

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

Petition of:)	
)	
Armstrong Utilities, Inc.)	
)	
for Modification of the DMA Market of)	
Television Station WACP)	
)	CSR-8838-A
In the Matter of:)	CSR-8752-M
)	
Armstrong Utilities, Inc.)	
)	
Carriage Complaint of Western Pacific)	
Broadcast, LLC, WACP-TV,)	
Atlantic City, New Jersey)	
)	

REPLY TO CONSOLIDATED OPPOSITION

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3.	The Daily Local News, Television Listings, Nov. 22, 2013, available from www.dailylocal.com .

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I. INTRODUCTION AND SUMMARY

The Petition¹ seeks modification of WACP’s market to exclude nine local franchise areas² (“Communities”). The Communities are located in the western corner of Chester County, Pennsylvania, a county on the far western edge of the DMA. Atlantic City-based WACP is on the far eastern edge of the Philadelphia DMA, more than 80 miles away from the Communities. By no measure is WACP local to the portion of rural Chester County where the Communities lie, and Armstrong requests that the Communities be excluded from WACP’s must carry market.

¹ *Petition of: Armstrong Utilities, Inc. for Modification of the DMA Market of Television Station WACP, Petition for Special Relief, CSR-8838-A* (filed Sept. 26, 2013) (“Petition”).

² The nine local franchise areas are East Nottingham Twp, Elk Twp, Highland Twp, Londonderry Twp, Lower Oxford Twp, Oxford, Upper Oxford Twp, West Fallowfield Twp, and West Nottingham Twp.

Ample evidence submitted with the Petition supports this result, including:

- WACP fails to place the required service contour over the Communities.
- WACP does not provide any programming directed at the Communities.
- At least five local stations carried by Armstrong in the Communities cover issues of concern to the Communities and provide carriage and coverage of sporting events and other events in the Communities.
- WACP has no history of carriage on Armstrong's system serving the Communities.
- WACP has no reportable ratings in cable or noncable households in the Communities.
- WACP's community of license is more than 80 miles from the Communities, and there is no economic connection between the Communities and Atlantic City.

In addition, as shown in the Petition, this Reply, and in the companion must carry case,³ the picture quality of WACP's signal at the system's headend has been, and remains, grossly substandard. The station continues to fail to deliver a good quality signal to Armstrong's Oxford headend, and sound engineering analysis concludes that it never will.

The Opposition⁴ fails to refute any of this evidence. Instead, WACP attempts to cloud the record with faulty engineering analysis, misstatements of law and precedent, and inaccurate and unsubstantiated factual claims. On the important issue of the complete lack of economic connection between the Communities and Atlantic City, the Opposition submits no evidence or argument, effectively conceding that no connection exists.

³ *In the Matter of: Armstrong Utilities, Inc., Carriage Complaint of Western Pacific Broadcast, LLC, WACP-TV, Atlantic City, New Jersey*, Opposition, CSR-8752-M (filed Jan. 4, 2013) (“Armstrong Must Carry Opposition”).

⁴ *In the Matter of: Armstrong Utilities, Inc., for Modification of the Philadelphia, PA Designated Market Area of Local Commercial Television Station WACP, Licensed to Atlantic City, New Jersey*, Opposition to Petition for Special Relief, CSR-8838-A (filed Nov. 12, 2013) (“Opposition”).

On engineering and factual matters, this Reply incorporates the Engineering Statement and Report of Meintel, Sgrignoli, & Wallace (“MSW Report 2”)⁵ and the Second Supplemental Engineering Statement and Declaration of Edgar E. Hassler, Jr. (“Second Supplemental Statement”).⁶

The Petition and Reply establish that WACP fails to meet the requirements of a local station in the Communities. The Commission should exclude the Communities from WACP’s market, consistent with the 62 communities excluded from WACP’s market in *WACP v. Service Electric*.⁷ The grant of the Petition will best effectuate the underlying purpose of must carry, the “preservation of local television service and the local public interest programming provided by these broadcast stations.”⁸

In the alternative, due to the grossly substandard picture quality received at Armstrong’s headend, the Commission should deny the must carry complaint under *WRNN v. Cablevision*.⁹

Procedural matters. WACP attempts to submit a consolidated pleading in both the market modification case and the companion must carry case. The Media Bureau should deny WACP’s attempt to file the Opposition in the must carry case. The last filing extension granted

⁵ Exhibit 2, Engineering Statement & Report In Support of Market Modification Petition of WACP-DT, Atlantic City, NJ, Meintel, Sgrignoli, & Wallace (Nov. 21, 2013).

⁶ Exhibit 1, Second Supplemental Statement and Declaration of Edgar E. Hassler, Jr., Vice President of Engineering, Armstrong Utilities, Inc. (“Second Supplemental Statement”).

⁷ *In the Matter of Complaint for Carriage by Western Pacific Broadcast, LLC v. Service Electric Cable Television, Inc.; Petition for Modification of Philadelphia, PA Designated Market Area with Regard to Television Station WACP, Atlantic City, NJ*, 28 FCC Rcd 10804 (2013) (“WACP v. Service Electric”).

⁸ *In the Matter of Implementation of Section 4(g) of the Cable Television Consumer Protection and Competition Act of 1992, Home Shopping Station Issues*, Report and Order, 8 FCC Rcd 5321 ¶ 22 (1993) (emphasis added).

⁹ *In re: Complaint of WRNN-TV Associates Limited Partnership against Cablevision Systems Corporation; Request for Carriage*, 13 FCC Rcd 12654 (1998) (“WRNN v. Cablevision”).

to WACP by the Media Bureau set the reply deadline at April 5, 2013, more than 7 months ago. WACP has filed nothing but a string of extension requests since then, none of which were granted, and none of which set forth good cause for a further extension.

II. BACKGROUND

Armstrong's filings in this proceeding and the companion must carry case provide a thorough background briefing.¹⁰ In summary, Armstrong's Oxford, Pennsylvania cable system serves nine rural communities in the far western corner of Chester County, Pennsylvania, a county on the western edge of the Philadelphia DMA. WACP is licensed to Atlantic City, New Jersey, on the far eastern edge of the Philadelphia DMA, over 80 miles from Armstrong's cable system.

A central issue in this case is WACP's consistent failure to deliver a good quality signal to Armstrong's system. Even after installing a preamp and filter selected by WACP, the picture quality delivered to Armstrong's headend remained grossly substandard. Armstrong's Supplemental Must Carry Opposition contains detailed evidence of picture distortions and an erratic digital signal from the station.¹¹

After 15 months of insisting that it delivered a good quality signal, WACP then sought to blame its signal problems on a transmitter problem.¹² The Opposition claims the transmitter problem is fixed, thus curing WACP's signal problems.

¹⁰ Petition at 3-4; Armstrong Must Carry Opposition at 2-5; *In the Matter of: Armstrong Utilities, Inc., Carriage Complaint of Western Pacific Broadcast, LLC, WACP-TV, Atlantic City, New Jersey*, Opposition, CSR-8752-M at 3-6 (filed Jun. 28, 2013) ("Armstrong Supplemental Must Carry Opposition").

¹¹ Armstrong Supplemental Must Carry Opposition at 6-10, Exhibit 1.

¹² *In the Matter of: Armstrong Utilities, Inc. Carriage Complaint of Western Pacific Broadcast, LLC, WACP, Atlantic City, New Jersey*, Opposition to and Motion to Strike WACP's Tenth

As shown in the Second Supplemental Statement, WACP's picture quality at the Oxford headend remains awful, notwithstanding WACP's transmitter repairs.

Overwhelming evidence shows WACP is not local to the Communities – the abysmal picture quality, the failure to place a noise-limited service contour (“NLSC”) over the headend and much of the service area, the complete absence of any local programming, the utter lack of economic connection between the Communities and Atlantic City, and more. All of this points to one conclusion: WACP should not be entitled to must carry on the Oxford system.

III. PROCEDURAL MATTERS – THE MEDIA BUREAU MUST REJECT WACP'S ATTEMPT TO FILE THE OPPOSITION IN THE MUST CARRY CASE BECAUSE IT IS 7 MONTHS LATE

As a procedural matter, the Media Bureau should dismiss the Opposition insofar as WACP seeks to file it in the must carry case. Based on the last extension granted by the Media Bureau, WACP's reply was due April 5, 2013.¹³ Through a series of extension requests since then, WACP has failed to show any good cause for further extension, and the Media Bureau has not granted any further extension. The Media Bureau should not reward WACP's dilatory tactics by allowing the Opposition to be filed in the must carry case. As Armstrong contended in response to WACP's ninth and tenth requests for extensions of time, WACP submitted no evidence demonstrating good cause for the repeated extension requests it has made since the April 5 deadline, and Commission standards support denial of the extension requests.¹⁴

Request for Extension of Time, CSR-8752-M at 2 (filed Oct. 21, 2013) (“Armstrong Opposition to Tenth Request for Extension of Time”).

¹³ Letter regarding Fourth Motion for Extension of Time, CSR-8752-M, Docket No. 12-364, from Simon Bonyai, Attorney Advisor, Policy Division, Media Bureau, Federal Communications Commission to M. Scott Johnson, Fletcher, Heald & Hildreth, PLC (Mar. 7, 2013).

¹⁴ *In the Matter of: Armstrong Utilities, Inc. Carriage Complaint of Western Pacific Broadcast, LLC, WACP, Atlantic City, New Jersey, Opposition to Ninth Request for Extension of Time,*

IV. WACP IS NOT LOCAL TO THE COMMUNITIES, AND, DUE TO GROSSLY SUBSTANDARD PICTURE QUALITY, DOES NOT DELIVER A GOOD QUALITY SIGNAL TO THE OXFORD HEADEND.

The Petition sets forth substantial evidence showing:

- WACP fails to place the required service contour over the Communities.
- WACP does not provide any programming directed at the Communities.
- At least five local stations carried by Armstrong in the Communities cover issues of concern to the Communities and provide carriage and coverage of sporting events and other events in the Communities.
- WACP has no history of carriage on Armstrong's system serving the Communities.
- WACP has no reportable ratings in cable or noncable households in the Communities.
- WACP's community of license is more than 80 miles from the Communities, and there is no economic connection between the Communities and Atlantic City.

In addition, as shown in the Petition, this Reply, and in the companion must carry case, the picture quality of WACP's signal at the system's headend has been, and remains, grossly substandard. The station continues to fail to deliver a good quality signal to Armstrong's Oxford headend, and sound engineering analysis concludes that it never will.

In response to the Petition, the Opposition asks the Media Bureau to ignore this evidence and order a rural cable system in the far western corner of the Philadelphia DMA to carry a VHF station from the farthest eastern edge of the DMA. To support this unseemly result, the Opposition attempts to cloud the record with faulty engineering arguments, misstatements of law and precedent, and inaccurate and unsubstantiated factual claims.

CSR-8752-M at 2-3 (filed Sept. 9, 2013); Armstrong Opposition to Tenth Request for Extension of Time at 3, 7.

The Opposition essentially makes eight arguments. We sort these arguments into three categories - Engineering Arguments, Legal Arguments, and Factual Arguments. We address each argument below.

Throughout this Reply, we reference the MSW Report 2 and Mr. Hassler's Second Supplemental Statement. These two documents contain solid analysis and evidence concerning the problems with WACP's signal at Armstrong's headend.

A. WACP's engineering arguments are flawed, overstating the station's NLSC and failing to provide any evidence to rebut the poor picture quality received at the Oxford headend.

The Opposition makes three principal engineering arguments:

- (i) WACP's recent exciter "upgrades" have cured its signal problems.
- (ii) WACP's NLSC covers the Communities.
- (iii) Substantial upper adjacent channel interference should be ignored.

As demonstrated by the MSW Report 2 and the Second Supplemental Statement, each of these arguments fails under scrutiny, and the engineering analysis underlying WACP's arguments is flawed.

1. Contrary to WACP's claims, the station continues to fail to deliver a good quality signal to the Oxford headend, and the picture quality remains grossly substandard.

A central issue in this case is WACP's ongoing failure to deliver a good quality signal to Armstrong's headend. In this proceeding, WACP's signal problems are probative of the lack of adequate signal coverage in the Communities. In the must carry case, WACP's signal problems show that it fails to satisfy a necessary qualification for must carry.

The Petition includes Mr. Hassler's Supplemental Engineering Statement. That Statement contains objective, verifiable evidence, certified by Mr. Hassler, of WACP's poor

quality signal. The evidence includes: (i) multiple screen shots showing the poor picture quality of WACP's signal as received at the headend and processed through WACP's equipment; and (ii) digital signal test reports showing extraordinarily high levels of packet loss.¹⁵

The Opposition argues that all this evidence is "moot," because "WACP has upgraded its exciters and related equipment to resolve some instability issues."¹⁶

To rebut that assertion, we turn to Mr. Hassler's Second Supplemental Engineering Statement. In summary, Mr. Hassler states:

Since receiving the Opposition, I have conducted further analysis and testing of WACP's picture quality and digital signal. As detailed below, WACP's picture quality continues to be grossly substandard. WACP's transmitter repairs have made no difference. The picture remains significantly degraded due to line distortion, freezing, tiling, and complete picture loss. As our digital signal testing software shows, the signal as received at the Oxford headend continues to suffer from extraordinarily high levels of dropped packets.

From this evaluation, I conclude, as I have before, WACP fails to deliver a good quality signal to Armstrong's Oxford headend.¹⁷

The Second Supplemental Statement contains 27 screen shots of WACP taken on November 18, 2013, and a digital signal analysis report based on a 24-hour evaluation conducted on November 17, 2013.¹⁸ This evidence demonstrates the same problems as shown in Mr. Hassler's previous report – serious video and audio distortion and high levels of packet loss. Mr. Hassler concludes:

Based on my observations of the picture quality as monitored at the Oxford headend, and based on the data presented in the IneoQuest Report, all conducted *after* installing the preamp and filter requested by WACP's engineer, and *after* WACP indicates they have upgraded the transmitter exciters and related

¹⁵ Petition, Exhibit 1.

¹⁶ Opposition at 12.

¹⁷ Second Supplemental Statement at 2.

¹⁸ Second Supplemental Statement, Exhibits 1-5.

equipment, I conclude that the signal quality is unacceptable due to the extraordinarily high level of packet loss. Due to distance, terrain, inference, or other reasons, a sufficiently high number of packets in the digital signal are not arriving at the headend, resulting in poor signal quality.¹⁹

The engineering analysis in the MSW Report 2 also debunks WACP's claims that its exciter repairs remedy the station's signal problems.

WACP contends that its changing of the exciters in its transmitter and the corresponding improvement in transmitter system SNR from 26dB to 35dB will resolve the reception quality problems of WACP. We disagree. Given the severe multiple impairments, some of which are non-linear, the increased SNR performance of the transmitter is not likely to result in improved picture quality at the Armstrong headend.

We note that the improved SNR performance of the transmitter only helps in those cases where reception is limited by a linear distortion that the receiver equalizer in the DTV receiver can effectively correct (equalize). However, the issues of impulsive noise, adjacent channel land-mobile signals, tuner front-end intermodulation, and other impairments are non-linear distortions of the received DTV signal and therefore additional "margin" from improved transmitter SNR will not provide any improved reception. The improved transmitter SNR performance will only aide with the removal of linear distortion from the DTV signal.²⁰

Based on this verified evidence and analysis, the Media Bureau must reject WACP's claims that the station now delivers a good quality signal to Armstrong's headend. For purposes of excluding the Communities from WACP's market, this provides substantial evidence of failure to provide signal coverage, supporting the same result reached for 62 communities in *WACP v. Service Electric*.²¹ For purposes of the must carry complaint, the picture quality problems fall squarely under *WRNN v. Cablevision*,²² mandating dismissal.

