

Before the
Federal Communications Commission
Washington, D.C. 20554

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In the Matter of)
)
Unlicensed Operation in the TV Broadcast Bands)
)
Requests for Waiver of Section 15.712(b) to)
Register Certain TV Receive Sites in the TV)
Bands Database)
)

ET Docket No. 04-186

MAILED
JUN 12 2012
FCC Mail Room

ORDER

Adopted: May 30, 2012

Released: June 1, 2012

By the Chief, Office of Engineering and Technology

I. INTRODUCTION

1. By this Order we grant in part and deny in part requests from eighteen parties to waive Section 15.712(b) of the Commission’s rules to register in the TV bands databases certain low power TV and Multichannel Video Program Distributor (MVPD) receive sites that are more than 80 km outside the protected contour of the TV stations that they receive.¹ The TV bands databases are used by fixed and personal portable unlicensed devices to identify available channels at their specific geographic locations. Our actions herein will protect incumbent services from interference without significantly impacting the amount of spectrum available for TV bands devices.

II. BACKGROUND

2. On September 23, 2010, the Commission adopted a *Second Memorandum Opinion and Order (Second MO&O)* in ET Docket No. 04-186 that revised the rules for unlicensed wireless devices that operate in the broadcast TV bands at locations where spectrum is unused by licensed services, particularly broadcast television services.² This unused TV spectrum is commonly referred to as television “white spaces.” The rules allow for the operation of unlicensed TV bands devices in unused TV spectrum to provide broadband data and other services for consumers and businesses. To prevent interference to authorized users of the TV bands, TV bands devices must include a geo-location capability and the capability to access a database that identifies incumbent users entitled to interference protection, including, for example, full power and low power TV stations, broadcast auxiliary point-to-point facilities, Private Land Mobile Radio Service and Commercial Mobile Radio Service operations on channels 14-20, and the Offshore Radiotelephone Service.³ The database will provide a TV bands device

¹ Twenty-five parties filed waiver requests. As discussed below, we have determined that only eighteen parties would need waivers to register their sites in the TV bands database. A list of parties filing waiver requests is in Appendix B.

² See *Second Memorandum Opinion and Order* in ET Docket No. 04-186, 25 FCC Rcd 18661 (2010).

³ See 47 C.F.R. § 15.711. The rules also contain provisions for devices that rely on spectrum sensing to determine available channels. See 47 C.F.R. § 15.717.

with a list of TV channels that are vacant and can be used at its specific location.⁴

3. MVPDs and operators of Class A TV, low power TV, and TV translator stations (collectively “low power TV stations”) in many cases receive over-the-air TV signals for redistribution to subscribers or retransmission to viewers. Receive sites that meet certain criteria may be registered in the TV bands database to receive protection against interference from TV bands devices.⁵ TV stations are already protected from interference by TV bands devices within their protected contours. Therefore, only receive sites outside of a TV station’s protected contour may be registered in the TV bands database. Due to the expected maximum range at which a digital TV station could be received over the air, the Commission initially limited registration to sites that are no more than 80 km outside the protected contour of the TV station being received. In the *Second MO&O*, the Commission recognized that it may be possible in some instances for a low power receive site to receive a TV station signal more than 80 km outside of a transmitting station’s protected contour. It therefore provided a 90 day period beginning January 5, 2011 for parties to file requests for a waiver of this distance limit.⁶

4. Twenty-five parties filed requests for waivers of Section 15.712(b) to register in the TV bands database certain low power TV and MVPD receive sites that are more than 80 km outside the protected contour of the TV station being received. The Office of Engineering and Technology (OET) performed an initial analysis of the receive sites listed in these requests to determine whether they are more than 80 km outside the protected contour of the received TV station. OET determined that some of the sites did not require a waiver because they are inside of the protected contour of the received TV station, less than 80 km outside the received TV station’s protected contour, or are receiving a TV station’s signal through intermediate links of less than 80 km (*e.g.*, the TV signal is relayed from one low power TV station to another).⁷ In other instances the OET found, after communicating with the applicants, that certain sites listed in the waiver requests are receiving TV stations through a fiber optic or microwave link rather than an over-the-air TV signal and that they therefore may not be registered in the database.

