

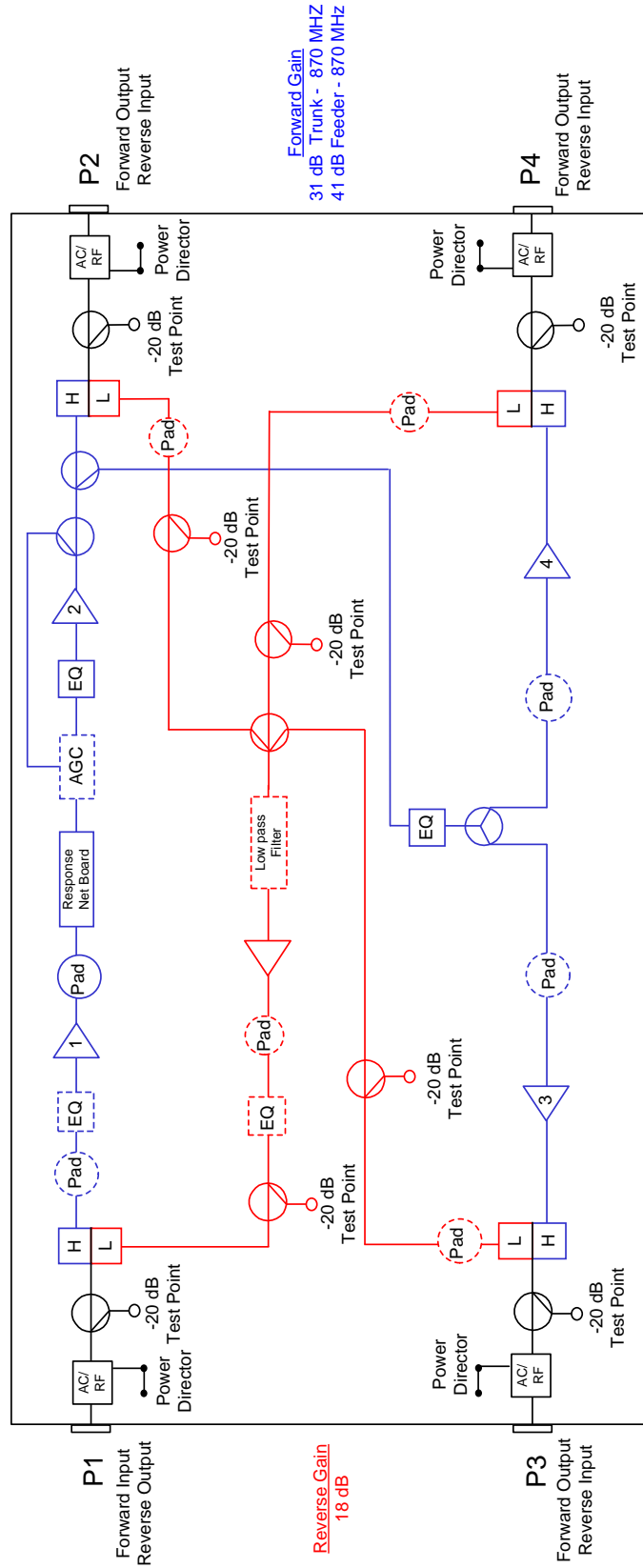
## MiniFlex Super Distribution Amplifiers 870 MHz



The ACI MiniFlex super distribution amplifier is a versatile platform with improved flexibility for use in hybrid fiber coax distribution architectures.

- ◆ 870 MHz
- ◆ 870 MHz may be dropped into the 750 MHz spacing
- ◆ Common 1 GHz housing platform
- ◆ 15 amp power passing
- ◆ Optional, plug-in surge protection
- ◆ CE qualified (SDA)
- ◆ -20 dB directional coupler test points
- ◆ AGC or thermal options
- ◆ 5 - 42 or 55 or 65 MHz reverse path
- ◆ Plug-in attenuator pads for each reverse path
- ◆ Plug-in equalizers
- ◆ Test points for each reverse path

