Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test System Name: Durham Master HEAD END Highest Band Pass: 750 MHz Test Point Location: 924 Test Point Number: (1), 2 Date of Test: 1-29-04 Time: Temperature: 350 Tech(s) Performing Test: Celus FORKES Last Equipment Used Calibration Date Spectrum Analyzer 7-28-03 Pre-Amplifier Variable Attenuator Band Pass Filter 1 N/A Band Pass Filter 2 Field Strength Meter Channel Selector 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.

Cone	rent Dis	turba	uces			C/N	%
Freq.	Level	or	CTB	CSO	CM		Hum
71,8	1,31 M	11/2					1144111
70.8	1,241					21,0	
71.4	1.241	u 4_				Sail	
72.0		1112	·			<u> </u>	
100	11 (7)	ハける	·			<u>58,</u> 3	
100 is	U1/6/	11/2				5712	
	1/1/	1172. 				55,6	
				***		53,3	··
2017					-	487	
6013	0.85	MHZ				LIBO	
72.3	1,231	W/4>					
66.3	1.20h	111				2816	
741						<u>33.5</u>	
· tal	771071)- · · ·			34.0	1,3%
	Freq. 71,8 70.8 71,4 72,0 68,2 78,0 60,5	Freq. Level 71,8 1,31 M 70.8 1,24 M 71,4 1,24 M 72,0 1,29 M 98,2 0,76 M 98,2 0,76 M 98,0 1,29 M 90,5 1,24 M 90,5 1,24 M 90,3 0,85 M 90,3 1,23 M 90,3 1,23 M	Freq. Level or 71.8 1.31 MHz. 70.8 1.24 MHz. 72.0 1.74 MHz. 1.24 MHz. 1.24 MHz. 1.25 MHz. 1.25 MHz. 1.24 MHz. 1.24 MHz. 1.24 MHz. 1.25 MHz. 1.25 MHz. 1.25 MHz. 1.20 MHz. 1.10 MHz. 1.10 MHz.	71.8 1.31MHz 70.8 1.24MHz 71.4 1.24MHz 72.0 1.74MHz 68.2 0.76MHz 78.0 1.29 MHz 60.5 1.24MHz 20.4 1.51MHz 60.3 0.85 MHz 72.3 1.23MHz 66.3 1.20MHz	Freq. Level or CTB CSO 71.8 1.31 MHz 70.8 1.24 MHz 71.4 1.24 MHz 72.0 1.74 MHz 68.2 0.76 MHz 78.0 1.29 MHz 60.3 0.85 MHz 72.3 1.23 MHz 66.3 1.20 MHz	Freq. Level or CTB CSO CM 71.8 1.31 M/tz 70.8 1.24 M/tz 71.4 1.24 M/tz 72.0 1.74 M/tz 68.2 0.76 M/tz 78.0 1.29 M/tz 60.5 1.24 M/tz 60.3 0.85 M/tz 72.3 1.23 M/tz 66.3 1.20 M/tz 74.1 1.16 M/tz	Freq. Level or CTB CSO CM Ratio 71.8 1.31 M/tz 57.0 70.8 1.24 M/tz 56.1 71.4 1.24 M/tz 58.3 72.0 1.74 M/tz 58.3 68.2 0.76 M/tz 58.3 68.2 0.76 M/tz 58.3 68.3 0.78 M/tz 58.3 70.4 1.51 M/tz 58.3 70.4 1.51 M/tz 58.3 70.4 1.51 M/tz 58.3 70.4 1.51 M/tz 58.6 60.3 0.85 M/tz 48.0 72.3 1.23 M/tz 58.6 66.3 1.20 M/tz 58.6 74.1 1.16 M/tz 58.8

System Name: DURHAM - Chanel Plan	Highest Band Pass: 750MHz
Test Point Location: HUB B	Test Point Number: 6.3
Date of Test: 2/10/04 Time: 2:00 P.	M Temperature: 70°F
Tech(s) Performing Test: JIM VORNDRAN	

			Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	4P8591 C	4115A04957	7/28/03
Pre-Amplifier	TRILITHIC AM 1000	9703077	<u>N/A</u>
Variable Attenuator			
Band Pass Filter 1	TRILITHIC UF-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.