5. On December 28, 2011, OET released a public notice which invited interested parties to file comments on the waiver requests.⁸ The public notice included tables listing the receive sites that OET’s analysis indicated were more than 80 km outside the protected contour of the received TV station. The notice sought comment on whether the Commission should grant the requested waivers and permit registration of those low power TV and MVPD receive sites in the TV bands database. OET also sought comment on whether: (1) the data contained in its tables is accurate; (2) the tables listed all the sites in the waiver requests that are more than 80 km outside the protected contour of the TV stations being received; and (3) we should allow intermittent or permanent registration for back-up receive sites.

⁴ See 47 C.F.R. § 15.713(a)-(b).

⁵ See 47 C.F.R. § 15.712(b).

⁶ See *Second MO&O*, 25 FCC Rcd 18661, 18680 (2010). On April 4, 2012, the Commission adopted a *Third Memorandum Opinion and Order (Third MO&O)* in this proceeding. In the *Third MO&O*, the Commission modified the procedure by which the TV bands database administrators obtain information on the locations of low power receive sites that are outside the protected contour the received TV station by up to 80 km. However, it made no changes that affect the pending requests for waivers to register receive sites that are greater than 80 km outside the protected contour of the received TV station. See *Third Memorandum Opinion and Order* in ET Docket No. 04-186, FCC 12-36, released April 5, 2012.

⁷ See Appendix B.

⁸ See “Office of Engineering and Technology Seeks Comment on Requests for Waiver of Section 15.712(b) to Register Certain TV Receive Sites in the TV Bands Database,” Public Notice, DA 11-2086, ET Docket No. 04-186, rel. Dec. 28, 2011.

6. Six parties filed comments in response to the public notice, and two parties filed reply comments. A list of parties filing comments is in Appendix A. The comments support granting the requested waivers to permit registration certain receive sites in the TV bands database. No party opposes allowing the registration of back-up receive sites, but several parties filed comments regarding the conditions under which these sites should be protected. Two parties request the inclusion of sites in the TV bands databases that were not listed in OET's public notice, and one party expresses concerns that the Commission's databases lack the necessary information to protect inputs for microwave links that receive over-the-air TV signals.

III. DISCUSSION

A. Grant of requested waivers

7. We are authorized to grant a waiver under Section 1.3 of the Commission's rules if a petitioner demonstrates good cause for such action.⁹ Good cause, in turn, may be found and a waiver granted "where particular facts would make strict compliance inconsistent with the public interest."¹⁰ To make this public interest determination, the waiver cannot undermine the purposes of the rule, and there must be a stronger public interest benefit in granting the waiver than in applying the rule.¹¹

8. Section 15.712(b) is designed to ensure that the receive sites of licensed low power TV stations are protected from interference at the expected maximum range a digital TV station can be received over the air, while at the same time allowing unlicensed devices reasonable access to unused spectrum. Waiving Section 15.712(b) and adding the sites listed in the attached Appendices C and D to the TV bands databases would neither hinder the development of TV bands devices nor significantly decrease the amount of available spectrum available to these devices. Hence, granting these waivers will not undermine the purpose of the rules. Finally, there is a stronger public interest benefit in granting these waivers than in strictly applying the rules. Denying the requested waivers to register sites that can receive over-the-air TV signals more than 80 km outside a station's protected contour would increase the potential for harmful interference from TV bands devices and could interrupt vital programming to TV viewers.

9. Accordingly, we find that good cause exists for granting waivers of Section 15.712(b) to permit registration of the low power TV receive sites listed in Appendix C and the MVPD receive sites listed in Appendix D. We are waiving the rules to permit registration of all sites listed in the appendices to our December 28, 2011 public notice, with the exception of the receive site for station K56JG-D because this station's operating authority has expired. We are also granting a waiver to permit the registration of receive sites for stations K15FQ-D and K28EA which were not listed in the appendices to our December 28, 2011 public notice. Additionally, we are granting a waiver to permit the registration of five University of Utah sites that receive over-the-air TV signals as a backup to other methods, such as

⁹ 47 C.F.R. § 1.3. See also *ICO Global Communications (Holdings) Limited v. FCC*, 428 F.3d 264 (D.C. Cir. 2005); *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

¹⁰ *Northeast Cellular*, 897 F.2d at 1166; see also *ICO Global Communications*, 428 F.3d at 269 (quoting *Northeast Cellular*); *WAIT Radio*, 418 F.2d at 1157-59.

