TECHNICAL EVALUATION

OF THE

OPENBAND CABLE SYSTEM

IN LOUDOUN COUNTY, VIRGINA

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Draft Material
Client-Attorney Work Product
Privileged and Confidential

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ENGINEERING & ANALYSIS
FOR THE PUBLIC INTEREST

Table of Contents

Table of Figures

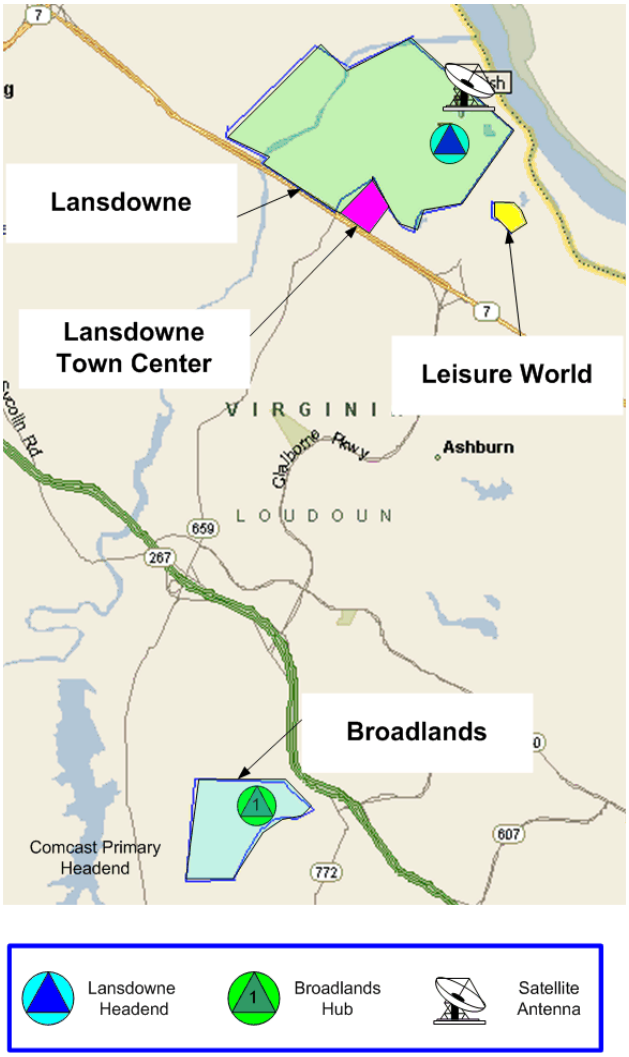
Appendices

1. EXECUTIVE SUMMARY

Columbia Telecommunications Corporation (CTC) conducted an initial inspection of the OpenBand cable system in Loudoun County, Virginia from June 29 through July 1, 2010. Our review included inspection of the headend and hub, electrical testing of the system, and inspection of a sampling of the physical plant. On August 10, 2010 we conducted additional tests of the outside plant, met with selected OpenBand customers, and made measurements in subscriber residences.

Figure 1 illustrates the locations of the OpenBand facilities.

Figure 1: Location of Cable System Headend, Hub, and Satellite Antenna



The focus of our assignment was to determine if the cable system operated by OpenBand meets the terms of the technical requirements in the County's Cable Television Franchise Agreement, to determine if the network performs at or above the minimum performance levels defined by the Federal Communications Commission (FCC), and to evaluate the system as compared to "state-of-the-art systems." This report contains the results of our evaluation and recommendations for OpenBand.

1.1 Adequacy of Overall Picture Quality

Our examination of the picture quality of the individual cable channels at the Loudoun County headend and at selected test points within the community found that the cable system provided good picture quality on the satellite-delivered analog and digital video services. Furthermore, we found the cable network transmission signals to the subscribers at our test points to be comparable in quality to the signals received at the headend.

In addition to measuring signals directly, we reviewed data provided by OpenBand from FCC semiannual proof-of-performance tests. In both cases, the distribution system met or exceeded the FCC's minimum performance criteria for cable systems.

1.2 Cable Network Physical Plant

In addition to system testing, CTC staff inspected the physical cable plant in the public and private rights-of-way. This included inspection of a sample of the aerial transmission plant on utility poles, underground cable plant, and the drop cables that connect the cable system to individual subscriber residences. We found the existing cable plant to be in very good condition relative to industry standards and the power utility in Loudoun County.

1.3 Public, Educational, and Governmental (PEG) Transmission Facilities

Currently, only three public, educational, and governmental (PEG) channels (40, 42, and 43) are carried on the OpenBand system. These channels are transported to the OpenBand headend over a leased DS3 circuit from the Loudoun County government building in Leesburg. OpenBand is not currently receiving educational access programming from George Mason University (GMU) and that channel is not carried on the system.

As part of our work, we examined the subjective picture quality and key parameters of the PEG channels relative to other cable channels. The PEG channels we tested had picture quality similar to the other cable channels. On August 10, 2010 there was no audio on the public access channel (43), which was displaying a character generated message. OpenBand staff contacted Comcast and Verizon and then reported that the lack of audio was caused by the station itself, not OpenBand's system.

1.4 Customer Comments and Measurements

On August 10, 2010 CTC and OpenBand technical staff contacted five OpenBand broadband customers selected by County representatives. Neither CTC nor OpenBand were informed of the addresses in advance. One customer was not home, and one customer said her pictures were good and she did not want us to perform tests. Three customers informed us of their concerns and previous OpenBand service issues; two permitted us to test. Measurements were made on the outside plant at two locations, and tests were performed inside two residences. Representative concerns included:

- Converter issues were mentioned by three individuals. (Issues included frequent re-booting of converters and inability to record channels.)
- Audio volume differences on analog television channels (Channel 3-78) were reported by one individual (the other two customers did not watch analog channels).
- Two customers desired more high-definition television (HDTV) channels.
- Three customers reported random tiling or pixilation of pictures (all reported this occurring on different channels).
- One customer reported loss of sound on the analog public access channel.
- All three said the picture quality was good, except when tiling was taking place.

CTC and OpenBand staff measured signal levels, conducted digital tests on the channels that customers reported having tiling problems, and visually observed those channels on the customers' HDTV televisions. Additionally, digital tests were made on six channels, containing a total of 60 digital channels. All measurements made had better performance than required by FCC requirements and our recommended digital standards. During our testing no tiling was observed.

Based on our experience and our observations, the problems are intermittent problems that are difficult to definitively identify. Our recommendation is for OpenBand to replace set-top converters where there are clearly problems attributable to the converters. Where tiling takes place, the condition of the cable plant and installation are good enough that we suspect the programming feed (program source or satellite feed) or headend to be at fault. Some cable providers are installing "probe" devices at residences with repeated problems to continuously watch for the type of problem that leads to tiling, and this may be a means of identifying the type of problem that could not be detected during the test.

1.5 Overall Technical Recommendations

We recommend that OpenBand and the County address the following items:

- The Emergency Alert System (EAS) comb generator was sent to the manufacturer for repair and at the time of the initial inspection it was not operational. OpenBand had received the repaired generator and made the EAS system functional by the time of our additional inspection on August 10, 2010.

- At the time of inspection, the winter 2010 FCC proof report was available, and OpenBand was preparing to complete the required summer 2010 testing.

- OpenBand is currently not receiving educational access programming from George Mason University (GMU). The headend already has the modulator for the channel but it is not currently programmed. Additional methods for delivery of the GMU programming to the headend should be explored with OpenBand.

- OpenBand may be able to provide video-on-demand (VOD) capability on its servers to support VOD of some PEG access programming. Doing so will better suit information-oriented programming (e.g., crime tips, information on refuse collection, emergency preparedness advice), which does not need to be seen in real time. It is also beginning to be offered in other franchise areas by cable operators and represents a new technological phase in PEG programming.

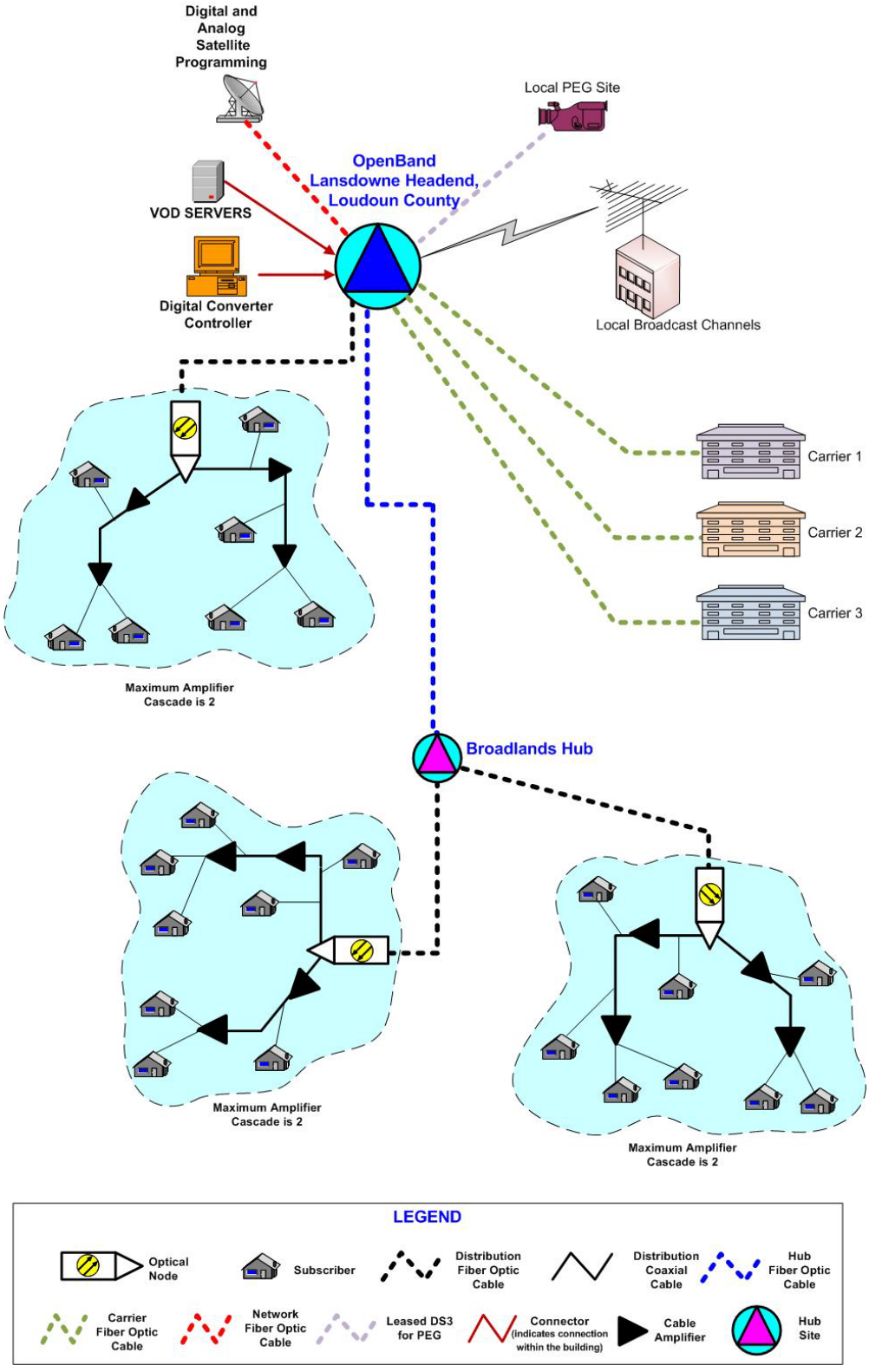
- We believe the unique capabilities of the OpenBand plant physical structure will allow the system to support all emerging technologies in the foreseeable future. OpenBand may need to consider expanding its headend facility to accommodate future needs.

2. SYSTEM DESCRIPTION AND OPERATION

The OpenBand cable television system serves the Lansdowne subdivision, Lansdowne Town Center, the Broadlands subdivision, and portions of Leisure World. OpenBand currently serves approximately 4,200 residents with television, high-speed data, and telephone service. The OpenBand headend is located at 43465 Riverpoint Drive in Lansdowne. The headend site houses equipment to process signals and monitor operations of the Loudoun County network.

The Lansdowne headend is the primary signal-processing center and is a standalone headend receiving all signals. The video-on-demand (VOD) servers, which receive programming requests from subscribers, and commercial ad-insertion equipment, which provides local advertising on analog and digital television services, are located at the Lansdowne headend. The local PEG channels are transported on a leased DS3 circuit from the Loudoun County government building in Leesburg to the headend. Broadlands residents receive service from the Broadlands hub. Figure 2 illustrates the OpenBand system architecture.

Figure 2: Cable System Architecture



2.1 System Headend

On June 29, 2010, CTC performed an inspection of the OpenBand headend and hub serving Loudoun County customers. The headend site is located at 43465 Riverpoint Drive in Lansdowne. The site contains the headend building and a standby power generator. The upstairs area of the headend houses satellite reception equipment and the VOD server. The downstairs portion of the headend houses the modulators, Emergency Alert System (EAS), and the remainder of the system equipment, including all lasers, optical receivers, fiber patch panels, modulators, and signal combiners for the OpenBand system. The site also includes redundant HVAC systems and fire-suppression equipment.

The satellite antenna is a single Simulsat antenna that receives programming from multiple satellites. The Simulsat antenna is in a fenced area and includes an integral heating system that melts snow and ice to prevent reception degradation during inclement weather. The Simulsat antenna is located approximately one-quarter of a mile from the Lansdowne headend site. The satellite signals are transported to the headend by a dedicated fiber link.

All headend equipment is backed up by an uninterruptible power supply (UPS) and a generator. The backup generator automatically restores power in the event of failure of the commercial power supply. The UPS provides power during the transition between the commercial power interruption and the start of the generators.

The headend site provides analog television service using Barco modulators. It also provides EAS functions, local advertising insertion on analog and digital channels, and high-speed data services. Local off-air broadcast television channels are received at the headend from antennae mounted on a nearby building. The digital television services are groomed at this location and the location also receives all VOD programming requests.

The digital television controller that activates service levels on subscribers' digital set-top converters is also located at the Lansdowne headend. OpenBand offers digital services including high-definition television (HDTV), VOD, and digital video recorders made by Scientific Atlanta. Figure 3 illustrates the headend facility.

Figure 3: OpenBand Lansdowne Headend Illustrations

Headend Building

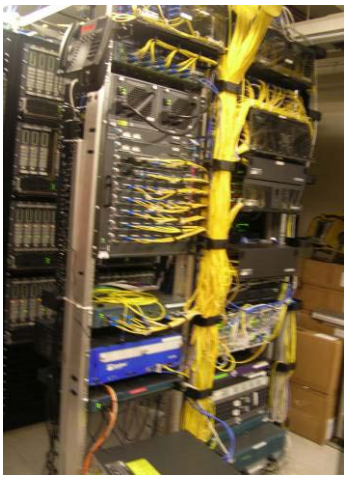
Standby Generator

Satellite Antenna

Upstairs Headend Equipment

Downstairs Headend Modulators

Downstairs Fiber Patch Panels



2.2 Broadlands Hub

The OpenBand headend site serves one hub located in the Broadlands subdivision. Originally, the hub site was a standalone headend that received and processed all signals. Several years ago, OpenBand built a fiber interconnect to the Lansdowne headend and converted the Broadlands headend into a hub. The original headend equipment is still on site but not in use. At present, the site receives programming via an OpenBand fiber connection from the Lansdowne headend. A master optical receiver (node) at each hub then provides programming to lasers for distribution to residents served by the hub. The hub site includes the hub building, standby power generator, lasers, optical receivers, and fiber patch panels. The site also includes redundant HVAC systems. Figure 4 illustrates the Broadlands hub facilities.

Figure 4: Broadlands Hub Facilities

Hub Building

Standby Generator

Broadlands Hub Equipment

2.3 Distribution System

OpenBand provides telephone, cable television (CATV), and high-speed data services (HSD) to residents in the Lansdowne and Broadlands subdivisions. The OpenBand transmission plant for Lansdowne and Broadlands consists of copper telephone lines (for telephone service), fiber and coaxial cable (for television service), and an active optical network (AON) fiber for Internet service. In Lansdowne Town Center, a passive optical network (GPON) provides telephone, television, and HSD services via fiber. In three buildings in Leisure World television service and HSD is provided via the fiber and coaxial system. All distribution cable and service drops are underground and were placed in joint trench with the power company.

The television plant distribution system consists of a fiber-to-the-node architecture with a maximum of two amplifiers in cascade. The OpenBand CATV system bandwidth is 860 MHz using Motorola amplifiers and nodes. The bandwidth is a measure of the capacity of the system to transport television and advanced services to subscribers. The current state-of-the-art for modern systems supports a bandwidth of at least 860 MHz. To minimize the number of pedestals, subscriber television taps are co-located in a common pedestal with the copper telephone lines while the fiber optic drops are located in flush-mount vaults (See Figure 5).

Figure 5: Telephone Pedestal with CATV and Fiber Optic Vault for HSD

The distribution system has standby power from Alpha 60-volt power supplies using three batteries to provide standby operation for up to four hours. The power supplies are equipped with status monitoring to provide OpenBand staff notification when a utility power interruption occurs.

2.4 Subscriber Channels

At the time of inspection, the OpenBand system provided basic television service with 74 analog channels and six digital channels. The digital tier provides a range of satellite programs and premium movie channels, as well as 46 digital audio channels. At the time of our inspection, OpenBand was carrying more than 50 HDTV channels and VOD. At present, none of the analog television channels are digitized. The OpenBand channel lineup and disclaimers are provided in Figure 6 and Figure 7.

Figure 6: Channel Lineup (Basic Service)

OpenBand Channel Line Up — **June 2010**

Basic Service

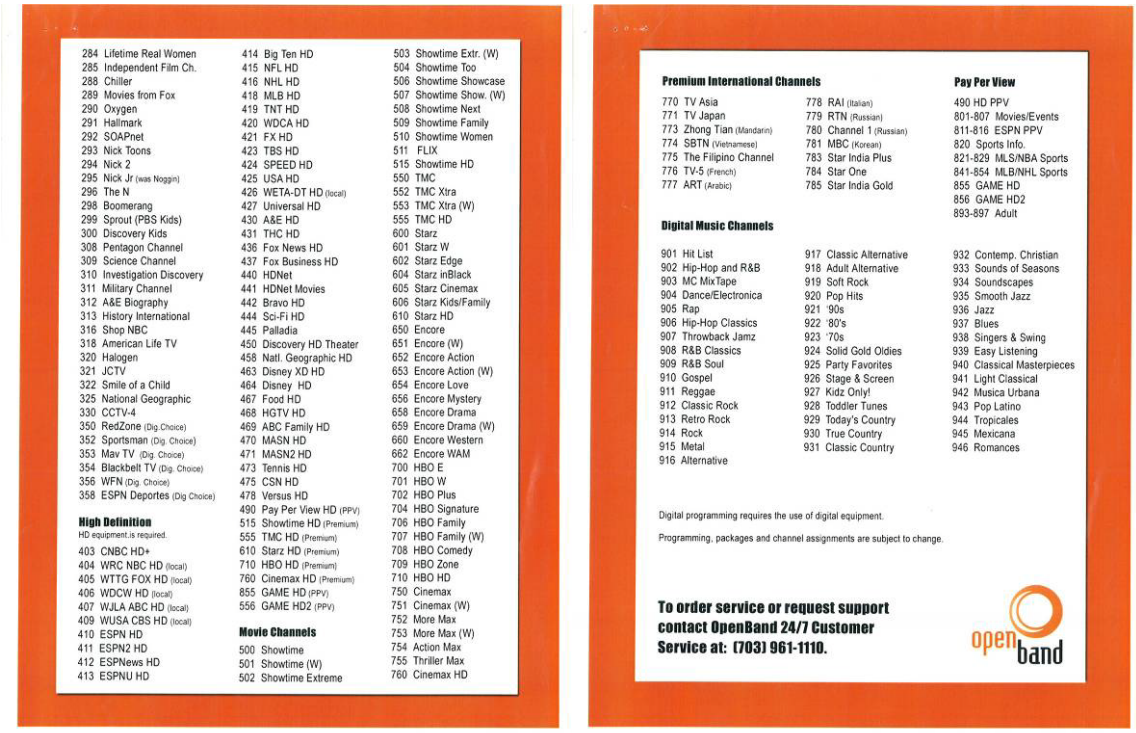
3 Guide Channel
4 WRC (NBC)
5 WTTG (FOX)
6 WDCW
7 WJLA (ABC)
8 News Channel 8
9 WUSA (CBS)
10 Lifetime
11 ESPN
12 ESPN 2
13 Big Ten Network
15 Community *(LW only)*
16 Community Info
17 Outdoor Channel
18 Tru-TV
19 TNT
20 WDCA
21 FX
22 WMPB (Md. Public)
23 TBS
24 Speed Channel
25 USA Network
26 WETA (PBS)
27 Discovery Channel
28 Retirement Living TV
29 Learning Channel
30 A&E
31 History Channel
32 WHUT (PBS)
33 WGN
34 Comedy Central
35 E!
36 Fox News
37 MSNBC
38 CNN
39 Headline News
40 Loudoun PEG Access
41 Loudoun PEG Access
42 Loudoun PEG Access
43 Loudoun PEG Access
44 Sci-Fi
45 Weather
46 CNBC
47 CSPAN
48 CSPAN2
49 CSPAN3 (Digital)
50 FitTV
51 Discovery Health
52 MTV
53 VH1
54 CMT
55 BET
56 Spike
57 TBN
58 EWTN
59 Cartoon Network
60 Am. Movie Classics
61 Turner Classic Mov.
62 WE
63 Disney XD
64 Disney
65 Nickelodeon
66 ION
67 Classic Arts Show.
68 HGTV
69 ABC Family
70 Animal Planet
71 Travel Channel
72 TVLand
73 HSN
74 QVC
75 Food
76 Univision
77 Galavision
78 Bravo
323 Church (Digital)
324 BYU TV (Digital)
370 Weather Radar (Digital)
371 WETA Create (Digital)
372 WETA Family(Digital)
373 WETA (Digital)

Digital tuner required to view digital programming.

