Test Point D1

Date: May 12, 1994 Address of Location: Headend test point
Cable Location: Trunk Cascade: 1 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 4+ Level: -37.5 dBm
   Comments on quality and impairments: --

2. Off-air NTSC Direct: Impairments: 3 Level: -37.5 dBm
   Comments on quality and impairments: noise

3. Off-air NTSC HIAB: Impairments: 3- Level: -42.5 dBm
   Comments on quality and impairments: noise & beat

4. Local NTSC Direct: Impairments: 3 Level: -42.5 dBm
   Comments on quality and impairments: beats

5. NTSC Carrier Levels:
   Lower Visual: -37.2 dBm Lower Aural : -54.7 dBm Ratio: 17.4 dB
   Test visual: -38.1 dBm Test Aural: -52.6 dBm Ratio: 14.6 dB
   Upper Visual: none

6. NTSC Carrier Level: -7.76 dBm (after amplifier and filter)
   Highest Inband Spurious: -60.0 dBm @ 332.58 MHz
   CTB Level: -82.0 dBm
   Noise Floor: -77.64 dBm (100 kHz BW)

7. Direct Inband Response: 0.5 dB P-V Delay: 20 nsec Total System: 3 dB P-V

8. HIAB Inband Response: 1.0 dB P-V Delay: 21 nsec

9. Direct Connection ATV BER (Rx power -43.4 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -9.9 dBm Noise Power: -56.3 dBm S/N_1: 46.5 dB

   BER With noise added to threshold:
   Ch A: 1.07×10^{-6} 1.43×10^{-6} 1.74×10^{-6}
   Ch B: 2.36×10^{-6} 1.56×10^{-6} 1.55×10^{-6}
   Signal Power: -9.9 dBm Noise Power: 38.4 dBm S/N_2: 28.6 dB
   Margin S/N_1 - S/N_2: 17.9 dB

10. Signal through House-in-a-Box BER (Rx power -48.6 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -14.9 dBm Noise Power: -57.0 dBm S/N_1: 42.1 dB

    BER With noise added to threshold:
    Ch A: 2.39×10^{-6} 2.33×10^{-6} 2.69×10^{-6}
    Ch B: 2.21×10^{-6} 2.33×10^{-6} 1.81×10^{-6}
    Signal Power: -14.9 dBm Noise Power: -43.6 dBm S/N_2: 28.7 dB

    Margin S/N_1 - S/N_2: 13.4 dB

Test Point D2

Date: 1994 May 12 Address of Location: Highway 74 & Tiny Lane
Cable Location: Aerial: Trunk Cascade: 21 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct : Impairments: 2+ Level: -38.1 dBm
   Comments on quality and impairments: noise & slight beat

2. Off-air NTSC Direct: Impairments: 1+ Level: -38.2 dBm
   Comments on quality and impairments: noise

3. Off-air NTSC HIAB: Impairments: 1+ Level: -44.8 dBm
   Comments on quality and impairments: noise

4. Local NTSC HIAB Impairments: 2+ Level: -44.7 dBm
   Comments on quality and impairments: noise

5. NTSC Carrier Levels:
   Lower Visual: -41.5 dBm Lower Aural : -55.2 dBm Ratio: 13.6 dB
   Test Visual: -39.6 dBm Test Aural: -54.4 dBm Ratio: 14.8 dB
   Upper Visual: none

6. NTSC Carrier Level: -7.55 dBm (after amplifier and filter)
   Highest Inband Spurious: -42.8 dBm @ 334.092 MHz
   CTB Level: -63.6 dBm
   Noise Floor: -59.9 dBm (100 kHz BW)

7. Direct Inband Response: 0.5 dB P-V Delay 32 nsec Total System: 5 dB P-V

8. HIAB Inband Response: 1.0 dB P-V Delay 32 nsec

9. Direct Connection ATV BER (Rx power -44.6 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -10.5 dBm Noise Power: -48.4 dBm S/N_1: 37.9 dB

   BER With noise added to threshold:
   Ch A: 7.88×10^{-7} 8.02×10^{-7} 3.57×10^{-6}
   Ch B: 6.42×10^{-7} 4.8×10^{-8} 0
   Signal Power: -10.5 dBm Noise Power: -39.8 dBm S/N_2: 29.3 dB

   Margin S/N_1 - S/N_2: 8.6 dB

10. Signal through House-in-a-Box BER (Rx power -49.5 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -15.8 dBm Noise Power: -52.7 dBm S/N_1: 37.0 dB

    BER With noise added to threshold:
    Ch A: 2.96×10^{-6} 2.43×10^{-6} 2.91×10^{-6}
    Ch B: 6.84×10^{-7} 1.50×10^{-6} 1.56×10^{-6}
    Signal Power: -15.8 dBm Noise Power: -44.7 dBm S/N_2: 29.0 dB

    Margin S/N_1 - S/N_2: 8.0 dB

Test Point D3

Date: 1994 May 12 Address of Location: 120 Pecan Rd.
Cable Location: Aerial Trunk Cascade: 25 LE Cascade: 1

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 3 Level: -44.6 dBm
   Comments on quality and impairments: noise

2. Off-air NTSC Direct: Impairments: 2+ Level: -44.5 dBm
   Comments on quality and impairments: noise

3. Off-air NTSC HIAB: Impairments: 2 Level: -49.3 dBm
   Comments on quality and impairments: noise, fine beats

4. Local NTSC HIAB: Impairments: 3- Level: -49.4 dBm
   Comments on quality and impairments: noise & slight beat

5. NTSC Carrier Levels:
   Lower Visual: -42.3 dBm Lower Aural : -60.5 dBm Ratio: 18.2 dB
   Test Visual: -44.4 dBm Test Aural: -61.0 dBm Ratio: 16.6 dB
   Upper Visual: none

6. NTSC Carrier Level: -14.6 dBm (after amplifier and filter)
   Highest Inband Spurious: -58.6 dBm @ 333.77 MHz
   CTB Level: -80.3 dBm
   Noise Floor: -75.5 dBm (100 kHz BW)

