	25.98	8.11%	1,938,153	0.049022	0.40%
	Low Band	82	90	61	25	25.30	0.11/0	1,000,100	0.043022	0.70 /0
Santa Cruz	Mid-Band	170	180	256.5	50					
	Total	252	270	317.5	75	25.98	8.20%	275,897	0.006978	0.06%
	Low Band	82	62	49	21		•			•
Shasta	Mid-Band	170	140	266.5	50					
	Total	252	202	315.5	71	24.59	8.45%	179,921	0.004551	0.04%
Çio	Low Band	82	74	66	16	1				
Sierra	Mid-Band Total	180 262	160 234	266.5 332.5	50 66	22.86	7.38%	2,999	0.000076	0.00%
	Low Band	82	12	332.5	16	22.00	1.30%	2,559	0.000076	0.00%
Siskiyou	Mid-Band	170	140	177.5	50	†				
	Total	252	152	221.5	66	22.86	9.54%	43,853	0.001109	0.01%
	Low Band	82	90	46	10			,.50		
Solano	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	60	20.78	6.71%	445,458	0.011267	0.08%
	Low Band	82	90	61	25					
Sonoma	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					
Statilistaus	Mid-Band Total	150 232	220 310	261.5 307.5	50 60	20.78	6.60%	547,899	0.013858	0.09%
	i Ulai	202	010	JU1.J	JU	20.10	0.00/0	∪ 4 1,033	0.010000	0.03/0

Table 3-Redline-2023 600 MHz Lease

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

Dish Spectrum Share

Dish Market Sha

2.74%

7.91%

Dish BW Adj Factor

0.00000

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

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

							Dish			Dish Wto
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum Share	County Population	Population Weight	Spectrm Share
	Low Band	82	90	61	25		Share			Snare
Alameda	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	75	29.24	8.11%	1,663,190	0.042067	0.34%
	Low Band	32	74	66	16					
Alpine	Mid-Band	180	160	252.2	50	05.70	7.050/	4.400	0.000028	0.000/
	Total Low Band	212 32	234 74	318.2 46	66 10	25.73	7.95%	1,120	0.000028	0.00%
Amador	Mid-Band	180	180	251.8	50	+				
7 tilladoi	Total	212	254	297.8	60	23.39	7.28%	38,626	0.000977	0.01%
	Low Band	82	74	46	10					
Butte	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	60	23.39	6.99%	229,294	0.005800	0.04%
	Low Band	32	80	66	10					
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	60	23.39	7.19%	45,670	0.001155	0.01%
Caluan	Low Band	82	62	56	20	+				
Colusa	Mid-Band	180	180	256.5	50	07.00	7.000/	04.005	0.000550	0.000/
	Total Low Band	262 82	242 90	312.5 61	70 25	27.29	7.90%	21,805	0.000552	0.00%
Contra Costa	Mid-Band	200	150	266.5	50	+ +				
23 300.00	Total	282	240	327.5	75	29.24	8.11%	1,147,439	0.029022	0.24%
	Low Band	82	12	44	16	20.24		.,,400	3.023022	J.2-170
Del Norte	Mid-Band	170	150	177.5	50					
	Total	252	162	221.5	66	25.73	9.41%	27,470	0.000695	0.01%