Assigned	Coherent Disturbances					C/N	%	
Ch.	Freq.	Level	or	СТВ	CSO	CM	Ratio	Hum ,
2	1,23	69					54.7	
<u>5</u>	-0.19	66					48.3	
2 5 9 22 26	<u>1.17</u>	66					56.1	
22	1.59	<u>63</u>					<u>54.0</u>	
	0.88	69					53.a	
39 33 38 49 57 75	1.75	70					<u>54.4</u>	
35	1.26	69					<u>54.7</u>	
<u>56</u> .i9	1.59	66e					<u>49.7</u>	
41	0.48	63					48.7	
<u> </u>		68					<u>55.1</u>	
<u>75</u> 116		70					52.7	
110	0.62	6le		Page 2 -			<u>53.5</u>	

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test System Name: DURHAM Highest Band Pass: 750 MHZ Test Point Location: HUBC Test Point Number: 19:4 Date of Test: 2 23. 04 Time: /(___(O Temperature: 70°F Tech(s) Performing Test: BRIAN & WITHERSPOON Last Equipment Used Make/Model Calibration Date Spectrum Analyzer AGILEUT 85916 フンとのろ Pre-Amplifier N/A Variable Attenuator Band Pass Filter 1 TRILITHIK VF4 Band Pass Filter 2 Field Strength Meter

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	Cohe	rent Dist	warb.	ikui musi (oe netter t	nen 3 per		
			urba				C/N	%
Ch.	Freq.	Level	or	CTB	CSO	CM	Ratio	Hum
2 /	1.29	71.5					55.0 55.1 55.0	01
22	- <u>.72</u>	13.5 78.8					<u>55.1</u>	
9	1,20	y 0.6					<u> </u>	
30	1.29	75.1					53.0	
20 20 20 20 20 20 20 20 20 20 20 20 20 2	1 29	80.1 80.0				-	53.7	
38	121	9.8					<u> </u>	
49	1,23	81.7					52.3 53.6	
57	1,29	72.7					53.3	
116	1.29	73.1					<u>53.5</u>	
110	9,01	706	I	Page 2			<u> 51.5</u>	

Channel Selector

Section	2 - Carrie	er-To-Noise,	Coheren	t Disturba	nce & Hun	ı Test
System Name:	DURHA-	Ae,		F	lighest Rand I	Pass: 750 MHZ
Test Point Location	on: HUR	n		т	est Point Nun	nher: Ok 6
Date of Test:2-:	2494	Time:	11:20	Т	emperature:	
Tech(s) Performin	g Test: [2	RIAN K. IN	Thres Co		curbergriffe.	*
• •			11003P	<u>acc</u>	Τ	
<u>Equipment</u>	Used	Make/Model	Comi	al Number	Last	.
Spectrum A		THE TOTAL	Seli	ai ivuiliber	Calibration	<u>Date</u>
Pre-Ampli	•					
Variable A					<u>N/A</u>	
Band Pass	-					
Band Pass					<u>N/A</u>	
	_				<u>N/A</u>	
Field Stren						
Channel Se	elector _				<u>N/A</u>	
Test Setup used: The					_	
groups of carriers) in the frequency of the remove An un-modulated carrier. If automated test equipmed (CTB), Composite Secondividually along with with the manufacture's integratively by factors not two channels for compatine automated and manufacture of Measurement spaced channels with the MHz or fraction thereof lowest channels must be carrier. Minimum Specifications coherent systems (HRC about the property of the property	er is to be used ment is used to ond Order (CS) Carrier-to-Noispecifications. It related to the rison with the hall measurements: The measurements: The measurement of cable districted for Carrier All Coherent and IRC system lant). The Hunder of the state of the system and IRC system lant.	to measure the % test Coherent Dis O), and Cross Mood See (C/N). All auto Because some automated measurements, manual measurements are to be st channels being a bution system uper tier-to-Noise measurements). All Carrier-tom measurement measureme	of Hum odulaturbances and dulation (CM) omated measu tomated test rened, manual mements. If the rements should made at the Haminimum of rements. Haminimum of rements. Haminimum of rements. Haminimum of rements and width.	measured as relation. I Carrier-to-Noi) are to be measurements should measurements in measurements sleere is more then Id be performed leadend and each 4 channels plus (See Specificate minimum modulation)	se; Composite Toured and the rest be performed in may be affected phould be made on a 5 Percent difficient on each channel for ions page viii) Toneed only be test better, 48 dB or better	riple Beat ults recorded accordance ositively or a a minimum of crence between l. on widely each 100 The highest and ded on one
Assigned	Coherent	Disturbances		- F	C/N	%
Ch.	Freq. Lev		CSO	CM	Ratio	Hum
2	1.24 72	<u> </u>			54.9	0.3
ط	- <u>.78</u> 7 <u>2</u> .	<u></u>		-	55.4	<u> </u>
<u>22</u>	1.23 73	9			55 /	
<u>9</u>	129 75	1			578	
2 62 9 33 33 34 33 34	1.24 80.	· <u>8</u>			<u> </u>	
29	1.27 01	7			31.1	
33	1,24 95	-			23.3	
28	1,21 70.	7			57.2	
नप्	1/23 70	<u> </u>			57.4	

Page 2 -

System Name: CHAPEL	HILL Chamil Plan	Highest Band Pass: 750 MM
Test Point Location: HUB		Test Point Number: 0.6
Date of Test: 23-04	Time: //:5524	Temperature: 73%
Tech(s) Performing Test: Be	in to Wine Biffing	*

			Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	AGILENT 8591C	4115A04957	7-28:03
Pre-Amplifier	TICILITHIC AMIDOD	9703077	<u>N/A</u>
Variable Attenuator			
Band Pass Filter 1	TRILITHIC YF-4	9702009	N/A
Band Pass Filter 2			<u>N/A</u>
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.