7. Direct Inband Response: 3.0 dB P-V Delay: 80 nsec Total System: 5 dB P-V

8. HIAB Inband Response: 3.0 dB P-V Delay: 60 nsec

9. Direct Connection ATV BER (Rx power -54.0 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -23.2 dBm Noise Power: -58.8 dBm S/N: 35.6 dB

   BER With noise added to threshold:
   Ch A: 4.50×10^{-7} 4.42×10^{-7} 4.74×10^{-7}
   Ch B: 1.45×10^{-6} 1.93×10^{-6} 1.51×10^{-6}
   Signal Power: -23.2 dBm Noise Power: -53.0 dBm S/N: 29.8 dB

   Margin S/N_1 - S/N_2: 5.8 dB

10. Signal through House-in-a-Box BER (Rx power -59.3 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -29.1 dBm Noise Power: -60.1 dBm S/N: 31.0 dB

    BER With noise added to threshold:
    Ch A: 1.48×10^{-6} 9.72×10^{-7} 1.20×10^{-6}
    Ch B: 2.15×10^{-6} 2.17×10^{-6} 1.08×10^{-6}
    Signal Power: -29.1 dBm Noise Power: -58.6 dBm S/N: 29.5 dB

    Margin S/N_1 - S/N_2: 1.5 dB

Note: System response or levels were changing during the test, resulting in a change in threshold S/N from channel A to channel B test.

Test Point D4

Date: 1994 May 12 Address of Location: US Highway 1 (Racetrack)
Cable Location: Aerial Trunk Cascade: 30 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 3+ Level: -40.1 dBm
   Comments on quality and impairments: noise

2. Off-air NTSC Direct : Impairments: 2+ Level: -40.0 dBm
   Comments on quality and impairments: noise

3. Off-air NTSC HIAB: Impairments: 2+ Level: -45.1 dBm
   Comments on quality and impairments: noise & high frequency beats

4. Local NTSC HIAB: Impairments: 3- Level: -45.3 dBm
   Comments on quality and impairments: noise

5. NTSC Carrier Levels:

Lower Visual:	-41.5 dBm	Lower Aural :	-55.1 dBm	Ratio: 13.7 dB
Test Visual:	-40.0 dBm	Test Aural:	-56.9 dBm	Ratio: 16.9 dB
Upper Visual:	none			

6. NTSC Carrier Level: -8.71 dBm (after amplifier and filter)
   Highest Inband Spurious: -54.3 dBm @ 332.35 MHz
   CTB Level: -66.9 dBm
   Noise Floor: -73.9 dBm (100 kHz BW)

7. Direct Inband Response: 2.2 dB P-V Delay: 63 nsec Total System: 5 dB P-V

8. HIAB Inband Response: 2.4 dB P-V Delay: 54 nsec

9. Direct Connection ATV BER (Rx power -48.5 dBm):

Ch A:	0	0	0
Ch B:	0	0	0

   Signal Power: -12.6 dBm Noise Power: -52.0 dBm S/N: 39.4 dB

   BER With noise added to threshold:

Ch A:	7.54×10^{-7}	6.29×10^{-7}	5.09×10^{-7}
Ch B:	1.56×10^{-6}	1.00×10^{-6}	6.45×10^{-7}

   Signal Power: -12.6 dBm Noise Power: -41.8 dBm S/N: 29.2 dB

   Margin S/N_1 - S/N_2: 10.2 dB

10. Signal through House-in-a-Box BER (Rx power -52.2 dBm):

Ch A:	0	0	0
Ch B:	0	0	0

   Signal Power: -19.6 dBm Noise Power: -55.5 dBm S/N: 35.9 dB

   BER With noise added to threshold:

Ch A:	1.22×10^{-6}	7.16×10^{-7}	4.87×10^{-7}
Ch B:	8.98×10^{-7}	2.35×10^{-6}	2.14×10^{-6}

   Signal Power: -19.6 dBm Noise Power: -49.3 dBm S/N: 29.7 dB

   Margin S/N_1 - S/N_2: 6.2 dB

Note: System response or levels were changing during the test resulting in a change in threshold S/N from channel A to channel B test.

TEST POINT D5

Date: 1994 May 13 Address of Location: US 1 & Stroman St
Cable Location: Trunk Cascade: 32 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 3 Level: -39.2 dBm
   Comments on quality and impairments: noise

2. Off-air NTSC Direct : Impairments: 3- Level: -39.5 dBm
   Comments on quality and impairments: noise

3. Off-air NTSC HIAB: Impairments: 2 Level: -44.5 dBm
   Comments on quality and impairments: noise & high frequency beats

4. Local NTSC HIAB: Impairments: 2 Level: -44.0 dBm
   Comments on quality and impairments: noise & strong beat

5. NTSC Carrier Levels:
   Lower Visual: -38.5 dBm Lower Aural : -55.2 dBm Ratio: 16.7 dB
   Test Visual: -39.1 dBm Test Aural: -53.5 dBm Ratio: 14.3 dB
   Upper Visual: none

6. NTSC Carrier Level: -7.29 dBm (after amplifier and filter)
   Highest Inband Spurious: -48.8 dBm @ 333.057 MHz
   CTB Level: -71.3 dBm
   Noise Floor: -66.6 dBm (100 kHz BW)

7. Direct Inband Response: 1.6 dB P-V Delay: 68 nsec Total System: 5 dB P-V

8. HIAB Inband Response: 1.8 dB P-V Delay: 80 nsec

9. Direct Connection ATV BER (Rx power -44.4 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -23.0 dBm Noise Power: -57.2 dBm S/N: 34.2 dB

   BER With noise added to threshold:
   Ch A: 7.51×10^{-7} 1.81×10^{-6} 1.30×10^{-6}
   Ch B: 1.52×10^{-6} 5.73×10^{-7} 6.15×10^{-7}
   Signal Power: -23.0 dBm Noise Power: -51.3 dBm S/N: 28.3 dB

   Margin S/N_1 - S/N_2: 5.9 dB

10. Signal through House-in-a-Box BER (Rx power -49.6 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -27.9 dBm Noise Power: -61.3 dBm S/N: 34.4 dB