	Low Band	82	74	56	20					
El Dorado	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	70	27.29	7.79%	188,987	0.004780	0.04%
_	Low Band	82	74	56	26					
Fresno	Mid-Band	160	180	256.5	50	00.00	0.500/	000.055	0.005004	0.040/
	Total	242 82	254 62	312.5 46	76 10	29.63	8.59%	989,255	0.025021	0.21%
Glenn	Low Band Mid-Band	180	150	266.5	50	+				
Gleilli	Total	262	212	312.5	60	23.39	7.09%	28,094	0.000711	0.01%
	Low Band	82	18	61	15	20.00	7.0370	20,034	0.000711	0.0170
Humboldt	Mid-Band	170	170	203.1	50					
İ	Total	252	188	264.1	65	25.34	8.45%	136,754	0.003459	0.03%
	Low Band	82	30	63	7					
Imperial	Mid-Band	180	190	165	50					
	Total	262	220	228	57	22.22	7.43%	182,830	0.004624	0.03%
	Low Band	82	74	66	16					
Inyo	Mid-Band	150	130	177.5	50	05.70	0.050/	10.000	0.000450	0.000/
	Total	232	204	243.5	66	25.73	8.85%	18,026	0.000456	0.00%
Kern	Low Band Mid-Band	82 190	80 180	66 276.5	20 50	+				
Kem	Total	272	260	342.5	70	27.29	7.41%	893,119	0.022590	0.17%
	Low Band	82	74	56	26	21.29	7.4170	093,119	0.022390	0.17 /0
Kings	Mid-Band	170	210	200.9	50					
9-	Total	252	284	256.9	76	29.63	8.75%	150,101	0.003797	0.03%
	Low Band	82	18	61	15					
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	281.9	65	25.34	8.16%	64,246	0.001625	0.01%
	Low Band	32	12	76	26	1				
Lassen	Mid-Band	180	160	167.5	50	20.0-	10.000	24.42	0.000=0-	
	Total	212	172	243.5	76	29.63	10.80%	31,163	0.000788	0.01%
Los Angolos	Low Band	82	80	66	20	+ -				
Los Angeles	Mid-Band Total	180 262	180 260	255.8 321.8	50 70	27.29	7.66%	10,163,507	0.257065	1.97%
	Low Band	32	74	56	26	21.29	7.00%	10, 103,307	0.201005	1.8170
Madera	Mid-Band	140	210	236.5	50	+				
	Total	172	284	292.5	76	29.63	9.22%	156,890	0.003968	0.04%
	Low Band	82	90	61	25	25.50		.55,550	2.200000	3.0.7
Marin	Mid-Band	200	150	255	50					
	Total	282	240	316	75	29.24	8.21%	260,955	0.006600	0.05%
	Low Band	32	80	76	20					
Mariposa	Mid-Band	170	170	256.5	50	1				
	Total	202	250	332.5	70	27.29	8.19%	17,569	0.000444	0.00%
Manda :	Low Band	82	18	61	15	1				
Mendocino	Mid-Band	200	150	193.1	50	05.01	0.450/	00.040	0.000000	0.000
	Total	282	168	254.1	65	25.34	8.45%	88,018	0.002226	0.02%
Merced	Low Band Mid-Band	32	80	76 246.5	20	+				
ivierceu	Mid-Band Total	140 172	200 280	246.5 322.5	50 70	27.29	8.29%	272,673	0.006897	0.06%
	Low Band	32	12	322.5	16	21.29	0.2970	212,013	0.000097	0.00%
Modoc	Mid-Band	150	100	177.5	50	+ -				
	Total	182	112	221.5	66	25.73	11.35%	8,859	0.000224	0.00%
	. Jul			:.0	30	20.70	50 /0	0,000	3.300LLT	3.00 /0