Smart Neighborhood Digital Basic Service

001 Video On Demand
202 ESPN News
203 ESPNU
204 ESPN Classic
205 MASN
206 MASN2
207 CSN
208 NFL Channel
209 NHL Network
210 Fox Soccer Channel
212 Golf
213 Versus
214 Tennis Channel
215 Fuel
216 HorseRacing TV
218 MLB
220 Fox College Sport (Atl)
221 Fox College Sport (Cen)
222 Fox College Sport (Pac)
225 CBS College Sports
227 CSN+
230 G4
236 Gameshow Network
245 Fox Business
246 Bloomberg
251 BBC
257 Nat Geo Wild
264 Green Planet
265 Do It Yourself
267 Style
268 Cooking Channel
269 Logo
270 MTV2
271 MTV Hits
272 MTV JAMS
273 CMT - Pure Country
274 VH1 - Classic Rock
275 VH1 - Soul
276 Centric
277 GAC
283 Lifetime Movie

Figure 7: Channel Lineup (Digital Services)



284 Lifetime Real Women
285 Independent Film Ch.
288 Chiller
289 Movies from Fox
290 Oxygen
291 Hallmark
292 SOAPnet
293 Nick Toons
294 Nick 2
295 Nick Jr (was Noggin)
296 The N
298 Boomerang
299 Sprout (PBS Kids)
300 Discovery Kids
308 Pentagon Channel
309 Science Channel
310 Investigation Discovery
311 Military Channel
312 A&E Biography
313 History International
316 Shop NBC
318 American Life TV
320 Halogen
321 JCTV
322 Smile of a Child
325 National Geographic
330 CCTV-4
350 RedZone (Dig.Choice)
352 Sportsman (Dig. Choice)
353 Mav TV (Dig. Choice)
354 Blackbelt TV (Dig. Choice)
356 WFN (Dig. Choice)
358 ESPN Deportes (Dig Choice)

High Definition
HD equipment is required.

403 CNBC HD+
404 WRC NBC HD (local)
405 WTTG FOX HD (local)
406 WDCW HD (local)
407 WJLA ABC HD (local)
409 WUSA CBS HD (local)
410 ESPN HD
411 ESPN2 HD
412 ESPNews HD
413 ESPNU HD
414 Big Ten HD
415 NFL HD
416 NHL HD
418 MLB HD
419 TNT HD
420 WDCA HD
421 FX HD
423 TBS HD
424 SPEED HD
425 USA HD
426 WETA-DT HD (local)
427 Universal HD
430 A&E HD
431 THC HD
436 Fox News HD
437 Fox Business HD
440 HDNet
441 HDNet Movies
442 Bravo HD
444 Sci-Fi HD
445 Palladia
450 Discovery HD Theater
458 Natl. Geographic HD
463 Disney XD HD
464 Disney HD
467 Food HD
468 HGTV HD
469 ABC Family HD
470 MASN HD
471 MASN2 HD
473 Tennis HD
475 CSN HD
478 Versus HD
490 Pay Per View HD (PPV)
515 Showtime HD (Premium)
555 TMC HD (Premium)
610 Starz HD (Premium)
710 HBO HD (Premium)
760 Cinemax HD (Premium)
855 GAME HD (PPV)
556 GAME HD2 (PPV)

Movie Channels

500 Showtime
501 Showtime (W)
502 Showtime Extreme
503 Showtime Extr. (W)
504 Showtime Too
506 Showtime Showcase
507 Showtime Show. (W)
508 Showtime Next
509 Showtime Family
510 Showtime Women
511 FLIX
515 Showtime HD
550 TMC
552 TMC Xtra
553 TMC Xtra (W)
555 TMC HD
600 Starz
601 Starz W
602 Starz Edge
604 Starz inBlack
605 Starz Cinemax
606 Starz Kids/Family
610 Starz HD
650 Encore
651 Encore (W)
652 Encore Action
653 Encore Action (W)
654 Encore Love
656 Encore Mystery
658 Encore Drama
659 Encore Drama (W)
660 Encore Western
662 Encore WAM
700 HBO E
701 HBO W
702 HBO Plus
704 HBO Signature
706 HBO Family
707 HBO Family (W)
708 HBO Comedy
709 HBO Zone
710 HBO HD
750 Cinemax
751 Cinemax (W)
752 More Max
753 More Max (W)
754 Action Max
755 Thriller Max
760 Cinemax HD

Premium International Channels

770 TV Asia
771 TV Japan
773 Zhong Tian (Mandarin)
774 SBTN (Vietnamese)
775 The Filipino Channel
776 TV-5 (French)
777 ART (Arabic)
778 RAI (Italian)
779 RTN (Russian)
780 Channel 1 (Russian)
781 MBC (Korean)
783 Star India Plus
784 Star One
785 Star India Gold

Pay Per View

490 HD PPV
801-807 Movies/Events
811-816 ESPN PPV
820 Sports Info.
821-829 MLS/NBA Sports
841-854 MLB/NHL Sports
855 GAME HD
856 GAME HD2
893-897 Adult

Digital Music Channels

901 Hit List
902 Hip-Hop and R&B
903 MC MixTape
904 Dance/Electronica
905 Rap
906 Hip-Hop Classics
907 Throwback Jamz
908 R&B Classics
909 R&B Soul
910 Gospel
911 Reggae
912 Classic Rock
913 Retro Rock
914 Rock
915 Metal
916 Alternative
917 Classic Alternative
918 Adult Alternative
919 Soft Rock
920 Pop Hits
921 '90s
922 '80's
923 '70s
924 Solid Gold Oldies
925 Party Favorites
926 Stage & Screen
927 Kidz Only!
928 Toddler Tunes
929 Today's Country
930 True Country
931 Classic Country
932 Contemp. Christian
933 Sounds of Seasons
934 Soundscapes
935 Smooth Jazz
936 Jazz
937 Blues
938 Singers & Swing
939 Easy Listening
940 Classical Masterpieces
941 Light Classical
942 Musica Urbana
943 Pop Latino
944 Tropicales
945 Mexicana
946 Romances

Digital programming requires the use of digital equipment.

Programming, packages and channel assignments are subject to change.

To order service or request support contact OpenBand 24/7 Customer Service at: (703) 961-1110.

openband

2.5 Subscriber Converters

At present, converters in use include the Scientific Atlanta (SA) 2200, 3250HD, and 8300HD-DVR. The oldest converters OpenBand uses were first placed in service in 2004. The SA 2200 is used for basic cable only and it was first made in 2001. The remaining SA converters were first made in 2004 and 2005. SA was purchased by Cisco, and new subscribers and replacement converters are model 8652HD-DVR and 4652 models. These new Cisco converters were first made this year. This mix of older and newer converters is typical in the cable industry.

2.6 Video on Demand (VOD)

VOD services were available to OpenBand Loudoun County subscribers at the time of our inspection. The VOD servers are located in the headend. VOD programming allows selection and narrowcast to individual subscribers as they order a program. This allows the subscriber to independently control program navigation (e.g., start, pause, fast-forward, rewind, and stop).

2.7 High-Definition Television (HDTV)

HDTV services were available to OpenBand Loudoun County subscribers on 51 channels at the time of our inspection. OpenBand is planning to introduce HDTV VOD. To compare, Verizon FiOS in the region carries 83 HDTV channels, and Comcast carries 95 HDTV channels. The Verizon and Comcast HDTV channel counts include premium services with time-shifted programming. For example, HBO East and HBO West are included as separate channels, even though they are the same programming shifted by three hours.

2.8 Emergency Alert System (EAS)

The federally mandated nationwide Emergency Alert System (EAS) enables authorized governmental entities to override the programming on a cable system to provide emergency information to subscribers.

The OpenBand system uses a comb generator that provides multiple analog channels with the alert message. Digital subscriber set-top converters are interrupted and a video crawl is displayed with the alert message and the audio message received from the broadcast station sending the EAS alert. The EAS equipment is programmed to forward weather, state primary, state, local, federal, and required test alerts to the subscriber. At the time of our initial inspection, the comb generator portion of the EAS system was at the manufacturer for repair. During our additional testing on August 10, 2010 we found that the repaired unit had been received and placed back in service.

The cable operator is required to maintain records documenting the results of FCC-required EAS testing and recent copies of the system's FCC technical performance tests for review by the general public. We examined the computerized record of EAS alerts and found the information to be in order.

2.9 Public, Educational, and Governmental (PEG) Access Channels

At the time of the test, three PEG access channels were available—channel 40 (governmental access), channel 42 (educational access), and channel 43 (public access). These channels are transported from the Loudoun County government building in Leesburg to the OpenBand headend over a leased DS3 circuit. OpenBand is not currently receiving educational access programming from George Mason University (GMU). The headend already has the modulator for that channel but it is not currently programmed.

As part of our work, we examined the subjective picture quality and measured key parameters of the PEG channels relative to other cable channels. The channels we tested delivered picture quality similar to the other cable channels. On August 10, 2010 there was no audio on the public access channel (channel 43), which was displaying a character generated message. OpenBand

staff contacted Comcast and Verizon and reported that the lack of audio was due to a problem at the public access station.

2.10 Cable Modem Service

OpenBand has three leased 1 Gbps incoming lines from three different carriers using fiber optic cable. They provide cable modem service to approximately 100 residents in Leisure World using the CATV system and DOCSIS 2.0. The residents of Lansdowne and Broadlands receive HSD services over a separate fiber active optical network (AON). The AON uses remote electronics and multimode fiber for the drop to subscribers. The AON cabinet is equipped with batteries to provide standby power for a limited time. Figure 8 illustrates a location with a cable power supply, node, AON equipment, telephony pedestal, and vault containing fiber and drops to homes.

Figure 8: Location Illustrating AON Equipment, Power Supply, Node, and Telephony

Lansdowne Town Center receives all services (telephone, CATV, and HSD) through a GPON fiber system. No copper wires or coaxial cable are used (see Figure 9).

Figure 9: Location Illustrating the PON Equipment at a Subscriber Townhouse

3. PERFORMANCE TESTING

As part of our technical evaluation of the OpenBand cable system in Loudoun County, we reviewed information provided by OpenBand documenting tests made in accordance with Part 76 of the Federal Communications Commission (FCC) rules, which establish a procedure for verifying that cable systems provide a minimum level of technical performance.

We reviewed the tabulated information provided by OpenBand for one proof test. The proof testing was conducted in winter 2010. The documentation provided included a comprehensive tabulation of all the test measurements made at each site. OpenBand was preparing to complete the summer 2010 proofs while we were on site.

We reviewed the proof test results and found that the system exceeded all minimum FCC requirements. Additional background information on FCC proof testing is provided in Appendix C of this report.

3.1 Field Test Results

On June 29, 2010, in cooperation with OpenBand staff, CTC staff performed a subset of the FCC proof tests at seven locations in the communities. Measurements were performed on the system at five locations, in addition to the headend and hub. CTC's experience suggests that five is an appropriate number of sites for a system of this size. We selected the test points to sample all geographic areas and types of cable plant (aerial and underground) and both developments. Measurements were made with regular programming to minimize subscriber inconvenience. On August 10, 2010 we conducted additional tests of the outside plant in Southern Walk, met with selected OpenBand customers, and made measurements in subscriber residences. (Typically, FCC proof measurements are made with the removal of programming and may result in slightly better measurement results.) Measurements were made at a total of eleven sites. The test point addresses are provided in Figure 10 below, while Figure 11 illustrates test and inspection locations.

The test sites included the headend site to confirm that the signals assembled at the headend were properly received and processed prior to transmission on the system, and that they were all adjusted to the correct audio and video carrier levels. At the headend, we tested and evaluated all analog channels. Starting with the basic tier, we examined each channel for picture quality.

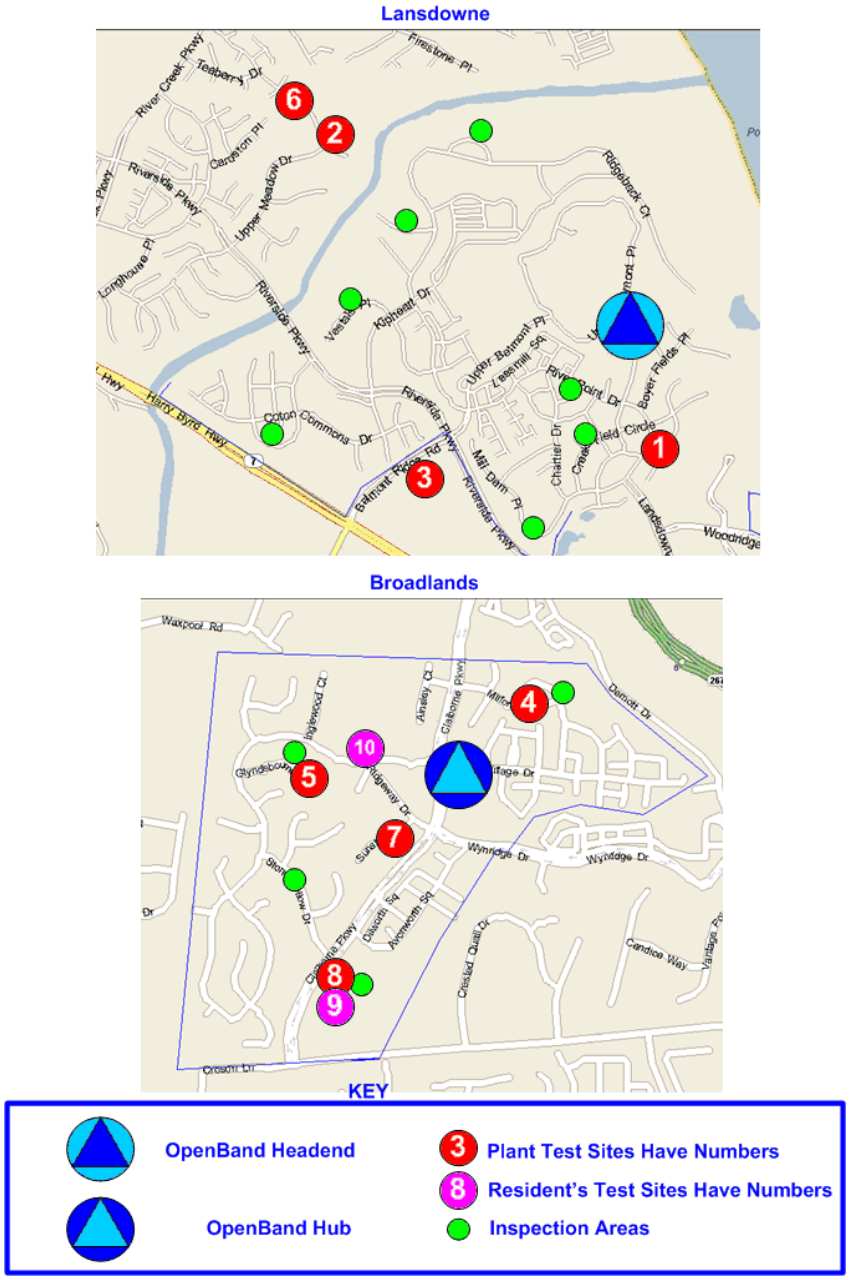
For our field verifications testing, we selected 12 analog channels as required by the Federal Communications Commission (FCC) for proof testing. At present, there are no FCC required tests or standards for digital channel performance, so we verified digital signal levels and measured Modulation Error Ratio (MER), which is a standard industry test for digital channel performance. Because each digital channel provides 10 to 12 programs, we selected two additional digital channels for testing. At one site (43239 Parkers Ridge) the testing indicated poor performance. That site was repaired (it had a bad subscriber tap) and re-tested on July 1st to

confirm that the problem had been cured. All other sites that we tested performed better than FCC requirements and the digital channels performed better than industry standards. Measurements made in selected residences included additional digital tests on six channels where customers informed us that they had experienced previous pixilation problems. These six additional channel tests would be equivalent to testing approximately 60 different digital channels.

Figure 10: Test Locations

TEST PT #	ADDRESS
Headend	43465 Riverpoint Drive in Lansdowne
1	19262 Mill Site Place in Lansdowne
2	18680 Riverlook Court in Lansdowne
3	19280 Koslowski in Lansdowne
4	40433 Milford Drive in Broadlands
5	42890 Glyndebourne Court in Broadlands
6	43239 Parkers Ridge in Lansdowne
7	21974 Sunstone Court in Broadlands
8	22124 Park Glenn Drive in Broadlands
9	Inside Park Glenn Drive Residence
10	Inside Ridgeway Drive Residence

Figure 11: Test and Inspection Locations



3.2 Monitor Tests

A Stealth signal-level meter supplied by CTC and a television monitor provided by OpenBand were used to conduct signal level, carrier-to-noise, hum, and subjective viewing tests of all channels at all test locations. The detailed test results are provided in Appendix B. An explanation of the test data graphs is provided in Appendix C.

3.3 Cumulative Leakage Index

The FCC requires that each cable operator measure and record signal leakage radiating into the air from cable plant to demonstrate compliance with a cumulative leakage index (CLI). Signal leakage is caused by defects in the distribution hardware; it can cause interference with other communications signals, such as aeronautical and navigation signals. To protect against these harmful signals, the FCC requires the cable operator to check the CLI of the cable plant at least once each year, either by extensive ground-based observations or by taking measurements while flying over the system. OpenBand provided a copy of the 2010 ground-based measurements in June 2010. The test results showed the system met the FCC requirements.

4. COMPARISON TO STATE-OF-THE-ART

CTC evaluated the OpenBand system as compared to the existing state of the art in cable systems and to the projected state of the art. Our analysis in this task was based on our extensive experience in the field of cable system technology.

4.1 Overall Analysis

In general, the OpenBand system is more advanced than Comcast's system, but not as high-capacity or future-proof as Verizon's FiOS system. However, OpenBand's system can be upgraded to match or exceed Verizon's capacity without disruption of outdoor rights-of-way or new construction—by replacement of electronics and replacement of the last 2,000 feet of cable (which is in conduit and can be replaced without new digging). The portion of OpenBand's system serving Lansdowne Town Center is of a more modern design and is equivalent to the Verizon system.

We evaluated the system state-of-the-art based on the following criteria:

- Outside cable plant
- Potential outside points of failure
- Headend/core electronics
- Video channel capacity
- Data speed

4.2 Outside Cable Plant

The current OpenBand system uses a mix of technologies but is a fiber-optic-rich infrastructure, and, in the case of Lansdowne Town Center, 100 percent fiber optic. Fiber is the highest capacity, most reliable cable plant available.

In addition, all of the distribution plant and drops that OpenBand has constructed are underground, placed in a joint trench with the power company before the construction of new homes and neighborhoods throughout the community. Because of this, the depth of OpenBand's service drops and plant is greater than what Comcast and Verizon would typically construct, especially for the individual subscriber drop cables. This is a good feature, because the plant is less susceptible to cuts from placement of shrubs, fences, or other utility work.