    BER With noise added to threshold:
    Ch A: 2.61×10^{-6} 2.37×10^{-6} 1.05×10^{-6}
    Ch B: 1.98×10^{-6} 7.27×10^{-7} 6.87×10^{-7}
    Signal Power: -27.9 dBm Noise Power: -56.5 dBm S/N: 28.6 dB

    Margin S/N_1 - S/N_2: 4.8 dB

APPENDIX 5

Monroe

GENERAL SYSTEM INFORMATION

Total Subscribers: 15,000	Miles of Plant: 500	Percent Underground: 30
System Bandwidth: 50 - 300 MHz	Frequency Plan: STD	Highest Freq. Used: 300 MHz
Test Channel: 37	Lower Channel: STD	Upper Channel: none
Trunk Amp Mfr.: Scientific Atlanta	Operating Carrier Levels: 38/36 dBmV.	
Line Extender Mfr.: Scientific Atlanta	Operating Carrier Levels: 47/38 dBmV.	
Trunk Cable: .750"	Cable Manufacturer: Times	Age: 1 - 15 years
Distribution Cable: .500"	Cable Manufacturer: Times	Age: 1 - 15 years
Cable Tap & Passives Mfr.: Scientific Atlanta		
Fibre: AM Link		
Channel 53 ATV Rx Level: -47 dBm (~15 dB of Margin)		
Rx Site: 19.6 miles from transmitter site		
Tests Performed by: G. Hovland - CableLabs, and G. Sgrignoli - Zenith		
Director: Brian James, CableLabs		

Test Point E1

Date: 1994 May 31 Address of Location: 813 Charlotte Ave., Monroe, NC 28110 (Headend)

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 4+ Level: -27.4 dBm
   Comments on quality and impairments:

2. Off-air NTSC Direct: Impairments: 2+ Level: -27.9 dBm
   Comments on quality and impairments: noise and hum bars

3. Off-air NTSC HIAB: Impairments: 2+ Level: -32.2 dBm
   Comments on quality and impairments: noise and hum bars

4. Local NTSC HIAB: Impairments: 4 Level: -31.9 dBm
   Comments on quality and impairments: very slight beat

5. NTSC Carrier Levels:

Lower Visual:	-27.7 dBm	Lower Aural :	-43.9 dBm	Ratio:	16.2 dB
Test Visual:	-27.5 dBm	Test Aural:	-42.1 dBm	Ratio:	14.6 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	N/A

6. NTSC Carrier Level: -7.4 dBm (after amplifier and filter)
   Highest Inband Spurious: -61.1 dBm @ 304.11 MHz
   CTB Level: -72.8 dBm
   Noise Floor: -80.3 dBm (100 kHz BW)

7. Direct Inband Response: 0.2 dB P-V Delay: 8 nsec Total System: 2 dB P-V

8. HIAB Inband Response: 0.3 dB P-V Delay: 12 nsec

9. Direct Connection ATV BER (Rx power -33.3 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -23.7 dBm Noise Power: -71.9 dBm S/N: 48.2 dB

   BER With noise added to threshold:
   Ch A: 2.23×10^{-6} 1.91×10^{-6} 2.33×10^{-6}
   Ch B: 1.99×10^{-6} 1.67×10^{-6} 1.66×10^{-6}
   Signal Power: -23.7 dBm Noise Power: -52.0 dBm S/N: 28.3 dB

   Margin S/N_1 - S/N_2: 19.9 dB

10. Signal through House-in-a-Box BER (Rx power -37.9 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -28.1 dBm Noise Power: -73.5 dBm S/N: 45.4 dB

    BER With noise added to threshold:
    Ch A: 2.12×10^{-6} 2.77×10^{-6} 2.54×10^{-6}
    Ch B: 1.28×10^{-6} 1.29×10^{-6} 1.33×10^{-6}
    Signal Power: -28.1 dBm Noise Power: -56.5 dBm S/N: 28.4 dB

    Margin S/N_1 - S/N_2: 17.0 dB

Test Point E2

Date: 1994 May 31 Address of Location: 2581 White Store Rd.
Cable Location: Aerial Trunk Cascade: 26 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 4 Level: -35.9 dBm
   Comments on quality and impairments: slight noise

2. Off-air NTSC Direct: Impairments: 2- Level: -36.3 dBm
   Comments on quality and impairments: noise & hum bars

3. Off-air NTSC HIAB: Impairments: 2- Level: -40.5 dBm
   Comments on quality and impairments: noise & hum bars

4. Local NTSC HIAB: Impairments: 4- Level: -40.2 dBm
   Comments on quality and impairments: slight low frequency beat

5. NTSC Carrier Levels:

Lower Visual:	-35.6 dBm	Lower Aural :	-52.6 dBm	Ratio:	16.9 dB
Test Visual:	-35.9 dBm	Test Aural:	-49.1 dBm	Ratio:	13.2 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	N/A

6. NTSC Carrier Level: -16.9 dBm (after amplifier and filter)
   Highest Inband Spurious: -65.4 dBm @ 302.07 MHz
   CTB Level: -86.0 dBm
   Noise Floor: -84.2 dBm (100 kHz BW)

7. Direct Inband Response: 1.4 dB P-V Delay: 44 nsec Total System: 10 dB P-V

8. HIAB Inband Response: 1.0 dB P-V Delay: 44 nsec

9. Direct Connection ATV BER (Rx power -39.6 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -18.6 dBm Noise Power: -60.8 dBm S/N: 42.2 dB

   BER With noise added to threshold:
   Ch A: 4.18×10^{-7} 1.56×10^{-6} 1.24×10^{-6}
   Ch B: 5.09×10^{-6} 1.07×10^{-6} 1.98×10^{-6}
   Signal Power: -18.6 dBm Noise Power: -47.2 dBm S/N: 28.6 dB

   Margin S/N_1 - S/N_2: 13.6 dB

10. Signal through House-in-a-Box BER (Rx power -44.8 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -22.8 dBm Noise Power: -63.7 dBm S/N: 40.9 dB