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

							Dieb			D:-1-14/4-
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share
	Low Band	82	74	66	16		Silare			Silare
Mono	Mid-Band	150	160	167.5	50					
	Total	232	234	233.5	66	25.73	8.62%	14,168	0.000358	0.00%
	Low Band	82	90	61	25					
Monterey	Mid-Band	170	180	225.7	50	20.04	0.400/	407.007	0.011076	0.000/
	Total Low Band	252 82	270 90	286.7 61	75 25	29.24	8.49%	437,907	0.011076	0.09%
Napa	Mid-Band	200	150	266.5	50	+ +				
Тара	Total	282	240	327.5	75	29.24	8.11%	140,973	0.003566	0.03%
	Low Band	82	74	56	20			,		
Nevada	Mid-Band	180	180	256.5	50					
	Total	262	254	312.5	70	27.29	7.79%	99,814	0.002525	0.02%
	Low Band	82	80	66	20					
Orange	Mid-Band	180	180	260.5	50					
	Total	262	260	326.5	70	27.29	7.62%	3,190,400	0.080695	0.61%
	Low Band	82	74	56	20					
Placer	Mid-Band	180	180	257	50	07.00	7.700/	000.400	0.000707	0.000/
	Total	262	254	313	70	27.29	7.79%	386,166	0.009767	0.08%
Plumas	Low Band	32	12 160	66 238.7	16 50	+				
i iuiiias	Mid-Band Total	180 212	172	304.7	66	25.73	8.75%	18,742	0.000474	0.00%
+	Low Band	82	80	66	20	20.70	0.1070	10,772	0.000474	0.00 /0
Riverside	Mid-Band	180	180	266.5	50	1				
· · ·	Total	262	260	332.5	70	27.29	7.57%	2,423,266	0.061292	0.46%
	Low Band	82	74	56	20			' ' '		
Sacramento	Mid-Band	180	180	257	50					
	Total	262	254	313	70	27.29	7.79%	1,530,615	0.038714	0.30%
	Low Band	32	80	76	20					
San Benito	Mid-Band	170	180	210.7	50					
	Total	202	260	286.7	70	27.29	8.55%	60,310	0.001525	0.01%
	Low Band	82	80	66	20					
San Bernardino	Mid-Band	180	180	266.5	50	07.00	7.570/	0.457.404	0.054507	0.440/
	Total Low Band	262 82	260 74	332.5	70 26	27.29	7.57%	2,157,404	0.054567	0.41%
San Diego	Mid-Band	150	150	66 257	50	+				
San Diego	Total	232	224	323	76	29.63	8.89%	3,337,685	0.084420	0.75%
	Low Band	82	90	61	25	25.05	0.0370	3,337,003	0.004420	0.7370
San Francisco	Mid-Band	200	150	246.3	50	1				
	Total	282	240	307.3	75	29.24	8.29%	884,363	0.022368	0.19%
	Low Band	82	90	61	25			, , , , , , , , , , , , , , , , , , , ,		
San Joaquin	Mid-Band	180	150	276.5	50					
	Total	262	240	337.5	75	29.24	8.20%	745,424	0.018854	0.15%
	Low Band	32	80	66	20					
San Luis Obispo	Mid-Band	180	180	246.5	50	1				
	Total	212	260	312.5	70	27.29	8.19%	283,405	0.007168	0.06%
Can Matas	Low Band	82	90	61	25	+ +				
San Mateo	Mid-Band Total	200 282	150 240	266.5 327.5	50 75	29.24	8.11%	771,410	0.019511	0.16%
	Low Band	32	80	66	20	29.24	0.11%	771,410	0.019311	0.10%
Santa Barbara	Mid-Band	220	150	256.5	50					
Janua Barbara	Total	252	230	322.5	70	27.29	8.00%	448,150	0.011335	0.09%
	Low Band	82	90	61	25		/ -	12,120		
Santa Clara	Mid-Band	190	150	276.5	50					
	Total	272	240	337.5	75	29.24	8.11%	1,938,153	0.049022	0.40%
	Low Band	82	90	61	25		· · · · · ·			
Santa Cruz	Mid-Band	170	180	256.5	50	1				
	Total	252	270	317.5	75	29.24	8.20%	275,897	0.006978	0.06%
05	Low Band	82	62	49	21	+ +				
Shasta	Mid-Band Total	170	140	266.5	50	07.00	0 450/	470.004	0.004554	0.040/
+	Total Low Band	252 82	202 74	315.5 66	71 16	27.68	8.45%	179,921	0.004551	0.04%
Sierra	Mid-Band	180	160	266.5	50	+ +				
Siona	Total	262	234	332.5	66	25.73	7.38%	2,999	0.000076	0.00%
	Low Band	82	12	44	16	20.70	00 /0	2,000	3.000010	5.5070
Siskiyou	Mid-Band	170	140	177.5	50	1				
· •	Total	252	152	221.5	66	25.73	9.54%	43,853	0.001109	0.01%
	Low Band	82	90	46	10					
Solano	Mid-Band	200	150	266.5	50					
	Total	282	240	312.5	60	23.39	6.71%	445,458	0.011267	0.08%
	Low Band	82	90	61	25		· · · · · ·			
Sonoma	Mid-Band	170	180	248.7	50					
	Total	252	270	309.7	75	29.24	8.27%	504,217	0.012753	0.11%
	Low Band	82	90	46	10	1				
Stanislaus	Mid-Band	150	220	261.5	50	1				
	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