4.2.1 Video Services Portion

The OpenBand system's amount of fiber optics is greater than in Comcast's system, which has fiber optics to the neighborhood but a last mile (or more) of coaxial cable. Coaxial cable is more limited in capacity than fiber, is more susceptible to signal leakage and interference, and is more prone to reliability problems and failures. The amount of coaxial cable for an OpenBand customer is up to 2,000 feet, which on average will provide higher reliability and quality than a longer stretch of coaxial cable, but will have more limitations than Verizon's system, with no outside coaxial cable.

4.2.2 Data Services Portion

The OpenBand system design depends on the customer's location, as discussed in Section 2. In the majority of the system, the OpenBand customer receives data services through an entirely fiber optic infrastructure, with no coaxial cable. In contrast, Comcast has coaxial cable distribution in the customer's neighborhood. As a result, the OpenBand customer has a higher theoretical maximum data rate and, as discussed above, higher reliability.

Relative to Verizon, the type of fiber optics used by OpenBand for the fiber drops (up to 2,000 feet) is a lower-speed version called "multi-mode." As a result, most of the OpenBand system is not scalable to speeds as high as is possible with the Verizon fiber. However, because the OpenBand cables are all in conduit, the multi-mode fiber can be replaced by the higher-speed "single-mode" fiber without new outside construction.

In Lansdowne Town Center, OpenBand uses single-mode fiber, which matches Verizon.

In Leisure World, OpenBand uses coaxial cable (although over relatively short stretches) and is closer to the standard of Comcast.

4.2.3 Voice Services Portion

The OpenBand system uses conventional copper wires. This is an older technology but it has the advantage of continuing to operate even if power fails at the residence or along the route from the hub to the residence. The copper wires are more susceptible to interference and wear than the fiber optics used by Verizon, and about equally susceptible as the Comcast coaxial cable. However, both the Comcast and Verizon systems require power at the residence to operate (with limited backup battery time).

4.3 Points of Failure – Power Insertion in Outside Plant

4.3.1 Video Services Portion

OpenBand has nodes and amplifiers in the outside cable plant, which require power insertion at several points in the outside plant and will fail after a few hours when the backup batteries are

expended. In this way it is similar to Comcast. Verizon's system is fully fiber optic and does not require power insertion in the outside plant.

4.3.2 Data Services Portion

In most of its system, OpenBand has intermediate cabinets between the headend and the customer premises, which require power. There is only one cabinet between any given customer and the headend. This is intermediate between Comcast (node and multiple amplifiers) and Verizon (cabinet does not require power).

In Lansdowne Town Center, the intermediate cabinets do not require power, and therefore the OpenBand system resembles Verizon. In Leisure World, the system has nodes and amplifiers requiring power, and resembles Comcast.

4.4 Headend/Core Electronics

The OpenBand headend facility is small and may lack sufficient space for future needs (though OpenBand may be able to expand the building on its existing land). The headend facility does, however, have all of the required power, fire suppression, redundant air conditioning, and other support equipment of a modern headend.

Compared to Verizon or Comcast systems, which have multiple linked headend facilities, the standalone OpenBand headend is more vulnerable to a catastrophic failure. Also, if OpenBand's single satellite antenna was to be damaged, OpenBand would lose access to all of its satellite-delivered programming—and subscribers could be subjected to an extended interruption of television service—because of a lack of redundancy.

4.5 Video Channel Capacity

The video channel capacity on the OpenBand system as it currently operates is 860 MHz, set by the capacity of the coaxial cables providing the service. Because the first 54 MHz are generally not used for video, 806 MHz are available for video. The number of channels depends on the type of video technology used. This corresponds to more than 260 analog video channels, more than 500 HDTV channels, thousands of standard-definition video channels, or a mixture of the above.

This capacity is comparable to Verizon, which has 860 MHz dedicated to video channels (plus video-on-demand on its data network). It is superior to Comcast, which has 860 MHz on its most upgraded systems, but must apportion that capacity among video, data, and voice.

In the coming years, video may migrate to the data portion of the system. This is likely for two reasons. First, common video-on-demand services are technically more similar to data (e.g., "streaming") and may be moved there for convenience, as well as opening more capacity.

Second, video from alternate, non-cable TV sources may become more dominant, and this video will reach the viewer through what is now the World Wide Web (data network).

4.6 Data Capacity

The theoretical data capacity per user of most of the OpenBand system is approximately 100 Mbps, limited by the 2,000-foot multi-mode cable and the electronics in the cabinet. This is comparable to the Verizon system, in which approximately 2.5 Gbps are shared by approximately 24 users. It is superior to Comcast's system, where, using the DOCSIS 3.0 technology currently deployed, it is possible to assign approximately 100 Mbps to users, but in practice a few hundred users share a few Gbps.

There is significant capability to upgrade the OpenBand system to higher speeds. This would require replacing the multi-mode fiber with single-mode fiber and upgrading or eliminating the electronics in the cabinets. With single-mode fiber, the only constraint on the data speed would be the speed of the electronics, which currently can provide cost-effective transport at 1 Gbps per user, with 10 Gbps equipment becoming available.

5. PHYSICAL PLANT INSPECTION

CTC staff conducted a physical inspection of the cable plant in Loudoun County, Virginia, including both underground and aerial construction. The inspection concentrated on an examination of the quality of the plant construction, appearance, and compliance with national standards. (The national inspection standards and authorities cited, along with descriptions of the violations, are included in this section of the report.) Accompanied by OpenBand representatives, we inspected cable plant in the public rights-of-way and at individual subscriber residence connections (drops) in different residential areas of Loudoun County. We found the existing cable plant to be in very good condition and that the plant is well-built and maintained relative to industry standards and the power utility in Loudoun County.

5.1 Physical Plant Standards

The cable system must comply with two primary national construction standards.

The first standard, the National Electrical Safety Code (NESC) published by the IEEE, 2005, is the primary guide to construction of the cable system in the public rights-of-way. The NESC is a national code designed to provide standards and work rules to protect persons against hazards from the installation, maintenance, and operation of electrical systems and communications lines.

The second standard is the National Electrical Code (NEC) published by the National Fire Protection Association, 2005. This national code establishes rules for the safe installation of electrical conductors and equipment.

Other industry standards and authorities for construction and installation practices will also be mentioned as they relate to problems we found that warrant correction. The following information addresses the categories of violations of physical plant construction for which we inspect.

During our inspection we found one infraction out of 71 locations inspected. Approximately 98.6 percent of locations were in compliance with code.

5.1.1 Bonding and Grounding

We inspect bonding and grounding according to NEC, NESC, and industry standards for the safety of workers. We inspect the aerial and underground cables and at subscriber homes and equipment.

Grounding protects against injury from lightning and surges of excessive electrical current on the system. Grounding is required for electrified system components at specified locations along the plant itself. This is accomplished by bonding the cable plant and equipment to the common neutral ground of the other utilities on the poles. Alternatively, when there is no other ground,

the cable system is directly grounded with a ground rod at the site where grounding is required. Bonding creates "the permanent joining of metallic parts to form an electrically conductive path that ensures electrical continuity and the capacity to conduct safely any current likely to be imposed" (NEC ART. 100). The authorities for reporting these kinds of violations may be found in the following:

- NEC, Rules 820-33, 820-40; and
- NESC, §092C, §093D, §215, and §239.

During our inspection, we found one underground end-of-line location where the system was not properly grounded as required.

5.1.2 Lashing

In aerial portions of the cable system, the cables are attached to steel cables or "strand" that is bolted to the poles. A strong, thin lashing wire is wrapped around both the cable and strand to secure the cable to its supporting strand. This practice places the weight of the cable on the strand rather than on the cable itself.

Improper lashing can result in undue stress on the cable and connectors, potentially causing signal quality problems. If the lashing wire breaks and unravels, it usually causes the cable to fall from its supporting strand toward the ground, thereby reducing clearances over streets, driveways, or sidewalks and presenting hazards to vehicular and pedestrian traffic.

We did not find any lashing violations during our inspection.

5.1.3 Construction

The construction category addresses the manner in which the cable system is built. Poor construction practices are evident in such violations as bolts of improper length. If the bolts are too long, they create hazards for personnel climbing the poles; if too short, they fail to secure the cables to the poles (NESC §217A4). Other violations in this category include missing bolts, strand that is not attached to poles, strand that does not have the proper tension, cable supports and spacers that are missing or improperly installed, and equipment that is improper for the system.

We found no construction infractions during our inspection.

5.1.4 Clearances

Clearances between cable television (CATV) lines and the ground, streets, sidewalks, and other utilities are specified in national codes such as the NESC §23 and Tables 232 and 234. All cables on utility poles and underground should be placed in a manner to avoid contact with one another. The codes establish acceptable distances between power, telephone, and other communications

lines placed on the same poles and in the same area in the public rights-of-way or public utility easements.

Proper distance between CATV lines and other utility cables provides a level of safety for all workers on the poles. The clearance distances between power lines and streets and sidewalks were established to permit safe and unhindered access to cables on the poles and to avoid obstructions to vehicular traffic and pedestrians traveling under the cables.

We observed no clearance violations during our inspection.

5.1.5 Guying and Anchoring

In aerial construction, guy wires are necessary to provide additional support to the utility pole when the weight of cables on the pole is greater than can be safely supported by the pole alone. Guy wires are required not only for poles that support a large number of cables, but also for poles supporting very long spans of cable, and on corners or at the end-of-lines where there is additional weight on the poles.

Missing or improperly installed guy wires can create a public safety hazard because of a greater potential for pole failure under stress from high winds, accidents, or pole degradation.

The steel cables used to guy the poles must be properly bolted to the poles and anchored in the ground at prescribed tensions. At ground level, the guy wire itself is required to be covered with a plastic “guard” to alert passersby to the presence of the wire and protect pedestrians from accidental injury.

The requirements for guy wire construction are documented in NESC Rules 261B, 261C, 261D, and 264.

We found no guying infractions

5.1.6 Pedestals

The pedestal is an enclosure for buried plant equipment. This category of violations addresses such issues as enclosures that are not installed correctly, are missing covers or doors, or do not have sufficient capacity for the equipment they contain.

The requirements for pedestals are established by generally accepted industry practices as well as in CTE Construction, §5.

We found no locations with pedestal infractions.

5.2 Subscriber Drop-Related Violations

"Drops" are the wires that connect the subscriber homes to the cable system on the street. Under the NEC, drops are required to meet specific construction standards. These standards have requirements for attachment to the residence, clearance from the ground or depth of buried cable, and grounding to protect against shock, equipment damage, and fire hazards. Drop violations include drops from aerial plant down a utility pole to an underground service connection that is not secured to the pole and which may become inadvertently snagged and disconnected.

Safety is a significant concern in the installation and maintenance of drops. For example, a common operator practice is to place a temporary, unburied drop to a home serviced by underground plant in order to quickly establish service. This can also occur when the ground is frozen or snow-covered and the cable cannot be buried at the time of installation. An unburied drop may be acceptable for a few days, if properly guarded or marked, but when left exposed for weeks it is not only an annoyance to subscribers but presents a safety hazard in the public right-of-way. These situations are reported as violations. Standards for drop installation and maintenance are governed by generally accepted industry practices and by the NEC §250 and §820.

During our inspection of the subscriber drop connections, we found three locations (or approximately 3.4 percent) with infractions.

5.2.1 Drop Grounding

Of the 92 drops inspected, we found three infractions—one that was connected to a ground rod and two that were disconnected from the ground. The two that were disconnected from the bond were fixed while we were on site. A total of 89 drops, or approximately 96.6 percent, were grounded in compliance with current codes.

5.2.2 Exposed, Broken, or Missing Underground Plant or Equipment

In areas of new construction, we often find exposed, broken, or missing plant or equipment. Where public utilities are placed underground, cable and related equipment must also be placed underground. Cables are to be buried at specified depths and at specified distances from public utilities. When repairs or replacement of the cables is necessary, temporary exposed "jumper" cables are often installed to maintain service while work to properly install and bury the new cables is scheduled. When temporary jumper cables are installed, the cables should be marked with tape or cones to alert the public to the hazard and to protect from injury. Temporary cables must be replaced with properly installed cables as soon as possible.

In other cases, drops may be installed without properly burying the cable in order to facilitate a subscriber service connection, with the cable operator scheduling burial of the cable for a later date. These unburied cables also present safety hazards to residents passing by the cables. When

we find this type of installation, and it has been in place for some time or is unprotected, we report it as a violation. Temporary cables are addressed in the NESC at §230 A (2) (d).

No infractions were found in this category.

5.2.3 Aerial Drop Connected to Power Mast Above the Roof

The NEC requires a home's power mast to support only the electrical connection. Specifically, the power mast cannot be used to attach other cables above the roof line. We found no locations where the cable television drop was connected to the power mast above the roof.

5.2.4 Miscellaneous "Housekeeping" Violations

The general physical appearance and condition of the plant is evidence of the level of maintenance performed on the plant. Poor maintenance results in both immediate and future problems. For example, safety hazards to pedestrian traffic are created by cables that have come loose from supports, have become exposed on the ground, have broken, or have been cut but not repaired.

During our inspection, we found no housekeeping infractions.

Appendix A:
Inspection Results

Inspector: **David Randolph**
Cable Company: **OpenBand**
Franchise: **Loudoun County, Virginia**

REF.	No.	STREET	Total Drops	Water Ground	Ground Rod	Power Ground	No Ground	Improper Bond	Workmanship	Clearance	Date	INSPECTOR COMMENTS	NEC COMPLIANCE
1	43675	Farmstead	1			**1**					**6/30/2010**	OK Bonded to Power	Y
2	43769	Farmstead	1			**1**					**6/30/2010**	OK Bonded to Power	Y
3	43773	Farmstead	1			**1**					**6/30/2010**	OK Bonded to Power	Y
4	43777	Farmstead	1			**1**					**6/30/2010**	OK Bonded to Power	Y
5	43781	Farmstead	1			**1**					**6/30/2010**	OK Bonded to Power	Y
6	43785	Farmstead	1			**1**					**6/30/2010**	OK Bonded to Power	Y
7	43780	Farmstead	1			**1**					**6/30/2010**	OK Bonded to Power	Y
8	43784	Farmstead	1			**1**					**6/30/2010**	OK Bonded to Power	Y
9	19433	Mill Dam	1			**1**					**6/30/2010**	OK Bonded to Power	Y
10	19429	Mill Dam	1			**1**					**6/30/2010**	OK Bonded to Power	Y
11	19425	Mill Dam	1			**1**					**6/30/2010**	OK Bonded to Power	Y
12	19417	Mill Dam	1			**1**					**6/30/2010**	OK Bonded to Power	Y
13	19409	Mill Dam	1			**1**					**6/30/2010**	OK Bonded to Power	Y
14	19358	Mill Dam	1			**1**					**6/30/2010**	OK Bonded to Power	Y
15	19404	Mill Dam	1			**1**					**6/30/2010**	OK Bonded to Power	Y

REF.	No.	STREET	Total Drops	Water Ground	Ground Rod	Power Ground	No Ground	Improper Bond	Workmanship	Clearance	Date	INSPECTOR COMMENTS	NEC COMPLIANCE
16	19256	Creekfield	1			1					6/30/2010	OK Bonded to Power	Y
17	19260	Creekfield	1			1					6/30/2010	OK Bonded to Power	Y
18	19268	Creekfield	1			1					6/30/2010	OK Bonded to Power	Y
19	19276	Creekfield	1			1					6/30/2010	OK Bonded to Power	Y
20	19280	Creekfield	1					1			6/30/2010	Loose Bond Corrected on Site	N
21	19284	Creekfield	1			1					6/30/2010	OK Bonded to Power	Y
22	19292	Creekfield	1			1					6/30/2010	OK Bonded to Power	Y
23	19296	Creekfield	1			1					6/30/2010	OK Bonded to Power	Y
24	19297	Creekfield	1			1					6/30/2010	OK Bonded to Power	Y
25	19293	Creekfield	1			1					6/30/2010	OK Bonded to Power	Y
26	26	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
27	43266	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
28	43270	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
29	43278	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
30	43382	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
31	43283	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
32	43279	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
33	43275	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
34	43271	La Croix	1			1					6/30/2010	OK Bonded to Power	Y

REF.	No.	STREET	Total Drops	Water Ground	Ground Rod	Power Ground	No Ground	Improper Bond	Workmanship	Clearance	Date	INSPECTOR COMMENTS	NEC COMPLIANCE
35	43267	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
36	43263	La Croix	1			1					6/30/2010	OK Bonded to Power	Y
37	43352	Vestals	1			1					6/30/2010	OK Bonded to Power	Y
38	43356	Vestals	1			1					6/30/2010	OK Bonded to Power	Y
39	43360	Vestals	1			1					6/30/2010	OK Bonded to Power	Y
40	43364	Vestals	1			1					6/30/2010	OK Bonded to Power	Y
41	43368	Vestals	1			1					6/30/2010	OK Bonded to Power	Y
42	43369	Vestals	1		1						6/30/2010	Grounded to Rod	N
43	43651	Vestals	1			1					6/30/2010	OK Bonded to Power	Y
44	43357	Vestals	1			1					6/30/2010	OK Bonded to Power	Y
45	43481	Calphams Mill	1			1					6/30/2010	OK Bonded to Power	Y
46	43485	Calphams Mill	1			1					6/30/2010	OK Bonded to Power	Y
47	43477	Calphams Mill	1			1					6/30/2010	OK Bonded to Power	Y
48	43473	Calphams Mill	1			1					6/30/2010	OK Bonded to Power	Y
49	43469	Calphams Mill	1			1					6/30/2010	OK Bonded to Power	Y
50	43585	Habitat	1			1					6/30/2010	OK Bonded to Power	Y

REF.	No.	STREET	Total Drops	Water Ground	Ground Rod	Power Ground	No Ground	Improper Bond	Workmanship	Clearance	Date	INSPECTOR COMMENTS	NEC COMPLIANCE
51	43593	Habitat	1			1					6/30/2010	OK Bonded to Power	Y
52	43601	Habitat	1			1					6/30/2010	OK Bonded to Power	Y
53	43600	Habitat	1			1					6/30/2010	OK Bonded to Power	Y
54	43956	Habitat	1			1					6/30/2010	OK Bonded to Power	Y
55	43588	Habitat	1			1					6/30/2010	OK Bonded to Power	Y
56	43717	Habitat	1			1					6/30/2010	OK Bonded to Power	Y
57	43715	Habitat	1			1					6/30/2010	OK Bonded to Power	Y
58	43713	Habitat	1			1					6/30/2010	OK Bonded to Power	Y
59	43711	Habitat	1			1					6/30/2010	OK Bonded to Power	Y
60	42974	Park Creek	1			1					7/1/2010	OK Bonded to Power	Y
61	42986	Park Creek	1			1					7/1/2010	OK Bonded to Power	Y
62	42994	Park Creek	1			1					7/1/2010	OK Bonded to Power	Y
63	42998	Park Creek	1			1					7/1/2010	OK Bonded to Power	Y
64	42995	Park Creek	1			1					7/1/2010	OK Bonded to Power	Y
65	42991	Pk Creek	1			1					7/1/2010	OK Bonded to Power	Y
66	42987	Pk Creek	1			1					7/1/2010	OK Bonded to Power	Y

REF.	No.	STREET	Total Drops	Water Ground	Ground Rod	Power Ground	No Ground	Improper Bond	Workmanship	Clearance	Date	INSPECTOR COMMENTS	NEC COMPLIANCE
67	42983	Park Creek	1			1					7/1/2010	OK Bonded to Power	Y
68	42979	Park Creek	1			1					7/1/2010	OK Bonded to Power	Y
69	22042	Stone Hollow	1			1					7/1/2010	OK Bonded to Power	Y
70	22038	Stone Hollow	1			1					7/1/2010	OK Bonded to Power	Y
71	22034	Stone Hollow	1			1					7/1/2010	OK Bonded to Power	Y
72	22030	Stone Hollow	1			1					7/1/2010	OK Bonded to Power	Y
73	22026	Stone Hollow	1					1			7/1/2010	Loose Bond Connected on Site	N
74	22027	Stone Hollow	1			1					7/1/2010	OK Bonded to Power	Y
75	22031	Stone Hollow	1			1					7/1/2010	OK Bonded to Power	Y
76	22035	Stone Hollow	1			1					7/1/2010	OK Bonded to Power	Y
77	22039	Stone Hollow	1			1					7/1/2010	OK Bonded to Power	Y