¹⁹ Second Supplemental Statement at 8.

²⁰ MSW Report 2 at 8.

²¹ *WACP v. Service Electric* at ¶ 33.

²² 13 FCC Rcd 12645.

2. **Contrary to WACP’s claims, the Oxford headend and much of the service area fall outside the station’s NLSC, and, due to multiple impairments, the western edge of WACP’s NLSC is not a reliable predictor of a good quality signal.**

On the issue of signal coverage, the Petition includes the first MSW Report.²³ That report analyzed WACP’s NLSC, concluding that when adjusted for antenna configuration, the NLSC did not cover the Oxford headend or any of the Communities.

In response, the Opposition submits a Technical Exhibit of Lohnes & Culver (“L&C Exhibit”).²⁴ The L&C Exhibit concludes that “the cable headend location at Oxford, PA is in fact within [WACP’s NLSC].”²⁵

In response to the L&C Exhibit, MSW prepared the MSW Report 2. The MSW Report 2 evaluates the L&C Exhibit and provides an updated analysis and map of WACP’s NLSC.

Concerning the L&C Exhibit, the MSW Report 2 states:

The L&C Exhibit is flawed. The L&C Exhibit contains several significant engineering errors. These include:

- Concluding that WACP’s NLSC with a directional antenna pattern is larger than the NLSC of the nondirectional antenna pattern. This is impossible and results in overstating WACP’s NLSC.
- Treating the WACP antenna pattern as “Omni” instead +/- 1.6dB from circular as specified by the manufacturer data. This error further overstates WACP’s NLSC.
- Failing to calculate the NLSC in accordance with FCC prescribed methodology. This error contributes to overstating WACP’s NLSC.²⁶

After a thorough analysis of the L&C Exhibit, MSW concludes, “The L&C Exhibit contains several significant engineering errors. The FCC should factor these errors into

²³ Petition, Exhibit 4.

²⁴ Opposition, Exhibit A, Technical Exhibit, Lohnes & Culver (Nov. 11, 2013).

²⁵ L&C Exhibit at 1.

²⁶ MSW Report 2 at 2.

evaluation of WACP's engineering evidence. . . In our opinion, if the FCC relied upon the L&C Exhibit . . . in evaluating the problems with WACP's signal, the FCC would be deciding this case based on inaccurate engineering information and analysis."²⁷

The MSW Report 2 then refines its earlier analysis of WACP's NLSC, concluding:

The Oxford headend and much of the system fall outside of WACP's NLSC.
The Oxford headend and much of the service area fall outside of WACP's NLSC, properly adjusted for the antenna pattern.

The western edge of WACP's NLSC does not provide a reliable measure of signal coverage. For several reasons, including propagation characteristics of Low-VHF signals, WACP's NLSC does not provide a reliable measure of good signal coverage. This helps explain why Armstrong continues to receive poor picture quality at the Oxford headend.²⁸

The MSW Report 2 includes an updated NLSC map showing the NLSC contour adjusted for the antenna configuration reported in the L&C Exhibit. The updated NLSC map shows that the Oxford headend and much of the service area fall outside of the NLSC.²⁹ It also shows some of the service area just on or slightly inside the western edge of the NLSC.

The MSW Report 2 explains that, in this case, the edge of the NLSC does not provide a reliable predictor of signal coverage.

WACP provided no information in its comments regarding the additional interference and impairment from impulse noise in the Low-VHF band and provided no proposals to resolve or mitigate the impulse noise issues with the WACP signal.

As noted in our original report, it is well-known that the RF "Noise Floor" in the Low-VHF band has been problematic for DTV reception for some time. Test conducted by this firm on several Low-VHF DTV stations documented much higher levels of impulse and electrical noise in the Low-VHF TV channels due to higher emissions from switching power supplies, television sets, computers, and other electronic devices. Due to the impact of these additional interference

²⁷ MSW Report 2 at 2 and 11.

²⁸ *Id.* at 2.

²⁹ *Id.* at 6.

sources, the prescribed 28dB μ V/m noise limited service contour has no margin for signal fading or other impairments. This can result in poor quality reception at locations near and beyond the noise limited contour of the station.

Furthermore, noise from electrical lines and other sources have essentially created a scenario where reception on the Low-VHF channels requires a much higher signal level to overcome the impulse noise that has become prevalent in the band. Thus, it is not unexpected that reception of the channel 4 signal from WACP is not possible at signal levels near the threshold of the receiver (at and beyond the noise limited contour). The existence of the impairments from impulse noise and other sources further diminishes the poor signal quality received at the Armstrong headend.

We note that impulse noise impairments tend to produce “burst errors” in the DTV receiver. Burst errors are the most difficult type of impairment for the receiver to recover from given that they are non-linear and are random in time and length. Thus, the sophisticated error correction and concealment that are a part of the DTV receiver are limited in their ability to remove burst error distortions.

For WACP at the Oxford headend, we conclude that Low-VHF impulse noise issues, combined with other issues discussed above, makes the predicted 28dB μ V/m noise limited service contour an unreliable predictor of good quality reception. The poor picture quality reported by Armstrong corroborates this.³⁰

For the portions of Armstrong’s service area that fall just inside the NLSC, MSW’s analysis on this point is critical to the Media Bureau’s accurate assessment of the case. In short, taking the predicted NLSC as indicated of actual signal coverage will overstate WACP’s market, and force a poor quality signal on viewers in far western Chester County.

WACP argues that it only needs to place a predicted NLSC across a community on a map to establish local coverage.³¹ But that argument fails to acknowledge the limitations at the edge of a predicted NLSC for a Low-VHF DTV station with multiple impairments. The MSW Report 2 provides a more refined engineering assessment. When combined with the continuing evidence of awful picture quality and high packet loss at the Oxford headend, MSW’s analysis

³⁰ MSW Report 2 at 9.

³¹ Opposition at 3.

establishes the following: Even for the communities that fall just inside the NLSC, WACP fails to provide adequate signal coverage.

Consequently, the lack of local coverage prong of the market modification standards weighs heavily toward excluding the Communities from WACP's market.

3. Contrary to WACP's claims, there is no basis to conclude that the station can address interference problems in the foreseeable future.

The first MSW Report identified adjacent channel interference as a significant signal impairment for WACP.³² The L&C Exhibit acknowledges the interference, then asserts "there is every reason to believe that the land-mobile interference issues can be resolved."³³

Based on the MSW Report 2, there is no reason to believe WACP can resolve the interference problems in the near future.

It is apparent from the magnitude of interference from the land-mobile operations to the WACP signal will require that those stations have either ceased operation or re-located to another frequency. In our experience, this process, if completed, can take months or years. We note that WACP has initiated no action to address the interference.³⁴

Moreover, L&C's conclusion that the interference problem will be remedied is based on a false premise - that the interfering land-mobile stations must operate on a secondary, noninterference basis with respect to WACP. But, as the MSW Report 2 points out, this does not apply outside the station's NLSC.³⁵ As the Oxford headend falls outside of WACP's NLSC, WACP has no interference protection there.

³² Petition, Exhibit 4.

³³ L&C Exhibit at 1.

³⁴ MSW Report 2 at 8.

³⁵ *Id.*

As with other signal impairments identified by MSW, the adjacent channel interference will continue to degrade WACP's signal at the Oxford headend for the foreseeable future. This provides further support for the conclusion that the station does not provide sufficient signal coverage to be considered local.

B. WACP's legal arguments misstate applicable law and precedent and fail to provide any basis for the station to retain local status in the Communities.

The Opposition makes two main legal arguments:

- (i) A new station's market includes all communities within *or near* its NLSC regardless of the lack of any local programming or the absence of any economic connection to the communities.
- (ii) The Petition did not include all required maps.

As explained below, neither argument withstands scrutiny under applicable precedent and the facts of this case.

1. No law or precedent supports WACP's argument that a new station's market includes all communities within or near its NLSC, regardless of lack of local programming or lack of any economic nexus.

WACP's main legal argument builds upon the flawed NLSC from the L&C Exhibit. Pointing to the L&C Exhibit's NLSC as the sole indicia of coverage or local service, the Opposition argues, "WACP is a new station, having been on the air only 15 months, whose market must include all communities within or near its noise-limited contour, regardless of evidence of programming or audience share."³⁶

This assertion has no basis in the Cable Act or applicable Commission precedent. Section 534(h) of the Cable Act makes clear that providing ***local*** coverage or service is a

³⁶ Opposition at 3.

necessary factor in remaining a *local* station.³⁷ Ample precedent shows that the Commission has frequently accepted Grade B coverage as evidence of local coverage or service, and weighed that factor more heavily for new stations. But no case stands for the proposition that the sole criteria for a new station is to place an NLSC *barely on or near* a community while providing no local programming and having no economic connection to the community. Further, no case uses slight NLSC coverage over portions of a service as criteria for local service when the signal is as consistently poor as WACP's signal at the Oxford headend. As explained in the MSW Report 2:

For WACP at the Oxford headend, we conclude that Low-VHF impulse noise issues, combined with other issues discussed above, makes the western edge of WACP's predicted 28dBμV/m noise limited service contour an unreliable predictor of good quality reception. The poor picture quality reported by Armstrong corroborates this.³⁸

Put another way, to provide local service or coverage, a station must actually provide a usable signal to the cable system. In this case, that is precisely what WACP does not do.

For additional support, we turn to cases cited in the Opposition. The Opposition cites *Rancho Palos Verdes Broadcasting v. Avenue TV Cable* for the proposition that new stations do not need to show historical carriage.³⁹ But a closer reading of *Avenue TV Cable* shows that it provides solid support for excluding the Communities from WACP's market. Like this case, *Avenue TV Cable* involved a broadcaster seeking must carry on a cable system more than 80 miles away.⁴⁰ Like this case, *Avenue TV Cable* involved a broadcaster that failed to show, "any

³⁷ 47 U.S.C. § 534(h)(1)(C)(ii)(II).

³⁸ MSW Report 2 at 9.

³⁹ Opposition at 6, n.11 (citing *In the Matter of Avenue TV Cable Service, Inc.; For Modification of the Los Angeles, California DMA; Rancho Palos Verdes Broadcasters, Inc. v. Avenue TV Cable Service, Inc.; Request for Carriage*, Memorandum Opinion and Order, 16 FCC Rcd 16436 ¶ 19 (2001) ("Avenue TV Cable").

⁴⁰ *Avenue TV Cable* at ¶ 8.

examples of programming it currently provides which is specifically directed to the subject community.”⁴¹ Like this case, *Avenue TV Cable* involved a broadcaster that failed to provide an adequate signal over the cable system.⁴² While WACP disputes the lack of signal coverage, the Second Supplemental Statement and the MSW Report 2 provide substantial evidence showing lack of signal coverage.

The result reached in *Avenue TV Cable* is the same result the Media Bureau should reach here. The communities were excluded from the station’s market due to lack of local coverage and lack of local programming, notwithstanding the broadcaster’s status as a new station.⁴³

The Media Bureau reached substantially the same result in another new station case cited in the Opposition, *Flinn v. Comcast*.⁴⁴ *Flinn v. Comcast* also resulted in exclusion of communities from the broadcaster’s market. Just as with WACP and the Communities, in *Flinn v Comcast*, the station “failed to demonstrate that it provides any local programming to the communities as issue.”⁴⁵

Finally, the Opposition cites *WACP v. Service Electric*,⁴⁶ a recent case where the Media Bureau excluded 62 communities from WACP’s market, principally due to lack of adequate signal coverage.⁴⁷ *WACP v. Service Electric* did not appear to involve the engineering and signal quality issues raised in this case. But based on the evidence in the MSW Report 2 and the

⁴¹ *Id.* at ¶ 20.

⁴² *Id.*

⁴³ *Id.* at ¶ 24.

⁴⁴ *In the Matter of George S. Flinn, Jr. v. Comcast Cable Communications, LLC, On behalf of its subsidiaries and affiliates*, Memorandum Opinion and Order, 27 FCC Rcd 9085 (2012).

⁴⁵ *Id.* at ¶ 17.

⁴⁶ Opposition at 4.

⁴⁷ *WACP v. Service Electric* at ¶ 33.

Second Supplemental Statement, WACP fails to place an NLSC over the headend and much of the service area, and for the portions of the service area that fall just within the NLSC, the station still does not provide an adequate signal for local coverage. Consequently, *WACP v. Service Electric* provides additional support for the result requested here, exclusion of the Communities from WACP's market.

2. Contrary to WACP's allegation, the Petition includes all required maps.

The Opposition claims that WACP is entitled to local status in the Communities solely because the Petition did not include a map showing the communities relative to the NLSC.⁴⁸ This assertion elevates form over substance, is inaccurate, and the Media Bureau should disregard it. The Petition included a detailed map showing the Communities and headend in relation to the transmitter site and the city of license.⁴⁹ A second map, prepared by MSW, showed the NLSC.⁵⁰ Reasonably skilled map readers, a group within which we include all Media Bureau personnel, could readily discern from the two maps where the Communities were in relation to the NLSC.

But to allay any further concern on this point, the updated NLSC map provided in the MSW Report 2 shows the Communities and the system's service areas within those communities.⁵¹

C. WACP's factual claims are either irrelevant or unsubstantiated and should be rejected.

The Opposition makes three factual arguments:

⁴⁸ Opposition at 2.

⁴⁹ Petition, Exhibit 2.

⁵⁰ Petition, Exhibit 6.

⁵¹ MSW Report 2, Figure 1.

- (i) WACP is carried in every other cable community in Chester County, and is carried by overbuilders in 4 of the 9 Communities.
- (ii) The Media Bureau should ignore the absence of WACP TV listings in the local Chester County newspaper because Chester County viewing patterns are better demonstrated by TV listings in a Philadelphia newspaper.
- (iii) Armstrong’s counsel has “erected a wall to communications.”

Each of these arguments is factually infirm, and none of them weighs against excluding the Communities from WACP’s market.

1. Carriage of WACP in other portions of Chester County is irrelevant, and contrary to WACP’s claim, WACP is not carried in any the Communities, except by Verizon in a small portion of one community.

The Opposition asserts that carriage by other cable systems in other portions of Chester County somehow establishes a basis for carriage in the Communities. The main problem with this argument is geography. At issue in this case are nine communities on the far western edge of Chester County. As shown in the Second Supplemental Statement and the MSW Report 2, WACP fails to deliver a usable signal this far west in Chester County and the western edge of its NLSC is unreliable.

All the other communities in Chester County are *east* of Armstrong’s service area, and are likely inside the unreliable western edge of WACP’s service contour. Consequently, carriage in those communities has no probative value concerning whether WACP is local in the Communities.

WACP also claims that overbuilders carry WACP in 4 of 9 of the Communities. Here, WACP has its facts wrong. As set forth in the Second Supplemental Statement, the wireline distribution of WACP occurs in only in a *de minimis* portion of Londonderry Township, where

Verizon passes less than 700 homes.⁵² Moreover, Verizon operates a large network fed by a master headend, and does not pick up its signals in Chester County. The *de minimis* distribution by Verizon in one corner of one township should be given no weight in determining WACP's market in the Communities.

2. Contrary to WACP's claim, lack of WACP TV listings in the local Chester County paper shows WACP is not local to the Communities.