82 180 262 82 170 252 82 170 252 82 170 252 82	74 150 224 62 140 202 18 160 178	56 261.8 317.8 44 266.5 310.5 61 256.5	20 50 70 16 50 66	27.29	8.01% 7.95%	96,648	0.002445	0.02%
262 82 170 252 82 170 252 82	224 62 140 202 18 160	317.8 44 266.5 310.5 61	70 16 50 66					0.02%
82 170 252 82 170 252 82	62 140 202 18 160	44 266.5 310.5 61	16 50 66					0.02%
170 252 82 170 252 82	140 202 18 160	266.5 310.5 61	50 66	25.73	7.95%	63 026		
252 82 170 252 82	202 18 160	310.5 61	66	25.73	7.95%	63 026		
82 170 252 82	18 160	61		25.73	7.95%	63 026		
170 252 82	160		15	ı		03,320	0.001617	0.01%
252 82		256.5		l l				
82	178		50					
		317.5	65	25.34	8.00%	12,709	0.000321	0.00%
	74	56	26					
200	180	246.5	50					
282	254	302.5	76	29.63	8.31%	464,493	0.011748	0.10%
32	80	76	20					
180	180	251.5	50					
212	260	327.5	70	27.29	8.05%	54,248	0.001372	0.01%
82	80	66	20					
190	150	258.7	50					
272	230	324.7	70	27.29	7.81%	854,223	0.021606	0.17%
82	74	56	20					
180	180	257	50					
262	254	313	70	27.29	7.79%	219,116	0.005542	0.04%
82	74	46	10					
180	150	261.8	50					
262	224	307.8	60	23.39	7.03%	77,031	0.001948	0.01%
	32 180 212 82 190 272 82 180 262 82 180 262 tem; Joint Applicant	32 80 180 180 212 260 82 80 190 150 272 230 82 74 180 180 262 254 82 74 180 150 262 254 82 74 180 150 262 254	32 80 76 180 180 251.5 212 260 327.5 82 80 66 190 150 258.7 272 230 324.7 82 74 56 180 180 257 262 254 313 82 74 46 180 150 261.8 262 224 307.8	32 80 76 20 180 180 251.5 50 212 260 327.5 70 82 80 66 20 190 150 258.7 50 272 230 324.7 70 82 74 56 20 180 180 257 50 262 254 313 70 82 74 46 10 180 150 261.8 50 262 224 307.8 60	32 80 76 20 180 180 251.5 50 212 260 327.5 70 27.29 82 80 66 20 190 150 258.7 50 272 230 324.7 70 27.29 82 74 56 20 180 180 257 50 262 254 313 70 27.29 82 74 46 10 180 150 261.8 50	32 80 76 20 180 180 251.5 50 212 260 327.5 70 27.29 8.05% 82 80 66 20 66 20 27.29 7.81% <td>32 80 76 20 180 180 251.5 50 212 260 327.5 70 27.29 8.05% 54,248 82 80 66 20 80 66 20 80<td>32 80 76 20 180 180 251.5 50 212 260 327.5 70 27.29 8.05% 54,248 0.001372 82 80 66 20</td></td>	32 80 76 20 180 180 251.5 50 212 260 327.5 70 27.29 8.05% 54,248 82 80 66 20 80 66 20 80 <td>32 80 76 20 180 180 251.5 50 212 260 327.5 70 27.29 8.05% 54,248 0.001372 82 80 66 20</td>	32 80 76 20 180 180 251.5 50 212 260 327.5 70 27.29 8.05% 54,248 0.001372 82 80 66 20