REF.	No.	STREET	Total Drops	Water Ground	Ground Rod	Power Ground	No Ground	Improper Bond	Workmanship	Clearance	Date	INSPECTOR COMMENTS	NEC COMPLIANCE
78	42740	Ridgeway	1			**1**					**7/1/2010**	OK Bonded to Power	Y
79	42744	Ridgeway	1			**1**					**7/1/2010**	OK Bonded to Power	Y
80	42748	Ridgeway	1			**1**					**7/1/2010**	OK Bonded to Power	Y
81	42745	Ridgeway	1			**1**					**7/1/2010**	OK Bonded to Power	Y
82	42741	Ridgeway	1			**1**					**7/1/2010**	OK Bonded to Power	Y
83	42737	Ridgeway	1			**1**					**7/1/2010**	OK Bonded to Power	Y
84	21851	Engleside	1			**1**					**7/1/2010**	OK Bonded to Power	Y
85	21847	Engleside	1			**1**					**7/1/2010**	OK Bonded to Power	Y
86	21842	Engleside	1			**1**					**7/1/2010**	OK Bonded to Power	Y
87	21823	Engleside	1			**1**					**7/1/2010**	OK Bonded to Power	Y
88	21822	Engleside	1			**1**					**7/1/2010**	OK Bonded to Power	Y
89	21842	Engleside	1			**1**					**7/1/2010**	OK Bonded to Power	Y
		TOTALS	**89**	**0**	**1**	**86**	**0**	**2**	**0**	**0**		LOCATIONS NEC COMPLIANT	86
												LOCATIONS POSSIBLY NEC COMPLIANT	0
												LOCATIONS NOT NEC COMPLIANT	3
												TOTAL LOCATIONS	89
												Percentage bad	3.4%

CABLE PLANT INSPECTION

Inspector: **David Randolph**
Location: **Loudoun County, Virginia**
System: **OpenBand**

REF NO.	ADDRESS	Grounding	Guying & Anchoring	Clearance	Pedestal/vault	Other	Date	INSPECTOR COMMENTS	POLES	COMPLIANCE
1	43781 Farmstead	**OK**			**OK**		**6/29/2010**	Not Underground End of Line, Grounded Properly	1	Y
2	43780 Farmstead	**OK**			**OK**		**6/29/2010**	Underground End of Line, Grounded Properly	1	Y
3	19433 Mill Dam Place	**OK**			**OK**		**6/29/2010**	Underground End of Line, Grounded Properly	1	Y
4	19388 Mill Dam Place	**OK**			**OK**		**6/29/2010**	Underground Pedestals and Plant OK	1	Y
5	19284 Creekfield	**OK**			**OK**		**6/29/2010**	Underground End of Line, Grounded Properly	1	Y
6	19297 Creekfield	**OK**			**OK**		**6/29/2010**	Underground Line Extender, Grounded Properly	1	Y
7	43270 La Croix	**OK**			**OK**		**6/29/2010**	Tap Grounded	1	Y
8	43263 La Croix	**OK**			**OK**		**6/29/2010**	Underground Line Extender, Grounded Properly	1	Y
9	43352 Vestals	**OK**			**OK**		**6/29/2010**	Underground Line Extender, Grounded Properly	1	Y
10	43368 Vestals	**OK**			**OK**		**6/29/2010**	Node Grounded OK	1	Y
11	43476 Calphams Mill	**OK**			**OK**		**6/29/2010**	Line Extender Grounded OK	1	Y

REF NO.	ADDRESS	Grounding	Guying & Anchoring	Clearance	Pedestal/vault	Other	Date	INSPECTOR COMMENTS	POLES	COMPLIANCE
12	43481 Calphams Place	**OK**			**OK**		**6/29/2010**	Tap Grounded OK	1	Y
13	43585 Habitat Circle	**OK**			**OK**		**6/29/2010**	Power Supply OK	1	Y
14	43604 Habitat Circle	**OK**			**OK**		**6/29/2010**	Tap OK	1	Y
15	Ashburn Road to Hub	**OK**	**OK**	**OK**			**7/1/2010**	Aerial Plant Correctly Constructed	40	Y
16	Waxpool Road	**OK**	**OK**	**OK**			**7/1/2010**	Aerial Plant Correctly Constructed	10	Y
17	42974 Park Creek	**OK**			**OK**		**7/1/2010**	Tap OK	1	Y
18	43006 Park Creek	**OK**			**OK**		**7/1/2010**	Tap OK	1	Y
19	42983 Park Creek	**X**			**OK**		**7/1/2010**	UG EOL not Grounded	1	N
20	22042 Stone Hollow	**OK**			**OK**		**7/1/2010**	Tap OK	1	Y
21	42744 Ridgeway Drive	**OK**			**OK**		**7/1/2010**	Tap OK	1	Y
22	42737 Ridgeway Drive	**OK**			**OK**		**7/1/2010**	Tap OK	1	Y
23	21851 Engleside	**OK**			**OK**		**7/1/2010**	Tap OK	1	Y
	Non-Compliant Locations:	**1**	**0**	**0**	**0**	**0**				

Total Locations	**71**	
Total Compliant	**70**	**98.6%**
Total Non-Compliant	**1**	**1.4%**

Appendix B

Performance Test Results

LOUDOUN COUNTY OPENBAND TECHNICAL INSPECTION

Inspector:	David Randolph										DATE: 6/29/2010 & 8/10/2010				
	CHANNEL														
MEASUREMENT	4	17	24	30	36	44	47	51	60	69	76	78	92	127	**COMPLIANT**
TP01 19262 Mill Site Place															
Carrier to Noise	46.9	46.3	47.4	47.6	44.9	46.5	46.2	45.0	45.9	46.1	47.0	46.0			YES
Second Order	63.9	66.0	69.8	66.5	58.8	66.1	69.9	68.5	57.6	69.0	63.5	65.2			YES
Hum	1.2%	0.9%	0.6%	0.6%	0.8%	0.7%	1.3%	0.9%	0.7%	0.7%	0.6%	0.8%			YES
MER (Digital Test)													37.1	36.5	n/a
TP02 18680 Riverlook Court															
Carrier to Noise	46.3	45.2	47.9	48.1	46.2	47.3	46.2	45.0	47.5	46.9	47.4	47.5			YES
Second Order	64.7	69.0	66.8	68.3	69.6	61.1	69.4	68.8	70.3	64.8	71.1	60.8			YES
Hum	0.6%	0.7%	0.9%	0.6%	0.7%	0.7%	1.0%	0.8%	0.9%	0.6%	0.6%	0.7%			YES
MER (Digital Test)													36.7	37.0	n/a
TP03 19280 Koslowski (PON System)															
Carrier to Noise	47.1	46.9	47.5	45.3	44.9	45.5	45.1	44.5	44.5	44.7	44.6	44.8			YES
Second Order	65.8	69.6	64.2	61.6	68.1	62.8	64.6	60.4	57.4	67.7	67.0	56.5			YES
Hum	0.6%	0.8%	0.6%	1.0%	0.9%	0.8%	1.1%	0.9%	1.0%	0.7%	0.9%	0.8%			YES
MER (Digital Test)													35.7	35.8	n/a
TP04 40433 Milford Drive															
Carrier to Noise	46.5	47.9	48.2	48.2	46.3	47.5	47.4	46.3	46.3	45.1	44.8	44.3			YES
Second Order	64.1	68.5	71.3	71.7	67.0	70.7	70.8	65.3	69.4	57.5	63.0	55.5			YES
Hum	1.0%	1.0%	0.7%	0.7%	0.8%	0.8%	1.0%	0.7%	0.7%	0.5%	1.0%	0.9%			YES
MER (Digital Test)													36.4	36.5	n/a

TP05 42890 Glyndebourne Court															
Carrier to Noise	47.0	48.3	51.3	48.6	48.8	48.3	46.1	45.5	47.1	47.0	47.4	47.0			YES
Second Order	66.4	65.1	58.7	59.7	62.1	63.4	63.2	56.7	55.7	61.8	52.8	59.2			YES
Hum	0.9%	1.0%	1.0%	1.1%	1.0%	1.4%	1.0%	0.8%	0.7%	0.8%	0.7%	0.8%			YES
MER (Digital Test)													36.1	36.3	n/a
TP06 42439 Parkers Ridge (RETEST)															
Carrier to Noise	51.1	50.1	51.6	51.2	49.4	50.9	48.1	50.1	51.5	50.7	50.0	51.2			YES
Second Order	65.0	63.9	65.2	64.8	55.9	56.5	64.3	62.2	64.3	59.2	61.1	64.9			YES
Hum	1.1%	1.1%	1.1%	0.9%	1.1%	0.9%	1.3%	1.1%	0.9%	1.0%	1.0%	1.1%			YES
MER (Digital Test)													36.4	36.6	n/a
TP07 21974 Sunstone Court															
Carrier to Noise	46.1	47.7	49.0	48.4	48.1	48.1	45.1	46.1	48.2	49.7	49.7	49.0			YES
Second Order	59.4	61.4	52.6	60.3	61.7	65.4	63.0	59.9	57.7	63.7	63.8	63.8			YES
Hum	1.5%	1.7%	1.3%	1.3%	0.5%	1.1%	1.6%	1.2%	1.2%	1.1%	1.2%	1.1%			YES
MER (Digital Test)													35.6	36.4	n/a
TP08 22120 Park Glenn Drive															
Carrier to Noise	45.8	46.1	46.1	47.1	45.7	46.7	46.9	45.9	47.1	46.6	46.1	45.5			YES
Second Order	67.3	65.8	64.9	65.5	68.8	65.7	70.0	68.9	61.0	69.7	67.2	62.5			YES
Hum	1.1%	0.7%	0.6%	0.6%	0.7%	0.6%	1.0%	0.8%	0.7%	0.6%	0.7%	0.7%			YES
MER (Digital Test)													36.3	36.6	n/a
TP09 Inside Residence on Park Glenn Drive															
Carrier to Noise	49.0	48.0	47.5	47.3	48.0	48.0	47.1	47.0	46.8	46.0	46.5	46.0			YES
Hum (Average)	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%			YES
MER (Digital Test)													35.5	35.5	n/a
MER Ch.105& 122													35.7	35.5	n/a
MER Ch. 87& 90													35.4	35.6	n/a

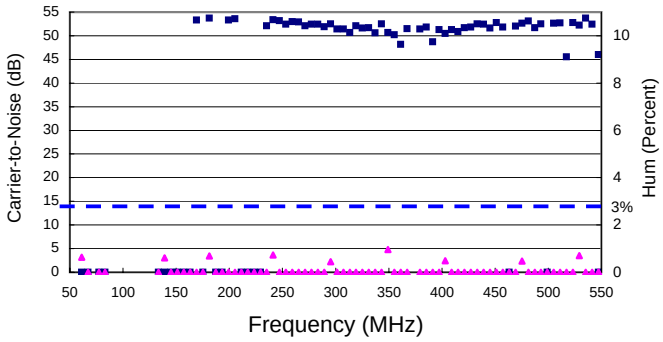
TP10 Inside Residence on Ridgeway Drive															
Carrier to Noise	46.8	45.9	46	46.6	46	46.5	46.1	46.5	46	45.9	46.5	46			YES
Hum (average)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%			YES
MER (Digital Test)													35.5	35.1	n/a
MER Ch. 87& 90													35.4	35.2	n/a
MER Ch. 104 & 118													35.5	36.0	n/a
AVERAGE ALL TEST POINTS															
Carrier to Noise	47.3	47.2	48.3	47.8	46.8	47.5	46.4	46.2	47.1	46.9	47.0	46.7			YES
Second Order	64.6	66.2	64.2	64.8	64.0	64.0	66.9	63.8	61.7	64.2	63.7	61.1			YES
Hum	1.0%	1.0%	0.8%	0.8%	0.8%	0.9%	1.1%	0.9%	0.8%	0.8%	0.8%	0.9%			YES
MER (Digital Test)													36.1	36.2	n/a

NOTES: Minimum FCC Carrier to noise is 43 dB
Minimum FCC Second Order is 51dB
Maximum FCC Hum is 3.0%
Minimum recommended MER is 31dB
TP06 was repaired and tested on July 1, 2010
TP07 - TP10 were tested on August 10, 2010

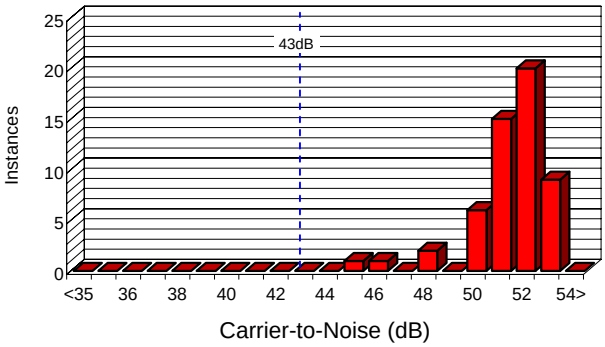
(Loudoun County OpenBand Monitor Tests)

OpenBand Headend 06/29/10

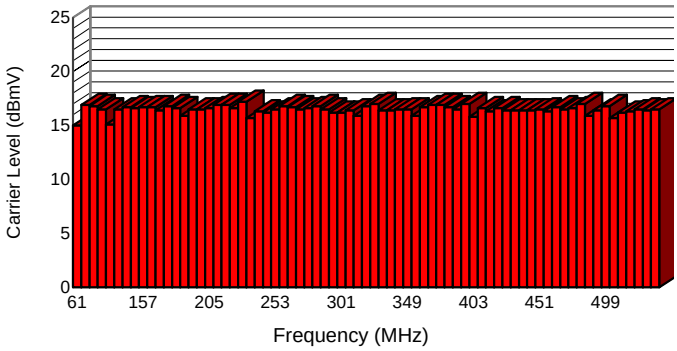
CARRIER-TO-NOISE AND HUM PERFORMANCE



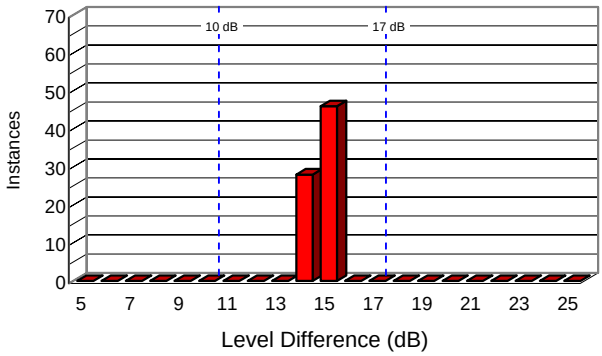
C/N PERFORMANCE DISTRIBUTION



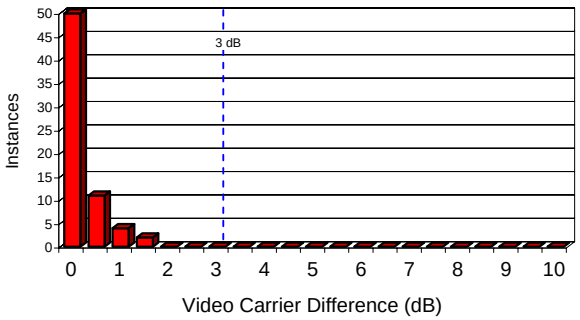
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise			
Average	51.9 dB	Min. allowable	43 dB
Carrier Level Variation			
Overall	2.2 dB	Max. allowable	14 dB
Adjacent	1.9 dB	Max. allowable	3 dB
Hum			
Average	0.64%	Max. allowable	3 %
A/V Ratio			
Maximum	15.5 dB	Max. allowable	17 dB
Minimum	14.4 dB	Min. allowable	10 dB

TP File:	OBHE00	93	54	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBHE00	**DOS File: OBHE00**
Date: 06/29/10	Time: 10:13:23	**0.0 0.0**
Description:		

Location:	OpenBand Headend						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		15.0	0.2	14.8		0.6	-44.0
4		16.9	1.9	15.0			
5		16.8	1.9	14.9			
6		16.5	1.5	15.0			
16		15.1	-0.2	15.3			
17		16.5	1.3	15.2		0.6	-44.4
18		16.7	2.2	14.5			
19		16.6	1.4	15.2			
20		16.7	1.6	15.1			
21		16.7	1.9	14.8			
22		16.4	1.7	14.7	53.3		
7		16.8	1.3	15.5			
8		16.6	1.6	15.0	53.7	0.7	-43.3
9		15.9	0.9	15.0			
10		16.5	1.6	14.9			
11		16.5	1.2	15.3	53.3		
12		16.6	1.8	14.8	53.6		
13		16.9	1.4	15.5			
23		16.9	1.6	15.3			
24		16.6	1.8	14.8			
25		17.2	2.5	14.7			
26		15.7	0.5	15.2	52.1		
27		16.3	1.1	15.2	53.4	0.7	-42.7
28		16.2	1.5	14.7	53.2		
29		16.5	1.3	15.2	52.4		
30		16.8	1.8	15.0	53.0		
31		16.7	1.7	15.0	52.9		
32		16.5	1.5	15.0	52.1		
33		16.6	1.3	15.3	52.4		
34		16.8	1.5	15.3	52.4		
35		16.5	1.5	15.0	51.9		
36		16.2	1.3	14.9	52.5	0.4	-47.1

Loudoun County
Monitor Test Results

Location:	OpenBand Headend						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		16.2	0.8	15.4	51.4		
38		16.4	1.7	14.7	51.4		
39		15.9	1.0	14.9	50.7		
40		16.8	1.7	15.1	52.1		
41		17.0	1.8	15.2	51.6		
42		16.4	1.7	14.7	51.7		
43		16.4	1.1	15.3	50.6		
44		16.5	1.3	15.2	52.5		
45		16.5	1.5	15.0	50.7	1.0	-40.3
46		15.9	1.1	14.8	50.2		
47		16.7	1.4	15.3	48.2		
48		16.9	1.9	15.0	51.5		
50		16.9	1.4	15.5	51.4		
51		16.7	1.7	15.0	51.8		
52		16.5	1.7	14.8	48.7		
53		17.0	1.7	15.3	51.3		
54		15.8	1.2	14.6	50.5	0.5	-46.2
55		16.6	1.6	15.0	51.3		
56		16.3	1.2	15.1	50.9		
57		16.6	1.7	14.9	51.7		
58		16.4	1.9	14.5	51.8		
59		16.4	1.1	15.3	52.5		
60		16.4	1.4	15.0	52.4		
61		16.4	1.5	14.9	51.6		
62		16.5	1.4	15.1	52.8		
63		16.3	1.2	15.1	51.8		
64		16.7	2.0	14.7			
65		16.5	1.5	15.0	52.0		
66		16.6	1.3	15.3	52.6	0.5	-46.4
67		17.0	2.3	14.7	53.1		
68		15.9	0.9	15.0	51.7		
69		16.4	1.2	15.2	52.5		
70		16.8	1.5	15.3			
71		15.7	1.0	14.7	52.6		
72		16.2	1.4	14.8	52.7		
73		16.3	1.3	15.0	45.5		
74		16.5	2.1	14.4	52.8		
75		16.4	1.5	14.9	52.2	0.7	-43.0
76		16.5	1.8	14.7	53.7		

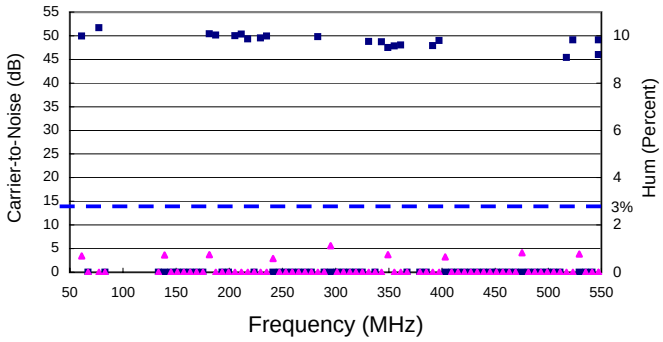
Loudoun County
Monitor Test Results

Location:	OpenBand Headend						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		16.1	0.9	15.2	52.4		
78		15.8	1.0	14.8			

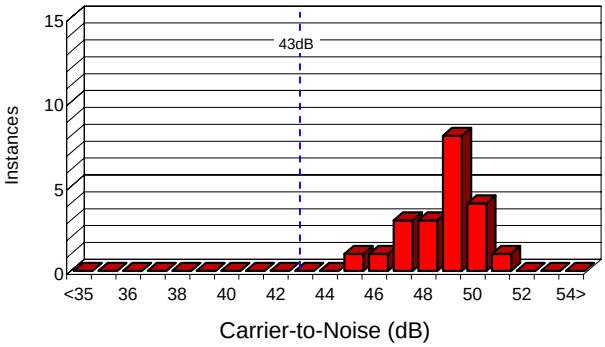
(Loudoun County OpenBand Monitor Tests)