¹¹ See, e.g., *WAIT Radio*, 418 F.2d at 1157 (stating that even though the overall objectives of a general rule have been adjudged to be in the public interest, it is possible that application of the rule to a specific case may not serve the public interest if an applicant's proposal does not undermine the public interest policy served by the rule); *Northeast Cellular*, 897 F.2d at 1166 (stating that in granting a waiver, an agency must explain why deviation from the general rule better serves the public interest than would strict adherence to the rule).

microwave links. Our reasons for taking these actions are discussed in more detail below. We conclude that our decision to grant in part and deny in part the requested waivers is in the public interest because it will provide protection for vital incumbent TV services while providing sufficient spectrum for TV bands devices to operate reliably.

B. Data accuracy and additional receive sites

10. OET sought comment on whether the data contained in the tables in the appendices to the public notice was accurate. In addition, it sought comment on whether there were any receive sites that should have been listed in the appendices but were excluded. No party alleged any specific inaccuracies in OET's tables, but two parties filed comments claiming that receive sites were excluded from the table that should have been included. These comments are addressed below.

1. K15FQ-D

11. Community Television of Utah License, LLC indicates that its station K15FQ-D receives station K56BB over the air. OET did not include this receive site on its initial list because the receive channel (56) is outside the channel range in which TV bands devices can operate. Thus, there would be no need to register this site in a database to provide protection from TV bands devices. Community Television of Utah submitted comments stating that K56BB filed a displacement application to transmit its signal on channel 14 rather than channel 56 and that the channel change is scheduled to occur in the Spring of 2012.¹² It requests a waiver to register this receive site in the TV bands database because the received channel will be below channel 51 and the site is more than 80 km from the transmit stations protected contour.

12. We agree with Community Television that this receive site should be registered in the TV bands databases. Our analysis agrees with the Community Television of Utah License, LLC in that the distance between the transmit site's protected contour and the receive site is greater than 80 km, and our records show K56BB does have a displacement application approved by the Commission. We find that including this site in the TV bands database is in the public interest.

2. K28EA-D

13. Newport Television states that its station K28EA-D is approximately 113 km away from the protected contour of received station K18FU-D.¹³ It argues that this site should have been included on OET's list because its distance from the protected contour exceeds 80 km.

14. OET re-evaluated this site using corrected coordinates submitted by the applicant. Our analysis shows that the receive site is more than 80 km from the protected contour of received station K28EA-D. We find that including this site in the TV bands database is in the public interest.

C. Registration of back-up receive sites

15. OET sought comment on whether it should permit either temporary or permanent registration of sites that normally receive a TV signal through a means such as a fiber optic or microwave link, but receive a TV signal over the air in the event their primary link fails. Google, Inc. (Google) argues that

¹² See "Community Television of Utah Licensee, LLC Re: Community Television of Utah License, LLC OET Docket Nos. 04-186 and 02-380 Request for Waiver" (Community Television Comments), filed January 30, 2012, ET Docket No. 04-186.

¹³ See "Comments of Newport Television License LLC" (Newport Comments), filed January 30, 2012, ET Docket No. 04-186.

registration for emergency purposes should be allowed for only a limited period of time, e.g., 24 hours, and that licensees should provide proof of reception of over-the-air signals 24 hours prior to registration with the database administrators.¹⁴ The University of Utah opposes Google's request, arguing that if the need for over-the-air reception continues beyond the 24-hour period, the station operators could be required to repeatedly re-register the site, which would be burdensome to the station.¹⁵ The University of Utah proposes a temporary registration period of at least 30 days. It argues that permanent registration of over-the-air backup channels is preferable to temporary registration because: 1) permanent registration would ensure that viewers are not deprived of service during the failure of a microwave link; 2) permanent registration would have the benefit of administrative ease; and 3) the subject receive sites are located in rural areas where there are many other channels on which TV bands devices can operate. The University of Utah also opposes Google's request that licensees must provide proof of over-the-air reception 24 hours prior to emergency registration with a database administrator. It argues that documenting actual over-the-air reception and awaiting FCC action on such a showing could take a week or more, and the receive site would not be protected during this time.¹⁶