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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	90	61	29					On all o
Alameda	Mid-Band	200	150	266.5	50	24.00	0.540/	4 000 400	0.040007	0.000/
	Total Low Band	282 32	240 74	327.5 66	79 20	31.82	8.51%	1,663,190	0.042067	0.36%
Alpine	Mid-Band	180	160	252.2	50					
·	Total	212	234	318.2	70	28.19	8.39%	1,120	0.000028	0.00%
	Low Band	32	74	46	14					
Amador	Mid-Band	180	180	251.8	50	05.70	7.700/	22.222	0.000077	0.040/
	Total Low Band	212 82	254 74	297.8 46	64 14	25.78	7.73%	38,626	0.000977	0.01%
Butte	Mid-Band	180	150	266.5	50					
Ballo	Total	262	224	312.5	64	25.78	7.42%	229,294	0.005800	0.04%
	Low Band	32	80	66	14					
Calaveras	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 50					
Colusa	Mid-Band Total	180 262	180 242	256.5 312.5	74	29.81	8.31%	21,805	0.000552	0.00%
	Low Band	82	90	61	29	23.01	0.5176	21,003	0.000332	0.0076
Contra Costa	Mid-Band	200	150	266.5	50					
	Total	282	240	327.5	79	31.82	8.51%	1,147,439	0.029022	0.25%
	Low Band	82	12	44	20					
Del Norte	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 Mid-Band	82 180	74 180	56 256.5	24 50					
El Dorado	Total	262	254	312.5	74	29.81	8.20%	188,987	0.004780	0.04%
	Low Band	82	74	56	30	23.01	0.2076	100,307	0.004700	0.04 /0
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	312.5	80	32.22	9.00%	989,255	0.025021	0.23%
	Low Band	82	62	46	14					
Glenn	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	25.78	7.52%	28,094	0.000711	0.01%
L lorrada a Lalé	Low Band	82	18	61	19					
Humboldt	Mid-Band Total	170 252	170 188	203.1 264.1	50 69	27.79	8.93%	136,754	0.003459	0.03%
	Low Band	82	30	63	11	21.13	0.9376	130,734	0.003439	0.03 /6
Imperial	Mid-Band	180	190	165	50					
	Total	262	220	228	61	24.57	7.91%	182,830	0.004624	0.04%
	Low Band	82	74	66	20					
Inyo	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	+				
Kem	Mid-Band Total	190 272	180 260	276.5 342.5	50 74	29.81	7.80%	893,119	0.022590	0.18%
	Low Band	82	74	56	30	29.01	7.0076	093,119	0.022390	0.1076
Kings	Mid-Band	170	210	200.9	50					
Ü	Total	252	284	256.9	80	32.22	9.16%	150,101	0.003797	0.03%
	Low Band	82	18	61	19					
Lake	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 Mid-Band	32 180	12 160	76 167.5	30 50	+				
Lassen	Total	212	172	243.5	80	32.22	11.31%	31,163	0.000788	0.01%
	Low Band	82	80	66	24	32.22	11.0170	51,103	0.000700	0.0170
Los Angeles	Mid-Band	180	180	255.8	50	1				
	Total	262	260	321.8	74	29.81	8.06%	10,163,507	0.257065	2.07%
	Low Band	32	74	56	30		-			
Madera	Mid-Band	140	210	236.5	50	\bot				
	Total	172	284	292.5	80	32.22	9.66%	156,890	0.003968	0.04%
Marin	Low Band	82	90	61	29	+ +				
Marin	Mid-Band Total	200 282	150 240	255 316	50 79	31.82	8.62%	260,955	0.006600	0.06%
	Low Band	32	80	76	24	51.02	0.02/0	200,000	0.000000	0.0070
Mariposa	Mid-Band	170	170	256.5	50	1				
<u>-</u> _	Total	202	250	332.5	74	29.81	8.62%	17,569	0.000444	0.00%
	Low Band	82	18	61	19					
Mendocino	Mid-Band	200	150	193.1	50					
	Total	282	168	254.1	69	27.79	8.93%	88,018	0.002226	0.02%
Mous	Low Band	32	80	76	24	+ +				
Merced	Mid-Band	140	200	246.5	50	00.04	0.700/	070.070	0.000007	0.000/
	Total Low Band	172 32	280 12	322.5 44	74 20	29.81	8.72%	272,673	0.006897	0.06%
Modoc	Mid-Band	150	100	177.5	50	+ +				
	Total	182	112	221.5	70	28.19	11.96%	8,859	0.000224	0.00%
					. •	200	50 ,0	0,000	3.300EET	00,0

