Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Durham MASTER HEAD END
Test Point Location: 924 Ellis Rd Durham NC
Date of Test: 1-29-04 Time: 10:00
Tech(s) Performing Test: Celus Forbes

Highest Band Pass: 750 MHz
Test Point Number: 0.2
Temperature: 25°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP8591C	4115A04957	7-28-03
Pre-Amplifier			N/A
Variable Attenuator			
Band Pass Filter 1			N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.
If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.
Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.
Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level or	CTB	CSO	CM	C/N Ratio	% Hum
2	71.8	1.31 MHz				57.0	
5	70.8	1.24 MHz				56.7	
9	71.4	1.24 MHz				58.5	
22	72.0	1.24 MHz				58.3	
26	68.2	0.76 MHz				57.2	
29	78.0	1.29 MHz				55.6	
33	68.5	1.24 MHz				53.3	
38	70.2	1.51 MHz				48.2	
49	60.3	0.85 MHz				48.0	
57	72.3	1.23 MHz				52.6	
75	66.3	1.20 MHz				53.5	
116	74.1	1.16 MHz				52.8	1.39%

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: DURHAM - Channel Plan
Highest Band Pass: 750MHz
Test Point Location: HUB B
Test Point Number: 0.3
Date of Test: 2/10/04 Time: 2:00 PM
Temperature: 70°F
Tech(s) Performing Test: JIM VORNDRAN

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP8591C	4115A04957	7/28/03
Pre-Amplifier	TRILITHIC AM 1000	9703077	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VF-4-XX	9702009	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned	**Coherent Disturbances**						**C/N**	%
Ch.	Freq.	Level	or CTB		CSO	CM	Ratio	Hum
2	1.23	69					54.7	
5	-0.19	66					48.3	
9	1.17	66					56.1	
22	1.59	63					54.0	
26	0.88	69					53.2	
29	1.75	70					54.4	
33	1.26	69					54.7	
38	1.59	66					49.7	
49	0.48	63					48.7	
57	1.50	68					55.7	
75	1.24	70					52.7	
116	0.62	66					53.5	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: DURHAM
Test Point Location: HUBC
Date of Test: 2-23-04 Time: 16:10
Tech(s) Performing Test: BRIAN & WITHERSPOON

Highest Band Pass: 750MHz
Test Point Number: 0.4
Temperature: 70°F

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8591C	3411A04957	7-28-03
Pre-Amplifier	TRILITHIC AM1000	9703077	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VF4	9702009	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.29	71.5				55.0	0.1
6	-.72	75.5				55.1	
22	1.22	78.8				55.5	
9	1.20	80.6				55.0	
26	1.29	75.1				53.0	
29	1.24	80.1				53.7	
33	1.29	80.0				53.0	
38	1.21	69.8				52.3	
49	1.23	81.7				53.6	
57	1.29	72.7				53.3	
75	1.29	73.1				53.5	
116	1.29	70.6				51.5	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: DURHAM
Test Point Location: HUB D
Date of Test: 2-24-04 Time: 11:20
Tech(s) Performing Test: BRIAN K WITHERSPOON

Highest Band Pass: 750 MHz
Test Point Number: 0.5
Temperature: 65°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer			
Pre-Amplifier			N/A
Variable Attenuator			
Band Pass Filter 1			N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.24	72.9				54.9	0.3
6	-.78	72.7				55.4	
22	1.23	73.9				55.6	
9	1.29	75.1				57.8	
26	1.24	80.8				54.7	
29	1.27	81.1				55.2	
33	1.29	72.7				54.2	
38	1.21	70.8				54.4	
44	1.23	70.1				52.4	
57	1.26	76.1				55.4	
75	1.29	78.0				56.6	
116	1.29	73.4				55.1	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: CHAPEL HILL Channel Plan — Highest Band Pass: 750MHz
Test Point Location: HUB E — Test Point Number: D.6
Date of Test: 2-23-04 Time: 11:55AM — Temperature: 73°F
Tech(s) Performing Test: BRIAN K WITHERSPOON

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8591C	4115A04957	7-28-03
Pre-Amplifier	TRILITHIC AM1000	9703077	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VF-4	9702009	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.27	79.8				52.6	0.7
6	-.72	76.5				53.0	
22	1.29	77.6				56.9	
9	1.29	74.2				57.2	
26	1.30	77.2				52.7	
29	1.29	74.0				51.9	
33	1.24	73.4				52.3	
38	1.21	71.9				50	
42	1.29	73.1				52.7	
57	1.29	70.2				52.6	
75	1.23	75.8				52.9	
116	1.28	65.4				50.3	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: CARRBORO
Test Point Location: HUBY
Date of Test: 2-23-04 Time: 1415
Tech(s) Performing Test: BRIAN K WITHERSPOON