16. We are granting a waiver of Section 15.712(b) to the University of Utah to allow permanent registration of its five back-up receive sites listed in Appendix C. This action will ensure that viewers are not deprived of TV service in the event the primary microwave or fiber optic link that serves these sites fails. Permanent registration, as opposed to temporary registration, has the advantage of administrative ease in that it eliminates the need for the University of Utah to immediately register sites when a link goes down to obtain protection or to periodically re-register them during an extended outage of a link. In addition, we note that regardless of the characterization of these facilities as back-up sites, they are nonetheless eligible for waiver protection under the framework we have articulated herein. We also note that these sites are in remote locations where there are currently more than seventeen available channels at each location for TV bands devices, and we believe that permanent registration of these particular sites will not have a substantial negative impact on TV bands device operations in their area.

17. We are denying the University of Utah's request to register the receive site for TV translator station K56JG-D because that station has no authority to operate. The Commission's records show that the construction permit for this station has expired and a license was never issued. Further, K56JG-D was authorized to operate on channel 56, and low power TV stations may no longer operate on channels 52-69 after December 31, 2011.¹⁷ In the event that the University of Utah obtains a new authorization to operate from this or any other site that is more than 80 km beyond the protect contour of the received TV station, it may apply for a waiver of Section 15.712(b) within 90 days of commencing operation.¹⁸

D. Other matters

1. Protection of Microwave sites

18. Some fixed Broadcast Auxiliary Service (BAS) links receive a TV signal over-the-air and retransmit it to another location on microwave frequencies. Section 15.712(c) of the rules provides protection to BAS links when the receive site is located up to 80 km outside the protected contour of the TV station received.¹⁹ The protection provided to these sites is the same as for low power TV and MVPD

¹⁴ See "*Comments of Google Inc.*" (Google Comments), filed January 30, 2012, ET Docket No. 04-186.

¹⁵ *Id.* at 2-3.

¹⁶ *Id.* at 3-4.

¹⁷ See *Second Report and Order* in MB Docket No. 03-185, 26 FCC Rcd 10732, 10743 (2011) at para. 23.

¹⁸ See *Second MO&O* 25 FCC Rcd 18661, 18680 (2010) at para. 42.

¹⁹ See 47 C.F.R. § 15.712(c).

receive sites. Mohave County states that it discovered certain problems in the Commission's databases regarding the protection of over-the-air inputs for microwave sites serving BAS stations. In particular, it notes that the Commission's Universal Licensing System (ULS) database, which contains information on BAS links, is not capable of storing information on multiple over-the-air TV channels received by microwave links.²⁰ Mohave County claims that the input channels for microwave links should be protected and that currently there is no way to do so.²¹ It also states that its BAS station WQHE250 has a receive site located more than 80 km from the protected contour of the received TV station, and seeks a waiver to register this site in the TV bands database.

19. We recognize that the ULS database currently does not permit the entry of multiple over-the-air TV input channels for microwave stations. OET addressed this issue at its February 14, 2012 meeting with the TV bands database administrators where it advised them that point-to-point stations that retransmit TV signals received over-the-air are to be treated in the same manner as MVPDs for the purpose of registering their receive channels in the TV bands database.²² That is, microwave link operators are to be allowed to register their receive site information directly with one of the TV bands database administrators using the database's MVPD registration facility, and that information will automatically be transmitted to all other database administrators. Because we are allowing fixed BAS microwave stations to register in the same manner as MVPDs, we will grant Mohave County's request for a waiver to register BAS station WQHE250 in the TV bands database. We do not believe there are a sufficient number of microwave stations that receive over-the-air TV signals outside a TV station's protected contour to warrant modifying the ULS.