    BER With noise added to threshold:
    Ch A: 2.31×10^{-6} 2.42×10^{-6} 2.17×10^{-6}
    Ch B: 8.68×10^{-7} 3.92×10^{-6} 5.94×10^{-6}
    Signal Power: -22.8 dBm Noise Power: -51.6 dBm S/N: 28.8 dB

    Margin S/N_1 - S/N_2: 12.1 dB

Test Point E3

Date: 1994 May 31 Address of Location: 1623 Old Peachland Rd., Marchville
Cable Location: Aerial, Fibre Trunk Cascade: 25 LE Cascade: 1

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 4- Level: -46.2 dBm
   Comments on quality and impairments: slight noise

2. Off-air NTSC Direct: Impairments: 2+ Level: -46.2 dBm
   Comments on quality and impairments: hum bars

3. Off-air NTSC HIAB: Impairments: 2+ Level: -51.0 dBm
   Comments on quality and impairments: hum bars

4. Local NTSC HIAB Impairments: 3- Level: -50.5 dBm
   Comments on quality and impairments: low frequency beat

5. NTSC Carrier Levels:

Lower Visual:	-45.6 dBm	Lower Aural :	-62.7 dBm	Ratio:	17.0 dB
Test Visual:	-46.1 dBm	Test Aural:	-61.3 dBm	Ratio:	15.2 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	N/A

6. NTSC Carrier Level: -23.0 dBm (after amplifier and filter)
   Highest Inband Spurious: -65.3 dBm @ 302.6 MHz
   CTB Level: -75.0 dBm
   Noise Floor: -82.5 dBm (100 kHz BW)

7. Direct Inband Response: 1.0 dB P-V (manual measurement) Delay: 40 nsec
   Total System: 5 dB P-V

8. HIAB Inband Response: 0.6 dB P-V Delay: 40 nsec

9. Direct Connection ATV BER (Rx power -52.4 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -28.8 dBm Noise Power: -66.2 dBm S/N: 37.4 dB

   BER With noise added to threshold:
   Ch A: 1.85×10^{-6} 2.36×10^{-6} 2.47×10^{-6}
   Ch B: 1.07×10^{-6} 5.10×10^{-6} 0
   Signal Power: -28.8 dBm Noise Power: -59.0 dBm S/N: 30.2 dB

   Margin S/N_1 - S/N_2: 7.2 dB

10. Signal through House-in-a-Box BER (Rx power -56.6 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -35.1 dBm Noise Power: -67.8 dBm S/N: 32.7 dB

    BER With noise added to threshold:
    Ch A: 1.47×10^{-6} 1.64×10^{-6} 2.08×10^{-6}
    Ch B: 1.85×10^{-6} 2.97×10^{-6} 2.82×10^{-6}
    Signal Power: -35.1 dBm Noise Power: -64.2 dBm S/N: 29.1 dB
    Margin S/N_1 - S/N_2: 3.6 dB

Test Point E4

Date: 1994 June 01 Address of Location: 8625 Richardson King Road., Waxhaw
Cable Location: Aerial, Fibre Trunk Cascade: 22 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 3+ Level: -38.2 dBm
   Comments on quality and impairments: noise

2. Off-air NTSC Direct: Impairments: 2 Level: -39.0 dBm
   Comments on quality and impairments: noise & hum bars

3. Off-air NTSC HIAB: Impairments: 2 Level: -43.1 dBm
   Comments on quality and impairments: noise & hum bars

4. Local NTSC HIAB Impairments: 3- Level: -42.4 dBm
   Comments on quality and impairments: noise

5. NTSC Carrier Levels:

Lower Visual:	-41.7 dBm	Lower Aural :	-55.2 dBm	Ratio:	13.5 dB
Test Visual:	-37.8 dBm	Test Aural:	-50.5 dBm	Ratio:	12.7 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	N/A

6. NTSC Carrier Level: -10.0 dBm (after amplifier and filter)
   Highest Inband Spurious: -56.0 dBm @ 302.565 MHz
   CTB Level: -70.9 dBm
   Noise Floor: -73.5 dBm (100 kHz BW)

7. Direct Inband Response: 2.0 dB P-V Delay: 48 nsec Total System: 8 dB P-V

8. HIAB Inband Response: 1.2 dB P-V Delay: 62 nsec

9. Direct Connection ATV BER (Rx power -45.5 dBm):
   Ch A: not measured due to system problems
   Ch B: 0 0 0
   Signal Power: -17.7 dBm Noise Power: -55.2 dBm S/N: 37.5 dB

   BER With noise added to threshold:
   Ch A: not measured due to system problems
   Ch B: 0 0 0
   Signal Power: -17.7 dBm Noise Power: -46.7 dBm S/N: 29.0 dB

   Margin S/N_1 - S/N_2: 8.5 dB

Note: System response and AGC problems resulted in periodic hits being taken during no noise added test and no hits being taken after noise insertion level was set. Increasing noise would result in excessive errors. Initially problem was thought to be terrestrial receiver but after switching to the data generator at the headend there was no change in performance. Problem attributed to cable system response problem resulting in one NTSC carrier over 10 dB above adjacent carriers and level changes producing excessive distortion.

10. Signal through House-in-a-Box BER (Rx power -50.6 dBm):

Ch A:	no measurements made		
Ch B:	0	0	0
Signal Power: -21.1 dBm	Noise Power: -57.3 dBm		S/N: 36.2 dB

BER With noise added to threshold:

Ch A:	no measurements made		
Ch B:	2.2×10^{-7}	3.65×10^{-7}	1.92×10^{-6}
Signal Power: -21.1 dBm	Noise Power: -51.2 dBm		S/N: 30.1 dB

Margin S/N_1 - S/N_2: 6.1 dB

Test Point E5

Date: 1994 June 01 Address of Location: 308 Oak Forrest Circle, Monroe
Cable Location: Aerial, Fibre Trunk Cascade: 33 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 4- Level: -37.3 dBm
   Comments on quality and impairments: noise slight high freq. beat