, , , , ,			oo oomor u	non a bou	JOIL.	
Assigned	Coherent Dis	turbances			C/N	%
Ch.	Freq. Level	or CTB	CSO	CM	Ratio	Hum
2	1.27 79.8					0.1
6 23 9 26 39 33 38 57 75 75 116	72 76,5				52.6 53.0 55.9 57.2 51.9 52.3 50 52.1 52.9	
4	1.39 77.6 1.39 74.2 1.30 77.2				<u>56.9</u>	
2 6	1.30 74.2				57.2	
39	1,29 74.0				74.1	
33	1,24 74.0	-			5) ?	
38	Lal 719				50	
a ge:	Lal 719 Lal 73.1				52.7	
52	1.29 70.2 1.23 75.8	************			52.6	
$\frac{75}{116}$						
110	1.28 65.4	De co. 2			<u>50.3</u>	
		Page 2 -				

System Name: <u>APRI</u> Test Point Location: <u>HUI</u> Date of Test: 2-23-04		T	lighest Band Pass: 750/142 est Point Number: 7 emperature: 65°5
Tech(s) Performing Test:	BRIANK WITHER	Soon	
			Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	AGILENT 85916	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.

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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.

						P		
Assigned	Coher	rent Dist	turba	ances			C/N	%
Ch.	Freq.	Level	or	CTB	CSO	CM	Ratio	Hum
2	1.28	79.4						0.5
لج	- <u>.74</u>	(5.0					58.2 5 <u>8.9</u> 59.5	
<u> </u>	1.22	77.7						
51	1.29 1.26	7 <u>4.0</u> 82.2					<u>57.1</u>	
29		72.5					54.7	
33	//3	71,2					<u>51.0</u>	
33 38	1,24	75 3					523	•
49	123	68.8					<u>50.3</u>	
<u>57</u>	1,23	74.2					<u>58.1</u>	
49 57 75 116		73.2					52.2	
116	1,29	<u>75.3</u>					<u>52.7</u> 55.4	
			I	Page 2 -				

, , , , , , , , , , , , , , , , , , , ,	Total Summer Co Regular 1 Cot
System Name: HENDERSUN/LOUISBURG	Highest Band Pass: 750mH-
Test Point Location: HUB VV	Test Point Number: $\Phi.8$
Date of Test: 2/5/04 Time: 9:00 AM	Temperature: 70°F
Tech(s) Performing Test: JIM VORNDRAN	

			Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	HP3591C	3543A01171	7/28/03
Pre-Amplifier	TRILITAIC AM ICO	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.

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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

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.

					oo botter t	nen 5 ber	cent.	
Assigned	Coher	ent Dis	turba	ances			C/N	%
Ch.	Freq.	Level	OT	CTB	CSO	CM	Ratio	Hum
2	0.90	64					50.7	
<u>니</u>	<u>1.35</u>	65					49.8	
<u>16</u>	<u>1.51 </u>	65					49.8 50.6 52.5 50.1	
8 26 29	/.37	<i>LB</i> _				-	52.5	
26	1.75	66					50.1	
29	1.06	69					<u>5/.1</u>	
33 38 52 57 75	<u>/.21</u>	69					<u>52.5</u>	
58	1.30	105					<u>51.2</u>	
<u> </u>	0.55	66					<u>50.6</u>	
3/	1.10	67				***	<u>52.1</u>	
<u>/9</u>	1.21	66					51.1	
116	1.37	bu					51.8	
				Page 2 -				

carrier.

System Name: HENDER Sor		Highest Band Pass: 750MH		
Test Point Location: HUB		Test Point Number: 7.9		
Date of Test: 2/5/04	AM	Temperature: 70°F		
Tech(s) Performing Test:	IM VORNDRAN		•	
			Last	
Equipment Used	Make/Model	Serial Number	Calibration Date	
Spectrum Analyzer	HP8591C	3543 A01171	7/28/03	
Pre-Amplifier	TRILITHIC AM 1000	9703077	N/A	
Variable Attenuator				
Band Pass Filter 1	TRILITHIC YF.4. XX	9702009	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.