2. Modification of protection criteria

20. Google proposes that the dimensions of the protection zone for over-the-air receive sites that require a waiver be narrower than the protection zone accorded to receive sites that do not require a waiver.²³ Specifically, it requests that the angle of the zone be reduced from 60 degrees (+/- 30 degrees) to 30 degrees (+/- 15 degrees). The University of Utah opposes Google's proposal, arguing that all registered receive sites should receive the same level of interference protection to the extent that the Commission authorizes stations to register for protection in the database via a waiver.²⁴ It further argues that the Commission established a "keyhole" shape and distances after a lengthy rulemaking process that involved intensive technical comment from interested parties, and that the Commission may not now alter that rule for a subset of database registrants without the benefit of a notice-and-comment rulemaking proceeding.

21. We will not modify the protection criteria for receive sites located more than 80 km from the protected contour of the received TV station. In the *Second MO&O*, the Commission stated that it would permit parties to apply for a waiver of the 80 km distance limit, but did not specify that any reduced protection criteria would apply to receive sites registered under a waiver.²⁵ In the event the Commission believes that technical requirements in the rules should be changed, the Administrative Procedure Act

²⁰ See Mohave County Comments at 3-4 and technical statements at 3-4.

²¹ See "Mohave County Board of Supervisors Comments on Requests for waiver of Section 15.712 (b)" (Mohave County Comments), filed January 27, 2012, ET Docket No. 04-186.

²² Stillwell, Alan. "Implementation Update." *TV Bands Database Administrators Meeting* (Columbia, Maryland, Feb 14, 2012) Ed. FCC Presentation. (available at <http://www.fcc.gov/encyclopedia/white-space-database-administration>).

²³ See Google Comments at 3-4.

²⁴ See University of Utah Reply Comments at 5.

²⁵ See *Second MO&O* 25 FCC Rcd 18661, 18680 (2010) at para. 42.

requires it to give public notice of proposed changes and provide interested parties an opportunity to comment on the proposal.²⁶ Thus, we find that Google's proposal to modify the protection zone is beyond the scope of this *Order*.

IV. ORDERING CLAUSES

22. Accordingly, pursuant to the authority granted in Sections 4(i), 302, and 303(r) of the Communications act of 1934, as amended, 47 U.S.C §§ 4(i), 302, and 303(r), and Sections 0.31 and 0.241 of the Commission's rules, 47 C.F.R §§ 0.31, 0.241, IT IS ORDERED that the requests for waiver filed by certain parties as listed in Appendices C and D ARE GRANTED to extent discussed above, and ARE DENIED to the extent discussed above.

23. For further information regarding this Order, contact Aole Wilkins, Office of Engineering and Technology, (202) 418-2406, aole.wilkins@fcc.gov.

FEDERAL COMMUNICATIONS COMMISSION



Julius P. Knapp
Chief, Office of Engineering and Technology

²⁶ 5 U.S.C. § 553.

APPENDIX A

Parties Filing Comments

Comments

1. Community Television of Utah License, LLC
2. Google Inc.
3. Mohave County Board of Supervisors
4. Newport Television License LLC
5. The Arizona Board of Regents for Arizona State University
6. The University of Utah

Reply Comments

1. The University of Utah
2. Belo Corp.



APPENDIX B**Parties Filing Requests for Waiver of Section 15.712(b)****Low Power TV Receive Site Operators**

1. Arizona Board of Regents for Arizona State University
2. * Biltmore Broadcasting Santa Barbara, Inc.
3. Bonneville Holding Company
4. Community Television License of Utah, LLC
5. High Plains Broadcasting License Company LLC
6. Idaho Independent Television, Inc.
7. * KSAX-TV, Inc.
8. * LIN of New Mexico, LLC
9. MMM License II, LLC
10. MMM License, LLC
11. Mojave County Board of Supervisors
12. * Needles Community TV Club, Inc.
13. Newport Television License LLC
14. SLC TV Licensee Corp.
15. Smokey Valley TV District
16. The University of Utah
17. Western Kane County Special Service District # 1

Multichannel Video Program Distributor Receive Site Operators

1. Allegiance Communications, LLC
2. Comcast Cable Communications LLC
3. * Fidelity Communications Co.
4. Mediacom Communications Corporation
5. * Ritter Communications
6. * SCATUI Cable Vision
7. Sjoberg's Inc.
8. Suddenlink Communications

* Parties that do not require a waiver to register their receive sites in the TV bands database.