2. Off-air NTSC Direct: Impairments: 2 Level: -38.7 dBm
   Comments on quality and impairments: hum & beats

3. Off-air NTSC HIAB: Impairments: 2- Level: -43.3 dBm
   Comments on quality and impairments: hum & beats

4. Local NTSC HIAB: Impairments: 3 Level: -41.0 dBm
   Comments on quality and impairments: noise & cross hatch beat

5. NTSC Carrier Levels:

Lower Visual:	-35.6 dBm	Lower Aural :	-54.7 dBm	Ratio:	19.1 dB
Test Visual:	-39.2 dBm	Test Aural:	-54.3 dBm	Ratio:	15.1 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	N/A

6. NTSC Carrier Level: -12.8 dBm (after amplifier and filter)
   Highest Inband Spurious: -56.6 dBm @ 302.475 MHz
   CTB Level: -75.8 dBm
   Noise Floor: -75.9 dBm (100 kHz BW)

7. Direct Inband Response: 0.8 dB P-V Delay: 80 nsec Total System: 10 dB P-V

8. HIAB Inband Response: 0.9 dB P-V Delay: 85 nsec

9. Direct Connection ATV BER (Rx power -36.5 dBm):

Ch A:	0	0	0
Ch B:	0	0	0

   Signal Power: -21.1 dBm Noise Power: -59.3 dBm S/N: 38.2 dB

   BER With noise added to threshold:

Ch A:	0	9.3×10^{-8}	0
Ch B:	1.3×10^{-7}	5.3×10^{-8}	1.5×10^{-7}

   Signal Power: -21.1 dBm Noise Power: -47.5 dBm S/N: 26.4 dB

   Margin S/N_1 - S/N_2: 11.8 dB

10. Signal through House-in-a-Box BER (Rx power -44.9 dBm):

Ch A:	0	0	0
Ch B:	0	0	0

   Signal Power: -22.5 dBm Noise Power: -65.1 dBm S/N: 42.6 dB

   BER With noise added to threshold:

Ch A:	0	0	9.3×10^{-6}
Ch B:	0	0	0

   Signal Power: -22.5 dBm Noise Power: -54.1 dBm S/N: 31.6 dB

   Margin S/N_1 - S/N_2: 11.0 dB

NOTES:

- *The ac line voltage supplied to the equipment was under 100 volts which may contribute to the hum bars on the off-air signals.*
- *The cellular phone had battery problems due to the low ac line voltage and was corrected by supplying the phone power supply from the standby supply at 115 volts.*
- *The A channel data was provided by a local data stream due to problems obtaining the use of the off air signal when required for cable system testing.*
- *Harry Groffin assisted in the field. Gary Sgrignoli and Rob Densler from Zenith.*

TEST POINT E6

Date: 1994 June 01 Address of Location: Family Baptist Church Road
Cable Location: Trunk Cascade: 29 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 4- Level: -39.3 dBm
   Comments on quality and impairments: slight noise

2. Off-air NTSC Direct: Impairments: 2 Level: -39.0 dBm
   Comments on quality and impairments: hum bars

3. Off-air NTSC HIAB: Impairments: 2 Level: -43.5 dBm
   Comments on quality and impairments: hum bars

4. Local NTSC HIAB Impairments: 3 Level: -44.1 dBm
   Comments on quality and impairments: low frequency beat

5. NTSC Carrier Levels:

Lower Visual:	-37.9 dBm	Lower Aural :	-55.4 dBm	Ratio:	17.5 dB
Test Visual:	-39.4 dBm	Test Aural:	-55.4 dBm	Ratio:	16.0 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	N/A

6. NTSC Carrier Level: -12.5 dBm (after amplifier and filter)
   Highest Inband Spurious: -55.8 dBm @ 302.205 MHz
   CTB Level: -77.3 dBm
   Noise Floor: -75.4 dBm (100 kHz BW)

7. Direct Inband Response: N/A Delay: N/A Total System: 8 dB P-V

8. HIAB Inband Response: N/A Delay: N/A

9. Direct Connection ATV BER (Rx power -43.1 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -24.9 dBm Noise Power: -61.8 dBm S/N: 36.9 dB

   BER With noise added to threshold:
   Ch A: 2.02×10^{-6} 4.31×10^{-7} 2.68×10^{-6}
   Ch B: 9.96×10^{-7} 2.83×10^{-6} 1.85×10^{-6}
   Signal Power: -24.9 dBm Noise Power: -53.5 dBm S/N: 28.6 dB

   Margin S/N_1 - S/N_2: 8.3 dB

10. Signal through House-in-a-Box BER (Rx power -48.4 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -28.8 dBm Noise Power: -65.1 dBm S/N: 36.3 dB

    BER With noise added to threshold:
    Ch A: 3.33×10^{-7} 1.50×10^{-7} 1.10×10^{-7}
    Ch B: 0 0 0
    Signal Power: -28.8 dBm Noise Power: -58.4 dBm S/N: 29.6 dB

    Margin S/N_1 - S/N_2: 6.7 dB

APPENDIX 6

Gastonia

General System Information

Total Subscribers: 14,500	Miles of Plant: 387	Percent Underground: 20
System Bandwidth: 50 - 330 MHz	Frequency Plan: STD	Highest Frequency Used: 342 MHz
Test Channel: 44	Lower Channel: scrambled	Upper Channel: not used

Trunk Amp Mfr.: Magnavox	Operating Carrier Levels: --	
Line Extender Mfr.: Magnavox	Operating Carrier Levels: --	
Trunk Cable: .750"	Cable Manufacturer: Comm/Scope	Age: 1 - 15 years
Distribution Cable: .500"	Cable Manufacturer: Comm/Scope	Age: 1 - 15 years
Cable Tap & Passives Mfr.: assorted		
Channel 53 ATV Rx Level: -50 dBm (~16 dB of Margin)		
Rx Site: 30.5 miles from transmitter site		
Tests Performed by: G. Hovland, CableLabs and G. Sgrignoli - Zenith		
Director: Brian James, CableLabs		

Test Point F1

Date: 1994 June 02 Address of Location: Headend
Cable Location: Headend Trunk Cascade: 1 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 4- Level: -38.2 dBm
   Comments on quality and impairments: noise & low level low frequency beat, moiré