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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wtd Spectrm Share
	Low Band	82	74	66	20					
Mono	Mid-Band Total	150 232	160 234	167.5 233.5	50 70	28.19	9.10%	14,168	0.000358	0.00%
	Low Band	82	90	61	29	20.19	9.10%	14,100	0.000336	0.00%
Monterey	Mid-Band	170	180	225.7	50					
Í	Total	252	270	286.7	79	31.82	8.90%	437,907	0.011076	0.10%
	Low Band	82	90	61	29					
Napa	Mid-Band	200	150	266.5	50	04.00	0.540/	110.070	0.000500	0.000/
	Total Low Band	282 82	240 74	327.5 56	79 24	31.82	8.51%	140,973	0.003566	0.03%
Nevada	Mid-Band	180	180	256.5	50					
14074444	Total	262	254	312.5	74	29.81	8.20%	99,814	0.002525	0.02%
	Low Band	82	80	66	24	20.01	0.2070	00,011	0.002020	0.0270
Orange	Mid-Band	180	180	260.5	50					
	Total	262	260	326.5	74	29.81	8.02%	3,190,400	0.080695	0.65%
	Low Band	82	74	56	24					
Placer	Mid-Band	180	180	257	50	00.04	0.400/	000 400	0.000707	0.000/
	Total Low Band	262	254 12	313 66	74 20	29.81	8.19%	386,166	0.009767	0.08%
Plumas	Mid-Band	32 180	160	238.7	50					
i iuiiias	Total	212	172	304.7	70	28.19	9.23%	18,742	0.000474	0.00%
	Low Band	82	80	66	24	20.10	0.2070	10,172	3.300-7.4	0.0070
Riverside	Mid-Band	180	180	266.5	50					
	Total	262	260	332.5	74	29.81	7.97%	2,423,266	0.061292	0.49%
	Low Band	82	74	56	24					
Sacramento	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					
San benito	Mid-Band Total	170 202	180 260	210.7 286.7	50 74	29.81	8.99%	60,310	0.001525	0.01%
	Low Band	82	80	66	24	29.01	0.99%	60,310	0.001323	0.01%
San Bernardino	Mid-Band	180	180	266.5	50					
Guil Boillarumo	Total	262	260	332.5	74	29.81	7.97%	2,157,404	0.054567	0.43%
	Low Band	82	74	66	30			, , , ,		
San Diego	Mid-Band	150	150	257	50					
	Total	232	224	323	80	32.22	9.31%	3,337,685	0.084420	0.79%
	Low Band	82	90	61	29					
San Francisco	Mid-Band	200	150	246.3	50	04.00	0.700/	204.000	0.000000	0.400/
	Total Low Band	282 82	240 90	307.3 61	79 29	31.82	8.70%	884,363	0.022368	0.19%
San Joaquin	Mid-Band	180	150	276.5	50					
ouoouqu	Total	262	240	337.5	79	31.82	8.60%	745,424	0.018854	0.16%
	Low Band	32	80	66	24			,		
San Luis Obispo	Mid-Band	180	180	246.5	50					
	Total	212	260	312.5	74	29.81	8.62%	283,405	0.007168	0.06%
	Low Band	82	90	61	29					
San Mateo	Mid-Band	200	150	266.5	50	04.00	0.540/	774 440	0.040544	0.470/
	Total Low Band	282 32	240 80	327.5 66	79 24	31.82	8.51%	771,410	0.019511	0.17%
Santa Barbara	Mid-Band	220	150	256.5	50					
Carna Barbara	Total	252	230	322.5	74	29.81	8.42%	448,150	0.011335	0.10%
	Low Band	82	90	61	29	20.01		1.0,100	2.31.030	2.7070
Santa Clara	Mid-Band	190	150	276.5	50					
	Total	272	240	337.5	79	31.82	8.51%	1,938,153	0.049022	0.42%
_	Low Band	82	90	61	29					
Santa Cruz	Mid-Band	170	180	256.5	50	2.1.2-	0.0007	0== 00=	0.0000=	0.0007
	Total	252	270	317.5	79	31.82	8.60%	275,897	0.006978	0.06%
Shasta	Low Band Mid-Band	82 170	62 140	49 266.5	25 50	 				
Jiidold	Total	252	202	315.5	75	30.21	8.88%	179.921	0.004551	0.04%
	Low Band	82	74	66	20	30.21	0.0070	170,021	0.007001	0.0470
Sierra	Mid-Band	180	160	266.5	50					
	Total	262	234	332.5	70	28.19	7.79%	2,999	0.000076	0.00%
	Low Band	82	12	44	20					
Siskiyou	Mid-Band	170	140	177.5	50					
	Total	252	152	221.5	70	28.19	10.06%	43,853	0.001109	0.01%
Calcii	Low Band	82	90	46	14	ļ				
Solano	Mid-Band	200	150	266.5	50	05.70	7.12%	AAE 4E0	0.044067	0.000/
	Total Low Band	282 82	240 90	312.5 61	64 29	25.78	1.1270	445,458	0.011267	0.08%
Sonoma	Mid-Band	170	180	248.7	50					
223	Total	252	270	309.7	79	31.82	8.67%	504,217	0.012753	0.11%
	Low Band	82	90	46	14			,		
Stanislaus	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

(Values shown are in MegaHertz)