TP01 19262 Mill Site Place 06/29/10

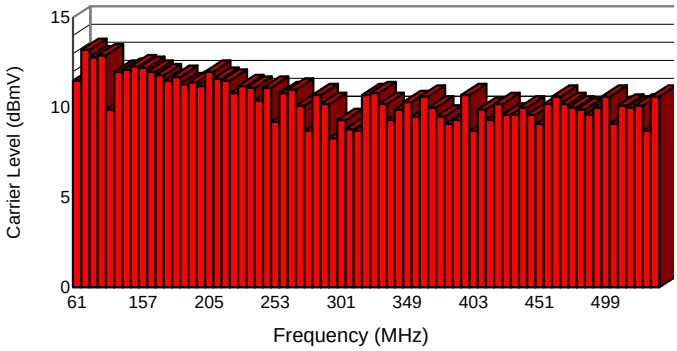
CARRIER-TO-NOISE AND HUM PERFORMANCE



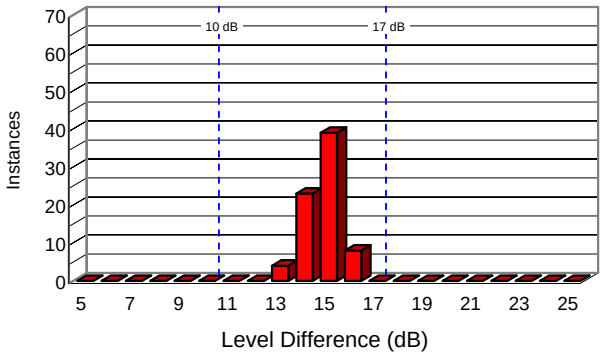
C/N PERFORMANCE DISTRIBUTION



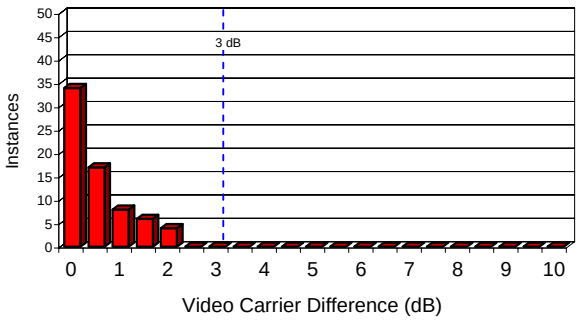
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise			
Average	49.1 dB	Min. allowable	43 dB
Carrier Level Variation			
Overall	4.9 dB	Max. allowable	14 dB
Adjacent	2.1 dB	Max. allowable	3 dB
Hum			
Average	0.76%	Max. allowable	3 %
A/V Ratio			
Maximum	16.8 dB	Max. allowable	17 dB
Minimum	13.3 dB	Min. allowable	10 dB

TP File:	OBTP01	93	21	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP01	**DOS File: OBTP01**
Date: 06/29/10	Time: 11:36:37	**0.0 0.0**
Description:		

Location:	TP01 19262 Mill Site Place						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		11.5	-3.2	14.7	49.9	0.7	-43.3
4		13.2	-1.9	15.1			
5		12.8	-1.9	14.7	51.7		
6		12.9	-2.4	15.3			
16		9.9	-4.6	14.5			
17		12.0	-3.2	15.2		0.7	-42.7
18		12.1	-2.6	14.7			
19		12.3	-3.0	15.3			
20		12.2	-2.8	15.0			
21		12.0	-2.7	14.7			
22		11.8	-3.5	15.3			
7		11.5	-3.4	14.9			
8		11.7	-3.2	14.9	50.4	0.7	-42.6
9		11.3	-3.8	15.1	50.1		
10		11.4	-4.2	15.6			
11		11.2	-4.0	15.2			
12		12.0	-3.1	15.1	50.0		
13		11.6	-3.8	15.4	50.3		
23		11.5	-3.4	14.9	49.3		
24		10.8	-6.0	16.8			
25		11.2	-2.4	13.6	49.5		
26		11.1	-5.4	16.5	49.9		
27		10.4	-4.7	15.1		0.6	-44.7
28		11.1	-5.1	16.2			
29		9.2	-5.0	14.2			
30		10.8	-3.8	14.6			
31		11.0	-4.3	15.3			
32		10.1	-6.7	16.8			
33		8.7	-4.7	13.4			
34		10.7	-5.0	15.7	49.8		
35		10.2	-5.1	15.3			
36		8.3	-6.1	14.4		1.1	-39.0

Loudoun County
Monitor Test Results

Location:	TP01 19262 Mill Site Place						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		9.3	-6.4	15.7			
38		8.8	-5.5	14.3			
39		8.7	-5.2	13.9			
40		10.7	-4.7	15.4			
41		10.8	-5.0	15.8			
42		10.2	-5.2	15.4	48.8		
43		9.3	-5.5	14.8			
44		9.9	-4.9	14.8	48.7		
45		10.3	-4.7	15.0	47.5	0.7	-42.6
46		9.5	-5.0	14.5	47.8		
47		10.6	-5.9	16.5	48.0		
48		10.0	-5.3	15.3			
50		9.5	-6.8	16.3			
51		9.1	-5.1	14.2			
52		9.3	-4.7	14.0	47.9		
53		10.7	-5.1	15.8	49.0		
54		8.7	-5.8	14.5		0.7	-43.7
55		9.9	-6.0	15.9			
56		9.3	-5.8	15.1			
57		10.2	-5.4	15.6			
58		9.6	-4.6	14.2			
59		9.6	-5.4	15.0			
60		10.0	-5.5	15.5			
61		9.6	-5.5	15.1			
62		9.1	-5.3	14.4			
63		10.2	-5.3	15.5			
64		10.6	-4.7	15.3			
65		10.2	-5.3	15.5			
66		10.0	-5.6	15.6		0.8	-41.6
67		9.9	-4.2	14.1			
68		9.6	-5.5	15.1			
69		10.0	-5.2	15.2			
70		10.6	-6.1	16.7			
71		9.1	-5.2	14.3			
72		10.1	-4.9	15.0			
73		10.0	-5.6	15.6	45.4		
74		10.1	-4.7	14.8	49.1		
75		8.7	-4.6	13.3		0.8	-42.3
76		10.6	-4.6	15.2			

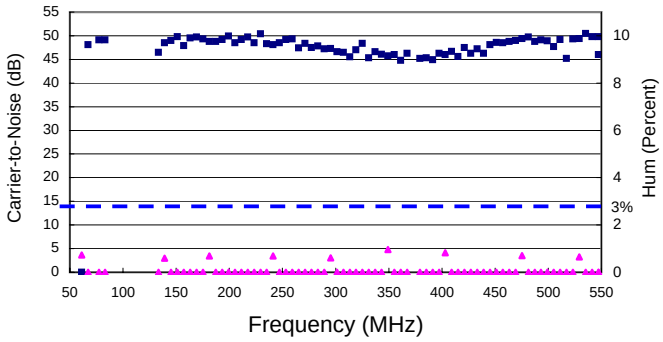
Loudoun County
Monitor Test Results

Location:	TP01 19262 Mill Site Place						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		10.4	-5.7	16.1			
78		10.0	-5.4	15.4	49.1		

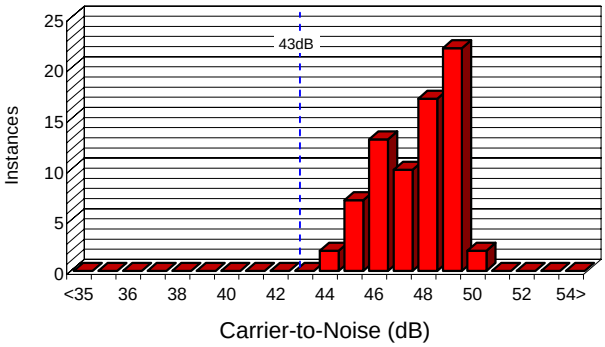
(Loudoun County OpenBand Monitor Tests)

TP02 18680 Riverlook Court 06/29/10

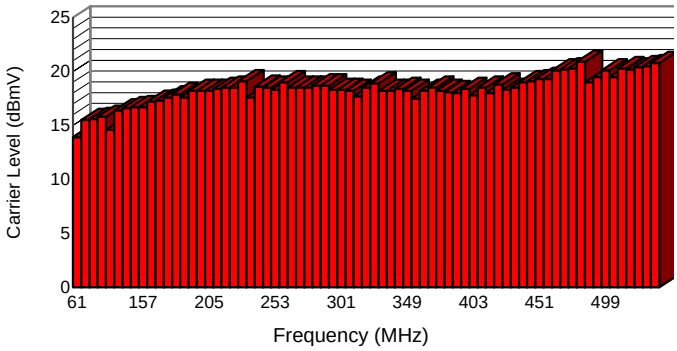
CARRIER-TO-NOISE AND HUM PERFORMANCE



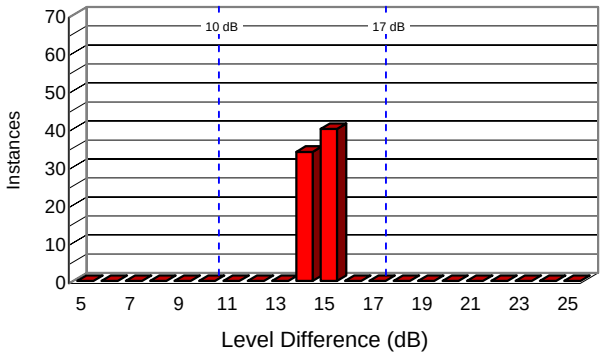
C/N PERFORMANCE DISTRIBUTION



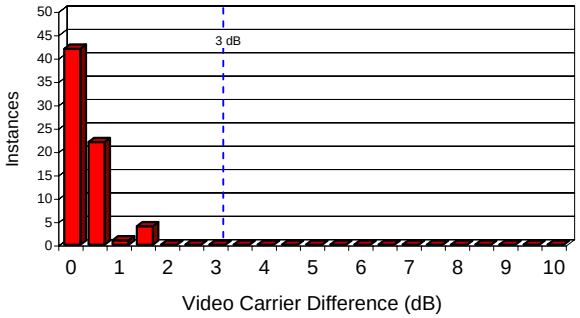
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise			
Average	47.9 dB	Min. allowable	43 dB
Carrier Level Variation			
Overall	7.0 dB	Max. allowable	14 dB
Adjacent	1.9 dB	Max. allowable	3 dB
Hum			
Average	0.71%	Max. allowable	3 %
A/V Ratio			
Maximum	15.5 dB	Max. allowable	17 dB
Minimum	14.3 dB	Min. allowable	10 dB

TP File:	OBTP02	93	73	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP02	**DOS File: OBTP02**
Date: 06/29/10	Time: 12:41:12	**0.0 0.0**
Description:		

Location:	TP02 18680 Riverlook Court						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		13.9	-0.8	14.7		0.7	-42.8
4		15.5	0.8	14.7	48.1		
5		15.6	1.0	14.6	49.1		
6		15.8	0.6	15.2	49.1		
16		14.6	-0.6	15.2	46.5		
17		16.4	1.3	15.1	48.5	0.6	-44.6
18		16.6	2.2	14.4	49.0		
19		16.7	1.5	15.2	49.8		
20		16.7	2.0	14.7	47.9		
21		17.2	2.6	14.6	49.5		
22		17.3	2.6	14.7	49.7		
7		17.6	2.4	15.2	49.3		
8		17.9	2.9	15.0	48.8	0.7	-43.3
9		17.6	2.5	15.1	48.8		
10		18.2	3.2	15.0	49.2		
11		18.2	3.0	15.2	49.9		
12		18.2	3.3	14.9	48.5		
13		18.4	3.2	15.2	49.2		
23		18.5	3.3	15.2	49.7		
24		18.5	3.7	14.8	48.5		
25		19.1	4.6	14.5	50.4		
26		17.6	2.3	15.3	48.3		
27		18.6	3.2	15.4	48.1	0.7	-43.2
28		18.5	3.4	15.1	48.5		
29		18.3	3.1	15.2	49.2		
30		19.0	3.6	15.4	49.3		
31		18.5	3.6	14.9	47.4		
32		18.5	3.6	14.9	48.4		
33		18.5	3.2	15.3	47.5		
34		18.7	3.4	15.3	47.8		
35		18.7	3.4	15.3	47.2		
36		18.3	3.2	15.1	47.3	0.6	-44.4

Loudoun County
Monitor Test Results

Location:	TP02 18680 Riverlook Court						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		18.3	2.8	15.5	46.6		
38		18.2	3.6	14.6	46.5		
39		17.7	2.8	14.9	45.5		
40		18.5	3.6	14.9	47.0		
41		18.9	3.7	15.2	48.4		
42		18.2	3.6	14.6	45.3		
43		18.2	2.9	15.3	46.6		
44		18.4	3.0	15.4	46.1		
45		18.2	3.3	14.9	45.7	1.0	-40.3
46		17.5	2.8	14.7	46.0		
47		18.2	3.0	15.2	44.8		
48		18.5	3.7	14.8	46.3		
50		18.2	2.9	15.3	45.2		
51		18.1	3.3	14.8	45.3		
52		18.0	3.3	14.7	44.9		
53		18.4	3.5	14.9	46.3		
54		17.8	3.0	14.8	46.0	0.8	-41.7
55		18.5	3.4	15.1	46.7		
56		18.0	3.0	15.0	45.6		
57		18.8	3.8	15.0	47.5		
58		18.3	4.0	14.3	46.3		
59		18.5	3.5	15.0	47.2		
60		19.0	4.0	15.0	46.3		
61		19.1	4.3	14.8	48.1		
62		19.3	4.3	15.0	48.6		
63		19.3	4.2	15.1	48.5		
64		20.1	5.5	14.6	48.8		
65		20.2	5.3	14.9	49.0		
66		20.3	5.2	15.1	49.4	0.7	-43.1
67		20.9	6.2	14.7	49.7		
68		19.0	3.8	15.2	48.8		
69		19.5	4.4	15.1	49.1		
70		20.1	5.2	14.9	48.9		
71		19.5	5.0	14.5	47.7		
72		20.3	5.2	15.1	49.2		
73		20.2	5.2	15.0	45.2		
74		20.4	6.1	14.3	49.3		
75		20.5	5.6	14.9	49.4	0.7	-43.7
76		20.8	6.0	14.8	50.5		

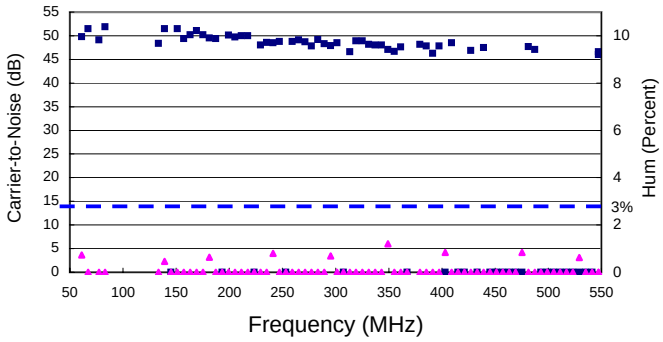
Loudoun County
Monitor Test Results

Location:	TP02 18680 Riverlook Court						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		20.6	5.6	15.0	49.8		
78		20.4	5.5	14.9	49.8		

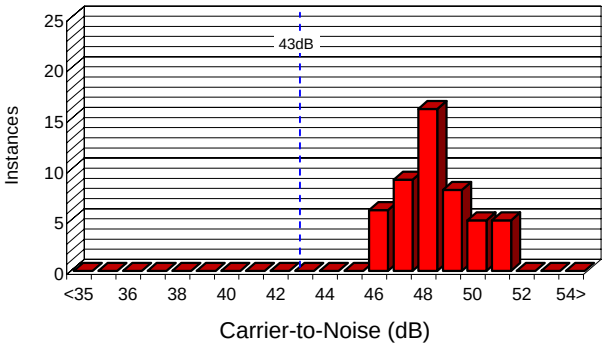
(Loudoun County OpenBand Monitor Tests)

TP03 19280 Koslowski 06/29/10

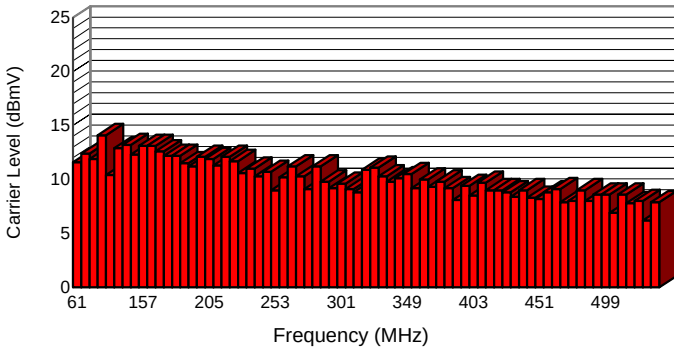
CARRIER-TO-NOISE AND HUM PERFORMANCE



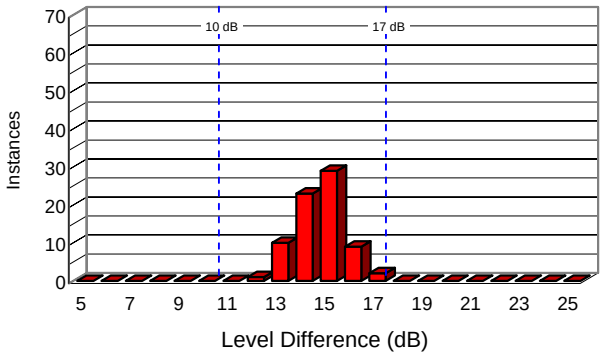
C/N PERFORMANCE DISTRIBUTION



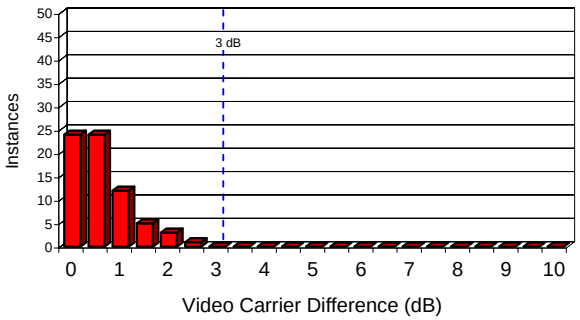
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise			
Average	48.8 dB	Min. allowable	43 dB
Carrier Level Variation			
Overall	7.9 dB	Max. allowable	14 dB
Adjacent	2.5 dB	Max. allowable	3 dB
Hum			
Average	0.76%	Max. allowable	3 %
A/V Ratio			
Maximum	17.0 dB	Max. allowable	17 dB
Minimum	12.2 dB	Min. allowable	10 dB

TP File:	OBTP03	93	49	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP03	**DOS File: OBTP03**
Date: 06/29/10	Time: 13:26:46	**0.0 0.0**
Description:		

Location:	TP03 19280 Koslowski						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		11.6	-3.0	14.6	49.8	0.7	-42.8
4		12.4	-1.6	14.0	51.5		
5		11.9	-0.3	12.2	49.1		
6		14.1	-2.3	16.4	51.9		
16		10.4	-3.3	13.7	48.4		
17		12.9	-3.2	16.1	51.5	0.5	-46.7
18		13.2	-3.2	16.4			
19		12.3	-2.1	14.4	51.5		
20		13.1	-1.6	14.7	49.4		
21		13.1	-2.2	15.3	50.2		
22		12.6	-3.4	16.0	51.1		
7		12.2	-3.2	15.4	50.2		
8		12.2	-2.9	15.1	49.5	0.6	-43.9
9		11.5	-3.4	14.9	49.4		
10		11.2	-3.2	14.4			
11		12.1	-4.1	16.2	50.1		
12		11.9	-2.7	14.6	49.7		
13		11.3	-3.1	14.4	50.0		
23		12.1	-3.2	15.3	50.0		
24		11.7	-5.3	17.0			
25		10.6	-2.5	13.1	48.0		
26		11.0	-5.8	16.8	48.6		
27		10.3	-5.0	15.3	48.5	0.8	-41.9
28		10.7	-5.1	15.8	48.8		
29		9.0	-4.6	13.6			
30		10.2	-3.6	13.8	48.8		
31		11.2	-4.6	15.8	49.1		
32		10.3	-6.7	17.0	48.7		
33		9.1	-4.1	13.2	47.8		
34		11.2	-5.3	16.5	49.2		
35		9.8	-5.5	15.3	48.3		
36		9.2	-6.3	15.5	47.9	0.7	-43.2