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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	Cohe	rent Dist	urb	ances			C	/N	%
Ch.	Freq.	Level	or	CTB	CSO	CM	Ra	atio	Hum
2	0.87	61					<u>5</u>	16	
4	0.91	62					5	<u> 1.0</u>	
16 8 29 33 38 53 57 75	<u>1.51 </u>	64					5	2.0	
8	0.97	59						<u>2.6</u>	
26	1.41	68						<u> 2.4</u>	
<u> 29</u>	0.87	67						2.2	
<u>33</u>	1.24	69					5	2.6	
<u> 58</u>	1.30	67					<u>5</u>	0.3 0.9	
<u>5d</u>	054	60					<u>5</u>	<u>D.4</u>	
<u>57</u>	1.68	66					5	<u>1.9</u>	
	0.61	69						0.3	
116	1.25	68		n —			<u>53</u>	<u>7</u>	
				Page 2 -					

Band Pass Filter 2 Field Strength Meter Channel Selector

	· · · · · · · · · · · · · · · · · · ·	The second of the second
System Name: MENDERSON/	6XFORD	Highest Band Pass: 750MH2
Test Point Location: HUB XX		Test Point Number: 10
Date of Test: 3/4/04	Time: 4:30 pm	Temperature: 70°F
Tech(s) Performing Test: JIM	VORNDRAN	-

			Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	HP8591C	3543A01171	7/28/03
Pre-Amplifier	TRILLTHIC AM 1000	9702017	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.

Assigned	Coher	ent Dist	turba	ances			C/N	%
Ch.	Freq.	Level	or	CTB	CSO	CM	Ratio	Hum
2 4	0.89	67					51.0	
<u>4</u>	1.02	67					51.3	
<u>16</u>	151	67					51.8	
8	1.49	68					52.9	
26	1.44	64					51.3	
36 39 33 38 52	1.00	69					52.7	
<u>33</u>	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	105					53.3	
116	1.28	68					<u>51.8</u>	
	1	<u>** '</u>		Page 2 -			21.8	

System Name: HENDERSON	•	Highest Band Pass: 750MH2	
Test Point Location: HUB 22	Test Point Number: (0, //		
Date of Test: 2/4/04	Time: 3:30 PM	Temperature: 70°F	
Tech(s) Performing Test: JIM	VORNDRAN	10 F	
		T4	

			Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	HP8591C	3543A01171	7129/03
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			
			14/11

<u>Test Setup used</u>: 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.

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Assigned	Cohe	rent Dist	urbances		-	C/N	%
Ch.	Freq.	Level	or CTB	CSO	CM	Ratio	Hum
2	1.00	70				55.0	0.5
<u>4</u>	0.89	69				54.2	
16 26 29 33 38 52 57 75	1.50	<u>67</u>				<u>53.0</u>	
34	0.90	66				<u>53.0</u>	
<u> 20</u>	0.85	66		-		<u>53.0</u>	
22	<u>/.35</u> /.30	73		-		<u>52.8</u>	
38	0.90	70 68		-		<u>53.4</u>	
52	084	62		-		<u>52.1</u>	
57	1.20	71	**************************************			<u>51.4</u> 52.5	
<u>75</u>	1.18	68	-			<u>54.5</u> 54.5	
116	1.04	67				53.5 54.5 52.5	
			Page 2	•			

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System Name: WAAR ENTOY	Highest Band Pass: 75
Test Point Location: S. MAIN ST	Test Point Number:
Date of Test: 2- 11-04 Time: 11:40	Temperature: 48%
Tech(s) Performing Test: BOBBU DESMAN	Tomporatare. To

		Last
Equipment Used Make/Model	Serial Number	Calibration Date
Spectrum Analyzer MP8591C	3829102949	2-28-03
Pre-Amplifier TRICITHIC AM 1000	2003/8012	N/A
Variable Attenuator		
Band Pass Filter 1 TRILITHILVES	9509081	N/A
Band Pass Filter 2		N/A
Field Strength Meter		
Channel Selector		N/A
		<u> </u>

<u>Test Setup used</u>: 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.

Assigned	Coherent Distu	ırbances		•	C/N	%
Ch.	Freq. Level	or CTB	CSO	CM	Ratio	Hum
2 19 25 28 33 49	123 65				46.9	0.8
10	1.27 66				48,4	
75	1,26 68				48,2	
28	1.20 62				476	
33	1,21 69				78.8 49.1	
38	1,29 64				48.9	
49	1,26 63				49.1	
57	1.26 62				493	
68	1,28 63	<u></u>			48.9	
75	127 60				42.6	
116	122 57				46.7	
		Page 2				

occuon 2 - Carrier-10-11015e, Con	erent Dis	turban	ce & Hum Test
System Name: HENDERSON		Hig	ghest Band Pass: 250
Test Point Location: HIBERNIA RO			st Point Number: 2
Date of Test: 2 - 10 - 04 Time: 2!	1.6		nperature: 55°/=
Tech(s) Performing Test: Bobby Debion		101	inperature. 33
			Last
Equipment Used Make/Model	Serial Nu	mber	Calibration Date
Spectrum Analyzer HP859/C	3829 H	2-949	7-28-03
Pre-Amplifier TRILITAIC AM 1000	2003/	80/2	- <u>_N/A_</u>
Variable Attenuator		·	
Band Pass Filter 1 TRILITHIC WFS	9509	081	
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			N/A

<u>Test Setup used</u>: 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.