0.00000

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

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

							Dish			Dish Wto
County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Spectrum	County Population	Population Weight	Spectrm
	Low Band	82	90	61	29		Share			Share
Alameda	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 50					
	Mid-Band Total	180 212	180 254	251.8 297.8	64	27.49	7.73%	38,626	0.000977	0.01%
	Low Band	82	74	46	14	21.43	1.1370	30,020	0.000377	0.017
Butte	Mid-Band	180	150	266.5	50					
	Total	262	224	312.5	64	27.49	7.42%	229,294	0.005800	0.04%
	Low Band	32	80	66	14			-, -		
Calaveras	Mid-Band	180	150	266.5	50					
	Total	212	230	332.5	64	27.49	7.63%	45,670	0.001155	0.01%
	Low Band	82	62	56	24					
Colusa	Mid-Band	180	180	256.5	50					
	Total	262	242	312.5	74	31.78	8.31%	21,805	0.000552	0.00%
	Low Band	82	90	61	29					
Contra Costa	Mid-Band	200	150	266.5	50	20.00	0.540/	4 4 4 7 400	0.000000	0.050
	Total	282	240	327.5	79	33.93	8.51%	1,147,439	0.029022	0.25%
Del Norte	Low Band	82 170	12 150	44 177.5	20 50	1				
Delinoite	Mid-Band Total	252	162	221.5	70	30.07	9.92%	27,470	0.000695	0.01%
	Low Band	82 82	74	221.5 56	24	30.07	ÿ.∀∠%	21,410	0.000095	0.01%
El Dorado	Mid-Band	180	180	256.5	50	1				
Li Doiado	Total	262	254	312.5	74	31.78	8.20%	188,987	0.004780	0.04%
	Low Band	82	74	56	30	01.70	0.2070	100,007	0.004700	0.047
Fresno	Mid-Band	160	180	256.5	50					
	Total	242	254	312.5	80	34.36	9.00%	989,255	0.025021	0.23%
	Low Band	82	62	46	14					
Glenn	Mid-Band	180	150	266.5	50					
	Total	262	212	312.5	64	27.49	7.52%	28,094	0.000711	0.01%
	Low Band	82	18	61	19					
Humboldt	Mid-Band	170	170	203.1	50					
	Total	252	188	264.1	69	29.64	8.93%	136,754	0.003459	0.03%
	Low Band	82	30	63	11					
Imperial	Mid-Band	180	190	165	50					
	Total	262	220	228	61	26.20	7.91%	182,830	0.004624	0.04%
	Low Band	82	74	66	20					
Inyo	Mid-Band	150	130	177.5	50			40.000		
	Total	232	204	243.5	70	30.07	9.34%	18,026	0.000456	0.00%
Konn	Low Band	82	80	66	24	+				
Kern	Mid-Band	190	180	276.5	50 74	24.70	7.000/	002 110	0.000500	0.100/
	Total Low Band	272 82	260 74	342.5 56	30	31.78	7.80%	893,119	0.022590	0.18%
Kings	Mid-Band	170	210	200.9	50	+				
Kings	Total	252	284	256.9	80	34.36	9.16%	150,101	0.003797	0.03%
	Low Band	82	18	61	19	04.00	3.1070	130,101	0.003737	0.007
Lake	Mid-Band	200	150	220.9	50					
	Total	282	168	281.9	69	29.64	8.62%	64,246	0.001625	0.01%
	Low Band	32	12	76	30		–	2 .,0		
Lassen	Mid-Band	180	160	167.5	50	1				
ļ	Total	212	172	243.5	80	34.36	11.31%	31,163	0.000788	0.01%
	Low Band	82	80	66	24					
Los Angeles	Mid-Band	180	180	255.8	50					
	Total	262	260	321.8	74	31.78	8.06%	10,163,507	0.257065	2.07%
	Low Band	32	74	56	30					
Madera	Mid-Band	140	210	236.5	50					
	Total	172	284	292.5	80	34.36	9.66%	156,890	0.003968	0.04%
	Low Band	82	90	61	29					
Marin	Mid-Band	200	150	255	50	20.00	0.000/	000.055	0.000000	0.000
	Total	282	240	316	79	33.93	8.62%	260,955	0.006600	0.06%
Marin	Low Band	32	80	76	24	+				
Mariposa	Mid-Band	170	170	256.5	50	04.70	0.600/	47.500	0.000444	0.000
	Total	202	250	332.5	74	31.78	8.62%	17,569	0.000444	0.00%
Mendocino	Low Band Mid-Band	82	18	61	19	1				
	Total	200 282	150 168	193.1 254.1	50 69	29.64	8.93%	88,018	0.002226	0.02%
	Low Band	32	80	76	24	25.04	0.3370	00,010	0.002220	0.02%
Merced	Mid-Band	140	200	246.5	50	1				
Moroda	Total	172	280	322.5	74	31.78	8.72%	272,673	0.006897	0.06%
	Low Band	32	12	322.5	20	31.10	U.1 Z 70	212,013	0.000037	0.00%
Modoc	Mid-Band	150	100	177.5	50	1				
	Total	182	112	221.5	70	30.07	11.96%	8,859	0.000224	0.00%
	i Viai	102	1 14	££ 1.0	, ,	50.07	1 1.00 /0	0,000	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