APPENDIX C

Low Power TV Receive Sites

Licensee	Receive Callsign	Receive Location	Receive State	Latitude (Deg/Min/Sec)	Longitude (Deg/Min/Sec)	Distance From Protected Contour To Receive site(km)	Transmit Channel	Transmit Callsign
Arizona Board of Regents for Arizona State University	K47GQ	Parks	AZ	35 12 01.00 N	112 12 17.00 W	84.2	8	KAET
Bonneville Holding Company	K24FE-D	Beaver, etc.	UT	38 31 05.00 N	113 17 03.00 W	112.1	47	K47BD-D
Bonneville Holding Company	K35FS-D	Santa Clara, etc.	UT	37 08 15.00 N	113 51 32.00 W	109.5	24	K24FE-D
Community Television License of Utah, LLC	K43CC-D	Santa Clara	UT	37 08 18.80 N	113 52 58.70 W	111.8	15	K15FQ-D
1 Community Television License of Utah, LLC	K15FQ-D	Milford	UT	38 31 13.80 N	113 17 11.50 W	127.2	14	K56BB-D
High Plains Broadcasting License Company LLC	K48JD	Santa Clara & Washin	UT	37 09 15.00 N	113 51 32.00 W	111.4	15	K15FQ-D
High Plains Broadcasting License Company LLC	K45IA	Rock Springs	WY	41 28 05.00 N	109 07 00.00 W	139.4	27	K27KV-D
2 Idaho Independent Television, Inc.	K43NT-D	McDermitt	NV	42 10 43.00 N	117 44 18.00 W	90.7	13	KTRV
MMM License II, LLC (KFBB-TV)	K63AR	Chinook	MT	48 28 13.00 N	109 16 07.60 W	89.0	51	K51KO
MMM License II, LLC (KFBB-TV)	K46GS	Piercywood	MT	48 41 36.10 N	104 35 45.90 W	92.4	25	K25HO
MMM License, LLC (KTMF-TV)	K44KM-D	Salmon	ID	45 08 44.70 N	114 00 33.30 W	93.0	23	KTMF
4 Mojave County Board of Supervisors	WQHE250	Smith Peak	AZ	34 03 54.98 N	113 21 17.01 W	81.5	38	KAZT-CD
1 Newport Television License LLC	K28EA	Washington	UT	37 09 15.00 N	113 53 00.00 W	113.8	18	K18FU-D
SLC TV Licensee Corp.	K22FS-D	Beaver, etc.	UT	38 31 14.00 N	113 17 12.00 W	129.8	34	KJTV
Smokey Valley TV District	K28IS-D	Round Mountain	NV	38 29 23.00 N	116 59 55.00 W	133.7	7	KRNV
Smokey Valley TV District	K27JZ-D	Round Mountain	NV	38 29 23.00 N	116 59 55.00 W	134.1	8	KOLO
Smokey Valley TV District	K25KR-D	Round Mountain	NV	38 29 23.00 N	116 59 55.00 W	133.8	13	KTVN
The University of Utah	K16BO-D	Beaver/Milford	UT	38 31 13.80 N	113 17 11.50 W	117.9	20	K20DW-D
The University of Utah	K20GH-D	Beaver/Milford	UT	38 31 13.80 N	113 17 11.50 W	113.2	49	K48AO-D
The University of Utah	K48KS-D	Delta/Oak City	UT	39 21 12.10 N	112 21 05.80 W	80.7	18	K16BO-D
The University of Utah	K47HM-D	Delta/Oak City	UT	39 21 12.10 N	112 21 05.80 W	80.7	20	K20GH-D
The University of Utah	K50GD-D	Long Valley Junction	UT	37 30 25.40 N	112 30 35.60 W	85.7	22	K22FT-D
The University of Utah	K46EO-D	Long Valley Junction	UT	37 30 25.40 N	112 30 35.60 W	85.7	24	K24FD-D
3 The University of Utah	K40AF-D	Monticello/Blanding	UT	37 50 22.20 N	109 27 42.00 W	183.5	45	K45JN-D
3 The University of Utah	K47JI-D	Monticello/Blanding	UT	37 50 22.20 N	109 27 42.00 W	187.4	48	K48JK-D
3 The University of Utah	K35IQ-D	Vernal	UT	40 21 03.30 N	109 09 45.10 W	102.4	29	K29EX
3 The University of Utah	K50KC-D	Washington County	UT	37 09 18.80 N	113 52 58.70 W	114.7	16	K16BO-D
3 The University of Utah	K44JI-D	Washington County	UT	37 09 18.80 N	113 52 58.70 W	114.7	20	K20GH-D
Western Kane County Special Service District #1	K48EK-D	Long Valley Junction	UT	37 30 25.40 N	112 30 35.60 W	85.7	16	K16EQ-D
Western Kane County Special Service District #1	K32HR-D	Long Valley Junction	UT	37 30 25.40 N	112 30 35.60 W	85.7	18	K18FT-D
Western Kane County Special Service District #1	K51JS-D	Long Valley Junction	UT	37 30 25.40 N	112 30 35.60 W	85.7	20	K20GE-D
Western Kane County Special Service District #1	K41LC-D	Long Valley Junction	UT	37 30 25.40 N	112 30 35.60 W	85.7	26	K26GD-D
Western Kane County Special Service District #1	K44FU-D	Long Valley Junction	UT	37 30 25.40 N	112 30 35.60 W	85.7	28	K28GM-D
Western Kane County Special Service District #1	K42IW-D	Long Valley Junction	UT	37 30 25.40 N	112 30 35.60 W	85.7	30	K30GA-D