The Petition included TV listings from the local newspaper serving Chester County, the Daily Local News.⁵³ The Daily Local News is the most logical choice for local TV listings, promoting itself as "Your local source for breaking news, sports, business, classifieds, and entertainment in *Chester County*."⁵⁴ The paper's TV listings, available both in print and online, include the Philadelphia broadcast stations carried by Armstrong's System, and do not include WACP or either of the other two Atlantic City stations.⁵⁵ This evidence is probative of two important market modification factors: (i) the lack of any viewership in the Communities; and (ii) other stations provide coverage of news, sports and events of interest to viewers in the Communities.

The Opposition argues that the lack of WACP TV listing in the Daily Local News should be ignored because the paper has a circulation of "just 23,000."⁵⁶ The Opposition claims that the Philadelphia Inquirer is the better source. From this, the Opposition makes the following leap of

⁵² Second Supplemental Statement at 8.

⁵³ Petition, Exhibit 9.

⁵⁴ See www.dailylocal.com.

⁵⁵ Exhibit 3, Daily Local News, TV Listings (Nov. 22, 2013). (The Opposition claims the Daily Local News TV listings are not available online. Opposition at 8, fn. 22. Again, the Opposition has its facts wrong. The online TV listings are available at www.dailylocal.com, then clicking on "Tools," then "E-Paper.").

⁵⁶ Opposition at 8, fn.22.

logic: because a Philadelphia newspaper lists WACP's program schedule, there is viewership of WACP in the Communities.⁵⁷

The obvious fallacy in this argument is that TV listings in the Philadelphia Inquirer may be probative of WACP viewership in Philadelphia, but WACP viewership in Philadelphia is not in dispute in this case. Philadelphia is 54 miles northeast by car from Oxford. Viewership of WACP in Philadelphia, if there is any, has no bearing on viewership of WACP in the western edge of Chester County.

What is more probative of viewership is local service to the Communities. As discussed in Section IV above, WACP fails to provide a good quality signal to the Communities. A fundamental requirement of local service is a signal that viewers can view. WACP fails to meet that basic criteria. The Opposition's argument concerning Local Daily News circulation is an irrelevant distraction from WACP's failure to provide signal coverage to the Oxford headend and Communities.

3. Contrary to WACP's claim, Armstrong's counsel has not "erected a wall to communications," the problem has been WACP's consistent failure to address signal problems.

The Opposition's final factual argument of note is "Counsel for Armstrong has erected a wall to those communications necessary to jointly develop and test an engineering solution."⁵⁸ This assertion is unfounded as review of the record of the must carry case will show. A far more accurate description of the communication in this case is that WACP has been lackadaisical, at best, in dealing with the station's obvious signal problems, relying on dilatory legal tactics than sincere engagement on engineering issues.

⁵⁷ Opposition at 8.

⁵⁸ Opposition at 13.

WACP initiated the must carry process in June 2012, claiming from the outset that it delivered a good quality signal to Armstrong's headend. Between then and January 2013, the only communication from WACP was from the station's lawyers. Armstrong heard not a peep from a WACP engineer. But even a cursory review by a qualified engineer of the distance between the station and Armstrong's headend would reveal a high probability of signal problems. In November 2012, Armstrong formally confirmed the signal problems to WACP by delivering a signal test report to the station's lawyers. Again, Armstrong received no engineering response from the station. Instead, WACP filed its must carry complaint.

In January 2013, Armstrong received its first communication from WACP's consulting engineering. That resulted in the installation of additional equipment in the headend that WACP insisted would fix the signal problems, and a visit by the engineer to Armstrong's headend in April 2013. Exactly the "give and take process of developing an engineering solution" that the Opposition claims could not happen because of the "wall to communications."⁵⁹

The extensive engineering communication via email, telephone, and face-to-face tends to undercut the Opposition's claim that it was "all but impossible" for that communication to occur.

The real problem was WACP's ongoing failure to face up to its signal problems. The equipment WACP said would solve the signal strength problem only amplified a poor quality DTV signal, resulting in grossly substandard picture quality. WACP has failed to fix this problem up to and through the date of this Reply.

Instead, WACP dragged out the must carry case, seeking at least 10 extensions, while never squarely addressing the fundamental inability of the station to reach the Oxford headend.

⁵⁹ *Id.*

Once Armstrong filed the Petition, Armstrong did advise WACP that it seemed appropriate to defer further testing until resolution of the Petition. If the Petition were granted, there would be no need for testing.

We characterize that not as “a wall to communications,” but as efficient use of limited resources.

D. WACP provides no evidence to rebut the complete lack of economic nexus between the Communities and Atlantic City.

As explained in the Petition,⁶⁰ the Commission recognizes that the statutory factors are not exclusive⁶¹ and it routinely considers other evidence in defining the scope of a station’s market.⁶² In this case, an important additional consideration is the utter lack of economic connection between WACP’s city of license and the Communities.⁶³ The Opposition does not refute this lack of economic connection.

Indeed, the Opposition offers no evidence of an economic connection between Atlantic City and the Communities. The Petition, on the other hand, analyzed several indicia of economic connection, including distance, lack of convenient transportation routes, general statistical

⁶⁰ Petition at 14-16.

⁶¹ See *In the Matter of Massillon Cable TV, Inc.; For Modification of the Cleveland, Ohio DMA*, Memorandum Opinion and Order, 26 FCC Rcd 15521 ¶ 3 (2011) (quoting legislative history of 1992 Cable Act that statutory factors “are not intended to be exclusive”); *In re: Paxson Atlanta License, Inc. vs. Brenmor Cable Partners, L.P.; Request for Mandatory Carriage of Television Station WTLK-TV, Rome, Georgia; Brenmor Cable Partners, L.P. For Modification of the ADI of Station WTLK-TV*, Memorandum Opinion and Order, 13 FCC Rcd 4341 ¶ 29 (1998) (“The factors specified in Section 614(h)(1)(C)(ii) of the Communications Act do not purport to be exclusive and thus other evidence may be considered that is helpful in defining the scope of the markets of the stations involved.”).

⁶² See, e.g., *In the Matter of: Armstrong Utilities, Inc.; Petition For Modification of the Philadelphia, Pennsylvania DMA*, Memorandum Opinion and Order, 21 FCC Rcd 13475 ¶ 16 (2006) (noting separate MSAs and two-hour drive time between broadcaster city of license and cable communities as factors supporting market modification).

⁶³ *Id.* at 14.

indicators, labor statistics, and even the absence of advertisements and job postings for Atlantic City businesses in the local newspaper.⁶⁴ All of this evidence points to one conclusion: there is no economic connection between Atlantic City and the Communities. The Opposition makes no attempt to rebut this evidence, effectively conceding that this factor supports exclusion of the Communities from WACP's market.

In short, the lack of economic connection between Atlantic City and the Communities reinforces the conclusion that WACP is not local to the Communities.

V. CONCLUSION

The Petition and Reply establish that WACP fails to meet the requirements of a local station in the Communities. The Opposition fails to refute that evidence. The Commission should exclude the Communities from WACP's market, consistent with the 62 communities excluded from WACP's market in *WACP v. Service Electric*.⁶⁵ The grant of the Petition will best effectuate the underlying purpose of must carry, the "preservation of local television service and the local public interest programming provided by these broadcast stations."⁶⁶

In the alternative, due the grossly substandard picture quality received at Armstrong's headend, the Commission should deny the must carry complaint under *WRNN v. Cablevision*.⁶⁷

⁶⁴ *Id.* at 14-16.

⁶⁵ 28 FCC Rcd 10804.

⁶⁶ 8 FCC Rcd 5321 ¶ 22 (emphasis added).

⁶⁷ 13 FCC Rcd 12654.

The signatory has read the Petition and, to the best of his knowledge, information and belief formed after reasonable inquiry, it is well grounded in fact and is warranted by existing law, and is not interposed for any improper purpose.

Respectfully submitted,

By:  _____

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CERTIFICATE OF SERVICE

I, Alma Hoxha, paralegal with Cinnamon Mueller, hereby certify that a true and correct copy of the foregoing Reply to Consolidated Opposition was delivered by me to the United States Postal Service Office on November 22, 2013 to be delivered to the person listed below via first-class, postage-prepaid mail:

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A handwritten signature in black ink, appearing to read "Alma Hoxha", written in a cursive style. The signature is positioned above a horizontal line.

Alma Hoxha
Paralegal

* via e-mail only

EXHIBIT 1

Second Supplemental Statement and Declaration of Edgar E. Hassler, Jr.

Vice President of Engineering, Armstrong Utilities, Inc.

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

Petition of:)	
)	
Armstrong Utilities, Inc.)	
)	
for Modification of the DMA Market of)	CSR-8838-A
Television Station WACP)	CSR 8752-M
In the Matter of:)	
)	
Armstrong Utilities, Inc.)	
)	
Carriage Complaint of Western Pacific)	
Broadcast, LLC, WACP-TV,)	
Atlantic City, New Jersey)	
)	

**SECOND SUPPLEMENTAL ENGINEERING STATEMENT AND DECLARATION OF
EDGAR E. HASSLER, JR.**

I submit this Second Supplemental Engineering Statement and Declaration in support of Armstrong’s Reply to WACP’s Consolidated Opposition. This Second Supplemental Statement focuses on WACP’s ongoing signal quality problems *after* WACP claims they have fixed the problems with their transmitter. This Statement supports our request to exclude the communities served by our Oxford, PA system from WACP’s must carry market, or, in the alternative, deny the station’s must carry complaint on signal quality grounds.

I also address inaccurate statements made in WACP’s Opposition concerning other cable companies in our service area. WACP claims that Verizon and Comcast have overbuilt three communities served by our Oxford headend. That statement is inaccurate.

From an engineering perspective, the central issue in this case is the chronic poor picture quality of WACP's signal at our Oxford headend. My Supplement Engineering Statement submitted in the must carry case contains multiple screen shots showing distortion, picture freezing and tiling.¹ That Statement also includes detailed reports analyzing the problems with WACP's signal, show high packet loss, poor S/N ratio, and periodic complete signal loss. The Consolidated Opposition suggests this objective and verifiable engineering data is now moot because "WACP upgraded its exciters and related equipment to resolve some instability issues..."

Since receiving the Opposition, I have conducted further analysis and testing of WACP's picture quality and digital signal. As detailed below, WACP's transmitter repairs have made no difference. WACP's picture quality continues to be grossly substandard. The picture remains significantly degraded due to line distortion, freezing, tiling, and complete picture loss. As our digital signal testing software shows, the signal as received at the Oxford headend continues to suffer from extraordinarily high levels of dropped packets.

From this evaluation, I conclude, as I have before, WACP fails to deliver a good quality signal to Armstrong's Oxford headend.

Professional Background. I am the Vice President of Engineering for Armstrong Utilities, Inc. I have worked for the company in various engineering capacities for 47 years. My current responsibilities include engineering oversight of Armstrong's multiple headends and over 11,000 miles of distribution plant and associated electronics.

¹ *Carriage Complaint Against Armstrong Utilities, Inc. by Western Pacific Broadcast, LLC, CSR 8752-M, WACP Must Carry Complaint, Supplemental Opposition of Armstrong Utilities, Inc. (filed June 28, 2013), Exhibit 1, Supplemental Engineering Statement and Declaration of Edgar E. Hassler, Jr. (June 27, 2013); also Exhibit 3 to Petition for Special Relief of Armstrong Utilities, Inc., CSR-8838-1 (filed Sept. 26, 2013).*

I have been engaged in analyzing broadcast signal carriage on Armstrong's cable systems for my entire career with the company. I have evaluated carriage issues related to at least 200 different broadcast stations, and have analyzed signal strength and other issues in at least 50 must carry situations. I am experienced in the Commission's signal testing requirements and standards for stations seeking must carry.

I hold a Bachelor of Science degree in Electrical Engineering from Geneva College and a certificate in Electronic Communications from the Electronics Institute of Pittsburgh. I am a member of the Society of Cable Television Engineers. I am also an FCC licensee, holding a General Class Radiotelephone license with ship radar endorsement, and an amateur radio extra class license, call sign KE3H.

Initial signal evaluation of WACP. In June 2012, WACP's must carry election was sent to me for evaluation. Upon learning that the station was licensed to Atlantic City, NJ, more than 88 miles from our Oxford headend, I directed that an initial signal strength evaluation be conducted. Predictably, given the distance, that evaluation showed a weak signal. Based on the statement in the station's letter that "this correspondence is not a demand for carriage, rather it is the election notice new stations are required to make under FCC Rule 76.64(f)(4)." we did not conduct a full signal strength test at that time. We waited to hear more on what the station intended to do. Based on my past experience, I expected to hear from the station manager or engineer on how they planned to deal with the signal strength issue.

No engineering contact from the station.

We received no further communication from the station until its September 14, 2012 must carry demand letter. I was not contacted by the station's consulting engineer until January 2013.

October 2012 signal strength test.

In October 2012, we conducted a 24 hour test of WACP's signal. The test report is attached as Exhibit 6 to our initial Opposition to the must carry complaint.² As shown in the report, WACP's signal fell short of the -61 dBm required to qualify for must carry. The average signal level over the period was -64.41 dBm.

Based on these test results, I directed our attorneys to notify the station that Armstrong declined carriage on the Oxford system, which they did in November 2012. In December 2012, WACP filed its must carry complaint.

Communication with WACP's consulting engineer and installation of equipment.

Beginning in January 2013, I began email communication with Mr. Todd Loney, consulting engineer for WACP. That communication culminated in our installation, at Mr. Loney's request, of the following equipment provided by WACP:

Sitco Preamplifier Model No. PA24-F-4, Channel 4 (19 dB gain)
Microwave Filter Company, Digital Bandpass Filter, Model No. 3303, Channel 4

We completed the equipment installation on April 17, 2013.

Signal testing and evaluation after equipment installation.

Following installation of the equipment provided by WACP, we tested and evaluated the signal. Predictably, the preamplifier increased the amplitude of the signal received over-the-air. But any increase in signal strength did not improve the signal quality. From an engineering perspective, the signal quality remained poor and unacceptable for retransmission on our cable system. The two main indicia of poor quality signal we observed were: (i) poor picture quality;

² *Carriage Complaint Against Armstrong Utilities, Inc. by Western Pacific Broadcast, LLC, CSR 8752-M, WACP Must Carry Complaint, Opposition of Armstrong Utilities, Inc. (filed Jan. 4, 2013), Exhibit 6, Armstrong's Signal Strength Test Report of October 2 – 3, 2012 testing of WACP ("Signal Test Report").*

and (ii) high packet loss. Our testing also showed an erratic and periodically low signal to noise ratio, which likely contributed to the poor signal quality.

I submitted the results of that testing to the Commission in my Supplemental Engineering Statement, including multiple screen shots showing WACP's poor picture quality.

**Signal testing and evaluation after equipment installation and after WACP
“upgraded its exciters” and claimed it had fixed its signal problems.**

After reviewing the Consolidated Opposition, I conducted further evaluation and testing between November 17 and 18, 2013. WACP's transmitter repairs have no difference. As received at the Oxford headend, WACP's picture quality remains grossly substandard, and the digital signal continues to show high levels of packet loss.

I explain further below, and reference the Exhibits attached to this Statement.

Poor picture quality

Armstrong personnel, including myself, monitored WACP's picture closely on November 17 and 18. We viewed the station's signal on an LG flat screen TV in the headend, receiving a direct feed from our antenna through the preamplifier and filter provided by WACP.

The picture consistently suffered from substantial distortion, artifacts, and, at times, complete picture loss. On November 18, 2013, between 2 and 5 pm ET, I obtained screen shots with multiple examples of WACP's picture. I attach copies of those pictures to this Statement. The picture degradations fall into four general categories: (i) horizontal line distortion;³ (ii) picture freezing with loss of audio;⁴ (iii) tiling;⁵ and (iv) nearly complete picture loss.⁶

³ Exhibit 1, Photos A – J.