2. Off-air NTSC Direct: Impairments: 3- Level: -38.4 dBm
   Comments on quality and impairments: noise & FM beat

3. Off-air NTSC HIAB: Impairments: 2+ Level: -44.3 dBm
   Comments on quality and impairments: noise & fm & high frequency (beat from HIAB)

4. Local NTSC HIAB: Impairments: 3+ Level: -44.1 dBm
   Comments on quality and impairments: moderate HF beat , moiré & noise, (HIAB beat)

5. NTSC Carrier Levels:

Lower Visual:	-38.2 dBm	Lower Aural :	-53.4 dBm	Ratio:	15.2 dB
Test Visual:	-38.2 dBm	Test Aural:	-52.9 dBm	Ratio:	14.8 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	none

6. NTSC Carrier Level: -9.5 dBm (after amplifier and filter)
   Highest Inband Spurious: -62.0 dBm @ 344.39 MHz
   CTB Level: -83.3 dBm
   Noise Floor: -80.4 dBm (100 kHz BW)

7. Direct Inband Response: 2.5 dB P-V Delay: 20 nsec Total System: 3 dB P-V

8. HIAB Inband Response: xx dB P-V Delay: xx nsec

9. Direct Connection ATV BER (Rx power -44.2 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -24.4 dBm Noise Power: -69.6 dBm S/N: 45.2 dB

   BER With noise added to threshold:
   Ch A: 1.43×10^{-6} 1.18×10^{-6} 5.81×10^{-7}
   Ch B: 1.11×10^{-6} 1.23×10^{-6} 1.41×10^{-6}
   Signal Power: -24.4 dBm Noise Power: -53.2 dBm S/N: 28.8 dB

   Margin S/N_1 - S/N_2: 16.4 dB

10. Signal through House-in-a-Box BER (Rx power -50.8 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -30.6 dBm Noise Power: -70.0 dBm S/N: 39.4 dB

    BER With noise added to threshold:
    Ch A: 8.15×10^{-7} 9.85×10^{-7} 9.83×10^{-7}
    Ch B: 1.29×10^{-6} 1.20×10^{-7} 8.15×10^{-7}
    Signal Power: -30.6 dBm Noise Power: -59.6 dBm S/N: 29.0 dB

    Margin S/N_1 - S/N_2: 10.4 dB

Test Point F2

Date: 1994 June 02 Address of Location: Kings Mountain Road & Drive In Theater
Cable Location: Aerial Trunk Cascade: 22 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 3+ Level: -46.0 dBm
   Comments on quality and impairments: noise

2. Off-air NTSC Direct: Impairments: 3- Level: -46.2 dBm
   Comments on quality and impairments: noise

3. Off-air NTSC HIAB: Impairments: 2+ Level: -52.4 dBm
   Comments on quality and impairments: noise & beats (beat from HIAB)

4. Local NTSC HIAB: Impairments: 3- Level: -52.0 dBm
   Comments on quality and impairments: noise & high frequency beat (beat from HIAB)

5. NTSC Carrier Levels:

Lower Visual:	-44.9 dBm	Lower Aural :	-61.0 dBm	Ratio:	16.1 dB
Test Visual:	-46.0 dBm	Test Aural:	-62.1 dBm	Ratio:	16.1 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	none

6. NTSC Carrier Level: -13.9 dBm (after amplifier and filter)
   Highest Inband Spurious: -54.6 dBm @ 344.310 MHz
   CTB Level: -78.1 dBm
   Noise Floor: -73.6 dBm (100 kHz BW)

7. Direct Inband Response: 1.8 dB P-V Delay: xx nsec Total System: 18 dB P-V

8. HIAB Inband Response: 2.0 dB P-V Delay: xx nsec

9. Direct Connection ATV BER (Rx power -52.0 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -26.2 dBm Noise Power: -60.4 dBm S/N: 34.2 dB

   BER With noise added to threshold:
   Ch A: 0 0 0
   Ch B: 0 3.5×10^{-8} 0
   Signal Power: -26.2 dBm Noise Power: -56.4 dBm S/N: 30.2 dB

   Margin S/N_1 - S/N_2: 4.0 dB

10. Signal through House-in-a-B··· BER (Rx power -58.8 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -31.8 dBm Noise Power: -63.4 dBm S/N: 31.6 dB

    BER With noise added to threshold:
    Ch A: 4.53×10^{-7} 7.00×10^{-7} 2.77×10^{-7}
    Ch B: 9.3×10^{-8} 1.50×10^{-7} 4.50×10^{-8}
    Signal Power: -31.8 dBm Noise Power: -62.0 dBm S/N: 30.2 dB

    Margin S/N_1 - S/N_2: 1.4 dB

Test Point F3

Date: 1994 June 02 Address of Location: 2745 Gail St., Gastonia
Cable Location: Aerial Trunk Cascade: 29 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 3+ Level: -52.0 dBm
   Comments on quality and impairments: noise

2. Off-air NTSC Direct: Impairments: 3- Level: -52.3 dBm
   Comments on quality and impairments: noise & moiré

3. Off-air NTSC HIAB: Impairments: 2- Level: -59.5 dBm
   Comments on quality and impairments: noise & High Frequency beat (beat from HIAB)

4. Local NTSC HIAB: Impairments: 2+ Level: -58.1 dBm
   Comments on quality and impairments: visible high frequency beat (beat from HIAB)

5. NTSC Carrier Levels:

Lower Visual:	-53.0 dBm	Lower Aural :	-69.9 dBm	Ratio:	16.9 dB
Test Visual:	-54.4 dBm	Test Aural:	-71.0 dBm	Ratio:	16.6 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	none

6. NTSC Carrier Level: -21.9 dBm (after amplifier and filter)
   Highest Inband Spurious: -59.7 dBm @ 344.505 MHz
   CTB Level: -81.8 dBm
   Noise Floor: -78.3 dBm (100 kHz BW)

7. Direct Inband Response: 1.5 dB P-V Delay: xx nsec Total System: 15 dB P-V

8. HIAB Inband Response: 2.0 dB P-V Delay: xx nsec

9. Direct Connection ATV BER (Rx power -61.3 dBm):
   Ch A: 1.60×10^{-6} 2.55×10^{-6} 2.78×10^{-6}
   Ch B: 1.26×10^{-6} 1.29×10^{-6} 1.29×10^{-6}
   Signal Power: -29.3 dBm Noise Power: -58.5 dBm S/N: 29.2 dB

   BER With noise added to threshold:
   Not measured as the signal was almost at the receiver threshold (3×10^{-6}) as received; there was virtually no margin.

