

WMTO-LD – 90 day STA status report to FCC

Syncom Media Group, Inc. (“Licensee”), licensee of LPTV station WMTO-LD, Norfolk, VA (Facility ID 127802), herein provides the written report requested in the July 16, 2021 letter from Barbara A. Kreisman (LMS File No. 0000152230), relative to WMTO-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 WMTO-LD’s video and audio services that in any way limits the coverage of its video
- A demonstration that WMTO-LD’s audio and video coverage reach similar populations

The first item can be addressed immediately. As of the date of this report, WMTO-LD has not received any reports of interference between WMTO-LD’s video or audio services and any other licensed users.

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

To further address the second and third request, WMTO-LD performed a field test on Friday, October 8, 2021 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 was a simple dipole (rabbit ears), adjusted to approximately 69 inches in length, roughly the half wavelength on the channel 6 center frequency of 85 MHz. Reception tests were made at the transmitter site, inside the building, very near the base of the tower, and then at six other sites in the area at varying distances from the transmitter tower. The receiver was located inside a Toyota Sienna minivan, 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). Some photos of this test setup are shown below.





Latitude and longitude data was captured using the Live Mobile Location app on a Samsung Galaxy Note20 Ultra 5G Android smartphone. The table below shows the data recorded:

<u>Location description</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Distance from tower</u>	<u>Received signal level</u>	<u>Received SNR</u>	<u>Video displayed?</u>	<u>FM received</u>
Tower site - inside building	36.8123276	76.4620496	~100 feet	-33 dBm	22 dB	Yes	Yes
End of driveway at tower site	36.8171193	76.4572676	~0.5 miles	-22 dBm	22 dB	Yes	Yes

Montessori School near Suffolk, VA	36.8674396	76.443984	~3 miles	-45 dBm	23 dB	Yes	Yes
Burger King - Bridge Road	36.8676163	76.490139	~4 miles	-46 dbm	22 dB	Yes	Yes
BP gas station	36.8939236	76.4958883	~6 miles	-65 dBm	11 dB	Yes	Yes
Huntington Park	37.017053	76.4540753	~14 miles	-60 dBm	20 dB	Yes	Yes
CVS Pharmacy - Hampton	37.0443836	76.3759238	~17 miles	-57 dBm	10 dB	Yes	Yes
Extrapolated using free space path loss			~27 miles	-61 dBm	10 dB	Yes	Yes
Extrapolated using free space path loss			~35 miles	-63 dBm	10 dB	Yes	Yes

The transmit antenna is an omnioid pattern, and the terrain around the Norfolk area is relatively flat, so it was assumed that the direction of the receive site from the transmit tower was not significant.

The FM reception was simply monitored by tuning the vehicle radio to the 87.75 MHz signal of WMTO-LD's FM carrier, and 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 LDPC

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 WMTO has employed, the coverage appears to be quite similar.