⁴ Exhibit 2, Photo K.

⁵ Exhibit 3, Photos L – Z.

⁶ Exhibit 4, Photo AA.

As Armstrong's Chief Engineer, based on the consistent distortion of WACP's video images, I can only conclude the picture quality of WACP's signal is unacceptable for our cable system.

High Packet Loss

As before, our signal analysis software suggests the primary reason for the poor picture quality is the extraordinarily high level of packet loss in the signal as received at our Oxford headend. Likely due to a combination of distance, terrain, and other interference, a significant portion of WACP's digital signal simply does not reach our Oxford headend. High packet loss is consistent with the poor picture quality we observed.

IneoQuest Signal Monitoring and Reporting. To monitor digital signals at the Oxford headend, we use IneoQuest Technologies, Inc. signal monitoring and evaluation software. Exhibit 5 contains a 24-hour IneoQuest Report for WACP, as received at the Oxford headend on November 17, 2013. For comparison, Exhibit 6 contains the same report for WPVI, another VHF station, as received at the Oxford headend on November 16, 2013. The IneoQuest Report is important for understanding and documenting the problems with WACP's signal, and a brief general explanation of what the Report contains may be helpful for the reader.

The Report displays the following relevant measures of digital signal quality in color-coded hourly chart:

- Video MLS (Media Loss Secs) - The percentage of seconds in each one hour period during which lost video packets are occurring.
- Audio MLS - The percentage of seconds in each one hour period during which lost audio packets are occurring.
- Total Errors – The sum of errors detected per hour.

Based on software documentation, the color coding means the following:

Color Key:

Black = Stream outage count has been detected for the duration stated in seconds (total loss of all video/audio containing packets). No MPEG stream was sent to the decoder during these events.

Red = Packet loss levels resulting in uncorrected stream error.

Orange = Packet loss (Event has been detected that exceeds the acceptable level of MPEG impairments for a quality video/audio stream)

Yellow= an impairment has been detected in the time interval that exceeds acceptable criteria, but has cleared at the time of capture.

Green = no detected impairments exceeding acceptable criteria.

I also submitted IneoQuest reports with my Supplemental Engineering Statement. With a recent software update, I understand IneoQuest has changed the report formats. Consequently, the IneoQuest report submitted here is in a different format than the IneoQuest reports previously submitted. For WACP, the results are the same. The reports show extraordinarily high levels of packet loss.

The IneoQuest Report shows an extraordinarily high level of packet loss from WACP's signal. As Exhibit 5 shows, as received at the Oxford headend, WACP's signal suffered from unacceptable levels of audio and video packet loss for 24 of 24 hours tested (color code Orange). For three of the 24 hours, the video media loss level resulted in uncorrected digital stream errors (color code Red). For four of the hours tested, instances of total media loss occurred, resulting in no video or a frozen screen (color code Black). The Audio MLS measure shows similar degradation.

At our Oxford headend, this situation is unique to WACP. All other broadcast signals received show very low levels of packet loss and provide good quality pictures. As an example,

consider the IneoQuest report for WPVI (Exhibit 6). The Video Media Loss and Audio Media Loss rows from that report show no detectable impairments (color code Green) for 24 of 24 hours.

The IneoQuest Report shows the main reason for the unacceptable picture quality – extraordinarily high rate of packet loss.

Based on my observations of the picture quality as monitored at the Oxford headend, and based on the data presented in the IneoQuest Report, all conducted *after* installing the preamp and filter requested by WACP’s engineer, and *after* WACP indicates they have upgraded the transmitter exciters and related equipment, I conclude that the signal quality is unacceptable due to the extraordinarily high level of packet loss. Due to distance, terrain, inference, or other reasons, a sufficiently high number of packets in the digital signal are not arriving at the headend, resulting in poor signal quality.

WACP is not distributed by any cable operator in the Communities except for one small portion of Londonderry Township.

The Opposition states that WACP is carried by cable operators that have overbuilt Armstrong in three communities - Highland, Londonderry, and Upper Oxford. I investigated this claim and found no evidence of an overbuild in any of those communities with one small exception. It appears that Verizon’s system serves a very small corner of our service area in Londonderry Township, passing no more than 700 homes. It is important to recognize that Verizon’s network is served by a master headend, to my knowledge, much closer to WACP’s transmitter than Armstrong’s Oxford County headend.

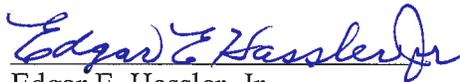
Conclusion

WACP continues to fail to deliver a good quality signal to Armstrong's Oxford headend. The picture quality remains grossly substandard. From an engineering perspective, the signal is far below the quality I can accept on Armstrong's cable systems.

Certification

I have read this Second Supplemental Engineering Statement and Declaration and the Supplemental Opposition to which it is attached. I certify that to the best of my knowledge, information and belief formed after reasonable inquiry, both submissions are well grounded in fact, warranted by existing law, and are not interposed for any improper purpose.

Respectfully submitted,



Edgar E. Hassler, Jr.

Vice President of Engineering

Armstrong Utilities, Inc.

November 22, 2013

**Exhibit 1
Horizontal Line Distortion**

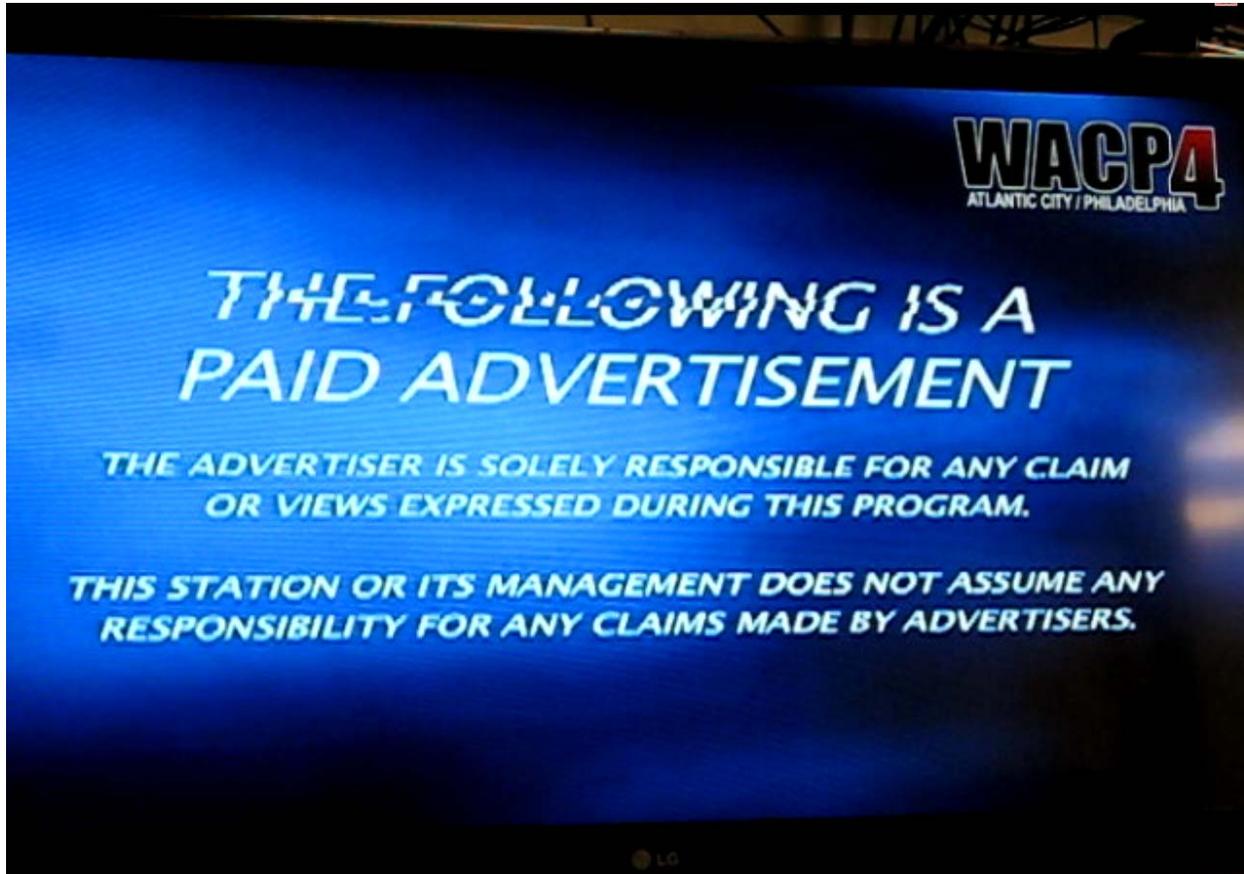


Photo A

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 1 (cont.)
Horizontal Line Distortion**



Photo B

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 1 (cont.)
Horizontal Line Distortion**



Photo C

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 1 (cont.)
Horizontal Line Distortion**



Photo D

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 1 (cont.)
Horizontal Line Distortion**



Photo E

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 1 (cont.)
Horizontal Line Distortion**



Photo F

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 1 (cont.)
Horizontal Line Distortion**



Photo G

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 1 (cont.)
Horizontal Line Distortion**

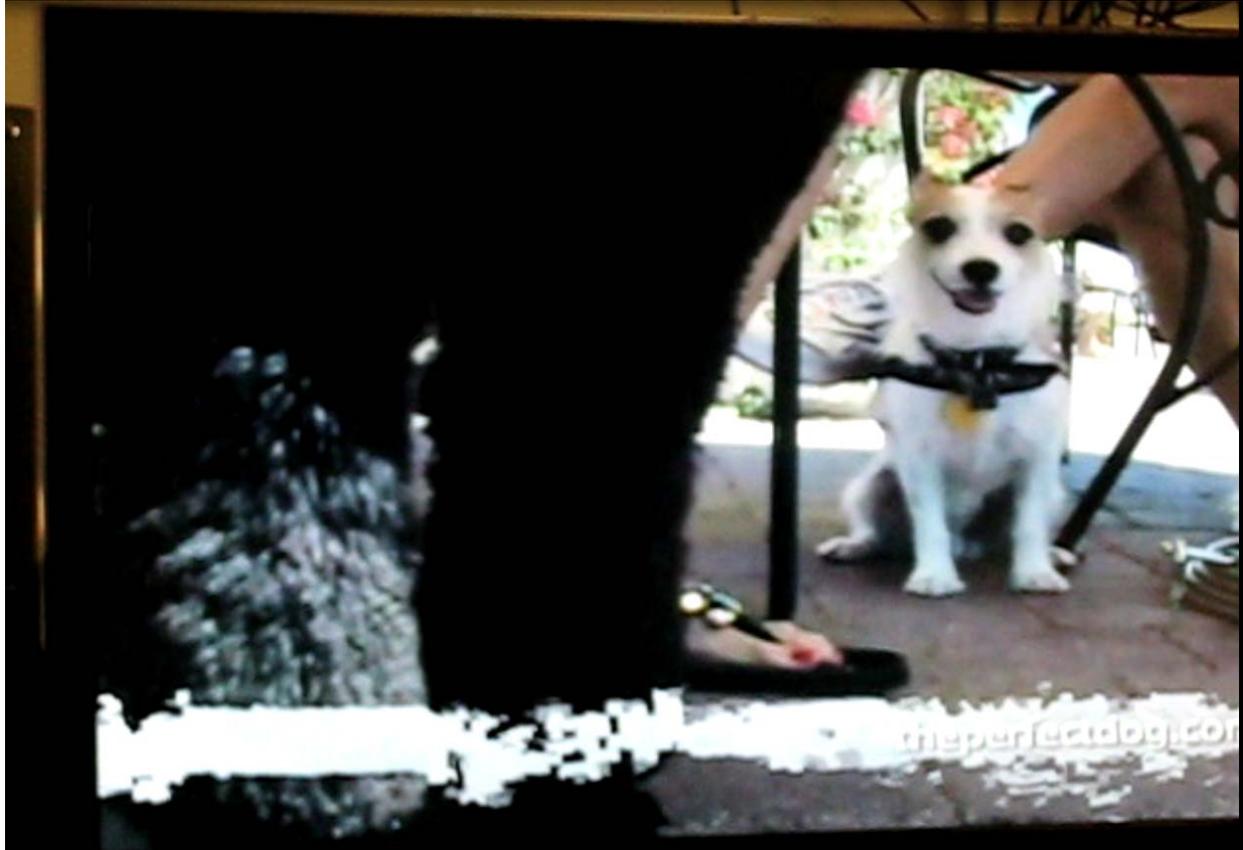


Photo H

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 1 (cont.)
Horizontal Line Distortion**



Photo I

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 1 (cont.)
Horizontal Line Distortion**



Photo J

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 2
Picture Freezing with Loss of Audio**