Highest Band Pass: 750MHz
Test Point Number: 7
Temperature: 65°F

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8591C	4115A04957	7-28-03
Pre-Amplifier	TRILITHIC AM 1000	9703077	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VF-4	9702009	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned	**Coherent Disturbances**						**C/N**	**%**
Ch.	Freq.	Level	or CTB	CSO	CM		Ratio	Hum
2	1.28	79.4					58.2	0.5
6	-.74	65.0					50.9	
22	1.22	77.7					59.5	
9	1.29	74.0					57.1	
26	1.26	82.2					54.7	
29	1.3	72.5					51.0	
33	1.3	71.2					51.7	
38	1.24	75.3					53.3	
49	1.23	68.8					50.3	
57	1.23	74.2					54.1	
75	1.27	73.2					52.3	
116	1.29	75.3					55.6	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: HENDERSON/LOUISBURG
Test Point Location: HUB VV
Date of Test: 2/5/04 Time: 8:00 AM
Tech(s) Performing Test: JIM VORNDRAN

Highest Band Pass: 750MHz
Test Point Number: 0.8
Temperature: 70°F

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP8591C	3543A01171	7/08/03
Pre-Amplifier	TRILITHIC AM 100	9703077	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VF-4-XX	9702009	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned	**Coherent Disturbances**						**C/N**	%
Ch.	Freq.	Level	or CTB	CSO	CM		Ratio	Hum
2	0.90	64					50.7	
4	1.35	65					49.8	
16	1.51	65					50.6	
8	1.37	68					52.5	
26	1.75	66					50.1	
29	1.06	69					51.1	
33	1.21	69					52.5	
38	1.30	65					51.2	
52	0.55	66					50.6	
57	1.10	67					52.1	
75	1.21	66					51.1	
116	1.37	66					51.8	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: HENDERSON / WARRENTON
Highest Band Pass: 750MHz
Test Point Location: HUB WW
Test Point Number: 0.9
Date of Test: 2/5/04 Time: 9:30 AM
Temperature: 70°F
Tech(s) Performing Test: JIM VORNDRAN

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP8591C	3543A01171	7/28/03
Pre-Amplifier	TRILITHIC AM 1000	9703077	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VF-4-XX	9702009	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned	**Coherent Disturbances**						**C/N**	**%**
Ch.	Freq.	Level	or CTB		CSO	CM	Ratio	Hum
2	0.87	61					51.6	
4	0.91	62					51.0	
16	1.51	64					52.0	
8	0.87	59					52.6	
26	1.41	68					52.4	
29	0.87	67					52.2	
33	1.24	69					52.6	
38	1.30	67					50.3	
52	0.54	60					50.9	
57	1.68	66					51.9	
75	0.61	69					50.3	
116	1.25	68					52.7	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: HENDERSON / OXFORD
Highest Band Pass: 750MHz
Test Point Location: HUB XX
Test Point Number: D.10
Date of Test: 2/4/04 Time: 4:30 PM
Temperature: 70°F
Tech(s) Performing Test: JIM VORNDRAN

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP8591C	3543A01171	7/28/03
Pre-Amplifier	TRILITHIC AM1000	9703077	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VF-4-XX	9702009	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned	**Coherent Disturbances**						**C/N**	%
Ch.	Freq.	Level	or	CTB	CSO	CM	Ratio	Hum
2	0.89	67					51.0	
4	1.02	67					51.3	
16	1.51	67					51.8	
8	1.49	68					52.9	
26	1.44	64					51.3	
29	1.00	69					52.7	
33	1.26	69					54.0	
38	1.08	67					50.4	
52	0.84	61					50.4	
57	1.26	68					53.6	
75	1.32	65					53.3	
116	1.28	68					51.8	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: HENDERSON
Test Point Location: HUB 22
Date of Test: 2/4/04 Time: 3:30 PM
Tech(s) Performing Test: JIM VORNDRAN

