

KXDP-LD – 180 day STA status report to FCC

Syncom Media Group, Inc. (“Licensee”), licensee of LPTV station KXDP-LD, Denver, CO (Facility ID 67552), herein provides the written report requested in the July 16, 2021 letter from Barbara A. Kreisman (LMS File No. Call Sign File Number KXDP-LD 0000152265, relative to KXDP-LD’s operation with an ATSC 3.0 DTV signal on RF channel 6 (82-88 MHz), combined with an analog FM signal on 87.75 MHz radiating from the same antenna.

The above referenced letter requested the following information in the report:

- Details of any reports of interference to other licensed users the station has received
- Details of any interference between KXDP-LD’s video and audio services that in any way limits the coverage of its video
- A demonstration that KXDP-LD’s audio and video coverage reach similar populations

As of the date of this report, KXDP-LD has not received any reports of interference between KXDP-LD’s video or audio services and any other licensed users.

As of the date of this report, KXDP-LD has not received any reports of interference between KXDP-LD’s video and audio services.

To further address the second and third request, KXDP-LD performed a field test on Thursday, January 20, 2022, to measure the actual reception in the field. The tests were performed using an Anywave/AGOS AG-DBUHD1000 Digital Box as the ATSC 3.0 receiver, which has a front panel display of the signal parameters, as well as having an HDMI output to allow video and audio to be viewed and heard on a standard TV set. A photo of this receiver is shown below.



The receive antenna used is a Clear Stream 2V Antenna. Tests were made in downtown Denver, and then at four other sites in the area at varying distances from the transmitter tower. The receiver was located inside a Ford F150 pickup truck and measurements were made by stopping at the various locations, holding the receive antenna outside of the vehicle, and watching the display for best signal strength and signal to noise ratio (SNR). A photo of the test setup is shown below.



Eldorado Mountain KXDP-LD antenna on right

Field Testing Report Findings

Location	Latitude (N)	Longitude (W)	Distance From Tower	Received Signal Level	Received SNR	Video Displayed	FM Received
Downtown Denver - 2900 Welton St. (inside)	39.75676293 0348685,	-104.974983905 34805	20.02 miles	-59dBm	11dB	Yes	Yes
13347 E Montview Blvd, Aurora, CO 80045	39.7479456	-104.8298207	27.09 miles	-63 dBm	16db	Yes	Yes
8940 Colorado Blvd, Thornton, CO 80229	39.8565695	-104.9392001	19.16 miles	-72 dBm	16 dB	Yes	Yes
10655 Westminster Blvd, Westminister, CO 80020	39.8902262	-105.0727108	11.87 miles	-48 dBm	25 dB	Yes	Yes
675 Kipling St, Lakewood, CO 80215	39.72699711 4759484,	-105.111153257 79728	16.02 miles	-57 dBm	18 dB	Yes	Yes

The transmit antenna is a Directional Antenna - Antenna Make/Model: Propagation System Inc three element circularly polarized Antenna PSIFML-3B-DA. The terrain around the Denver metropolitan area consists of rolling terrain varying in elevation. The direction of the receive sites from the transmit tower was varied greatly in elevation with mature trees and structures in the path as well as inside of a large structure at the first location.

The FM reception was simply monitored by tuning the vehicle radio to the 87.75 MHz signal of WMTO-LD's FM carrier, noting whether audio was received. There was no audible interference noted in any of the test locations.

The ATSC 3.0 signal parameters utilized in this instance were as follows:

- FFT size – 8K
- Guard interval – 5/1024
- Modulation – 64 QAM
- Reduced carrier - 4 (narrowest occupied bandwidth)

Code rate 7/15
CTI depth – 1024
FEC type – BCH + 64K LD

Changing of these transmission parameters would affect the coverage capabilities of the DTV signal – for example, changing to QPSK modulation would allow reception in a larger area, albeit with a reduction in data throughput capacity, while a higher order modulation (e.g., 4096 QAM) would have the opposite effects.

In conclusion, we are confident from our testing that we find no evidence that the addition of the FM analog signal in the channel 6 frequencies (82-88 MHz) causes interference that would limit the coverage of the DTV signal. In addition, in testing over a significant part of the overall coverage area, we find that the DTV and FM signals have similar coverage and reach similar populations. As noted, the parameters of the ATSC 3.0 DTV signal can be set to different values that could affect the DTV coverage positively or negatively. But in the typical example that KXDP-LD has used, the coverage appears to be quite similar.