Loudoun County
Monitor Test Results

Location:	TP03 19280 Koslowski						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		9.6	-6.2	15.8	48.5		
38		9.1	-4.8	13.9			
39		8.8	-4.7	13.5	46.6		
40		10.9	-5.2	16.1	48.9		
41		11.1	-4.7	15.8	48.9		
42		10.3	-4.4	14.7	48.2		
43		9.8	-5.1	14.9	48.0		
44		10.1	-4.7	14.8	48.0		
45		10.5	-4.7	15.2	47.1	1.2	-38.4
46		9.2	-5.5	14.7	46.7		
47		10.0	-5.8	15.8	47.6		
48		9.3	-5.5	14.8			
50		9.8	-6.0	15.8	48.2		
51		9.2	-5.5	14.7	47.8		
52		8.1	-5.6	13.7	46.3		
53		9.4	-6.0	15.4	47.8		
54		8.5	-5.8	14.3		0.8	-41.5
55		9.7	-6.3	16.0	48.5		
56		9.0	-6.2	15.2			
57		9.0	-6.4	15.4			
58		8.8	-5.5	14.3	46.9		
59		8.4	-6.5	14.9			
60		9.0	-6.2	15.2	47.5		
61		8.3	-6.7	15.0			
62		8.2	-6.2	14.4			
63		8.8	-6.6	15.4			
64		9.1	-6.0	15.1			
65		7.9	-6.7	14.6			
66		8.0	-6.4	14.4		0.8	-41.5
67		9.0	-5.4	14.4	47.7		
68		8.0	-7.2	15.2	47.1		
69		8.6	-6.8	15.4			
70		8.6	-7.3	15.9			
71		6.9	-6.7	13.6			
72		8.6	-6.8	15.4			
73		7.8	-7.3	15.1			
74		8.0	-6.3	14.3			
75		6.2	-7.4	13.6		0.6	-44.2
76		7.9	-7.2	15.1			

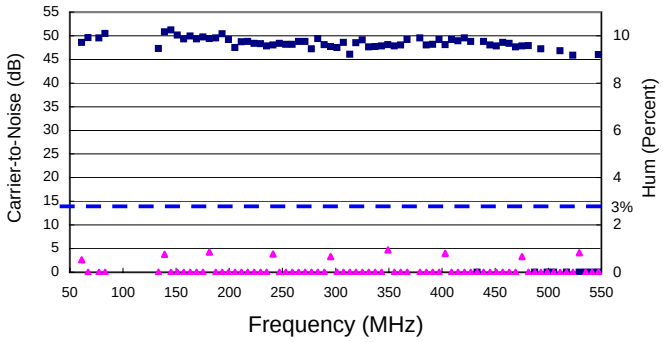
Loudoun County
Monitor Test Results

Location:	TP03 19280 Koslowski						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		7.8	-8.1	15.9			
78		7.6	-7.3	14.9	46.6		

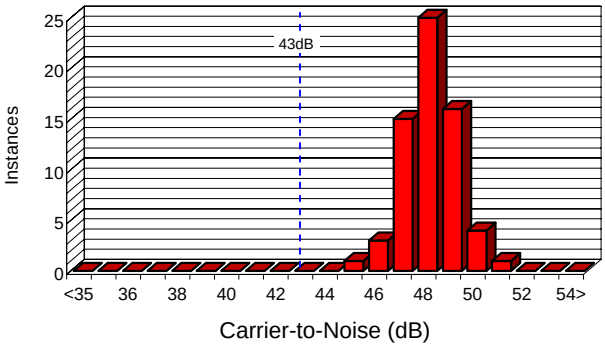
(Loudoun County OpenBand Monitor Tests)

TP04 40433 Milford Drive 06/29/10

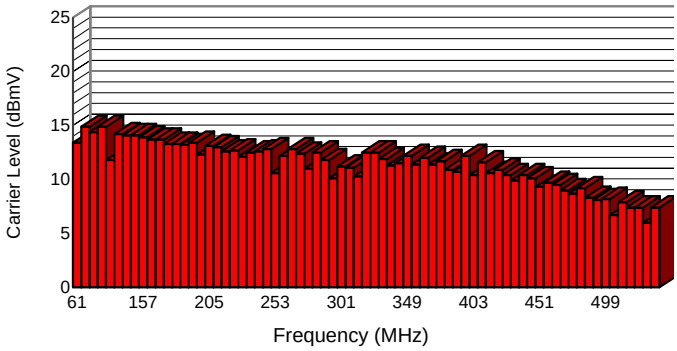
CARRIER-TO-NOISE AND HUM PERFORMANCE



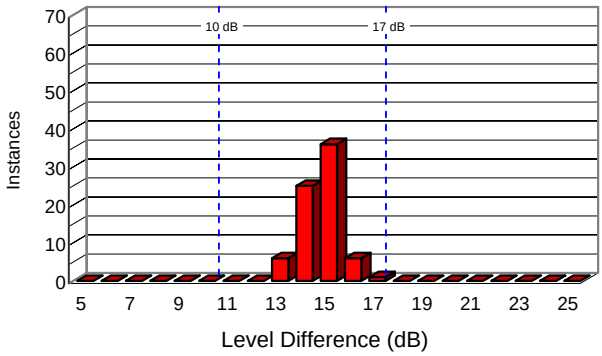
C/N PERFORMANCE DISTRIBUTION



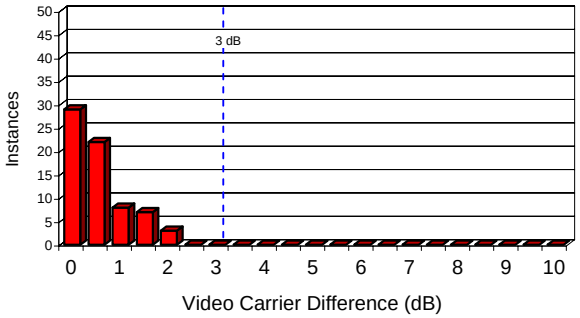
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise			
Average	48.5 dB	Min. allowable	43 dB
Carrier Level Variation			
Overall	8.9 dB	Max. allowable	14 dB
Adjacent	2.4 dB	Max. allowable	3 dB
Hum			
Average	0.76%	Max. allowable	3 %
A/V Ratio			
Maximum	17.0 dB	Max. allowable	17 dB
Minimum	13.0 dB	Min. allowable	10 dB

TP File:	OBTP04	93	65	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP04	**DOS File: OBTP04**
Date: 06/29/10	Time: 15:00:02	**0.0 0.0**
Description:		

Location:	TP04 40433 Milford Drive						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		13.4	-1.7	15.1	48.6	0.5	-45.5
4		14.9	0.0	14.9	49.6		
5		14.4	-0.2	14.6	49.5		
6		14.9	-0.2	15.1	50.5		
16		11.8	-2.7	14.5	47.3		
17		14.2	-1.2	15.4	50.8	0.8	-42.4
18		14.1	-0.6	14.7	51.2		
19		14.1	-1.1	15.2	50.1		
20		13.9	-1.1	15.0	49.3		
21		13.7	-0.8	14.5	49.9		
22		13.7	-1.7	15.4	49.3		
7		13.3	-1.6	14.9	49.7		
8		13.3	-1.4	14.7	49.4	0.9	-41.4
9		13.2	-2.1	15.3	49.5		
10		13.4	-2.4	15.8	50.4		
11		12.3	-2.3	14.6	49.2		
12		13.1	-1.9	15.0	47.5		
13		13.0	-2.4	15.4	48.7		
23		12.6	-2.1	14.7	48.8		
24		12.7	-4.3	17.0	48.4		
25		12.1	-0.9	13.0	48.3		
26		12.5	-3.7	16.2	47.8		
27		12.6	-2.8	15.4	48.0	0.8	-42.2
28		12.8	-3.1	15.9	48.4		
29		10.6	-3.4	14.0	48.2		
30		12.2	-2.0	14.2	48.2		
31		12.8	-2.3	15.1	48.8		
32		12.4	-4.3	16.7	48.8		
33		11.0	-2.5	13.5	47.2		
34		12.5	-3.5	16.0	49.4		
35		11.8	-3.5	15.3	48.1		
36		10.1	-4.0	14.1	47.7	0.7	-43.5

Loudoun County
Monitor Test Results

Location:	TP04 40433 Milford Drive						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		11.2	-4.7	15.9	47.5		
38		11.1	-3.3	14.4	48.6		
39		10.3	-3.1	13.4	46.1		
40		12.5	-3.0	15.5	48.5		
41		12.5	-2.8	15.3	49.1		
42		11.9	-2.9	14.8	47.6		
43		11.3	-3.7	15.0	47.7		
44		11.5	-3.1	14.6	47.8		
45		12.2	-2.8	15.0	48.1	0.9	-40.5
46		11.4	-3.5	14.9	47.8		
47		12.0	-4.2	16.2	48.0		
48		11.4	-3.2	14.6	49.2		
50		11.7	-4.5	16.2	49.5		
51		10.9	-3.4	14.3	48.0		
52		10.7	-3.1	13.8	48.2		
53		12.2	-3.7	15.9	49.2		
54		10.4	-3.7	14.1	48.1	0.8	-42.0
55		11.6	-3.9	15.5	49.2		
56		10.6	-4.5	15.1	48.9		
57		10.9	-4.6	15.5	49.5		
58		10.4	-4.1	14.5	48.8		
59		9.9	-4.9	14.8			
60		10.4	-4.8	15.2	48.8		
61		10.1	-5.4	15.5	48.0		
62		9.3	-5.3	14.6	47.8		
63		9.7	-5.9	15.6	48.6		
64		9.5	-5.6	15.1	48.4		
65		9.0	-6.3	15.3	47.6		
66		8.7	-6.7	15.4	47.8	0.7	-43.5
67		9.2	-5.2	14.4	47.9		
68		8.3	-7.0	15.3			
69		8.1	-7.2	15.3	47.2		
70		8.2	-8.3	16.5			
71		6.7	-7.1	13.8			
72		7.9	-7.2	15.1	46.8		
73		7.4	-8.0	15.4			
74		7.4	-7.3	14.7	45.9		
75		6.0	-7.7	13.7		0.8	-41.6
76		7.4	-7.7	15.1			

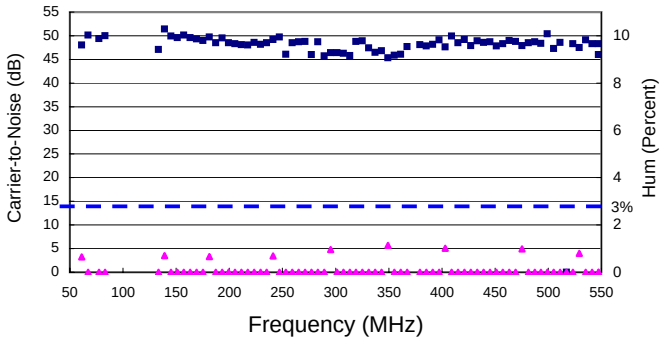
Loudoun County
Monitor Test Results

Location:	TP04 40433 Milford Drive						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		6.9	-8.8	15.7			
78		6.6	-8.0	14.6			

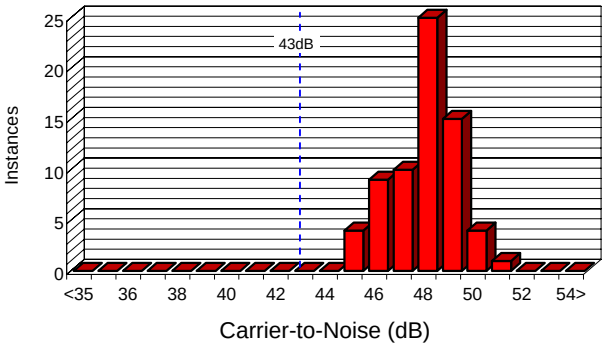
(Loudoun County OpenBand Monitor Tests)

TP05 42890 Glyndebourne Court 06/29/10

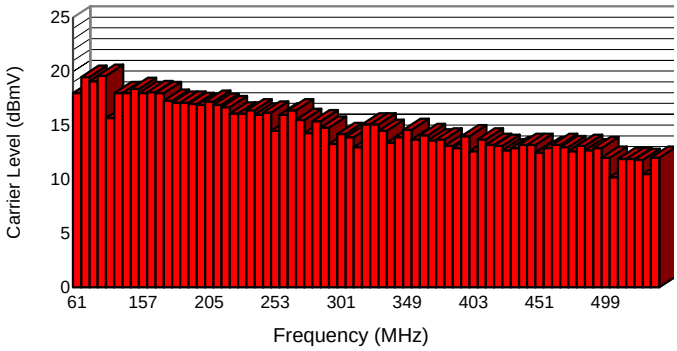
CARRIER-TO-NOISE AND HUM PERFORMANCE



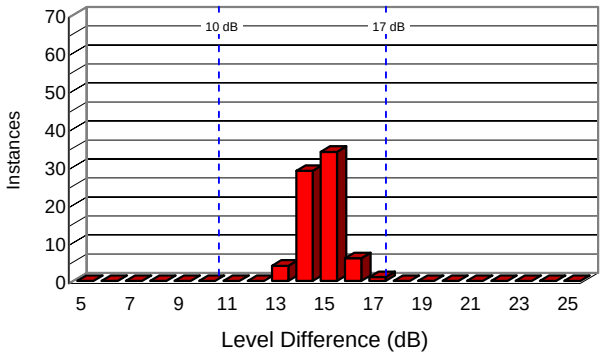
C/N PERFORMANCE DISTRIBUTION



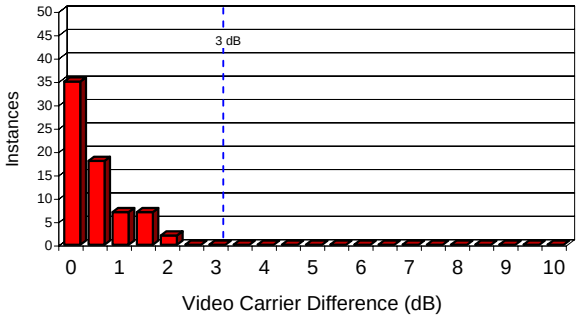
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise

Average	48.3 dB	Min. allowable	43 dB

Carrier Level Variation

Overall	9.4 dB	Max. allowable	14 dB
Adjacent	2.3 dB	Max. allowable	3 dB

Hum

Average	0.85%	Max. allowable	3 %

A/V Ratio

Maximum	17.0 dB	Max. allowable	17 dB
Minimum	13.1 dB	Min. allowable	10 dB

TP File:	OBTP05	93	73	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP05	**DOS File: OBTP05**
Date: 06/29/10	Time: 15:46:21	**0.0 0.0**
Description:		

Location:	TP05 42890 Glyndebourne Court						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		18.0	3.1	14.9	48.0	0.7	-43.7
4		19.5	4.8	14.7	50.1		
5		19.1	4.5	14.6	49.4		
6		19.6	4.3	15.3	50.0		
16		15.7	1.3	14.4	47.1		
17		18.0	2.9	15.1	51.4	0.7	-43.0
18		18.0	3.4	14.6	49.9		
19		18.4	2.9	15.5	49.6		
20		18.0	3.1	14.9	50.1		
21		18.1	3.2	14.9	49.6		
22		18.0	2.7	15.3	49.3		
7		17.3	2.6	14.7	49.0		
8		17.1	2.7	14.4	49.7	0.7	-43.5
9		17.1	2.0	15.1	48.5		
10		17.0	1.5	15.5	49.5		
11		16.9	1.8	15.1	48.5		
12		17.2	2.4	14.8	48.3		
13		16.9	1.4	15.5	48.1		
23		16.7	1.9	14.8	48.0		
24		16.1	-0.4	16.5	48.6		
25		16.1	3.0	13.1	48.2		
26		16.4	-0.1	16.5	48.5		
27		16.0	0.7	15.3	49.2	0.7	-43.3
28		16.2	0.4	15.8	49.7		
29		14.5	0.2	14.3	46.1		
30		16.0	1.3	14.7	48.5		
31		16.4	0.9	15.5	48.7		
32		15.5	-1.4	16.9	48.8		
33		14.3	0.3	14.0	46.0		
34		15.4	-0.2	15.6	48.7		
35		14.8	-0.4	15.2	45.7		
36		13.3	-1.5	14.8	46.4	1.0	-40.3

Loudoun County
Monitor Test Results

Location:	TP05 42890 Glyndebourne Court						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		14.2	-1.7	15.9	46.4		
38		13.9	-0.8	14.7	46.3		
39		13.0	-0.6	13.6	45.8		
40		15.1	-0.4	15.5	48.8		
41		15.1	-0.5	15.6	48.9		
42		14.5	-0.6	15.1	47.4		
43		13.4	-1.4	14.8	46.5		
44		13.9	-0.8	14.7	46.8		
45		14.6	-0.7	15.3	45.3	1.1	-38.9
46		13.7	-1.1	14.8	45.9		
47		14.1	-2.1	16.2	46.1		
48		13.6	-1.2	14.8	47.7		
50		13.7	-2.8	16.5	48.1		
51		13.1	-1.7	14.8	47.8		
52		12.9	-1.3	14.2	48.2		
53		14.0	-1.8	15.8	49.1		
54		12.6	-1.8	14.4	47.6	1.0	-39.9
55		13.7	-1.9	15.6	49.9		
56		13.2	-2.5	15.7	48.5		
57		13.1	-2.1	15.2	49.2		
58		12.7	-1.4	14.1	47.9		
59		12.9	-2.2	15.1	48.9		
60		13.2	-1.9	15.1	48.6		
61		13.2	-2.2	15.4	48.7		
62		12.5	-1.9	14.4	47.8		
63		12.9	-2.3	15.2	48.3		
64		13.2	-1.9	15.1	49.0		
65		13.0	-2.5	15.5	48.8		
66		12.6	-2.7	15.3	47.9	1.0	-40.1
67		13.1	-1.1	14.2	48.5		
68		12.7	-2.7	15.4	48.7		
69		12.9	-2.9	15.8	48.4		
70		12.0	-5.0	17.0	50.4		
71		10.2	-3.0	13.2	47.3		
72		11.9	-2.8	14.7	48.6		
73		11.9	-3.7	15.6			
74		11.8	-2.9	14.7	48.3		
75		10.5	-3.1	13.6	47.5	0.8	-42.0
76		12.0	-3.1	15.1	49.1		

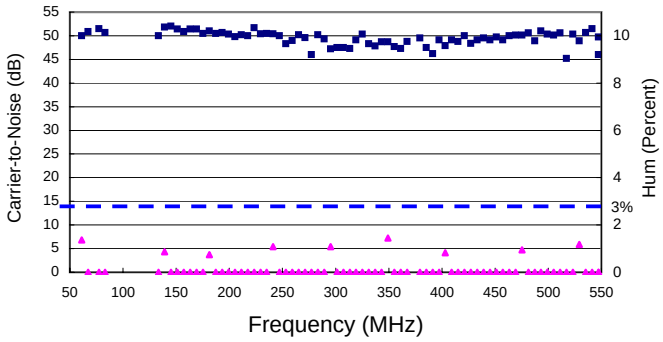
Loudoun County
Monitor Test Results

Location:	TP05 42890 Glyndebourne Court						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		11.5	-4.5	16.0	48.3		
78		11.2	-3.6	14.8	48.3		

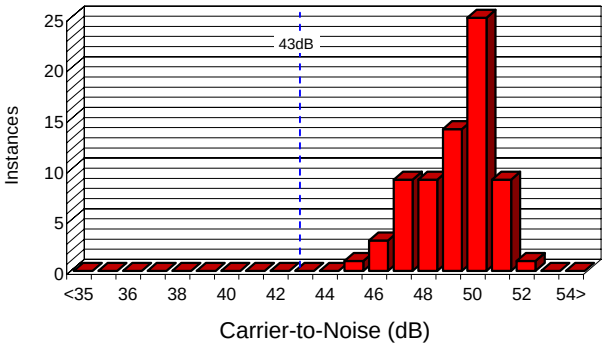
(Loudoun County OpenBand Monitor Tests)