1. Sites not listed in the December 28, 2011 Public Notice.
2. Previous call sign K58DZ.
3. Sites that generally obtain a signal by means other than over-the-air reception.
4. WQHE250 is a microwave site that receives an over-the-air TV signal.

APPENDIX D
MVPD Receive Sites

Operator	City of operation	State of operation	Latitude (Deg/Min/Sec)	Longitude (Deg/Min/Sec)	Distance From Protected Contour To Receive site (km)	Channel	Callsign
Allegiance Communications, LLC	Sedan	KS	35 25 44.87 N	096 19 43.62 W	138.5	7	KOAM
Allegiance Communications, LLC	Sedan	KS	35 25 44.87 N	096 19 43.62 W	158.8	46	KSNF
Allegiance Communications, LLC	Meade	KS	37 16 28.36 N	100 20 38.42 W	178.5	29	KSAS-LP
Comcast Cable Communications LLC	Arbuckle	CA	39 01 15.90 N	122 03 35.40 W	85.9	3	KCSO
Comcast Cable Communications LLC	Raton	NM	36 54 32.10 N	104 28 04.80 W	88.4	24	KRDO
Mediacom Communications Corp.	Ajo	AZ	32 22 01.80 N	112 52 45.30 W	84.3	9	KGUN
Mediacom Communications Corp.	Ajo	AZ	32 22 01.80 N	112 52 45.30 W	94.4	32	KOLD
Mediacom Communications Corp.	Dubuque	IA	42 30 48.00 N	090 44 44.70 W	129.2	11	KDIN
Mediacom Communications Corp.	Buffalo Center	IA	43 22 57.90 N	093 56 29.00 W	90.3	29	WFTC
Sjoberg's, Inc.	Warroad	MN	48 54 09.79 N	095 22 39.00 W	98.5	8	WDAZ
Sjoberg's, Inc.	Thief River Falls	MN	48 54 09.79 N	095 22 39.00 W	98.5	8	WDAZ
Sjoberg's, Inc.	Thief River Falls	MN	48 54 09.79 N	095 22 39.00 W	119.0	44	KVLY
Sjoberg's, Inc.	Thief River Falls	MN	48 54 09.79 N	095 22 39.00 W	122.1	38	KXJB
Suddenlink Communications	Muskogee	OK	35 44 54.90 N	095 21 20.00 W	84.4	51	KSBI