Photo K

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3
Tiling**



Photo L

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo M

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**

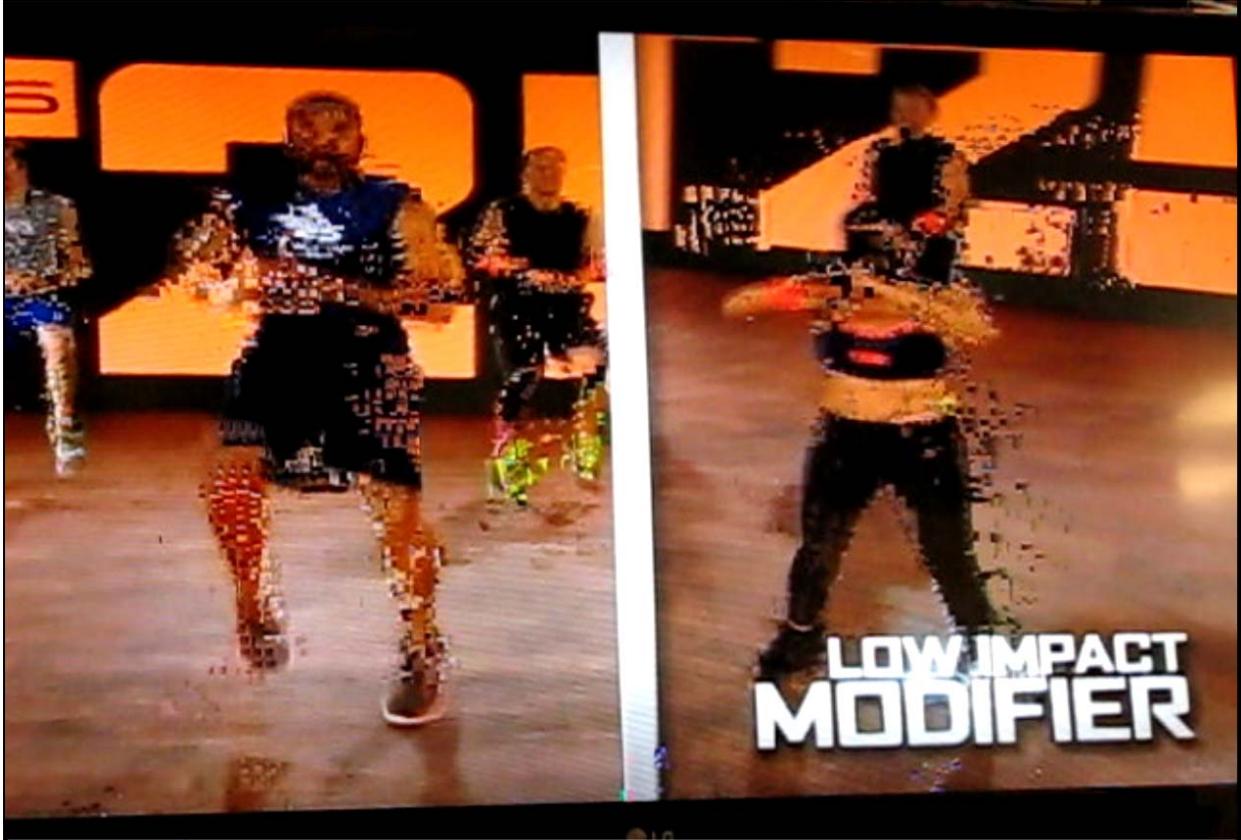


Photo N

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**

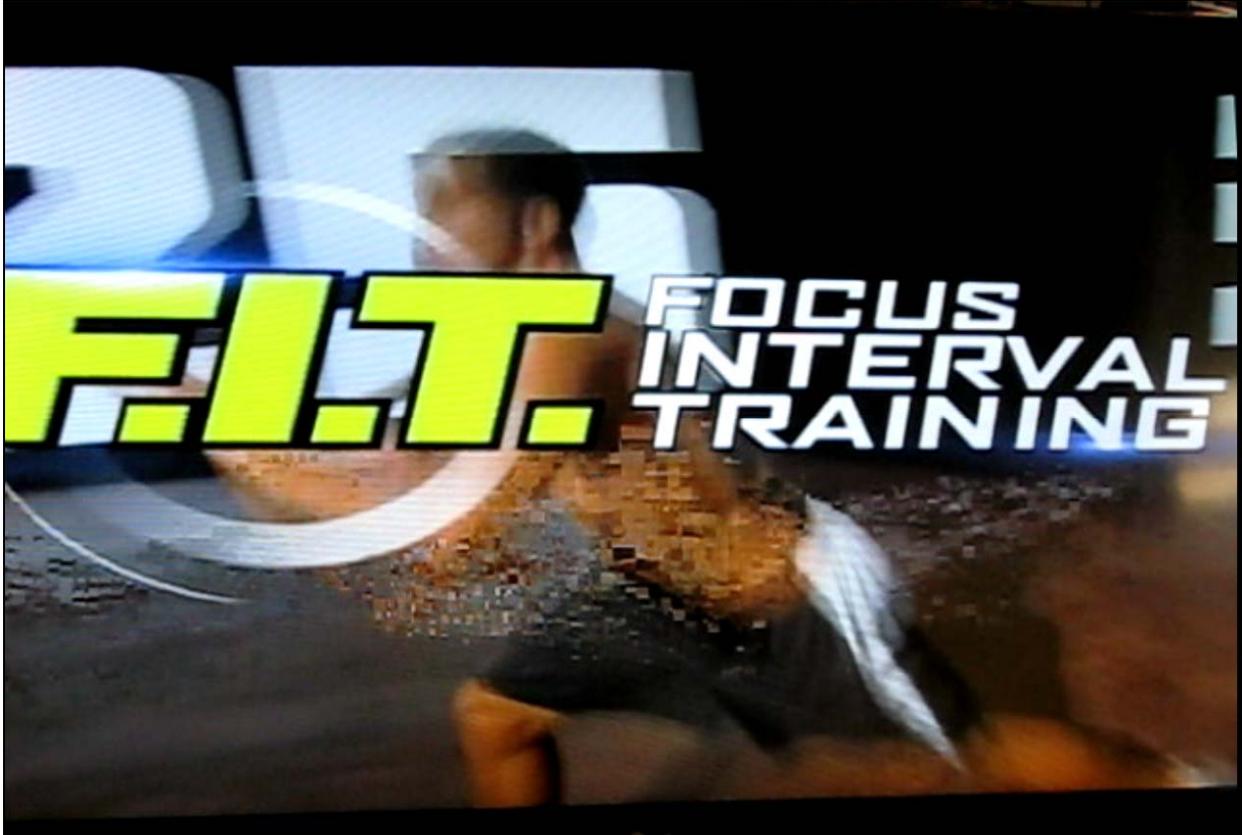


Photo O

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo P

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo Q

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo R

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo S

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo T

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo U

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo V

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo W

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo X

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo Y

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 3 (cont.)
Tiling**



Photo Z

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

**Exhibit 4
Nearly Complete Picture Loss**



Photo AA

Subject: Screenshot of WACP

Location: Armstrong Utilities Oxford, PA headend, 383 Union Square Road, Nottingham, PA

Date/time: November 18, 2013, between 2 – 4 pm.

*Exhibits to Second Supplemental Engineering Statement and Declaration of Ed Hassler, Jr.
CSRs-8838-A, 8752-M
November 22, 2013*

Exhibit 5

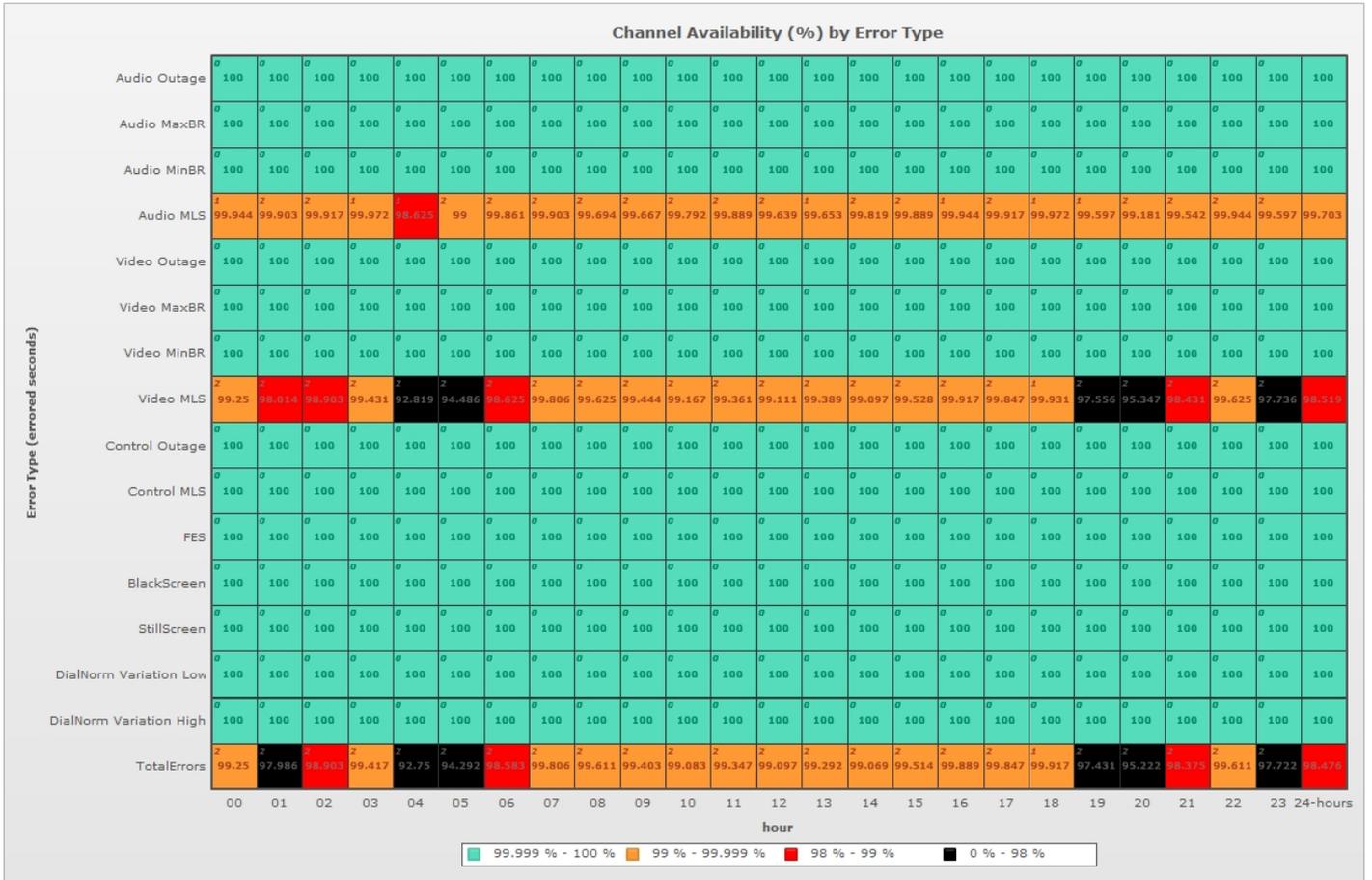
November 17, 2013 24-hour IneoQuest Report for WACP

Created By: root

Created At: 11-18-2013 10:49:04

Chart Selection Criteria: Program: WACP HD Date: 11/17/2013

User Comments: None



*Exhibits to Second Supplemental Engineering Statement and Declaration of Ed Hassler, Jr.
CSRs-8838-A, 8752-M
November 22, 2013*

Exhibit 6

November 16, 2013 24-hour IneoQuest Report for WPVI

Created By: root

Created At: 11-21-2013 18:18:00

Chart Selection Criteria: Program: WPVI Date: 11/16/2013

User Comments: None

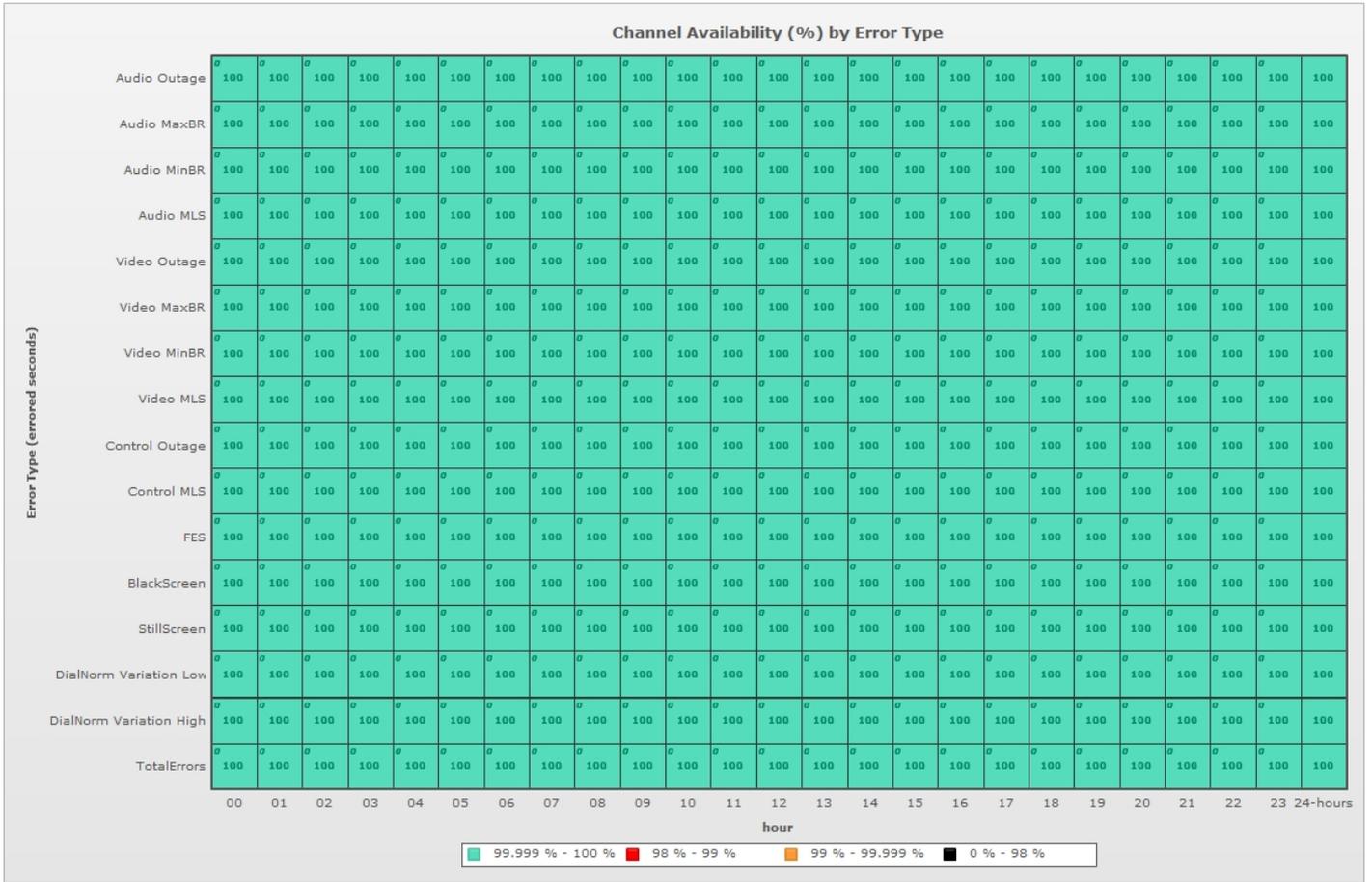


EXHIBIT 2

Engineering Statement & Report In Support of Market Modification Petition of
WACP-DT

Prepared by Meintel, Sgrignoli & Wallace

**Engineering Statement
&
Report
Prepared for
Armstrong Utilities, Inc.**

In support of Market Modification Petition

WACP-DT Atlantic City, NJ

November 21, 2013

Prepared By:



**Dennis Wallace, C.B.T.E.
William Meintel
1282 Smallwood Drive
Suite 372
Waldorf, Maryland 20603
(202) 251-7589**

INTRODUCTION AND SUMMARY

Meintel, Sgrignoli, and Wallace, LLC (MSW) has been retained by Armstrong Utilities, Inc. to assist in the analysis of problems with reception of station WACP at Armstrong's Oxford, PA headend. In support of Armstrong's Market Modification Petition, CSR-8838-A, MSW submitted an Engineering Report showing that Armstrong's headend and service area fell outside of WACP's NLSC. MSW submits this Engineering Statement and Report to respond to engineering analysis and conclusions presented by WACP in its Opposition.

WACP's Opposition included a Technical Exhibit prepared by Telecommunications Consultants Lohnes & Culver (L&C Exhibit) and a Technical Statement of Todd Loney (Loney Statement). Both the L&C Exhibit and the Loney Statement contain significant errors in engineering analysis. These errors lead to incorrect conclusions concerning WACP's signal.

In our opinion, if the FCC relied upon the L&C Exhibit and the Loney Statement in evaluating the problems with WACP's signal, the FCC would be deciding this case based on inaccurate engineering information and analysis. We provide this Report to assist the FCC in avoiding that outcome.

In summary, this Report concludes the following:

The Oxford headend and much of the system falls outside WACP's NLSC. The Oxford headend and much of the service area falls outside of WACP's NLSC, properly adjusted for the WACP antenna pattern.

The western edge of WACP's NLSC does not provide a reliable measure of signal coverage. For several reasons, including propagation characteristics of Low-VHF signals, the western edge of WACP's NLSC does not provide a reliable measure of good signal coverage. This helps explain why Armstrong continues to receive poor picture quality at the Oxford headend.

The L&C Exhibit is flawed. The L&C Exhibit contains several significant engineering errors. These include:

- Concluding that WACP's NLSC with a directional antenna pattern is larger than the NLSC of the nondirectional antenna pattern. This is impossible and results in overstating WACP's NLSC.
- Treating the WACP antenna pattern as "Omni" instead +/- 1.6dB from circular as specified by the manufacturers data. This error further overstates WACP's NLSC.
- Failing to calculate the NLSC in accordance with FCC prescribed methodology. This error contributes to overstating WACP's NLSC.

The Loney Statement is flawed. The signal measurements conducted by Mr. Loney were incorrect and do not follow FCC prescribed measurement procedures.