Highest Band Pass: 750MHz
Test Point Number: 0.11
Temperature: 70°F

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP8591C	3543A01171	7/29/03
Pre-Amplifier	TRILITHIC AM 1000	9703077	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VF-4-XX	9702009	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned	**Coherent Disturbances**						C/N	%
Ch.	Freq.	Level	or CTB		CSO	CM	Ratio	Hum
2	1.00	70					55.0	0.5
4	0.89	69					54.2	
16	1.50	67					53.0	
8	0.90	66					53.0	
26	0.85	66					53.0	
29	1.35	73					52.8	
33	1.30	70					53.4	
38	0.90	68					52.1	
52	0.84	62					51.4	
57	1.20	71					53.5	
75	1.18	68					54.5	
116	1.04	67					52.5	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: WARRENTON
Test Point Location: S. MAIN ST
Date of Test: 2-11-04 Time: 11:40
Tech(s) Performing Test: BOBBY DEBNAM

Highest Band Pass: 750
Test Point Number: 1
Temperature: 48°F

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP8591C	3829A02949	2-28-03
Pre-Amplifier	TRILITHIC AM1000	200318012	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VF5	95090081	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	123	65				46.9	0.8
10	127	66				48.4	
9	126	68				48.2	
25	120	67				47.6	
28	127	62				48.8	
33	121	69				49.1	
38	129	64				48.9	
49	126	63				49.1	
57	126	62				49.3	
68	129	63				48.9	
75	127	60				47.6	
116	122	57				46.7	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: HENDERSON
Test Point Location: HIBERNIA RD
Date of Test: 2-10-04 Time: 2:15
Tech(s) Performing Test: BOBBY Dobson

Highest Band Pass: 250
Test Point Number: 2
Temperature: 55°F

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP85 91C	3829A02949	7-28-03
Pre-Amplifier	TRILITHIC AM 1000	2003180/2	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VFS	9509081	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned	**Coherent Disturbances**						**C/N**	**%**
Ch.	Freq.	Level	or CTB		CSO	CM	Ratio	Hum
2	1.28	62					47.6	0.8
10	1.29	62					46.9	
9	1.25	61					47.4	
25	1.19	63					48.1	
28	1.20	62					48.0	
33	1.28	63					47.7	
38	1.19	62					48.9	
49	1.28	63					47.6	
57	1.27	61					48.2	
68	1.29	63					47.1	
75	1.28	64					48.3	
116	1.29	63					46.8	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Louisburg B
Test Point Location: 419 Hwy 561
Date of Test: 2-11-04 Time: 1:15
Tech(s) Performing Test: Bobby Debnam

Highest Band Pass: 750
Test Point Number: 3
Temperature: 50°F

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP 85 91C	3829A02949	7-28-03
Pre-Amplifier	TRILITHIC AM 1000	200318012	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VFS	9509081	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.25	64				46.6	1.0
10	1.25	63				46.9	
9	1.26	65				47.8	
25	1.30	61				48.2	
28	1.24	67				48.9	
33	1.21	65				48.2	
38	1.29	59				47.9	
49	1.30	60				48.8	
57	1.29	58				49.4	
68	1.21	62				48.3	
75	1.29	60				48.7	
116	1.29	61				47.5	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: HENDERSON
Test Point Location: 77 CLARK LN
Date of Test: 2-10-04 Time: 11:05 AM
Tech(s) Performing Test: BOBBY DEBNAM

Highest Band Pass: 750
Test Point Number: 4
Temperature: 50 °F

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP8591C	3829A02949	7-28-03
Pre-Amplifier	TAILITHIC AM 16000	20031801 2	N/A
Variable Attenuator			
Band Pass Filter 1	TAILITHIC VFS	95090881	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.20	54.4				46.8	1.2
10	1.24	62.7				48.6	
9	1.27	68.0				49.1	
25	1.20	64.1				47.2	
28	1.26	68.1				47.3	
33	1.28	71.0				49.2	
38	1.28	69.2				48.1	
49	1.25	69.5				48.0	
57	1.24	68.5				48.7	
68	1.20	69.5				47.4	
95	1.15	70.1				48.6	
116	1.26	67.8				47.8	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: HENDERSON / OXFORD
Test Point Location: PUCKETT ST
Date of Test: 2-10-04 Time: 3:20 PM
Tech(s) Performing Test: BOBBY DEBNAM

Highest Band Pass: 750
Test Point Number: 5
Temperature: 55°F

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	HP8591C	3829A02949	7-28-03
Pre-Amplifier	TRILITHIC AM1000	20031801C	N/A
Variable Attenuator			
Band Pass Filter 1	TRILITHIC VFS	95090811	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.23	66				46.8	0.9
10	1.27	67				47.9	
9	1.30	67				48.2	
25	1.28	68				48.7	
28	1.25	66				49.1	
33	1.25	66				49.0	
38	1.20	65				48.5	
49	1.19	65				49.4	
57	1.21	64				49.1	
68	1.29	63				47.0	
25	1.29	62				49.6	
116	1.29	61				42.2	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Chapel Hill
Test Point Location: Saw Mill
Date of Test: 2-5-04 Time: 9:30
Tech(s) Performing Test: M Finch