## SDAT (Type 1A, 1T & 1M) 870 MHz Amplifier Block Diagram



**Note:**  
1. Forward gain stated at 870 MHz with AGC. Reverse gain stated at 40 MHz.

ACI Communications, Inc.			Trunk Amplifier, SDAT 870 MHz (Type 1) 1 Trunk Output, 2 Feeder Outputs				
STATION PARAMETERS:		870 MHz 42-53 MHz Split					
		CONDITIONS	UNITS	SPECIFICATIONS			NOTES
Housing passband			MHz	5 to 1,000			
Input current capacity	Any port, worst case		Amperes	15			
Frequency range			MHz	5 - 10	11 - 600	600 - 750	751 - 870
Hum modulation	Time domain @ rated current above		-dBc	55	65	60	55
Return loss	Any port, worst case		dB	17.0			
<b>Test Points</b>							
Test point type	Directional coupler		N / A				
Test point level			-dB	20.0			Fwd & Rev
Test point accuracy	Forward TP		±dB	0.5			
Frequency range			MHz	5 to 7	7 to 42		
Test point accuracy	Reverse TP		±dB	0.75	0.5		
Test point accuracy	Reverse Injection		±dB	0.75	0.5		
<b>Station Gain</b>							
Station passband			MHz	54 to 870			
Station flatness - trunk out	Normalized w / 0 dB slope		±dB	0.50			
Station flatness - feeder out	Normalized w / 0 dB slope		±dB	0.75			
Gain - trunk (Type 1A & 1T)	+0.5/-0 @ 870 MHz		dB	31.0			Temperature stabilized
Gain - feeder (Type 1A & 1T)	+0.5/-0 @ 870 MHz		dB	41.0			Temperature stabilized
Gain - trunk (Type 1M)	+0.5/-0 @ 870 MHz		dB	34.0			Temperature stabilized
Gain - feeder (Type 1M)	+0.5/-0 @ 870 MHz		dB	44.0			Temperature stabilized
Gain control type			N / A	Plug-in pads			
Gain control steps	Pad value steps		dB	0.5			
<b>Station Slope</b>							
Operational slope - trunk & feeders	@ 54 / 550 / 870 MHz		dB	0 / 9.0 / 14.7			
Slope control type	Cable equalizers		N / A	Plug-in EQ's			
Slope control range	Includes cable equivalent		dB	-21.0 to +21.0			
Slope control steps	Equalizer value steps		dB	1.5 cable steps			Approx 1.1 dB slope steps
<b>Station Group Delay</b>							
Group delay	Channel 2 (Std)		nSec / 3.58 MHz	30			Typical 25
Group delay	Channel 3		nSec / 3.58 MHz	16			
Group delay	Channel 4		nSec / 3.58 MHz	10			
Group delay	Channel 5 & >		nSec / 3.58 MHz	3			
<b>AGC</b>							
Type			N / A	Single channel pilot AGC			
Range			dB	8.0			System compensation input change -3/+5 @ 870 MHz
Accuracy			±dB	0.5			
Nominal loss			dB	5.5			Loss @ room temp
Center frequency bandwidth			Fc +/- kHz	150			