The adjacent upper channel interference problems are significant and will be difficult to remedy. The conceivable means to address the significant adjacent upper channel interference is to shut down the operations or move them to another frequency. Either process will likely take months or years to

complete. Moreover, because the Armstrong headend falls outside of WACP's NLSC, WACP does not benefit from interference protection there.

The repairs to WACP's exciters are unlikely to resolve poor signal problems. Because of multiple signal impairments, including non-linear impairments which receiver equalization will not help, repairs to WACP's exciters are not likely to improve signal reception at Armstrong's headend. The Engineering Statement of Mr. Hassler verifies this, showing continued poor picture quality after the exciter repairs were made.

WACP's signal suffers from multiple impairments. Additional signal issues contributing to the poor quality signal at Armstrong's headend include:

- Low VHF impulse noise issues
- Signal fading
- Time variability
- Adjacent Channel Interference
- Multipath

These factors combined with the issues raised above to make the western edge of WACP's NLSC an unreliable predictor of signal coverage. The continued poor quality signal received at Armstrong's headend verifies this.

WACP ANTENNA PATTERN

It is noted that the location of the Armstrong headend is a significant distance from the WACP transmitter site (100.6 km), and Armstrong has consistently experienced signal strength and picture quality issues with the WACP signal. In view of that, a study was undertaken to determine the proximity of the Armstrong headend site with respect to the WACP predicted noise limited service contour (NLSC). Based on information available, our analysis concluded that the Armstrong system fell outside the NLSC, as adjusted for the WACP antenna configuration.

As noted in the previous MSW report, the WACP license indicates that its transmitting antenna is non-directional; however, in reality the type of antenna employed by WACP is almost never truly non-directional. An attempt was made to obtain a copy of the actual WACP antenna pattern from the antenna manufacturer. MSW, however, was told by the antenna manufacturer that the pattern values for the WACP antenna were client-confidential and they would only provide the "standard" catalog pattern values for that model of antenna. Therefore, the information in the previous MSW report that showed the Armstrong receive site to be beyond the predicted noise limited contour was based on the available antenna pattern information that was obtained from the manufacturer at that time.

However, in WACP's Opposition, the L&C Exhibit provides the WACP antenna pattern data for the antenna actually deployed at the WACP transmitter site, JAMPRO model JHD-LV2-3/3 (18) SR. Consequently, MSW has utilized this new information and updated pattern information to conduct further analyses for this Engineering Statement for Reply Comments.

Importantly, we note that the pattern data supplied in the L&C Exhibit is predicted pattern data supplied by the manufacturer of the antenna based upon computer modeling. And, that the antenna pattern data utilized is not, in fact, measured antenna pattern data from the constructed antenna mounted on the actual New Jersey transmitter site tower structure. Thus, there are likely to be additional nulls and pattern distortions that would vary significantly from the predicted pattern.

The L&C Exhibit purports to show that the MSW determination of the receive site being beyond the contour was incorrect due to the use an incorrect antenna pattern for WACP. The L&C Exhibit includes a copy of the antenna pattern as well as a tabulation of the pattern relative field values. In addition, the L&C Exhibit contains plots of the predicted WACP noise limited contour for both the deployed antenna pattern as well as the assumption that the pattern is non-directional. In both plots, Armstrong's headend is shown by L&C to be inside the contour.

Although it is agreed that the WACP antenna pattern in the L&C Exhibit is different than the one originally used by MSW, we disagree with the location of the predicted noise limited contour using the antenna pattern as shown in the plots provided in the L&C Exhibit submitted in WACP's Comments.

We also note an error in Figure 5 of the report. In Figure 5 the extent of the predicted noise limited contour using the directional antenna pattern is shown to exceed that of the non-directional pattern in several directions. This is impossible and is one of several engineering errors in the L&C Exhibit. The maximum ERP is 10KW must align with the 10KW non-directional contour.

Based on the parameters of the antenna pattern provided in the L&C Exhibit, MSW has prepared a new plot (copy attached) of the predicted noise limited contour. Although the extent of the contour in the direction of the Armstrong receive site is closer than in our previous plot, the Armstrong's headend and much of the service area is still outside the predicted contour. In addition, it is noted that the difference in the distance to the contour between the non-directional and directional patterns in the L&C Exhibit in the direction of the Armstrong receive location is only about 0.75 km when in fact it should be about 2.43 km based on the power difference (10 kW vs. 7.83 kW). We provide an explanation of the ERP calculation for the bearing of interest below.

ANTENNA PATTERN "OMNI" vs. DIRECTIONAL

The analysis in the L&C Exhibit is also flawed with regard to the treatment of the WACP antenna pattern as "Omni". The WACP antenna pattern should not be treated as "Omni" when is it in fact +/- 1.6dB from circular according to the manufacturers data. This is a key error in the L&C Exhibit, particularly in light of the small differences in the prediction of the NLSC - essentially 0.8dB. Consequently, the large 1.6dB scalloping of the antenna pattern is extremely important with regard to accurate prediction of the WACP NLSC.

In this case, the variance of +/- 1.6dB makes a significant difference in the outcome. As discussed later in this report, there is only a 0.8dB differential in the predicted field strength levels that each of the parties has calculated for the NLSC. And, that is the crux of the matter in this case. Fractions of a decibel are the differences noted here that will determine the western edge of WACP's NLSC.

NOISE LIMITED CONTOUR PREDICTION

Based upon the new information provided in the L&C Exhibit, we updated our analysis of WACP's NLSC. This new study confirms most of our original conclusions: WACP's NLSC does not, in fact, encompass Armstrong's Oxford headend. Similarly, the new study shows much of the service area falls outside the NLSC as well. Utilizing the azimuth pattern provided by WACP for the antenna, Jampro model JHD-LV2-3/3 (18) SR, a map as well as point-to-point terrain profile were generated using the FCC OET-69 Longley-Rice modeling as well as FCC F(50,90) propagation curves prediction methodologies.

Our prediction of the contours were calculated in accordance with the methodology contained in the FCC Rules and Regulation §73.625. The methodology describes how to compute the F(50,90) field strength using the F(50,50) and F(50,10) field strength charts contained in §73.699 in conjunction with the height above average terrain (HAAT) and the effective radiated power (ERP).

The FCC defines ERP in §73.681 as "The product of the antenna input power and the antenna power gain" where the antenna power gain is defined as "The square of the ratio of the root-mean-square free space field strength produced at one kilometer in the horizontal plane, in millivolts per meter for one kilowatt antenna input power to 221.4 mV/m. This ratio should be expressed in decibels (dB). (If specified for a particular direction, antenna power gain is based on the field strength in that direction only)."

In practice the ERP in the horizontal plane is the product of the maximum licensed ERP and the square of the relative field value for the given azimuth. When the antenna is non-directional the relative field value is 1.0 for any azimuth; however, for a directional antenna the relative field value will be less than 1.0 for some azimuths. The FCC specifies in §73.625(c)(3) that the value can never be greater than 1.0.

The method used to predict the distance to the noise limited contour in the report provided by L&C Exhibit was not performed in accordance with the methodology prescribed by the FCC. The method used in the L&C Exhibit used the antenna peak gain values which caused the predicted NLSC to extend beyond that predicted using the FCC methodology. This method is flawed since it causes the predicted noise limited contour to extend beyond that which would be achieved if the antenna pattern was truly omni-directional.

The antenna input power specified in the license application for WACP is 5.3 dBK and the ERP as 10 dBK (10 kW). The maximum peak gain for any azimuth in the provided pattern is 5.5 dB which would therefore make the maximum power 12.02 kW (5.3 dBK + 5.5 = 10.8 dBK) which is 2.02 kW (0.8 dBK) above the 10 kW licensed value.

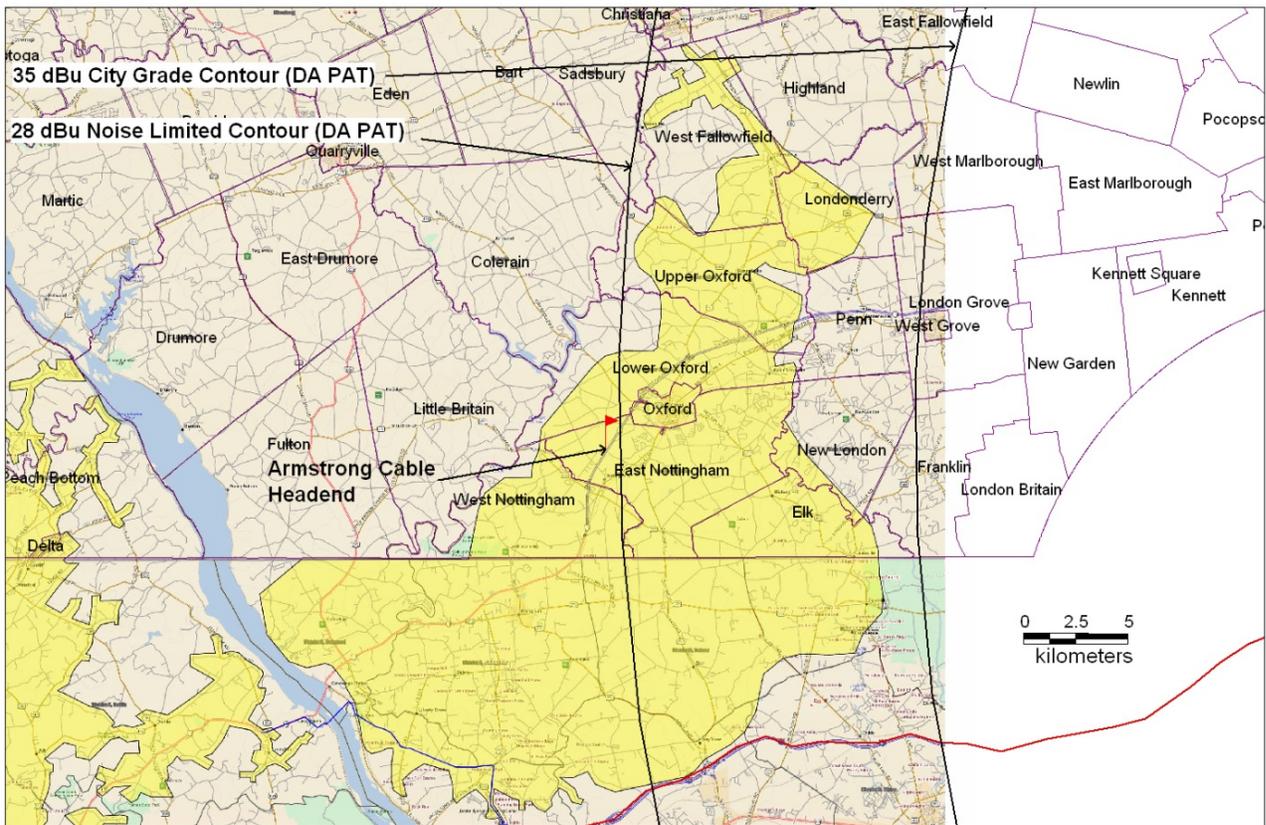
Based on that value, the method used by L&C caused the ERP in the direction of the Armstrong cable headend to be 9.42 kW (5.3 + 4.44 = 9.74dBK). This is an error. Correctly calculated, the power should be 7.83 kW. The value of 7.83 kW is determined using the licensed power and the relative field value at 272.5 degrees (the azimuth from WACP to the headend) and expressed as $10.0\text{KW} * 0.885^2 = 7.83\text{ kW}$. It is pointed out that the difference in the two ERP values is the same 0.8 dB as discussed above.

Calculation of ERP along 272.5° Radial (Armstrong Head-End) is expressed as:

$$\text{ERP at } 272.5^\circ = 10.0\text{KW} * 0.885^2 = \underline{\underline{7.83 \text{ kW}}}$$

*Where 10KW is the FCC license ERP for station WACP; and where 0.885 is the relative field value provided by the Jampro antenna data for azimuth direction 272.5°.

Figure 1 depicts the revised stations NLSC using the WACP-supplied transmitting antenna parameters. Plots of the noise-limited service contour and terrain profile as well as the antenna pattern data are contained in **Appendix 1** of this report.



WACP Channel 4 Atlantic City, NJ - ERP 10 kW
Actual Antenna Pattern

Shaded (yellow) is Armstrong Cable Customer Area

THE MEASUREMENTS CONDUCTED BY WACP ARE FLAWED

WACP's Opposition includes the Loney Statement, addressing signal measurements conducted by Mr. Loney at the Oxford headend. The Loney Statement details the equipment and results of his measurements. The methods, results and conclusions detailed by Mr. Loney are inaccurate for several reasons and do not follow the FCC prescribed measurement procedures.

First, the measurement of DTV signals requires that the integrated 6MHz bandpower of the DTV signal be measured. In the case of the spectrum analyzer measurements shown in Mr. Loney's report the measurements are shown only with discrete carrier markers. The 6MHz DTV bandpower is not measured with carrier markers and no determination of the actual DTV received signal level is possible with the carrier markers. Consequently, those measurements are inaccurate and flawed.

As shown in the MSW report, measurement of the DTV signal requires the use of a spectrum analyzer that is equipped with bandpower marker function that can measure the integrated power over the 6MHz DTV channel.

Furthermore, the measurements conducted by Mr. Loney with the Sencore DTU-236 are similarly flawed. And, in the case of the Sencore unit, the measurements are even more problematic. The Sencore unit does not have spectrum analyzer capabilities such as bandpower markers. It is essentially a DTV receiver with a variety of added diagnostic measurements added to it. But it is important to note this unit relies upon an AGC voltage from the built-in DTV receiver to provide an indication of the received level. In cases where there are not adjacent channels or other impairments, this unit may be used reliably for relative signal level measurements.

However, in this case, it is certain to provide inaccurate and flawed results due to the adjacent channel land mobile carrier. The high adjacent channel signal is not filtered out in the front-end of the Sencore unit and will be present at the input to the unit's tuner and demodulator chip. Thus, it will read a much higher value on its display because of the higher power of the land-mobile signal erroneously registering in the AGC circuits of the unit. This impairment will cause non-linear results from the measurement device. In other words, in this case the Sencore unit will most certainly read a much higher than received DTV signal level due to the closely spaced land-mobile carrier.

This phenomenon is confirmed by the measurements detailed in the Loney Statement. In his report he indicates that the received signal level without the pre-amp or filter on the Sencore unit is "-50dBm" (which we do not agree, but are using here for illustrative purposes), when the preamp and filter are added in the circuit the Sencore unit indicated a signal level of "-43dBm". This would purport to be a 7dB improvement in signal level.

Furthermore, with regard to the reported SNR values from the Sencore unit, we note that those SNR values are not with the receiver equalizer disabled. They are after the Sencore DTV Receiver Chip receiver equalizer has removed as much linear impairment as it can. The correct method for accurately measuring SNR involves disabling the receiver equalizer so that a “true” received SNR value may be measured. For this reason, the Sencore SNR values as reported by Mr. Loney are flawed and inaccurate.

UPPER ADJACENT CHANNEL INTERFERENCE

The L&C Exhibit does not dispute the presence or severe impairment caused by the land-mobile operations on the upper adjacent channel edge to WACP. WACP’s consulting engineer also admits the interference is problematic. Mr. Loney states in his report that, “The energy just above the channel at 72.05MHz is too close to the channel edge for the filter to be effective”. In his conclusions he suggests that the land-mobile operations be “...moved further away in frequency from the CH 4 channel edge to ensure receivers in that area are able to demodulate CH4 signal without difficulty”.