Highest Band Pass: 750MHz
Test Point Number: 6
Temperature: 40°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8594C	3513A00749	12-19-03
Pre-Amplifier	Ulentronics	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.25	59				46	
5	1.25	62				48	
9	1.25	67				48	
22	1.25	64				46	
26	1.25	64				46	
29	1.25	60				47	
33	-1.25	63				46	
38	-1.25	60				47	
53	-1.25	66				46	
57	-1.25	64				47	
75	1.25	64				49	
116	-1.25	66				50	.3

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Chapel Hill
Test Point Location: Hoover
Date of Test: 2-5-04 Time: 3:30
Tech(s) Performing Test: M Finch

Highest Band Pass: 750MHz
Test Point Number: 1
Temperature: 47°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 859K	3513A00749	12-19-03
Pre-Amplifier	VIEWSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.25	62				46	
5	1.25	60				47	
9	1.25	65				48	
22	1.25	61				46	
26	1.25	65				47	
29	1.25	60				47	
33	1.25	63				46	
38	1.25	66				46	
53	1.25	65				47	
57	1.25	67				46	
75	1.25	64				48	
116	1.25	62				50	.3

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Durham
Test Point Location: Lavender
Date of Test: 2-6-04 Time: 9:05
Tech(s) Performing Test: M Finch

Highest Band Pass: 750 MHz
Test Point Number: 8
Temperature: 43°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8591C	3513H00749	12-15-03
Pre-Amplifier	VIEWSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Toshiba VF-4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	+1.25	70				48	
5	-1.25	63				47	
9	1.25	69				47	
22	-1.25	67				49	
26	1.25	67				48	
29	1.25	69				49	
33	-1.25	65				49	
38	1.25	66				48	
53	1.25	71				48	
57	1.25	68				49	
75	1.25	65				49	
116	-1.25	69				48	.4

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Dunbar
Test Point Location: CAMERON DR
Date of Test: 2-3-04 Time: 8:00 AM
Tech(s) Performing Test: M Finch
J Schmitt

Highest Band Pass: 750 MHz
Test Point Number: 9
Temperature: 38°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8591C	3513H00749	12-18-03
Pre-Amplifier	VIEWSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF-4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.25	63				48	
5	1.25	65				48	
9	1.25	64				46	
22	1.25	69				46	
26	1.25	69				47	
29	1.25	66				47	
33	1.25	64				47	
38	1.25	61				46	
53	1.25	59				46	
57	1.25	68				46	
75	1.25	68				46	
116	1.25	67				46	1.2

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Durham
Test Point Location: Dixon Rd.
Date of Test: 2-2-04 Time: 2:20
Tech(s) Performing Test: Mike Finch
John Schmitt

Highest Band Pass: 750 MHz
Test Point Number: 10
Temperature: 38°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8591C	3513A00749	12-18-03
Pre-Amplifier	VIEWSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF-4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	-1.25	63				48	
5	1.25	61				48	
9	1.25	60				47	
22	-1.25	62				47	
26	1.25	63				48	
29	1.25	66				47	
33	1.25	66				48	
38	1.25	65				47	
53	1.25	64				47	
57	1.25	63				48	
75	1.25	68				48	
116	1.25	68				48	-2

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Durham
Test Point Location: 7 ARBOR FIELD
Date of Test: 2-2-04 Time: 9:00
Tech(s) Performing Test: M. Finch
J. Schmitt

Highest Band Pass: 750 MHz
Test Point Number: 11
Temperature: 40°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8591C	3513A00749	12-18-03
Pre-Amplifier	VIEWSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF-4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	-1.25	65				48	
5	1.25	68				48	
9	1.25	68				47	
22	-1.25	65				48	
26	1.25	67				49	
29	1.25	66				50	
33	1.25	68				48	
38	1.25	64				48	
53	-1.25	67				49	
57	1.25	65				47	
75	1.25	67				48	
116	1.25	66				48	.1

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Durham
Test Point Location: MASSEY CHAPEL
Date of Test: 2-2-04 Time: 11:10
Tech(s) Performing Test: M. Funk
J Schacht