- -	•			po	****	
Assigned	Coherent Distu	rbances			C/N	%
Ch.	Freq. Level	or CTB	CSO	CM	Ratio	Hum
2	1.28 62.				47.6	0.8
10 9 25 28 33 38 49	1,29 62				46.9	
7	4.25 61			 	47.4	
25	1.7 63				481	
22 33	128 63				48.0	
30	119 62				77.7	
49	628 63				10.1 401	
57	127 61				482	
68	429 63	:			421	
25	1,28 64				48.3	
116	429 63				46.8	
		Page 2 -				

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test System Name: LouisByn C Highest Band Pass: 750 Test Point Location: 419 Hwy Test Point Number: Date of Test: 2 - 11-04 Time: Temperature: 50°/= Tech(s) Performing Test: BOBBY DEBNAM Last Equipment Used Make/Model Calibration Date Spectrum Analyzer Pre-Amplifier TRILITHIC AM N/A Variable Attenuator Band Pass Filter 1 TRILITHIC VFS 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. 2

	•			po.	· ·	
Assigned	Coherent Dist	urbances			C/N	%
Ch.	Freq. Level	or CTB	CSO	CM	Ratio	Hum
2	125 64				46.6	1.0
10 2 25 28 23 33 49	1.28 63			-	46.9	
7	1.26 65				47.8	
28	130 61				48,2	
<u> </u>	121 65				48.7	
38	1,29 59			*******	49,2	
49	1,30 60				44.8	
57	1.29 58				49.4	
68	1.21 62	:			48,3	
25	129 60				487	
116	1,29 61	-			47.5	
		Page 2				

,		ance of Hulli Rost
System Name: HENDERSON		Highest Band Pass: 750
Test Point Location: 77 CLARK LN		Test Point Number: 4
Date of Test: 2 - 10 - 04 Time: 11!	_	Temperature: 500 =
Tech(s) Performing Test: BBBy OFRMA		
		Last
Equipment Used Make/Model	Serial Number	Calibration Date
Spectrum Analyzer HPB591C	3829 A029	
Pre-Amplifier TRIL ITHIC AM 1000	2003/801	N/A
Variable Attenuator		
Band Pass Filter 1 TRIC 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 the headend and each field test point on widely spaced channels with the number of test channels being a minimum of 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	Coher	ent Dist	urbances	i		C/N	%
Ch.	Freq.	Level	or CTB	CSO CSO	CM	Ratio	Hum
2	120					46.8	1,2
10 9 25	1,24	627	-			48.6	
-	1,27	68.0				49.1	
_	1.26	64,1 68,1				472	
28 33 38	1.28	740				4/10	 .
30						472	
28	1.28	69.5				481	
=======================================						48.0	
5/	1,20	<u>68.5</u> 69.5		<u> </u>		48.7	
25	1,20					47.4	
116	175	70,1				78,6	
116	426	67.8			************	4.8	
			Page	2			

Time Warner Cable - Raleigh Division

Section 2 - Carrier-To-Noise, Cohere	nt Disturbance & Hum Test
System Name: HENDERSON IOXFORD	Highest Band Pass: 25
Test Point Location: PUCKETT ST	Test Point Number:
Date of Test: 2-10-04 Time: 3/20	Temperature: 55%
Tech(s) Performing Test: Babby DEBNAM	Temperature. <u>5 5</u>
	Last
Equipment Used Make/Model Se	rial Number Calibration Date
C	29/102949 7-28-03
D 4 3100	003/80/~ N/A
Variable Attenuator	<u> IVA</u>
Band Pass Filter 1TAILITHIC VF5 9	509081 NA
Band Pass Filter 2	
Field Strength Meter	N/A_
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

		a constitution in a st	or oction the	in a bercei	n.	
Assigned	Coherent Dist	urbances			C/N	%
Ch.	Freq. Level	or CTB	CSO	CM	Ratio	Hum
2	1.23 66				46,8	C.9
10	627 67				47.9	<u> </u>
25 28 33 38 49 57	630 67				48.2	
25	1,28 68				48.7	
28	425 66			 -	49.1	
32	625 6°C				490	
38	1,20 65				48.5	
4 /	419 65				49.4	
3/	1,21 64	. ——	 '		491	
68	1.29 63	·			47.0	
25	1,29 62				496	
116	1.29 61				422	
		Page 2 -			-	