WACP simply notes that these operations should be “secondary” to its use of channel 4. However, since the Armstrong headend lies outside of the WACP NLSC (28dBuV/m contour) it is not protected from interference to the WACP signal and would NOT be protected from “secondary” users of the band as suggested by WACP in its Comments.

It is apparent from the magnitude of interference from the land-mobile operations to the WACP signal, that resolution will require that those stations have either ceased operation or are re-located to another frequency far removed from channel 4. In our experience, this process, if completed, can take months or years. We note that WACP has initiated no action to address the interference.

EXCITER CHANGE & IMPROVED TRANSMITTER SNR UNLIKELY TO RESOLVE POOR QUALITY RECEPTION

WACP contends that its changing of the exciters in its transmitter and the corresponding improvement in transmitter system SNR from 26dB to 35dB will resolve the reception quality problems of WACP. We disagree. Given the severe multiple impairments, some of which are non-linear, the increased SNR performance of the transmitter is not likely to result in improved picture quality at the Armstrong headend.

We note that the improved SNR performance of the transmitter only helps in those cases where reception is limited by a Linear distortion that the receiver equalizer in the DTV receiver can effectively correct (equalize). However, the issues of impulsive noise, adjacent channel land-mobile signals, tuner front-end intermodulation, and other impairments are non-linear distortions of the received DTV signal and therefore additional “margin” from improved transmitter SNR will not provide any improved reception. The improved transmitter SNR performance will only aide with the removal of linear distortion from the DTV signal such as multipath.

LOW-VHF IMPULSE NOISE ISSUES

WACP provided no information in its comments regarding the additional interference and impairment from impulse noise in the Low-VHF band and provided no proposals to resolve or mitigate the impulse noise issues with the WACP signal.

As noted in our original report, it is well-known that the RF “Noise Floor” in the Low-VHF band has been problematic for DTV reception for some time. Test conducted by this firm on several Low-VHF DTV stations documented much higher levels of impulse and electrical noise in the Low-VHF TV channels due to higher emissions from switching power supplies, television sets, computers, and other electronic devices. Due to the impact of these additional interference sources, WACP’s 28dB μ V/m noise limited service contour has no margin for signal fading or other impairments. This can result in poor quality reception at locations near and beyond the noise limited contour of the station. The Commission is well aware of this phenomenon as it has allowed many Low-VHF stations to raise their transmitted ERP to try to improve reception in the Low-VHF band.

Furthermore, noise from electrical lines and other sources have essentially created a scenario where reception on the Low-VHF channels requires a much higher signal level to overcome the impulse noise that has become prevalent in the band. Thus, it is not unexpected that reception of the channel 4 signal from WACP is not possible at signal levels near the “noise-limited” threshold of the receiver (at and beyond the noise limited contour). When in reality the Low-VHF DTV service is not “noise-limited” it is interference and impairment limited. The existence of the impairments from impulse noise and other sources further diminishes the poor signal quality received at the Armstrong head-end.

We note that impulse noise impairments tend to produce “burst errors” in the DTV receiver. Burst errors are the most difficult type of impairment for the receiver to recover from given that they are non-linear and are random in time and length. Thus, the sophisticated error correction and concealment that are a part of the DTV receiver are limited in their ability to remove burst error distortions. This is particularly true once the receiver has lost Sync lock as it takes some time for the receiver to re-lock to sync and recover the embedded synchronization signals which results in picture freezing, tiling, and other impairments.

For WACP at the Oxford headend, we conclude that Low-VHF impulse noise issues, combined with other issues discussed above, makes the western edge of WACP’s predicted 28dB μ V/m NLSC an unreliable predictor of good quality reception. The poor picture quality reported by Armstrong corroborates this.

SIGNAL FADING

Although not addressed in our original report, we note that significant concerns are raised about the dynamic signal fading that plagues the Low-VHF band. This is particularly true during certain times of day (such as sunrise and sunset) and particular seasons of the year. It is highly likely since the signal levels are so low at the Armstrong headend location that the addition of signal fading impairments will further impair the received signal quality from WACP. Because there is no received signal “margin” to account for signal level variations, the WACP signal will not be able to be reliably received over long periods of time.

We note that the point-to-point path profile from the WACP transmitter location to the Armstrong head-end location shows that there are 19 obstructions in the RF path. These obstruction often times are hills with trees and other vegetation. Based upon our field experience we expect that seasonal propagation effects will be problematic for the reception of WACP in addition to the diurnal propagation effects. Furthermore, given the large number of obstructions in the RF path, propagation impairments are highly likely.

TIME VARIABILITY CONCERNS

The FCC F(50,90) propagation curves are based upon a location variability of 50% and a time variability of 90%. It is important to note that the 28dB μ V/m criteria utilized for the must-carry regime assumes that 90% time variability will provide an adequate signal at the head-end for good quality reception. However, based upon our field experience, often a much higher time variability factor would be needed for a commercial MVPD pickup location (for thousands of households in contrast to a single household) to ensure a good quality signal sufficient for distribution. For a commercial cable operator any loss of signal or impairment to off-air reception will result in subscriber complaints and requests for credit due to loss of service. Therefore, higher time variability confidence factors are desired for this type of application.

Based upon Armstrong's measurements of the received signal over long periods of time the packet-loss and picture freezing experienced on the WACP signal will continue to be problematic since the headend is located outside the 28dB μ V/m contour which is predicted using only a 90% time variability factor.

MULTIPLE IMPAIRMENTS

As previously noted the WACP-DT signal suffers from multiple impairments. In addition to the very low received signal level, the upper-adjacent channel land-mobile interference, impulse noise and electrical noise in the Low-VHF band, as well as some multipath and other propagation conditions such as fading all couple together to create a signal that is very poor quality due to the multiple impairments. Mitigating a single impairment (such as the upper adjacent channel interference) would likely not resolve the reception issues with WACP-DT as cumulative effects multiple impairments renders the WACP-DT unusable at the Oxford headend.

CONCLUSIONS

NLSC. When the revised actual WACP-DT predicted antenna pattern and ERP are factored in, the Oxford headend and a substantial portion of the system's service area fall outside of the WACP-DT noise limited 28dB μ contour.

The western edge of WACP's NLSC does not provide a reliable measure of signal coverage. For several reasons, including propagation characteristics of Low-VHF signals, the western edge of WACP's NLSC does not provide a reliable measure of good signal coverage. This helps explain why Armstrong continues to receive poor picture quality at the Oxford headend.

The L&C Exhibit is flawed. The L&C Exhibit contains several significant engineering errors. The FCC should factor these errors into evaluation of WACP's engineering evidence.

The Loney Statement is flawed. The signal measurements conducted by Mr. Loney were incorrect and do not follow FCC prescribed measurement procedures. The FCC should factor these errors into its evaluation of WACP's engineering evidence.

The adjacent upper channel interference problems are significant and will be difficult to fix. The conceivable means to address the significant adjacent upper channel interference is to shut down the operations or move them to another frequency. Either process will likely take months or years to complete. And, because the Armstrong headend is located outside of the WACP NLSC it is not afforded protection from "secondary" users of the band.

Repairs to WACP's exciters are unlikely to resolve poor signal problems. Because of multiple signal impairments, including non-linear impairments, repairs to WACP's exciters are not likely to improve signal reception at Armstrong's headend. The Engineering Statement of Ed Hassler verifies this, showing continued poor picture quality after the exciter repairs were made.

WACP's signal suffers from multiple impairments. Additional signal issues contributing to the poor quality signal at Armstrong's headend include:

- Low VHF impulse noise issues
- Signal fading
- Time variability
- Multipath
- Adjacent Channel interference

This concludes our Report. Our signature page and exhibits follow.

This Report is submitted on November 21, 2013

A handwritten signature in black ink, appearing to read "Dennis W. Wallace", written over a horizontal line.

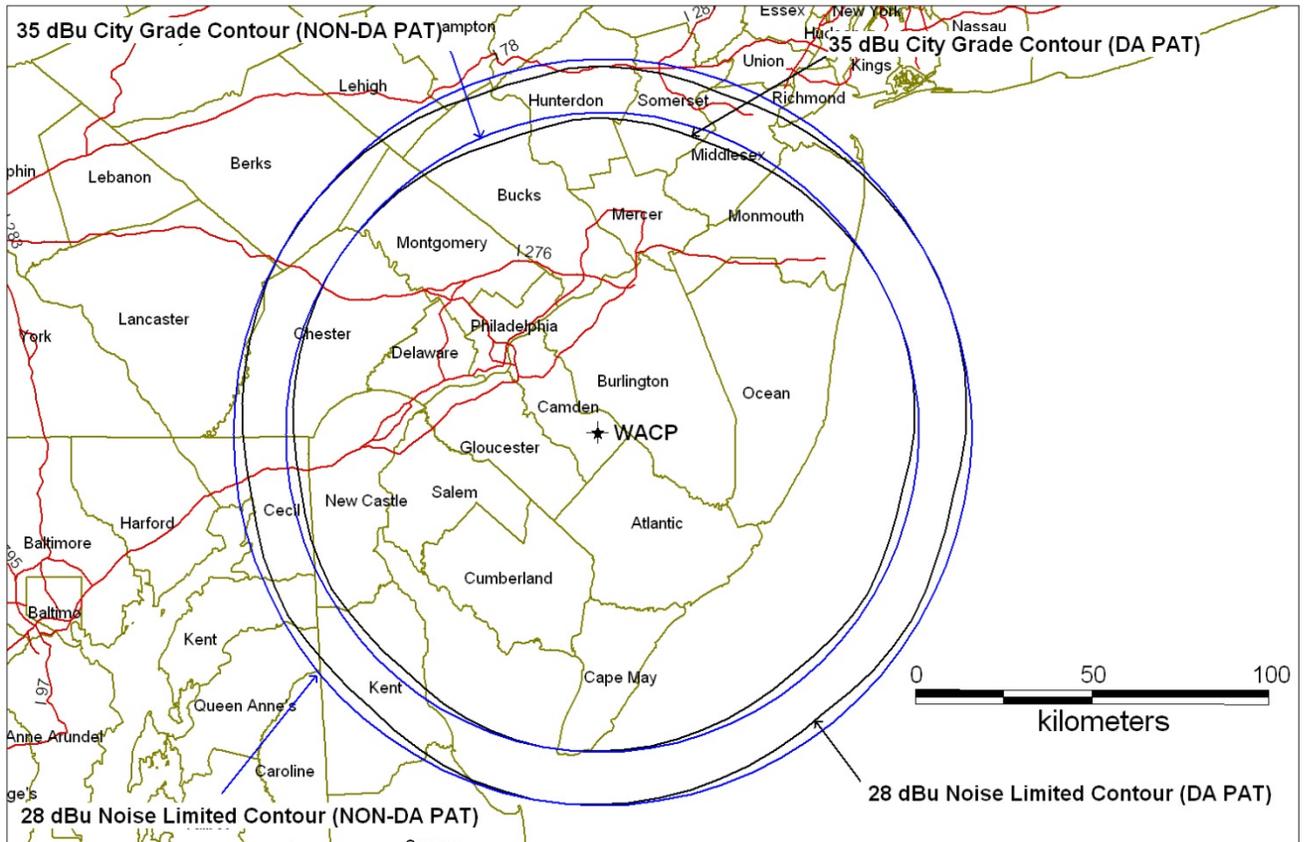
Dennis W. Wallace, C.B.T.E.

Meintel, Sgrignoli, Wallace, LLC.

APPENDIX 1

Predicted Noise-Limited Service Contour Map

Using FCC OET-69 Method

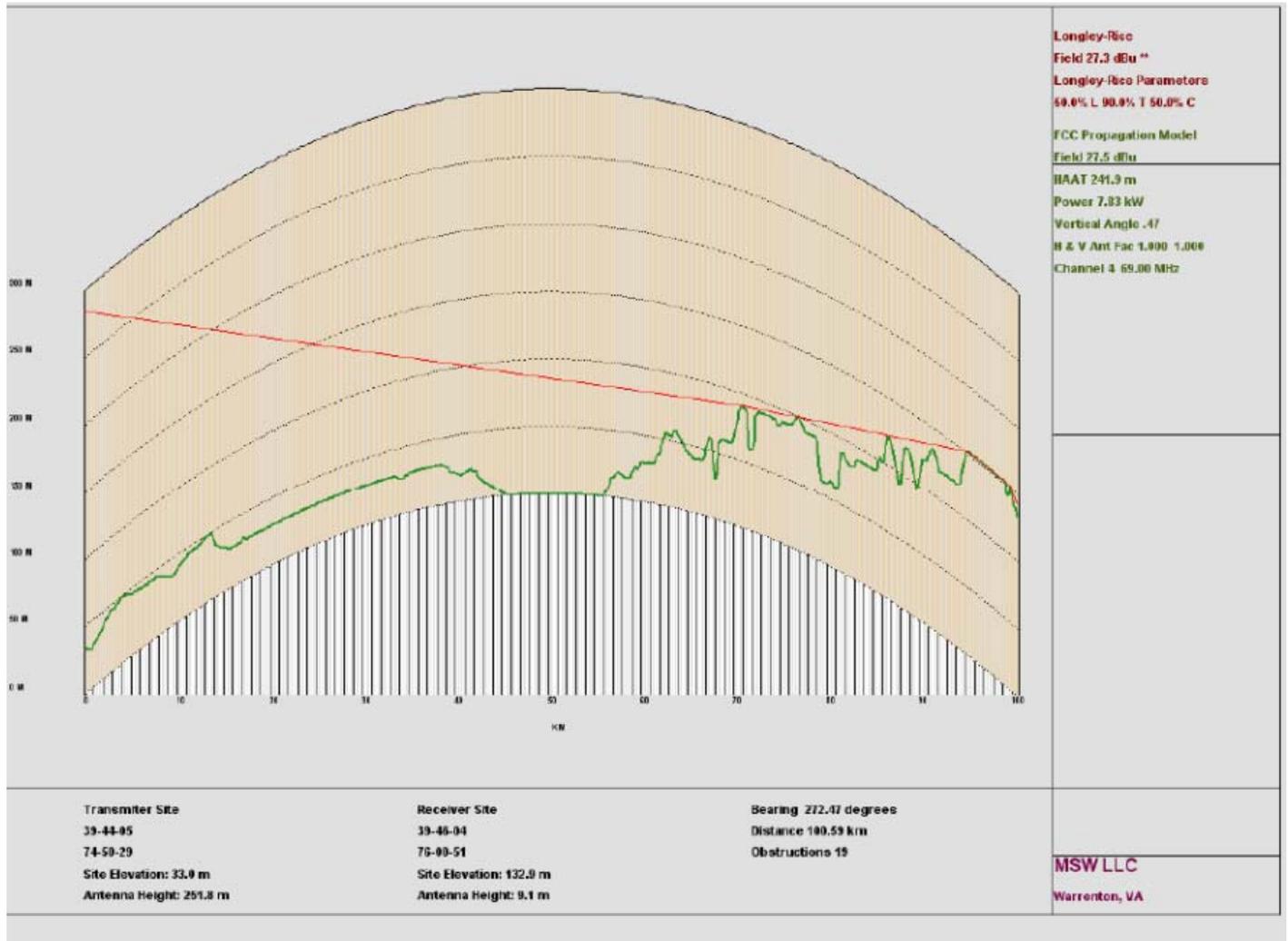


WACP Channel 4 Atlantic City, NJ - ERP 10 kW
Actual Antenna Pattern vs Non-directional Antenna Pattern
DA in BLACK OMNI in BLUE

**Noise Limited Contour Using WACP-DT
Mfg. Calculated Antenna Pattern of Deployed Antenna
Jampro Antenna JHD-LV2-3/3 (18) SR
Actual Antenna Shown in Black
Theoretical “Omni” Pattern Shown in Blue**