Highest Band Pass: 750 MHz
Test Point Number: 12
Temperature: 39°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8591C	3523A00749	12-1803
Pre-Amplifier	VIEWSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF-4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.25	64				47	
5	1.25	63				47	
9	1.25	60				48	
22	1.25	65				47	
26	1.25	66				48	
29	1.25	66				47	
33	1.25	65				47	
38	1.25	65				47	
53	1.25	66				48	
57	1.25	63				48	
75	1.25	60				47	
116	1.25	67				47	.3

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Chapel Hill
Test Point Location: Ashford
Date of Test: 2-6-04 Time: 12:00
Tech(s) Performing Test: M Finch

Highest Band Pass: 750MHz
Test Point Number: 13
Temperature: 44°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8594C	3513A00749	12-19-03
Pre-Amplifier	VIEWSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.25	68				47	
5	1.25	64				48	
9	-1.25	63				46	
22	1.25	64				47	
26	1.25	62				46	
29	-1.25	64				46	
33	1.25	68				47	
38	1.25	63				46	
53	1.25	65				47	
57	-1.25	64				47	
75	1.25	65				49	
116	1.25	67				49	.5

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Durham
Test Point Location: Sprucepine
Date of Test: 2-3-04 Time: 3:00
Tech(s) Performing Test: M Finch

Highest Band Pass: 750 MHz
Test Point Number: 14
Temperature: 43°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8591C	3513H00749	12-15-03
Pre-Amplifier	VIEWSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF-4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.25	63				47	
5	1.25	62				46	
9	1.25	65				47	
22	-1.25	62				47	
26	1.25	63				46	
29	-1.25	62				47	
33	1.25	60				48	
38	1.25	60				48	
53	1.25	61				46	
57	1.25	59				48	
75	1.25	65				47	
116	1.25	59				46	.1

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test

System Name: Chapel Hill
Test Point Location: Newhope
Date of Test: 2-5-04 Time: 12:00
Tech(s) Performing Test: M Fuil

Highest Band Pass: 750MHz
Test Point Number: 15
Temperature: 45°

Equipment Used	Make/Model	Serial Number	Last Calibration Date
Spectrum Analyzer	AGILENT 8594C	3513A00749	12-19-03
Pre-Amplifier	VIEWSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF-4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

Test Setup used: The 30 meeter (98.45 foot) cable drop from the test point is feed into a spectrum analyzer through a pre-amplifier, variable attenuator, and band pass filter as required. Coherent Disturbances are measured by first noting the channel carrier level and then removing the channel from the system. The levels of the highest carrier (or groups of carriers) in the channel's pass band and their frequencies are then measured, relative to the peek level and frequency of the removed carrier. The level of the noise floor is also measured as referenced to the removed carrier. An un-modulated carrier is to be used to measure the % of Hum odulation.

If automated test equipment is used to test Coherent Disturbances and Carrier-to-Noise; Composite Triple Beat (CTB), Composite Second Order (CSO), and Cross Modulation (CM) are to be measured and the results recorded individually along with Carrier-to-Noise (C/N). All automated measurements should be performed in accordance with the manufacture's specifications. Because some automated test measurements may be affected positively or negatively by factors not related to the test being performed, manual measurements should be made on a minimum of two channels for comparison with the automated measurements. If there is more then a 5 Percent difference between the automated and manual measurements, manual measurements should be performed on each channel.

Number of Measurements: The measurements are to be made at the Headend and each field test point on widely spaced channels with the number of test channels being a minimum of 4 channels plus one channel for each 100 MHz or fraction thereof of cable distribution system uper bandwidth. (See Specifications page viii) The highest and lowest channels must be tested for Carrier-to-Noise measurements. Hum modulation need only be tested on one carrier.

Minimum Specifications: All Coherent Disturbance measurements must be 52 dB or better, 48 dB or better for coherent systems (HRC and IRC systems). All Carrier-to-Noise measurements must be 46 dB or better (44 dB or better in non-upgraded plant). The Hum measurement must be better then 3 percent.

Assigned Ch.	Coherent Disturbances Freq.	Level	or CTB	CSO	CM	C/N Ratio	% Hum
2	1.25	62				46	
5	1.25	67				47	
9	1.25	68				47	
22	1.25	64				47	
26	1.25	64				47	
29	1.25	68				46	
33	1.25	65				47	
38	1.25	68				46	
53	1.25	68				47	
57	1.25	67				48	
75	1.25	71				46	
116	1.25	66				47	.2