10. Signal through House-in-a-Box BER (Rx power -66.9 dBm):
    Not measured - below threshold
    Signal Power: -34.8 dBm Noise Power: -56.1 dBm S/N: 21.3 dB

Test Point F4

Date: 1994 June 02 Address of Location: 1601 Plantation Trail
Cable Location: Underground Trunk Cascade: 31 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 3+ Level: -49.0 dBm
   Comments on quality and impairments: noise

2. Off-air NTSC Direct" Impairments: 2+ Level: -48.0 dBm
   Comments on quality and impairments: noise & high frequency beat plus moiré

3. Off-air NTSC HIAB: Impairments: 2- Level: -53.7 dBm
   Comments on quality and impairments: noise & beats (beat from HIAB)

4. Local NTSC HIAB: Impairments: 2 Level: -55.0 dBm
   Comments on quality and impairments: noise & beats (beat from HIAB)

5. NTSC Carrier Levels:

Lower Visual:	-45.8 dBm	Lower Aural :	-62.9 dBm	Ratio:	17.1 dB
Test Visual:	-47.7 dBm	Test Aural:	-67.8 dBm	Ratio:	20.1 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	none

6. NTSC Carrier Level: -14.9 dBm (after amplifier and filter)
   Highest Inband Spurious: -55.8 dBm @ 345.075 MHz
   CTB Level: -76.8 dBm
   Noise Floor: -74.0 dBm (100 kHz BW)

7. Direct Inband Response: 4.4 dB P-V Delay: xx nsec Total System: 8 dB P-V

8. HIAB Inband Response: 4.4 dB P-V Delay: xx nsec

9. Direct Connection ATV BER (Rx power -54.1 dBm):
   Ch A: 0 0 0
   Ch B: 3.09×10^{-7} 0 0
   Signal Power: -32.3 dBm Noise Power: -64.1 dBm S/N: 31.8 dB

   BER With noise added to threshold:
   Ch A: 1.12×10^{-6} 1.18×10^{-6} 1.66×10^{-6}
   Ch B: 6.29×10^{-7} 5.27×10^{-7} 4.79×10^{-7}
   Signal Power: - 32.3 dBm Noise Power: -63.0 dBm S/N: 30.7 dB

   Margin S/N_1 - S/N_2: 1.1 dB

10. Signal through House-in-a-Box BER (Rx power -61.1 dBm):
    Ch A: Below threshold
    Ch B: Below threshold
    Signal Power: -38.4 dBm Noise Power: -64.8 dBm S/N: 26.4 dB

    Note: Signal level was too low for receiver to operate properly.

Test Point F5

Date: 1994 June 03 Address of Location: 3100 Planters Ridge Drive
Cable Location: Underground Trunk Cascade: 43 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 3+ Level: -45.0 dBm
   Comments on quality and impairments: noise

2. Off-air NTSC Direct: Impairments: 2+ Level: -44.8 dBm
   Comments on quality and impairments: noise & moiré

3. Off-air NTSC HIAB: Impairments: 2 Level: -50.0 dBm
   Comments on quality and impairments: noise & moiré (beat from HIAB)

4. Local NTSC HIAB: Impairments: 3 Level: -50.0 dBm
   Comments on quality and impairments: slight noise (beat from HIAB)

5. NTSC Carrier Levels:

Lower Visual:	-43.9 dBm	Lower Aural :	-62.6 dBm	Ratio:	18.7 dB
Test Visual:	-45.0 dBm	Test Aural:	-63.3 dBm	Ratio:	18.3 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	none

6. NTSC Carrier Level: -12.9 dBm (after amplifier and filter)
   Highest Inband Spurious: -56.0 dBm @ 344.505 MHz
   CTB Level: -76.7 dBm
   Noise Floor: -74.4 dBm (100 kHz BW)

7. Direct Inband Response: 4.0 dB P-V Delay: xx nsec Total System: 3 dB P-V

8. HIAB Inband Response: 4.0 dB P-V Delay: xx nsec

9. Direct Connection ATV BER (Rx power -53.5 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -20.9 dBm Noise Power: -56.0 dBm S/N: 35.1 dB

   BER With noise added to threshold:
   Ch A: 1.16×10^{-6} 2.62×10^{-6} 2.76×10^{-6}
   Ch B: 4.61×10^{-7} 2.60×10^{-7} 3.04×10^{-7}
   Signal Power: -20.9 dBm Noise Power: -51.0 dBm S/N: 30.2 dB

   Margin S/N_1 - S/N_2: 5.0 dB

10. Signal through House-in-a-Box BER (Rx power -57.8 dBm):
    Ch A: 1.60×10^{-8} 4.00×10^{-8} 0
    Ch A: 4.08×10^{-8} 0 1.42×10^{-6}
    Signal Power: -25.3 dBm Noise Power: -57.0 dBm S/N: 31.7 dB

    BER With noise added to threshold:
    Ch A: 6.61×10^{-7} 4.55×10^{-7} 1.42×10^{-6}
    Ch B: 1.07×10^{-7} 4.00×10^{-7} 5.70×10^{-7}
    Signal Power: -25.3 dBm Noise Power: -55.6 dBm S/N: 30.3 dB

    Margin S/N_1 - S/N_2: 1.4 dB

Test Point F6

Date: 1994 June 03 Address of Location: Autumn Wood & Peppercorn Court
Cable Location: Underground Trunk Cascade: 38 LE Cascade: 0

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 3+ Level: -47.8 dBm
   Comments on quality and impairments: noise