TP06 43239 Parkers Ridge 07/01/10

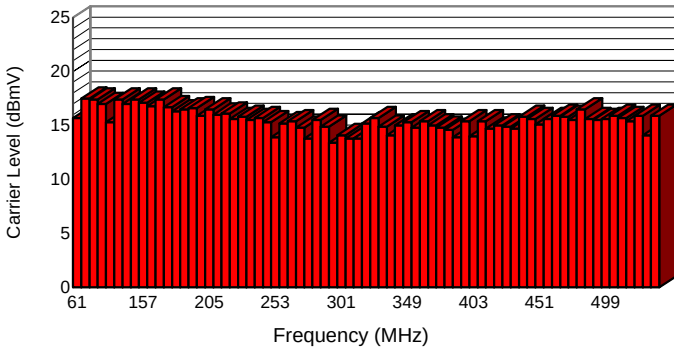
CARRIER-TO-NOISE AND HUM PERFORMANCE



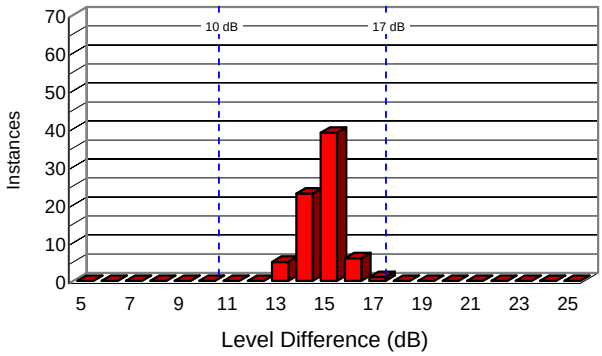
C/N PERFORMANCE DISTRIBUTION



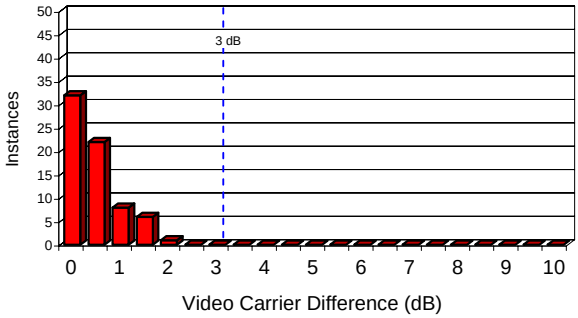
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise

Average	49.6 dB	Min. allowable	43 dB

Carrier Level Variation

Overall	4.1 dB	Max. allowable	14 dB
Adjacent	2.1 dB	Max. allowable	3 dB

Hum

Average	1.06%	Max. allowable	3 %

A/V Ratio

Maximum	17.0 dB	Max. allowable	17 dB
Minimum	13.5 dB	Min. allowable	10 dB

TP File:	OBTP06	93	74	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP06	**DOS File: OBTP06**
Date: 07/01/10	Time: 10:06:21	**0.0 0.0**
Description:		

Location:	TP06 43239 Parkers Ridge						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		15.7	1.0	14.7	50.0	1.4	-37.3
4		17.5	2.8	14.7	50.9		
5		17.4	2.2	15.2	51.5		
6		17.0	2.0	15.0	50.7		
16		15.3	0.5	14.8	50.0		
17		17.4	1.7	15.7	51.8	0.9	-41.2
18		17.0	2.4	14.6	52.0		
19		17.4	1.9	15.5	51.4		
20		17.1	2.1	15.0	50.9		
21		16.8	2.5	14.3	51.4		
22		17.4	1.6	15.8	51.4		
7		16.7	1.5	15.2	50.5		
8		16.3	2.0	14.3	51.0	0.7	-42.6
9		16.5	1.4	15.1	50.5		
10		16.6	0.8	15.8	50.7		
11		15.9	1.1	14.8	50.3		
12		16.5	1.9	14.6	49.8		
13		16.0	1.0	15.0	50.2		
23		16.1	0.9	15.2	50.0		
24		15.6	-1.3	16.9	51.7		
25		15.8	2.3	13.5	50.4		
26		15.5	-0.6	16.1	50.5		
27		15.7	0.0	15.7	50.4	1.1	-39.3
28		15.3	-0.5	15.8	50.0		
29		13.9	-0.6	14.5	48.3		
30		15.2	0.7	14.5	49.0		
31		15.4	0.5	14.9	50.2		
32		14.8	-2.2	17.0	49.6		
33		13.8	0.1	13.7	46.0		
34		15.5	-0.6	16.1	50.2		
35		14.9	-0.6	15.5	49.3		
36		13.4	-1.3	14.7	47.2	1.1	-39.3

Loudoun County
Monitor Test Results

Location:	TP06 43239 Parkers Ridge						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		14.1	-1.2	15.3	47.5		
38		13.8	-0.1	13.9	47.5		
39		13.8	-0.3	14.1	47.3		
40		15.2	0.1	15.1	49.1		
41		15.7	0.2	15.5	50.3		
42		14.9	0.1	14.8	48.3		
43		14.1	-1.0	15.1	47.8		
44		15.0	0.2	14.8	48.7		
45		15.3	0.4	14.9	48.7	1.4	-36.8
46		14.8	0.1	14.7	47.7		
47		15.4	-0.6	16.0	47.3		
48		15.0	0.0	15.0	48.8		
50		14.8	-1.3	16.1	49.5		
51		14.6	-0.4	15.0	47.5		
52		13.9	0.2	13.7	46.2		
53		15.4	-0.1	15.5	49.1		
54		14.0	-0.1	14.1	47.9	0.8	-41.6
55		15.4	-0.3	15.7	49.1		
56		14.7	-0.6	15.3	48.8		
57		15.0	-0.1	15.1	50.0		
58		14.9	0.6	14.3	48.4		
59		14.7	0.0	14.7	49.1		
60		15.8	0.3	15.5	49.5		
61		15.6	0.1	15.5	49.1		
62		15.1	0.7	14.4	49.7		
63		15.6	0.2	15.4	49.1		
64		15.9	1.2	14.7	50.0		
65		15.8	0.2	15.6	50.1		
66		15.5	0.3	15.2	50.1	0.9	-40.5
67		16.5	2.0	14.5	50.6		
68		15.6	0.2	15.4	48.9		
69		15.5	0.0	15.5	51.0		
70		15.6	-0.1	15.7	50.3		
71		15.9	0.6	15.3	50.1		
72		15.7	0.6	15.1	50.6		
73		15.4	0.3	15.1	45.2		
74		15.9	0.3	15.6	50.3		
75		14.1	0.6	13.5	48.9	1.2	-38.6
76		15.9	0.9	15.0	50.7		

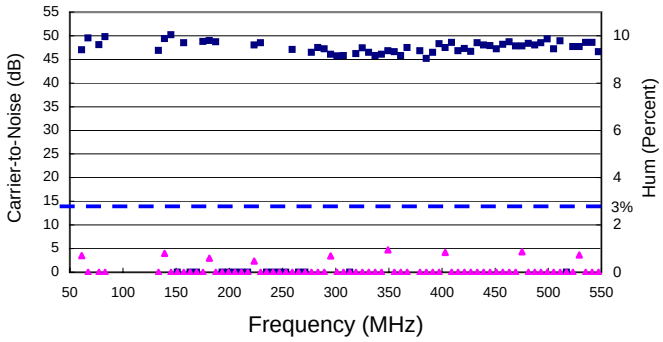
Loudoun County
Monitor Test Results

Location:	TP06 43239 Parkers Ridge						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		15.6	-0.6	16.2	51.5		
78		14.7	-0.7	15.4	49.7		

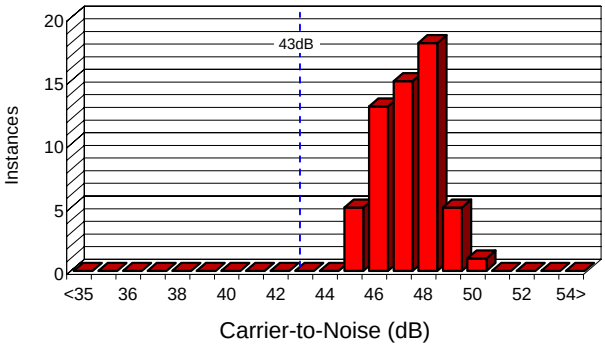
(Loudoun County OpenBand Monitor Tests)

TP07 21974 Sunstone Court 08/10/10

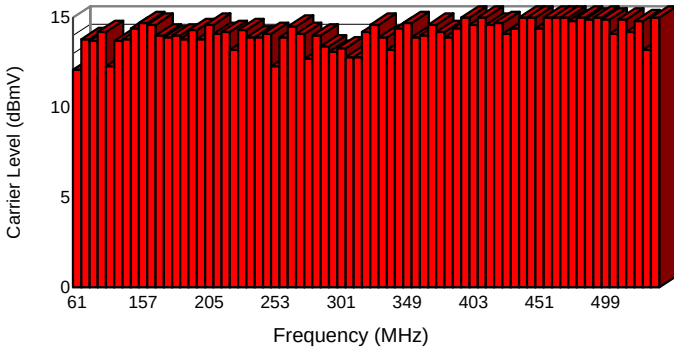
CARRIER-TO-NOISE AND HUM PERFORMANCE



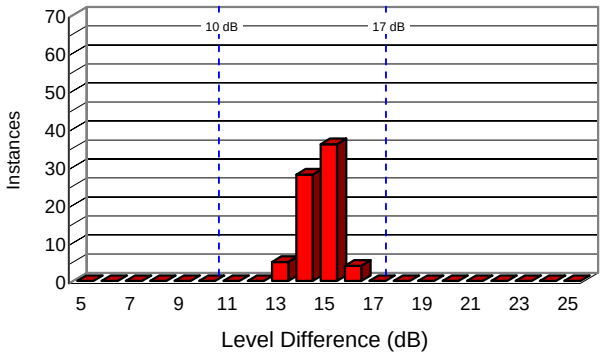
C/N PERFORMANCE DISTRIBUTION



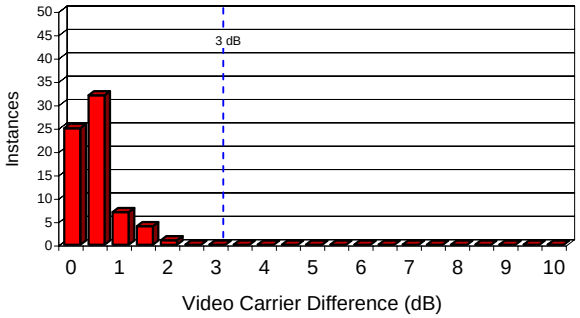
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise			
Average	47.6 dB	Min. allowable	43 dB
Carrier Level Variation			
Overall	3.4 dB	Max. allowable	14 dB
Adjacent	2.1 dB	Max. allowable	3 dB
Hum			
Average	0.74%	Max. allowable	3 %
A/V Ratio			
Maximum	16.5 dB	Max. allowable	17 dB
Minimum	13.5 dB	Min. allowable	10 dB

TP File:	OBTP07	93	57	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP07	**DOS File: OBTP07**
Date: 08/10/10	Time: 09:25:23	**0.0 0.0**
Description:		

Location:	TP07 21974 Sunstone Court						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		12.1	-2.5	14.6	47.0	0.7	-43.1
4		13.8	-0.8	14.6	49.5		
5		13.7	-0.6	14.3	48.1		
6		14.2	-1.0	15.2	49.8		
16		12.3	-2.3	14.6	46.9		
17		13.7	-0.9	14.6	49.4	0.8	-42.0
18		13.8	-0.1	13.9	50.2		
19		14.4	-0.5	14.9			
20		14.7	-0.3	15.0	48.5		
21		14.6	-0.1	14.7			
22		14.0	-0.6	14.6			
7		13.9	-1.0	14.9	48.8		
8		14.0	-0.5	14.5	49.0	0.6	-44.6
9		13.8	-1.3	15.1	48.7		
10		14.3	-2.2	16.5			
11		13.8	-0.9	14.7			
12		14.6	-0.4	15.0			
13		14.1	-0.6	14.7			
23		14.2	-1.0	15.2			
24		13.2	-2.6	15.8	48.0	0.5	-46.4
25		14.3	0.4	13.9	48.5		
26		13.9	-2.0	15.9			
27		13.9	-1.4	15.3			
28		14.1	-1.9	16.0			
29		12.3	-2.3	14.6			
30		13.9	-0.4	14.3	47.1		
31		14.5	-0.3	14.8			
32		14.1	-2.3	16.4			
33		12.7	-1.4	14.1	46.5		
34		14.0	-1.8	15.8	47.5		
35		13.4	-2.2	15.6	47.2		
36		13.1	-2.7	15.8	46.1	0.7	-43.3

Loudoun County
Monitor Test Results

Location:	TP07 21974 Sunstone Court						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		13.3	-2.8	16.1	45.7		
38		12.8	-0.9	13.7	45.8		
39		12.8	-1.6	14.4			
40		14.2	-0.8	15.0	46.2		
41		14.6	-1.0	15.6	47.4		
42		13.9	-0.4	14.3	46.5		
43		13.2	-2.0	15.2	45.8		
44		14.4	-0.7	15.1	46.1		
45		14.7	-0.3	15.0	46.8	0.9	-40.5
46		13.9	-0.9	14.8	46.6		
47		14.0	-0.8	14.8	45.8		
48		14.6	-1.0	15.6	47.5		
50		14.2	-1.5	15.7	46.8		
51		13.9	-0.9	14.8	45.2		
52		14.4	-0.2	14.6	46.5		
53		15.2	0.0	15.2	48.3		
54		14.6	0.2	14.4	47.5	0.8	-41.5
55		15.3	-0.6	15.9	48.6		
56		14.6	-1.1	15.7	46.8		
57		14.7	-0.7	15.4	47.3		
58		14.1	0.2	13.9	46.7		
59		14.4	-0.5	14.9	48.5		
60		15.2	-0.2	15.4	48.0		
61		15.1	-0.3	15.4	47.9		
62		14.4	0.3	14.1	47.2		
63		15.3	-0.3	15.6	48.2		
64		15.4	0.4	15.0	48.7		
65		15.4	-0.2	15.6	47.8		
66		14.8	-0.4	15.2	47.8	0.9	-41.2
67		15.5	1.1	14.4	48.4		
68		14.9	-0.6	15.5	48.0		
69		15.0	-0.8	15.8	48.5		
70		14.9	-0.9	15.8	49.3		
71		14.1	-0.6	14.7	47.2		
72		14.9	-0.3	15.2	48.9		
73		14.2	-0.6	14.8			
74		14.8	-0.2	15.0	47.7		
75		13.2	-0.3	13.5	47.7	0.7	-42.7
76		15.3	-0.3	15.6	48.6		

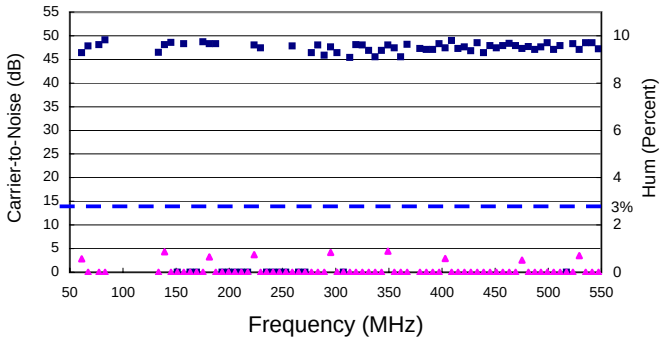
Loudoun County
Monitor Test Results

Location:	TP07 21974 Sunstone Court						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		14.7	-1.1	15.8	48.6		
78		13.8	-1.4	15.2	46.6		

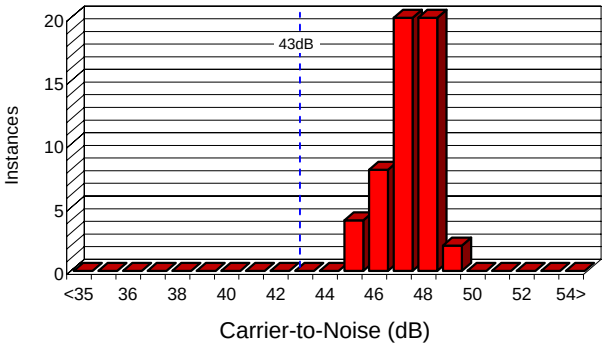
(Loudoun County OpenBand Monitor Tests)

TP08 22124 Park Glenn Drive 08/10/10

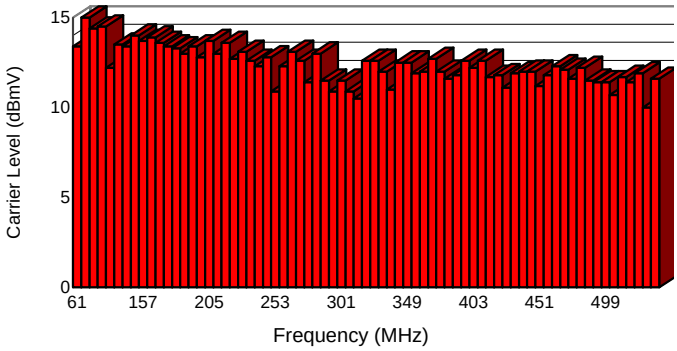
CARRIER-TO-NOISE AND HUM PERFORMANCE



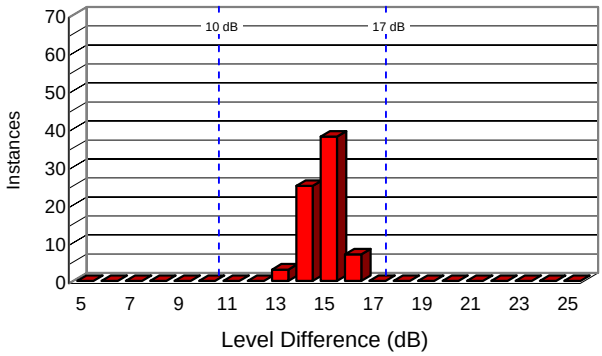
C/N PERFORMANCE DISTRIBUTION



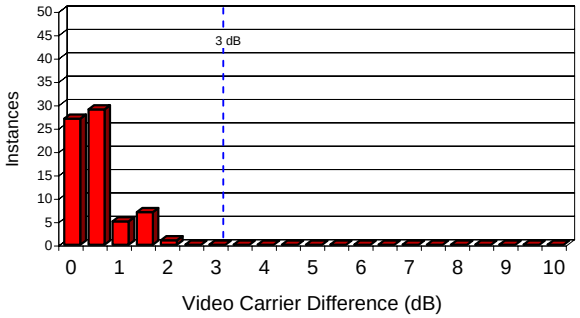
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise			
Average	47.6 dB	Min. allowable	43 dB
Carrier Level Variation			
Overall	5.2 dB	Max. allowable	14 dB
Adjacent	2.1 dB	Max. allowable	3 dB
Hum			
Average	0.71%	Max. allowable	3 %
A/V Ratio			
Maximum	16.4 dB	Max. allowable	17 dB
Minimum	13.3 dB	Min. allowable	10 dB

TP File:	OBTP08	93	57	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP08	**DOS File: OBTP08**
Date: 08/10/10	Time: 11:07:48	**0.0 0.0**
Description:		

Location:	TP08 22124 Park Glenn Drive						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		13.4	-1.5	14.9	46.4	0.6	-45.0
4		15.2	0.0	15.2	47.8		
5		14.4	-0.1	14.5	48.1		
6		14.5	-0.6	15.1	49.1		
16		12.2	-2.7	14.9	46.5		
17		13.5	-1.1	14.6	48.1	0.9	-41.2
18		13.4	-0.7	14.1	48.6		
19		14.0	-1.3	15.3			
20		13.7	-1.2	14.9	48.3		
21		13.9	-1.0	14.9			
22		13.6	-1.5	15.1			
7		13.4	-1.8	15.2	48.7		
8		13.3	-1.5	14.8	48.3	0.7	-43.7
9		13.0	-2.3	15.3	48.3		
10		13.4	-3.0	16.4			
11		12.8	-1.8	14.6			
12		13.7	-1.0	14.7			
13		13.0	-1.7	14.7			
23		13.6	-1.9	15.5			
24		12.7	-3.1	15.8	48.0	0.7	-42.6
25		13.1	-0.5	13.6	47.4		
26		12.6	-3.3	15.9			
27		12.3	-2.6	14.9			
28		12.8	-3.5	16.3			
29		10.9	-3.6	14.5			
30		12.3	-1.9	14.2	47.8		
31		13.1	-1.9	15.0			
32		12.6	-3.8	16.4			
33		11.4	-2.6	14.0	46.4		
34		13.0	-3.3	16.3	48.0		
35		11.5	-3.7	15.2	45.9		
36		10.9	-4.5	15.4	47.6	0.8	-41.5