System Name: <a>C	Chapel 1	ter-10-Moise,	Conereni		ance & Hum T Highest Band Pas		
Date of Test:			9.30		Test Point Numbe Temperature: <u>40</u>		
Tech(s) Performi		M Finch			remperature. 70	<u>/_</u>	
(4) 4 01101111		77-5-6	:		Lost		
Equipmen	t Used	Make/Model	Sarie	al Number	Last	\	
Spectrum		AGILENT 85			Calibration D	vate	
Pre-Ampli	•	VIEWSONICS		3H00749	12-19-03		
Variable A		VIED SOILES		2271	<u>N/A_</u>		
		TIV' VE	05	0001			
Band Pass		Truthic VF	F 45.	0981	<u>N/A</u> _		
Band Pass					<u>N/A_</u>		
Field Strer							
Channel S	elector				<u>N/A_</u>		
Test Setup used: The	30 meeter (9	8.45 foot) cable dro	p from the test	point is feed	into a spectrum anal-	vzer through	
a pre-ampittier, variat	de attenuator.	and band pass filte	r as required.	Coherent Dis	turbances are measu	red by first	
noung me channel car	mer level and	then removing the	channel from th	ie system. T	he levels of the high	est carrier (or	
groups of carriers) in i	he channel's	pass band and their	frequencies are	then measur	ed, relative to the nea	ek level and	
requency of the remo	ved carrier.	The level of the nois	e floor is also i	measured as r	eferenced to the rem	oved carrier.	
An un-modulated carri	ier is to be us	ed to measure the %	of Hum odula	tion.			
If automated test equip	ment is used	to test Coherent Di	sturbances and	Carrier-to-No	oise; Composite Trip	le Beat	
(CTB), Composite Sec	ond Order (C	(SO), and Cross Mo	dulation (CM)	are to be me	asured and the result	s recorded	
individually along with	carrier-to-N	ioise (C/N). All aut	omated measur	rements shoul	ld be performed in ac	cordance	
with the manufacture's	of related to 1	he test being perfor	utomated test m	neasurements	may be affected pos	itively or	
negatively by factors	arison with th	ne test being perior	rements If the	re is more the	snould be made on a	minimum of	
the automated and man	ual measuren	nents, manual measi	rements should	d he perform	ed on each channel	ince between	
Number of Measureme	nts: The mea	surements are to be	made at the H	eadend and e	ach field test point o	n widely	
spaced channels with the	ne number of	test channels being	a minimum of	4 channels of	us one channel for ea	ch 100	
MITIZ OF Traction thereo	t of cable dis	tribution system upo	er bandwidth. ((See Specific	ations page viii) The	highest and	
lowest channels must b	e tested for C	arrier-to-Noise mea	surements. Hu	ım modulatio	n need only be tested	on one	
carner.							
Minimum Specification	is: All Coher	ent Disturbance me	asurements mu	st be 52 dB o	r better, 48 dB or bet	tter for	
coherent systems (HRC	and IKC sys	iems). All Carner-t	o-Noise measu	rements must	t be 46 dB or better (44 dB or	
better in non-upgraded Assigned	Cohore	num measurement n	iust de detter tr	nen 3 percent			
Ch		nt Disturbances			C/N	%	
2		evel or CTE	S CSO	СМ	Ratio	Hum	
ت		$\frac{7}{2}$ $-$			46		
<u> </u>		<u>-</u>			48		
Ch. 2 5 9 2Z		<u>-</u>			<u> ५४</u>		
<u>~</u>	1.25	04			46		

Assigned	Coherent Di	sturbances	C/N	%
Ch.	Freq. Level	or CTB CSO (CM Ratio	Hum
2 9 22 29 33 53	125 59		46	
4	1.25 62		- 48 il	
22	1.25 64		— <u>40</u> 46	
25	1.25 64		- 46	
<u>29</u>	1:25 60		<u> 47</u>	
<u>33</u> 88	-1.25 63 -1.25 60		46	
5.3	-1.25 <u>66</u>		$-\frac{4/}{4/6}$	
57	1.25 64		- 78	
75	1.25 64		- 49	
116	-125 66		50	•3
		Page 2		

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test System Name: Chavel Hill Highest Band Pass: 750MHZ Test Point Location: Hoover Date of Test: 2-5-04 Time: 3-30 Temperature: 47° FINCH • Last Equipment Used Serial Number Calibration Date Spectrum Analyzer 3513HE00749 12-19-03 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.

	•					J pc.	CCIII.		
Assigned	Cohere	nt Distu	rba	ınces		•		C/N	%
Ch.	Freq.	Level	or	CTB	CSO	СМ		Ratio	Hum
2 5 9 22 29 33 53	1.25	<u>62</u> 60						46	
9		65						48	
26		61						46	
29		<u> </u>						47	
33	10-2	3						46	
23 28		<u>96</u> 05						46	
57	1.25	<u>2)</u>			-			410	
7.5	1.25 C	, Lt						48	
116	1.25	02	-					50	<u>·3</u>
			ŀ	Page 2 -					

System Name: Durha	عن.		Highest Band Pass: 750,442
Test Point Location: La	vender		Test Point Number: 8
Date of Test: 2-6-04	Time: 9	7	Temperature: 43°
Tech(s) Performing Test: _	M Finch		
		:	Last
Fauinment Used	Make/Model	Social Number	Colibertian Data

		*	Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	AGILENT 8591C	351314Cc749	12-18-03
Pre-Amplifier	VIEUSONES	192271	N/A_
Variable Attenuator			
Band Pass Filter 1	Tolithic 15-4	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.