County	Band	Verizon	AT&T	New T-Mobile	Dish	Dish Ramp- up Adjusted	Dish Spectrum Share	County Population	Population Weight	Dish Wto Spectrm Share	
	Low Band	82	74	66	20		Silare			Silare	
Mono	Mid-Band	150	160	167.5	50						
	Total	232	234	233.5	70	30.07	9.10%	14,168	0.000358	0.00%	
Montorou	Low Band	82 170	90 180	61 225.7	29 50	+					
Monterey	Mid-Band Total	252	270	286.7	79	33.93	8.90%	437,907	0.011076	0.10%	
	Low Band	82	90	61	29	33.93	0.90 /6	437,307	0.011070	0.1076	
Napa	Mid-Band	200	150	266.5	50						
	Total	282	240	327.5	79	33.93	8.51%	140,973	0.003566	0.03%	
	Low Band	82	74	56	24						
Nevada	Mid-Band	180	180	256.5	50						
	Total	262	254	312.5	74	31.78	8.20%	99,814	0.002525	0.02%	
_	Low Band	82	80	66	24						
Orange	Mid-Band Total	180 262	180 260	260.5 326.5	50 74	31.78	8.02%	3.190.400	0.080695	0.65%	
	Total Low Band	82	74	56	24	31.70	0.02%	3,190,400	0.060695	0.05%	
Placer	Mid-Band	180	180	257	50	+					
. 14551	Total	262	254	313	74	31.78	8.19%	386,166	0.009767	0.08%	
	Low Band	32	12	66	20			222,122			
Plumas	Mid-Band	180	160	238.7	50						
	Total	212	172	304.7	70	30.07	9.23%	18,742	0.000474	0.00%	
	Low Band	82	80	66	24						
Riverside	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 Mid-Band	82 180	74 180	56 257	24 50	+					
Sacramento	Total	262	254	313	74	31.78	8.19%	1,530,615	0.038714	0.32%	
	Low Band	32	80	76	24	31.76	0.1976	1,550,615	0.0367 14	0.32 %	
San Benito	Mid-Band	170	180	210.7	50						
	Total	202	260	286.7	74	31.78	8.99%	60,310	0.001525	0.01%	
	Low Band	82	80	66	24			,			
San Bernardino	Mid-Band	180	180	266.5	50						
•	Total	262	260	332.5	74	31.78	7.97%	2,157,404	0.054567	0.43%	
	Low Band	82	74	66	30						
San Diego	Mid-Band	150	150	257	50						
	Total	232	224	323	80	34.36	9.31%	3,337,685	0.084420	0.79%	
Can Francisco	Low Band	82	90	61	29	+					
San Francisco	Mid-Band Total	200 282	150 240	246.3 307.3	50 79	22.02	8.70%	884,363	0.022368	0.19%	
	Low Band	82	90	61	29	33.93	0.70%	004,303	0.022300	0.1976	
San Joaquin	Mid-Band	180	150	276.5	50	+					
	Total	262	240	337.5	79	33.93	8.60%	745,424	0.018854	0.16%	
	Low Band	32	80	66	24			- ,			
San Luis Obispo	Mid-Band	180	180	246.5	50						
	Total	212	260	312.5	74	31.78	8.62%	283,405	0.007168	0.06%	
	Low Band	82	90	61	29						
San Mateo	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	32 220	80 150	66 256.5	24 50	-					
Santa Barbara	Mid-Band Total	252	230	322.5	74	31.78	8.42%	448,150	0.011335	0.10%	
	Low Band	82	90	61	29	31.70	U.7Z /0	740,100	0.011000	0.1070	
Santa Clara	Mid-Band	190	150	276.5	50	1					
	Total	272	240	337.5	79	33.93	8.51%	1,938,153	0.049022	0.42%	
	Low Band	82	90	61	29						
Santa Cruz	Mid-Band	170	180	256.5	50						
	Total	252	270	317.5	79	33.93	8.60%	275,897	0.006978	0.06%	
	Low Band	82	62	49	25	1					
Shasta	Mid-Band	170	140	266.5	50	20.01	0.000/	470.001	0.004551	0.040	
	Total	252	202	315.5	75 20	32.21	8.88%	179,921	0.004551	0.04%	
Sierra	Low Band Mid-Band	82 180	74 160	66 266.5	20 50	+					
Oleira	Total	262	234	332.5	70	30.07	7.79%	2,999	0.000076	0.00%	
	Low Band	82	12	44	20	30.07	0 /0	2,000	3.000070	0.0070	
Siskiyou	Mid-Band	170	140	177.5	50	1					
,	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%	
	Low Band	82	90	61	29	1					
Sonoma	Mid-Band	170	180	248.7	50		0.075		0.015==-		
	Total	252	270	309.7	79	33.93	8.67%	504,217	0.012753	0.11%	
Stanislaus	Low Band	82 150	90	46 261.5	14	+					
Statilislaus	Mid-Band Total	150 232	220 310	261.5 307.5	50 64	27.49	7.01%	547,899	0.013858	0.10%	
	ı uldı	232	310	JU1.5	04	21.49	1.0170	547,099	0.013038	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

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