APPENDIX 1

Point to Point Terrain Path Profile



**FCC F(50,90) Curves Field Strength Prediction 27.5 dB μ V/m
LR Predicted Field Strength 27.3 dB μ V/m at Oxford Location**

Blue Line is Radius of First Fresnel Zone

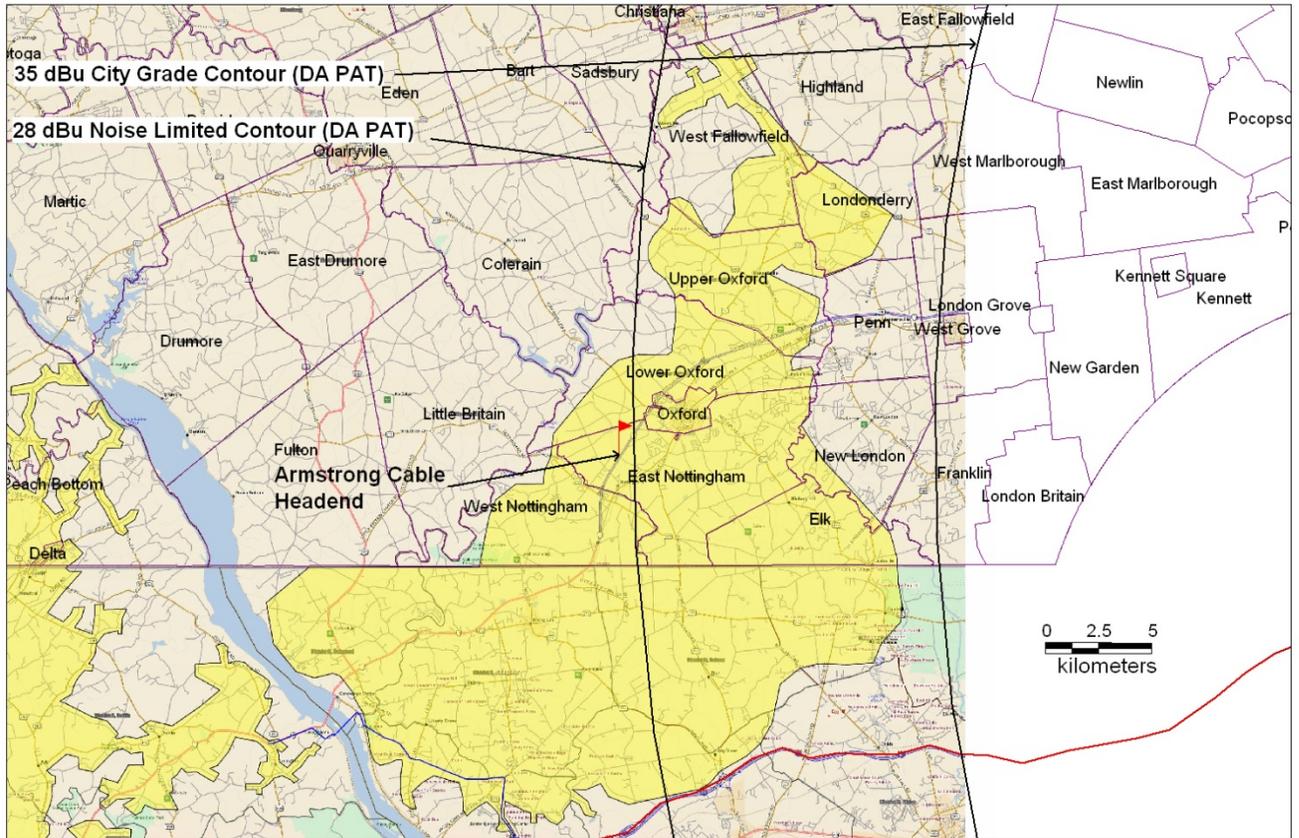
RF Path Includes 19 Obstructions

Distance= 100.59km

Bearing= 272.47 Degrees

APPENDIX 1

WACP Coverage Contours and Armstrong Communities Served



WACP Channel 4 Atlantic City, NJ - ERP 10 kW
Actual Antenna Pattern

Shaded (yellow) is Armstrong Cable Customer Area

EXHIBIT 3

TV Listings from The Daily Local News

	6PM	6:30	7PM	7:30	8PM	8:30	9PM	9:30	10PM	10:30	11PM	11:30	
REGIONAL STATIONS													
3 CBS KYW	Eyewitness News	CBS News (HD)	Entertain	omg! Insider (HD)	Undercover Boss (HD)		Hawaii Five-0 "Hau'oli La Ho'omaika'i" (HD)		Blue Bloods "Bad Blood" (HD)		News	Late Show (HD)	
6 ABC WPVI	News (HD)	World News (HD)	Jeopardy! (HD)	Wheel (HD)	Last Man (HD)	Neighbors (HD)	Shark Tank (HD)		(:01) 20/20 (HD)		Action News	Kimmel Live (HD)	
8 NBC WGAL	News 8 at 6:00	Nightly News (HD)	Entertain (HD)	Hollywood (HD)	Dateline NBC (HD)		Where Were You: The Day JFK Died JFK's assassination, fifty years later. (HD)		Football Friday (HD)		(:35) Leno (HD)		
10 NBC WCAU	NBC 10 News	Nightly News (HD)	Extra (HD)	Hollywood (HD)	Dateline NBC (HD)		Where Were You: The Day JFK Died JFK's assassination, fifty years later. (HD)		NBC 10 News		(:35) Leno (HD)		
12 PBS WHY	The PBS NewsHour (HD)		Bus. Rpt (HD)	BBC World News	Wash Wk (HD)	Friday Art	Nashville 2.0 (HD)		Secrets of the Dead (HD)		First	Tavis Smiley (HD)	
17 MNT WPHL	2 1/2 Men (HD)	The Big Bang (HD)	The Big Bang (HD)	Family (HD)	Monk "Mr. Monk Goes to the Hospital" (HD)		Monk (HD)		News at 10	Family (HD)	The Arsenio Hall Show (HD)		
23 NJN WNJS	NJTV News	BBC World News	One on One	NJTV News	Rosemary Thyme	Rosemary and Thyme "Cup of Silence"	FOyle's War in the Fields"	"They Fought (HD)	(:32) Auction (HD)	(:02) NJTV News	One on One		
29 FOX WTXF	News (HD)	Inside (TVPG) (HD)	TMZ	Simpsons (HD)	Bones "The Mystery in the Meat" (HD)	Raising Hope "Ship Happens; Hi-Def" (HD)	FOX 29 News at 10 (HD)		TMZ	Inside (TVPG) (HD)			
35 MIND WYBE	Democracy Now!		NHK Newsline		The Best of Soul Train Unforgettable performances. (HD)		The Hollies: Look Through Any Window 1963-1975 (HD)		FUNCTIONAL Fitness				
48 IND WGTW	(5:00) Praise the Lord	It's Supernatural!	Potter Touch	Scenes	Hal Lindsey	Harvest with Perry Stone	Praise the Lord Interviews and musical performances.						
57 CW WPSG	Judge Mathis Drug addicted sister. (HD)	Family Feud	Family Feud	The Carrie Diaries (HD)		Nikita "Wanted" (HD)		News	How I Met (HD)	Queens (HD)	Queens (HD)		
61 ION WPPX	Cold Case "Forensics" (HD)	Cold Case "Iced" (HD)		Cold Case Army recruiter slain. (HD)		Cold Case "The Run-away Bunny" (HD)		Cold Case "Bombers" (HD)		Cold Case "Metamorphosis" (HD)			
A&E	The First 48 (HD)		The First 48 (HD)		The First 48 (HD)		The First 48 (HD)		The First 48 (HD)		The First 48 (HD)		
AMC	X-Men '00. Action) ★★★ Sir Patrick Stewart Genetic outcasts use their special abilities to battle super-terrorist. (HD)				Ghost Rider '07) ★★ Nicolas Cage A stunt cyclist gains fiery powers of retribution, becoming the Ghost Rider. (HD)		The Walking Dead "Live Bait" (HD)						
AP	Finding Bigfoot (HD)		To Be Announced		Tanked (HD)		Tanked (HD)		Tanked (HD)		Tanked (HD)		
BET	106 & Park (HD)		Nativity		B.A.P.S. ('97) A woman poses as rich man's heir. (TVPG)		Bill Bellamy: Back to My Roots						
BRAVO	Housewives		Styled		Styled		Friday ('95, Comedy) ★★★ Ice Cube (R)		Friday ('95) Ice Cube				
CNBC	Mad Money		The Kudlow Report		Fugitives		Car Chaser		Greed		Mad Money		
CNN	Situation	Crossfire	Erin Burnett		Cooper 360° (HD)		Piers Morgan (HD)		The Assassination of President Kennedy				
COM	South Park (HD)	(:27) Tosh.0 (HD)	(:58) Colbert (HD)	Daily Show (HD)	Futurama (HD)	Futurama (HD)	Tosh.0 (HD)	Tosh.0 (HD)	Key & Peele (HD)	Key & Peele (HD)	Tosh.0 (HD)	Chappelle (TV14)	
COMSP	SportsNite	Sixers Pre	NBA Basketball Milwaukee vs Philadelphia (Live)				Sixers Pst	SportsNite (HD)	Philly Classic (HD)				
CSPAN	U.S. House	Tonight from Washington			Tonight from Washington			The day's top public policy events.		Capital News Today			
DISN	16 Wishes	Phineas	Austin	Good Luck	Jessie	Blog	Fish Hooks	Liv (HD)	Austin	Good Luck	Blog	Good Luck	
DISC	Bering Sea (HD)	Gold Rush (HD)		Gold Rush (HD)		Gold Rush (HD)		Bering Sea (HD)		Gold Rush (HD)			
E!	Kardashians (HD)	E! News (HD)		Kardashians (HD)		Fashion Police (HD)		Hello Ross		Soup C. Lately News			
ESPN	SportsCenter (HD)		NBA Count		NBA Basketball San Antonio vs Memphis (Live) (HD)				NBA Basketball (Live) (HD)				
ESPN2	College Bball (Live)		College Basketball (Live) (HD)				College Football Navy vs San Jose State (Live) (HD)						
ESQ	Burn Notice (HD)		Jimmy Fallon (HD)		Parks	Parks	Parks	Parks	Party Down	Party Down	13 Going on 30 (HD)		
EWTV	Faith	Rebuilding	Daily Mass		Life on the Rock		Catholic	Serra	Crossing	The New	Parables	WomenGrce	
FAM	Princess Frog (HD)	Mulan ('98, Adventure) ★★★ Ming-Na Wen (HD)				Willy Wonka Chocolate		(:71) (G) (TVPG) (HD)		The 700 Club (TV G)			
FNC	Special Report (HD)	On the Record (HD)		O'Reilly Factor (HD)		The Kelly File		Hannity (HD)		O'Reilly Factor (HD)			
FOOD	Guy's "Feisty Fiesta"		Diners	Diners	Unwrap		Diners	Diners	Best Thing	Best Thing	Mystery	Mystery	
FX	2 1/2 Men (HD)	2 1/2 Men (HD)	Real Steel '11, Science Fiction) ★★★ Hugh Jackman After boxers are replaced by robots, a former fighter builds a contender. (TV14) (HD)				Real Steel '11, Science Fiction) Hugh Jackman Former fighter designs a robot boxer. (HD)						
HALL	Catch a Christmas Star '13) (NR) (HD)				Eloise at Christmastime '03) Julie Andrews		A Bride for Christmas '12) (NR) (TV G) (HD)						
HBO	Real Sports (HD)	Weigh-In Live: "Pacquiao/Rios" (HD)		24/7 (HD)	24/7 (HD)	24/7 (HD)	JFK: In His Own Words (HD)	Real Time with Bill Maher (TVMA) (HD)		Real Time with Bill Maher (TVMA) (HD)			
HGTV	Hunters	Hunters	Hunters	Hunters	Texas Flip		Flop	Flop	Hunters	Hunters	Hunters	Hunters	
HIST	Pawn Stars	Pawn Stars	Pawn Stars	Pawn Stars	JFK Assassination (HD)				Lee Harvey Oswald: 48 Hours to Live (HD)				
LIFE	12 Men Of Christmas '09) Kristin Chenoweth A New York publicist heads to Montana. (HD)				All She Wants for Christmas '06) A woman must save a company from ruin. (TVPG) (HD)				The Twelve Trees of Christmas '13) New York woman battles urban developer. (NR) (HD)				
MAX	Ted '12, Comedy) ★★★ Mark Wahlberg Man's teddy bear threatens relationship. (TVMA) (HD)				Safe House '12, Action) Denzel Washington A CIA rookie is left with a rogue agent. (HD)		Strike Back: Origins (HD)		Strike Back (HD)	Max Quickies			
MSNBC	PoliticsNation (HD)		JFK (HD)		Kennedy (HD)		50 Years of Guns		Up Late with Alec Baldwin (HD)				
MTV	Girl Code	Girl Code	Ridiculous	Ridiculous	Wait Til Next Year				ATL '06) T.I. Four friends leave high school.				
NBCSPO	(5:30) Pro	Costas Tonight		College Hock		key North Dakota vs Boston University		Preview	Costas Tonight	Football			
NICK	Sponge	Sponge	Sponge	Sponge	Airbender		Full Hse	Full Hse	Full Hse	Full Hse	Friends	Friends	
QVC	(5:00) Shoe Shopping "All Special Offers"				Clever & Unique		Honora		Christmas		Friday Night Beauty		
SHO	(:15) Heathers '89, Comedy) Winona Ryder, Christian Slater Teens kill to be popular. (HD)				Masters of Sex "Love and Marriage"		Time of Death "Maria & Toni"		The Words '12) ★★★ Writer uses man's manuscript as his own. (HD)		(:45) Masters of		
SPIKE	Cops	Cops	Cops	Cops	Cops	Cops	Bellator MMA (HD)		This Glory		Killer		
SYFY	Robocroc '13) Crocodilian killing machine.				WWE SmackDown (HD)				Haven		Being Human (HD)		
TBS	Seinfeld (HD)	Seinfeld (HD)	Seinfeld (HD)	Family	Valentine's Day '10, Romance) ★★ Jessica Alba. Love is determined, sought and ignored. (TV14) (HD)		Mike Golic	The House Bunny ★★ Playboy playmate helps falling sorority. (HD)					
TCM	Somewhere I'll Find You '42) Clark Gable Journalists compete for a woman's love. (TV G)				My Man Godfrey '36, Comedy) ★★★½ William Powell A hobo teaches an heiress about life.		Bringing Up Baby '38, Comedy) Katharine Hepburn An heiress falls for a paleontologist.						
TLC	Say Yes Dress (HD)		Atlanta	Atlanta	Atlanta	Atlanta	Atlanta	Atlanta	Secret Princes (HD)		Atlanta	Atlanta	
TNT	Castle (HD)		Castle (HD)		Castle (HD)		The Lincoln Lawyer '11)		Matthew McConaughey (HD)	S. Holmes			
TOON	Diary of Wimpy '11)		Grandpa	Regular	Titans Go! Drama All		Regular	Adventure	Cleveland	Dad (HD)	Family	Family	
TRV	The Dead Files (HD)		The Dead Files (HD)		Ghost (HD)		Ghost (HD)		The Dead Files (HD)		The Dead Files (HD)		
USA	Couples Retreat '09) ★★ Vince Vaughn (HD)				Family	Family	Family	Family	Family	Family	Family	Retreat	

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