2. Off-air NTSC Direct: Impairments: 3 Level: -48.1 dBm
   Comments on quality and impairments: noise & slight moiré

3. Off-air NTSC HIAB: Impairments: 3- Level: -52.5 dBm
   Comments on quality and impairments: noise (beat from HIAB)

4. Local NTSC HIAB: Impairments: 3 Level: -52.5 dBm
   Comments on quality and impairments: noise, low level (beat from HIAB)

5. NTSC Carrier Levels:

Lower Visual:	-48.1 dBm	Lower Aural :	-66.6 dBm	Ratio:	18.4 dB
Test Visual:	-48.1 dBm	Test Aural:	-66.8 dBm	Ratio:	18.8 dB
Upper Visual:	none	Upper Aural:	none	Ratio:	none

6. NTSC Carrier Level: -16.1 dBm (after amplifier and filter)
   Highest Inband Spurious: -58.0 dBm @ 344.4 MHz
   CTB Level: -80.1 dBm
   Noise Floor: -76.2 dBm (100 kHz BW)

7. Direct Inband Response: 3.2 dB P-V Delay: xx nsec Total System: 5 dB P-V

8. HIAB Inband Response: 3.0 dB P-V Delay: xx nsec

9. Direct Connection ATV BER (Rx power -55.2 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -22.7 dBm Noise Power: -57.1 dBm S/N: 34.4 dB

   BER With noise added to threshold:
   Ch A: 5.14×10^{-7} 40×10^{-7} 8.3×010^{-8}
   Ch B: 5.30×10^{-8} 0×10^{-8} 3.70×10^{-8}
   Signal Power: -22.7 dBm Noise Power: -53.1 dBm S/N: 30.4 dB

   Margin S/N_1 - S/N_2: 4.0 dB

10. Signal through House-in-a-Box BER (Rx power -59.0 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -26.5 dBm Noise Power: -57.5 dBm S/N: 31.0 dB

    BER With noise added to threshold:

    Ch A: 1.72×10^{-6} 0×10^{-6} 5.91×10^{-7}
    Ch B: 9.61×10^{-7} 1.58×10^{-6} 1.70×10^{-6}
    Signal Power: -26.5 dBm Noise Power: -56.5 dBm S/N: 30.0 dB
    Margin S/N_1 - S/N_2: 1.0 dB

APPENDIX 7

Shelby

General System Information

Total Subscribers: 14,000	Miles of Plant: 72.3	Percent Underground: 20
System Bandwidth: 50 - 350/450 MHz	Frequency Plan: IRC	Highest Freq. Used: 350 MHz
Test Channel: 10	Lower Channel: clear	Upper Channel: clear
Trunk Amp Mfr.: Jerrold	Operating Carrier Levels: 42 flat dBmV.	
Line Extender Mfr.: Jerrold	Operating Carrier Levels: 42/48 dBmV.	
Trunk Cable: .750"	Cable Mfr.: Trilogy	Age: 7 - 8 Years
Distribution Cable: .500"	Cable Mfr.: Trilogy/Comm/Scope	Age: 7 - 8 Years
Cable Tap & Passives Mfr.: Jerrold		
Channel 53 ATV Rx Level: -45 dBm (~14 dB of Margin with 21 dB gain preamplifier)		
Rx Site: 49.0 miles from transmitter site		
Tests Performed by: G. Hovland - CableLabs and G. Sgrignoli - Zenith		
Director: Brian James, CableLabs		

Test Point G1

Date: 1994 June 03 Address of Location: Headend 356 Magness Rd, Shelby

FIELD TEST RESULTS

1. Local NTSC Direct: Impairments: 4 Level: -37.5 dBm
   Comments on quality and impairments:

2. Off-air NTSC Direct: Impairments: 3 Level: -38.0 dBm
   Comments on quality and impairments: noise & moiré

3. Off-air NTSC HIAB: Impairments: 2+ Level: -40.7 dBm
   Comments on quality and impairments: noise & moiré

4. Local NTSC HIAB: Impairments: 3+ Level: -40.2 dBm
   Comments on quality and impairments: noise & Low frequency beat

5. NTSC Carrier Levels:

Lower Visual:	-37.5 dBm	Lower Aural :	-53.8 dBm	Ratio: 16.3 dB
Test Visual:	-37.5 dBm	Test Aural:	-52.8 dBm	Ratio: 15.2 dB
Upper Visual:	-37.5 dBm	Upper Aural:	-54.6 dBm	Ratio: 17.1 dB

6. NTSC Carrier Level: -5.1 dBm (after amplifier and filter)
   Highest Inband Spurious: -66.1 dBm @ 194.910 MHz
   CTB Level: -89.1 dBm
   Noise Floor: -87.5 dBm (100 kHz BW)

7. Direct Inband Response: 2.1 dB P-VDelay: 165 nsec Total System: 3 dB P-V

8. HIAB Inband Response: 2.2 dB P-VDelay: 170 nsec

9. Direct Connection ATV BER (Rx power -43.6 dBm):
   Ch A: 0 0 0
   Ch B: 0 0 0
   Signal Power: -24.6 dBm Noise Power: -69.5 dBm S/N: 44.9 dB

   BER With noise added to threshold:
   Ch A: 4.34×10^{-7} 4.21×10^{-7} 3.01×10^{-7}
   Ch B: 9.85×10^{-7} 1.70×10^{-7} 6.05×10^{-7}
   Signal Power: -24.6 dBm Noise Power: -53.4 dBm S/N: 28.8 dB

   Margin S/N_1 - S/N_2: 16.1 dB

10. Signal through House-in-a-Box BER (Rx power -46.1 dBm):
    Ch A: 0 0 0
    Ch B: 0 0 0
    Signal Power: -27.3 dBm Noise Power: -68.7 dBm S/N: 41.1 dB

    BER With noise added to threshold:
    Ch A: 1.97×10^{-6} 2.21×10^{-6} 1.63×10^{-6}
    Ch B: 1.62×10^{-6} 1.41×10^{-6} 1.92×10^{-6}
    Signal Power: -27.3 dBm Noise Power: -55.9 dBm S/N: 28.6 dB

    Margin S/N_1 - S/N_2: 12.8 dB