Assigned	Cohe	rent Dis	turbances		•	C/N	%
Ch.	Freq.	Level	or CTB	CSO	CM	Ratio	Hum
2	+ 125	70				<u>48</u> 47	
9	-1.25	70 63 67 67 65 65				<u>47</u> 47	
<u>ZZ</u>	<u>1.25</u> -1.25	67	*********			47	
<u>26</u>	1.25	67				49 48 49	
29 33	1.25	65'	-			49	
38	1.25	66				44	-
53	1.25	71				48	
2 5 9 22 29 33 55 57 75	1.25	<u>68</u> 65 (61		<u></u>		49 49 48	
<u>2</u> 116	<u>1.65</u> -1.75	65 (£				49	
	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	<u></u>	Page 2 -			43	<u>• 4</u>

System Name: Dunkson			Highest Band Pass: 750,44		
Test Point Location: CAMERON DR			Test Point Number: 9		
Date of Test: 2-3-04	Time: 8	. 4	Temperature: 38°		
Tech(s) Performing Test:/					
	T schmit	:	Last		
Equipment Used	Make/Model	Serial Number	Calibration Date		
Spectrum Analyzer	AGILENT 8591C	35131400749			
Pre-Amplifier	VIEUSENCS	182271	N/A		
Variable Attenuator					
Band Pass Filter 1	Trilithic lif-4	950981	N/A		
Band Pass Filter 2	,		N/A		
Field Strength Meter					
Channel Selector			N/A		

<u>Test Setup used</u>: 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.

Assigned	Coherent Dis	turbances	C/N	%
Ch.	Freq. Level	or CTB CSO CM	Ratio	Hum
2 9 12 29 33 38 53 57 75	1.25 <u>63</u> 1.25 <u>65</u> 1.25 <u>64</u>		<u>48</u> 48 46 46	
9	1-25 65 1-25 64		<u>48</u>	
12	1-25 69		<u> </u>	
26	1-25 69 +1-25 69		<u> 76</u> 47	
<u> 29</u>	125 66		47	
<u>33</u>	125 64		47	
<u>38</u>	1.25 61 1.25 59 1.25 68		46 46 46 46 46	
<u> </u>	1.05 59		46	
<u>57</u>	1.25 68	· .	46	
<u>75</u>	1.25 68		46	
116	1-25 67		46	1-2
		Page 2		

Section 2 - Cari	rier-To-Noise, Col	nerent Disturba	nce & Hum Test	
System Name: Durha:	n		Highest Band Pass: 750	7 14 11 -
Test Point Location:	on Rd.		est Point Number: 10	
Date of Test: 2-2-04			emperature: 38°	-
Tech(s) Performing Test:		1	emperature: 38	
	John Schnitt	:	Last	
Equipment Used	Make/Model	Serial Number	Calibration Date	
Spectrum Analyzer	AGILENT 8591C	3513400749	12-18-03	
Pre-Amplifier	VIEUSZNICS	182271	N/A_	
Variable Attenuator			LVA	
Band Pass Filter 1	Trilithic VF-4	950981		
Band Pass Filter 2		100151		
Field Strength Meter	•		<u>N/A</u>	
Channel Selector			***	
Ontaining Defector			N/A	

<u>Test Setup used</u>: 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.

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 Dis	turbances			C/N	%
Ch.	Freq. Level	or CTB	CSO	СМ	Ratio	Hum
2 5 9 22 26 29 33 53 55 75	<u>-1.25</u> 63				48	
9	1.25 60				48	
22	·1.25 6Z			-	47	
26	125 63				11.2	
29	1.25 66				40	
33	1-25 66	-			<u>-4.1</u>	
38	1-25 65				48	
53	1-25 <u>65</u> 1-25 <u>64</u>				7/	
57	1-25 63				47	
75	1.25 68		<u> </u>		<u>48</u>	
116	1.25 68				48 48	-2
		Page 2 -				

4.5

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test System Name: Durham Test Point Location: 7 AR box Field Date of Test: 2-2-24 Time: 9:00 Tech(s) Performing Test: M. Finith Last

	J. Schuitt	:	Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	AGILENT 8591C	3573:400749	12-18-03
Pre-Amplifier	VIEUSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF-4	950981	N/A
Band Pass Filter 2			<u>N/A</u> _
Field Strength Meter			IVA
Channel Selector			NT/A
			<u>N/A</u>

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.