Loudoun County
Monitor Test Results

Location:	TP08 22124 Park Glenn Drive						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		11.5	-4.7	16.2	46.4		
38		10.9	-3.1	14.0			
39		10.5	-3.5	14.0	45.4		
40		12.6	-2.8	15.4	48.1		
41		12.6	-3.0	15.6	48.0		
42		12.0	-2.6	14.6	46.9		
43		11.0	-4.1	15.1	45.5		
44		12.5	-2.6	15.1	46.9		
45		12.5	-2.5	15.0	48.0	0.9	-41.0
46		11.9	-2.9	14.8	47.4		
47		12.0	-3.2	15.2	45.5		
48		12.7	-3.3	16.0	48.2		
50		12.0	-3.9	15.9	47.3		
51		11.6	-3.2	14.8	47.1		
52		11.8	-2.8	14.6	47.1		
53		12.6	-2.8	15.4	48.3		
54		12.2	-2.5	14.7	47.4	0.6	-44.7
55		12.6	-3.5	16.1	49.0		
56		11.7	-3.9	15.6	47.3		
57		11.8	-3.8	15.6	47.6		
58		11.1	-2.8	13.9	46.8		
59		11.9	-3.3	15.2	48.5		
60		12.0	-3.2	15.2	46.4		
61		12.0	-3.5	15.5	47.9		
62		11.2	-2.9	14.1	47.4		
63		11.8	-3.5	15.3	47.9		
64		12.3	-2.7	15.0	48.4		
65		12.1	-3.5	15.6	47.9		
66		11.6	-3.7	15.3	47.3	0.5	-45.7
67		12.2	-2.1	14.3	47.7		
68		11.5	-4.0	15.5	47.1		
69		11.4	-4.0	15.4	47.6		
70		11.4	-4.1	15.5	48.5		
71		10.7	-3.8	14.5	47.1		
72		11.7	-3.3	15.0	47.9		
73		11.4	-3.6	15.0			
74		11.9	-3.1	15.0	48.3		
75		10.0	-3.3	13.3	47.1	0.7	-43.0
76		11.6	-3.5	15.1	48.5		

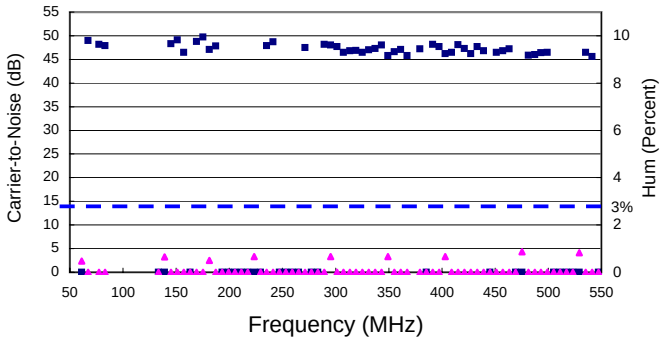
Loudoun County
Monitor Test Results

Location:	TP08 22124 Park Glenn Drive						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		11.7	-4.1	15.8	48.5		
78		10.8	-4.2	15.0	47.2		

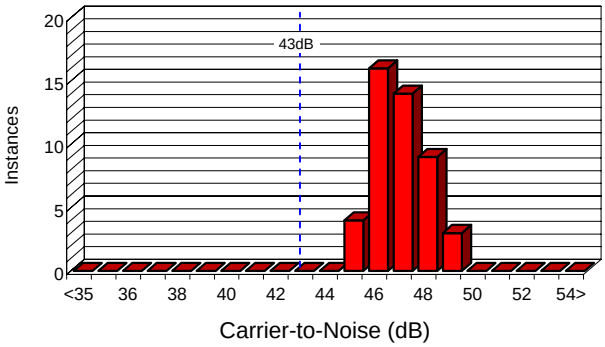
(Loudoun County OpenBand Monitor Tests)

TP09 Inside Park Glenn Drive Residence 08/10/10

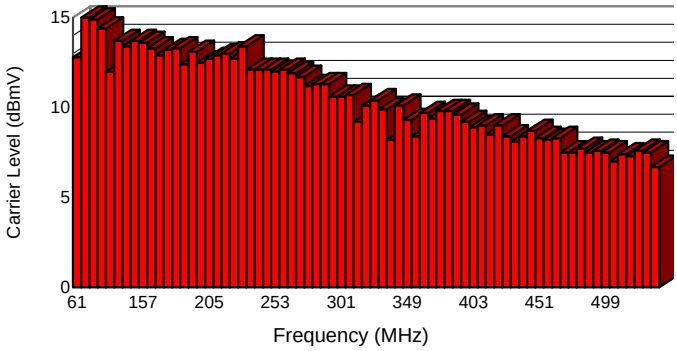
CARRIER-TO-NOISE AND HUM PERFORMANCE



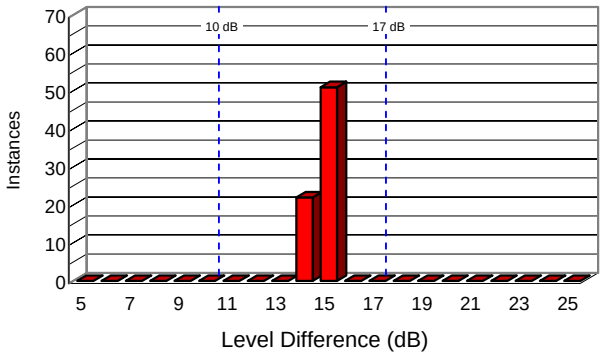
C/N PERFORMANCE DISTRIBUTION



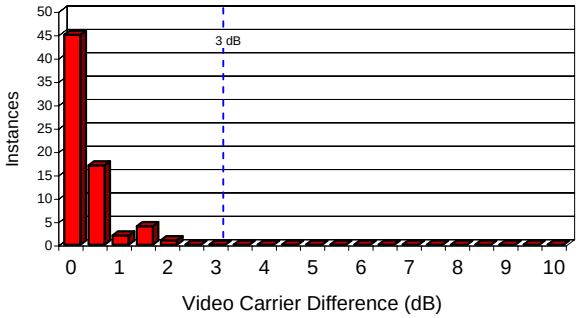
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise			
Average	47.3 dB	Min. allowable	43 dB
Carrier Level Variation			
Overall	8.6 dB	Max. allowable	14 dB
Adjacent	2.4 dB	Max. allowable	3 dB
Hum			
Average	0.67%	Max. allowable	3 %
A/V Ratio			
Maximum	15.9 dB	Max. allowable	17 dB
Minimum	14.2 dB	Min. allowable	10 dB

TP File:	OBTP09	93	46	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP09	**DOS File: OBTP09**
Date: 08/10/10	Time: 12:06:44	**0.0 0.0**
Description:		

Location:	TP09 Inside Park Glenn Drive Residence						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		12.8	-1.6	14.4		0.5	-46.4
4		15.2	0.4	14.8	49.0		
5		14.9	0.7	14.2	48.2		
6		14.4	-0.5	14.9	47.9		
16		12.0	-3.1	15.1			
17		13.7	-1.7	15.4		0.7	-43.7
18		13.4	-1.5	14.9	48.3		
19		13.7	-1.4	15.1	49.1		
20		13.6	-1.5	15.1	46.5		
21		13.3	-1.8	15.1			
22		12.9	-2.1	15.0	48.8		
7		13.2	-2.2	15.4	49.7		
8		13.3	-2.3	15.6	47.1	0.5	-46.0
9		12.4	-2.7	15.1	47.8		
10		13.1	-2.0	15.1			
11		12.5	-2.3	14.8			
12		12.7	-1.8	14.5			
13		12.9	-2.3	15.2			
23		13.0	-2.3	15.3			
24		12.7	-2.7	15.4		0.7	-43.5
25		13.4	-1.4	14.8			
26		12.1	-3.8	15.9	47.9		
27		12.1	-2.8	14.9	48.7		
28		12.1	-2.7	14.8			
29		12.0	-3.0	15.0			
30		12.1	-3.0	15.1			
31		11.9	-3.3	15.2			
32		11.7	-3.2	14.9	47.5		
33		11.2	-4.4	15.6			
34		11.3	-3.9	15.2			
35		11.3	-4.2	15.5	48.2		
36		10.6	-4.9	15.5	48.0	0.7	-43.5

Loudoun County
Monitor Test Results

Location:	TP09 Inside Park Glenn Drive Residence						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		10.6	-5.2	15.8	47.7		
38		10.7	-4.4	15.1	46.5		
39		9.2	-5.9	15.1	46.8		
40		10.1	-5.1	15.2	46.9		
41		10.4	-4.7	15.1	46.5		
42		9.9	-5.4	15.3	47.0		
43		8.2	-7.0	15.2	47.3		
44		10.1	-5.6	15.7	48.0		
45		9.3	-5.7	15.0	45.8	0.7	-43.5
46		8.4	-6.1	14.5	46.6		
47		9.7	-5.7	15.4	47.1		
48		9.4	-5.1	14.5	45.8		
50		9.8	-5.7	15.5	47.2		
51		9.8	-5.3	15.1			
52		9.6	-5.8	15.4	48.2		
53		9.2	-5.8	15.0	47.7		
54		8.9	-6.1	15.0	46.2	0.7	-43.5
55		9.0	-5.9	14.9	46.5		
56		8.5	-6.5	15.0	48.1		
57		9.0	-6.5	15.5	47.3		
58		8.4	-6.0	14.4	46.2		
59		8.1	-7.0	15.1	47.7		
60		8.4	-6.6	15.0	46.8		
61		8.7	-6.7	15.4			
62		8.3	-6.8	15.1	46.5		
63		8.2	-7.6	15.8	46.8		
64		8.3	-7.0	15.3	47.2		
65		7.5	-7.0	14.5			
66		7.5	-8.0	15.5		0.9	-41.2
67		7.7	-6.7	14.4	45.9		
68		7.5	-7.8	15.3	46.0		
69		7.6	-8.1	15.7	46.4		
70		7.5	-7.3	14.8	46.5		
71		7.0	-7.9	14.9			
72		7.4	-7.7	15.1			
73		7.3	-8.1	15.4			
74		7.6	-6.8	14.4			
75		7.5	-7.9	15.4		0.8	-41.6
76		6.7	-8.6	15.3	46.5		

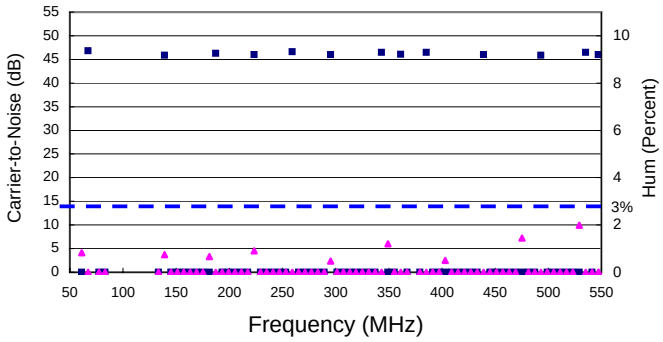
Loudoun County
Monitor Test Results

Location:	TP09 Inside Park Glenn Drive Residence						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		6.6	-7.8	14.4	45.6		
78		6.7	-8.0	14.7			

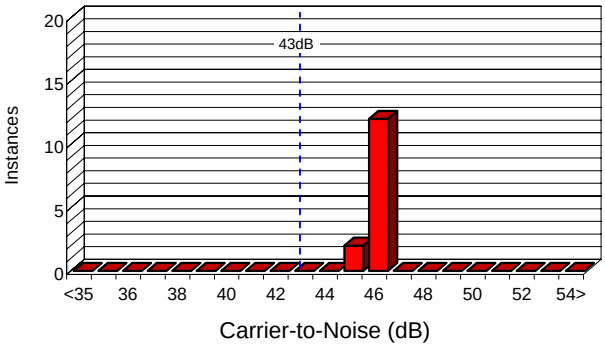
(Loudoun County OpenBand Monitor Tests)

TP10 Inside Ridgeway Drive Residence 08/10/10

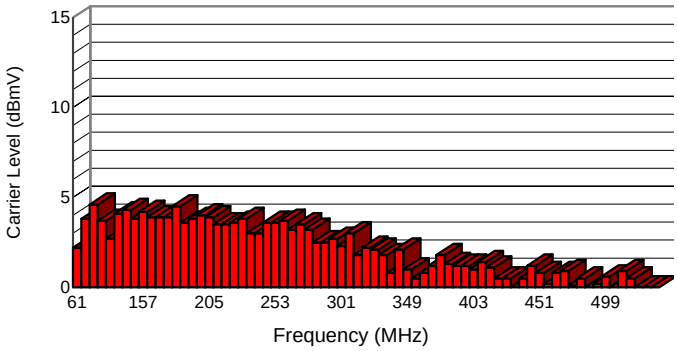
CARRIER-TO-NOISE AND HUM PERFORMANCE



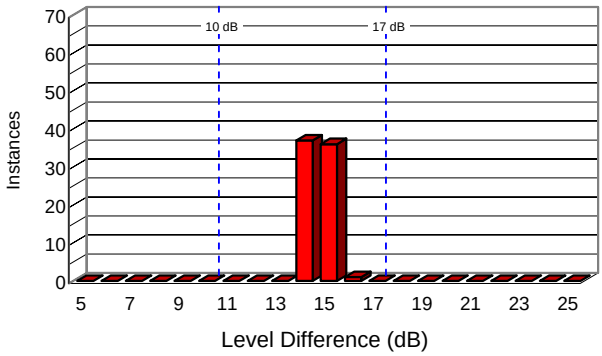
C/N PERFORMANCE DISTRIBUTION



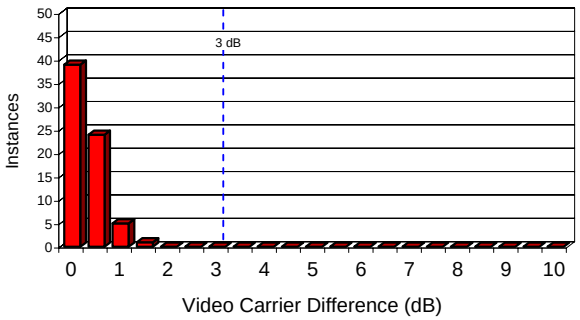
VIDEO CARRIER LEVELS



VIDEO-TO-AUDIO RATIO



ADJACENT CHANNEL DIFFERENCE



Carrier-to-Noise

Average	46.3 dB	Min. allowable	43 dB

Carrier Level Variation

Overall	5.4 dB	Max. allowable	14 dB
Adjacent	1.6 dB	Max. allowable	3 dB

Hum

Average	0.97%	Max. allowable	3 %

A/V Ratio

Maximum	16.2 dB	Max. allowable	17 dB
Minimum	14.0 dB	Min. allowable	10 dB

Signal Levels Are Below 3dBmV

Average Signal Level is: 2.06dBmV

TP File:	OBTP10	93	14	0.0	0.0

Loudoun County
Monitor Test Results

Model: SDA-4040D	Serial #: 0033582	**Cal Date: 05/26/10**
Operator: DLR	File: OBTP10	**DOS File: OBTP10**
Date: 08/10/10	Time: 13:26:20	**0.0 0.0**
Description:		

Average Signal Level is: 2.06dBmV

Location:	TP10 Inside Ridgeway Drive Residence						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
		(dBmV)	(dBmV)	(dB)	(dB)	(%)	(dB)
3		**2.2**	-12.5	14.7		0.8	-41.6
4		3.8	-11.1	14.9	46.8		
5		4.6	-10.6	15.2			
6		3.7	-10.8	14.5			
16		**2.7**	-12.8	15.5			
17		4.1	-10.8	14.9	45.9	0.7	-42.6
18		4.3	-10.1	14.4			
19		3.8	-11.4	15.2			
20		4.2	-10.6	14.8			
21		3.9	-10.4	14.3			
22		3.9	-11.1	15.0			
7		3.9	-11.2	15.1			
8		4.5	-11.0	15.5		0.7	-43.6
9		3.6	-11.7	15.3	46.3		
10		3.8	-10.9	14.7			
11		4.0	-11.3	15.3			
12		3.9	-11.1	15.0			
13		3.5	-11.5	15.0			
23		3.5	-11.9	15.4			
24		3.6	-11.4	15.0	46.0	0.9	-40.8
25		3.8	-10.5	14.3			
26		3.0	-12.2	15.2			
27		3.0	-11.9	14.9			
28		3.6	-11.4	15.0			
29		3.6	-11.6	15.2			
30		3.7	-11.2	14.9	46.6		
31		3.2	-11.3	14.5			
32		3.5	-11.8	15.3			
33		3.2	-12.2	15.4			
34		**2.5**	-12.3	14.8			
35		**2.5**	-12.4	14.9			
36		**2.7**	-12.1	14.8	46.0	0.5	-46.4

Loudoun County
Monitor Test Results

Average Signal Level is: 2.06dBmV

Location:	TP10 Inside Ridgeway Drive Residence						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
37		**2.3**	-12.6	14.9			
38		3.0	-12.4	15.4			
39		**1.8**	-13.2	15.0			
40		**2.2**	-12.8	15.0			
41		**2.1**	-13.1	15.2			
42		**1.8**	-12.7	14.5			
43		**0.8**	-14.6	15.4			
44		**2.1**	-14.1	16.2	46.5		
45		**1.0**	-13.9	14.9		1.2	-38.4
46		**0.5**	-14.2	14.7			
47		**0.8**	-14.0	14.8	46.1		
48		**1.2**	-12.9	14.1			
50		**1.8**	-14.0	15.8			
51		**1.3**	-13.3	14.6	46.5		
52		**1.2**	-13.6	14.8			
53		**1.2**	-13.5	14.7			
54		**1.0**	-13.7	14.7		0.5	-46.1
55		**1.4**	-13.6	15.0			
56		**1.1**	-14.4	15.5			
57		**0.5**	-14.0	14.5			
58		**0.5**	-13.9	14.4			
59		**0.0**	-14.6	14.6			
60		**0.5**	-14.6	15.1	46.0		
61		**1.2**	-14.1	15.3			
62		**0.8**	-14.3	15.1			
63		**0.2**	-14.6	14.8			
64		**0.8**	-14.1	14.9			
65		**0.9**	-14.0	14.9			
66		**0.1**	-15.0	15.1		1.4	-36.8
67		**0.5**	-14.1	14.6			
68		**-0.3**	-15.3	15.0			
69		**0.2**	-14.8	15.0	45.9		
70		**0.6**	-14.5	15.1			
71		**0.0**	-14.7	14.7			
72		**0.9**	-14.5	15.4			
73		**0.5**	-14.9	15.4			
74		**-0.2**	-14.2	14.0			
75		**-0.3**	-14.8	14.5		2.0	-34.0
76		**-0.5**	-15.4	14.9	46.5		

Loudoun County
Monitor Test Results

Average Signal Level is: 2.06dBmV

Location:	TP10 Inside Ridgeway Drive Residence						
Channel	Label	Video	Audio	Delta A/V	C/N	Hum	Hum
77		**-0.8**	-15.5	14.7			
78		**-0.2**	-15.4	15.2	46.0		

Appendix C

Explanation of Performance Test Graphs

Appendix C

Carrier-to-noise (C/N) is measured on all channels except the “scrambled” premium and pay-per-view channels. The minimum C/N allowable for the system is 43 dB. Low C/N will result in a deteriorated picture which is often expressed by the dissatisfied viewer as a “grainy” or a “snowy picture.” The higher the number on this measurement, the better the picture will be.

Carrier level variation expresses the overall difference in signal level between the highest and lowest video carrier signals for all channels tested. It also measures the difference between the signal levels for each channel and its adjacent channels. The overall measurement is required to be equal to or less than 12 dB across the spectrum being measured. The adjacent channel variation must be less than or equal to 3 dB. If these measurements are exceeded, there could be a difference in the picture quality from channel to channel. Excessive carrier level readings are often indicative of problems with the condition of cable plant or the need to adjust the active components.

Hum is undesired modulation of the television video carrier caused by electrical power or other low frequency disturbances on the cable. Measurements are required to be less than 3 percent. Hum causes decreased picture quality, which is typically seen as horizontal lines that scroll up the screen.

Video carrier levels for each channel are measured at each test point using a 30-meter drop cable. Each channel must have a video carrier level of at least 0 dBmV. The video-to-audio carrier ratio illustrates the difference between the video and audio carrier on the channels tested. The audio carrier level is required to be between 10 and 17 dB below the video carrier level to limit interference from ambient system noise.

In the video-to-audio carrier ratio measurement, the difference in video carrier measurements from one channel to its adjacent channel must be no greater than 3 dB. Adjacent carrier differences above this level would appear as variations in picture quality from channel to channel. Problems with adjacent carrier ratio may also be indicative of problems with physical plant or adjustment of equipment needed at the headend.