Assigned	Coherent Dis	*****	oo oomer t	nen 5 per		
	•				C/N	%
Ch.	Freq. Level	or CTB	CSO	CM	Ratio	Hum
Ch. 2 5 9 22 26 29 33 38 53 57 75	-1-25 65 1.25 68 1.25 68 -1-25 65					
9	1.25 68				<u>48</u> 47	
<u> 22</u>	-1.25 65				48 48 49 49 50 48 49 47 48 48	
26 29	1.25 67 1-25 66				49	
33	1.25 68				38 48	
<u> 58</u>	1.25 68 1.25 64 -1.25 67 1.25 65 1.25 67 1.25 66				48	
57	1-25 65				<u>44</u> 47	
75	125 67				48	
116	1.25 66				48	/
		Page 2 - J				

System Name: Durham	٠	1	Highest Band Pass: 750,
Test Point Location:			Test Point Number: 12
Date of Test: $2-2-04$		<i>,</i> ———	Temperature: 39°
Tech(s) Performing Test:	M. Find		competature.
_	5 Selwett	:	Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	AGILENT 8591C	35131200749	
Pre-Amplifier	VIEUSONICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Trilithic VF-4	950981	N/A
Band Pass Filter 2			
Field Strength Meter			
Channel Selector			N/A
			

<u>Test Setup used</u>: 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 Dis	turbances		•	C/N	%
Ch.	Freq. Level	or CTB	CSO	CM	Ratio	Hum
2	1.25 64	-			47	
2 9 22 26 29 33 33 53 57 57	1.25 63				<u>47</u> 47 48 47	
7	1-25 60				48	
26	1-25 65				47	
<u>26</u> 79	1.25 66				48	
37	1.25 66				47	
38	-1.25 65 1.25 65				47	
53	1.25 66				47	
57	1.25 66				48	
75	1.25 60		·		47	
116	1.25 67				47 47 48 48 47 47	_3
		Page 2 -				

442

Section 2 - Carrier-To-Noise, Coherent Disturbance & Hum Test System Name: Chapel H

Test Point Location: Ashford Date of Test: 2-6-04Time: __ 12:00 Tech(s) Performing Test: ______ Finch

Highest Band Pass: 750M42 Test Point Number: 3

Temperature: 44°

		:	Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	AGILENT 859K	35131100749	12-19-03
Pre-Amplifier	<u>Uleusonics</u>	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Talitaic VF4	950981	N/A
Band Pass Filter 2			N/A
Field Strength Meter			
Channel Selector			
			IVA

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

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.

	•			. 5 pc.	CCIII.	
Assigned	Coherent I	Disturbances			C/N	%
Ch.	Freq. Leve	l or CTB	CSO	CM	Ratio	Hum
2 9 22 25 29 33 85 57	1.25 69	-			47 08	
9	-1.25 63				40 46	
22	1.25 64				47	
<u> 20</u> 29	1.25 <u>62</u> -1.25 <u>64</u>	÷			46	
33	1.25 68	-			<u>40</u> 47	
38	1.25 63				46	
<u>5.5</u>	1.25 65 -1.25 64				47	
7.5	1.25 65				4(
116	1.25 67				$\frac{77}{49}$	• 5
		Page 2 -				

carrier.

- The state of the	ment parice or timin 1 cor
System Name: Dunham	Highest Band Pass: 750,442
Test Point Location: SpruceDino	Test Point Number: 14
Date of Test: 2-3-04 Time: 3:00	Temperature: 43°
Tech(s) Performing Test: M Friel	

·		<u>:</u>	Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	AGILENT 8591C	35131400749	12-18-03
Pre-Amplifier	VIEUSENCS	192271	N/A_
Variable Attenuator			
Band Pass Filter 1	Trithic VIF-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.

Assigned	Coherent Dis	turbances		- Por	C/N	%
Ch.	Freq. Level	or CTB	CSO	CM	Ratio	Hum
2 5 9 22 26 29 33 55 57 57 51 51 6	1.25 63				47	
9	1.25 65				40 // 7	
<u>ZZ</u>	-1.25 62				47	
26	1.25 63				1/6-	
29	-1.25 62				40	
33	1.25 60				<u> </u>	
<u> 38</u>	1.25 60				JQ JQ	
53	1.25 61				116	
57	1.25 59				76	
75	1,25 65				48	
116	1.25 59				46	./
		Page 2 -				

	, and a second s
System Name: Charle Hill	Highest Band Pass: 750 Mag
Test Point Location: Newhore	Test Point Number: 15
Date of Test: 2.5-04 Tim	e: 12:00 Temperature: 45°
Tech(s) Performing Test:	

			Last
Equipment Used	Make/Model	Serial Number	Calibration Date
Spectrum Analyzer	AGILENT 859K	35131200749	12-19-03
Pre-Amplifier	VIELES NICS	182271	N/A
Variable Attenuator			
Band Pass Filter 1	Indithic VF4	950981	N/A_
Band Pass Filter 2			
Field Strength Meter			IVA
Channel Selector			NI/A
			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.

Assigned	Coherent Dis	sturbances	C/N	%
Ch.	Freq. Level	or CTB CSO CM	Ratio	Hum
<u>2</u>	1.75 62		46	
9	125 13		규닉	
22	1.75 64		44	
26	1.25 64		1/7	
.74	125 10		4/	
$\frac{2I}{33}$	1.25 68		4 <u>6</u>	
782	1.25 65		4/	
5 9 22 26 23 33 85 57 57	1.25 68		46	
57	128 77	<u> </u>	47	
75	1.25 71		45	
116	125 66		76 47	•2
		Page 2		