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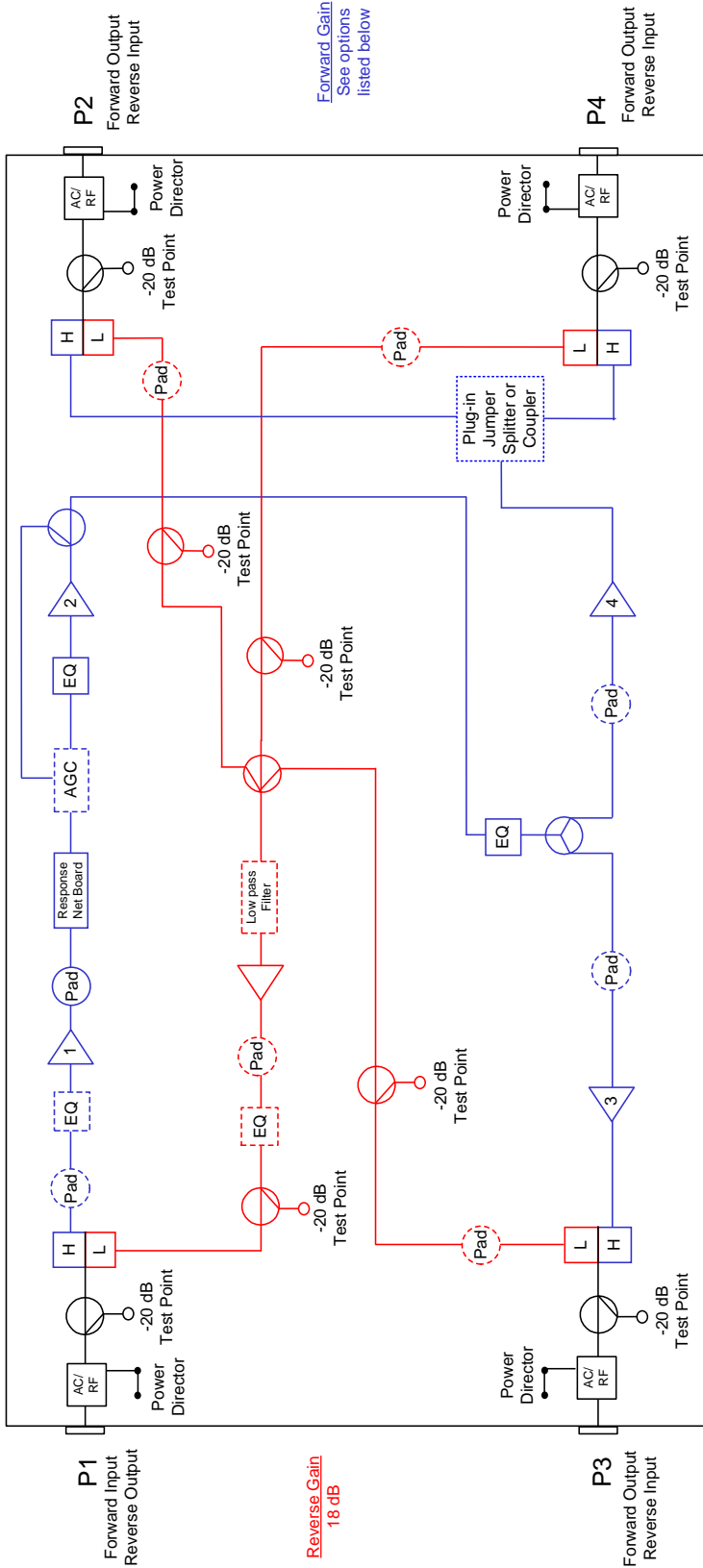
<b>ACI Communications, Inc.</b>				Trunk Amplifier, SDAT 870 MHz (Type 1) 1 Trunk Output, 2 Feeder Outputs				
550 MHz Analog Channel Loading, 79 Channels +320 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier								
Station Output Levels								
	Trunk out Port 2	@ 54 / 550 / 870 MHz	dBmV	26.3 / 35.3 / 41.0				
	Feeder out Port 3 & 4	@ 54 / 550 / 870 MHz	dBmV	36.3 / 45.3 / 51.0				
Station Noise Figure								
	Noise figure (w / 1 dB for input EQ loss)	Typical @ 54 MHz	dB	10.6				
	Noise figure (w / 1 dB for input EQ loss)	Typical @ 550 MHz	dB	8.3				
	Noise figure (w / 1 dB for input EQ loss)	Typical @ 870 MHz	dB	7.9				
Station Distortions				Trunk WC	Feeder Av.	Feeder WC	Trunk Av.	WC=worst case Av.=Average
	Composite Triple Beat (CTB)		-dBc	76.0	69.0	67.0	78.0	
	Cross Modulation (XMOD)		-dBc	68.0	61.0	58.0	70.0	
	Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)	-dBc	68.0	70.0	63.0	76.0	
	Composite Second Order (CSO+)	(Vc +1.25 MHz)	-dBc	71.0	74.0	67.0	78.0	
	Carrier-to-Intermodulation Noise (CIN)		-dBc	74.0	67.0	65.0	76.0	
650 MHz Analog Channel Loading, 95 Channels +220 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier								
Station Output Levels								
	Trunk out Port 2	@ 54 / 650 / 870 MHz	dBmV	26.3 / 37.1 / 41.0				
	Feeder out Port 3 & 4	@ 54 / 650 / 870 MHz	dBmV	36.3 / 47.1 / 51.0				
Station Noise Figure								
	Noise figure (w / 1 dB for input EQ loss)	Typical @ 54 MHz	dB	10.6				
	Noise figure (w / 1 dB for input EQ loss)	Typical @ 650 MHz	dB	8.1				
	Noise figure (w / 1 dB for input EQ loss)	Typical @ 870 MHz	dB	7.9				
Station Distortions				Trunk WC	Feeder Av.	Feeder WC	Trunk Av.	WC=worst case Av.=Average
	Composite Triple Beat (CTB)		-dBc	72.0	65.0	61.0	74.0	
	Cross Modulation (XMOD)		-dBc	64.0	56.0	53.0	67.0	
	Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)	-dBc	64.0	66.0	58.0	72.0	
	Composite Second Order (CSO+)	(Vc +1.25 MHz)	-dBc	68.0	70.0	63.0	74.0	
	Carrier-to-Intermodulation Noise (CIN)		-dBc	70.0	63.0	59.0	72.0	
750 MHz Analog Channel Loading, 110 Channels +120 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier								
Station Output Levels								
	Trunk out Port 2	@ 54 / 750 / 870 MHz	dBmV	26.3 / 38.8 / 41.0				
	Feeder out Port 3 & 4	@ 54 / 750 / 870 MHz	dBmV	36.3 / 48.8 / 51.0				
Station Noise Figure								
	Noise figure (w / 1 dB for input EQ loss)	Typical @ 54 MHz	dB	10.6				
	Noise figure (w / 1 dB for input EQ loss)	Typical @ 750 MHz	dB	8.0				
	Noise figure (w / 1 dB for input EQ loss)	Typical @ 870 MHz	dB	7.9				
Station Distortions				Trunk WC	Feeder Av.	Trunk Av.	Feeder WC	WC=worst case Av.=Average
	Composite Triple Beat (CTB)		-dBc	68.0	61.0	71.0	57.0	
	Cross Modulation (XMOD)		-dBc	59.0	51.0	63.0	47.0	
	Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)	-dBc	61.0	63.0	68.0	55.0	
	Composite Second Order (CSO+)	(Vc +1.25 MHz)	-dBc	65.0	68.0	71.0	61.0	
	Carrier-to-Intermodulation Noise (CIN)		-dBc	66.0	59.0	69.0	55.0	

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ACI Communications, Inc.			Trunk Amplifier, SDAT 870 MHz (Type 1) 1 Trunk Output, 2 Feeder Outputs			
REVERSE SPECTRUM:						
REVERSE - CHANNEL LOADING						
	Typically 23 each, 1.5 MHz wide QPSK Channels.					
Reverse - General	CONDITIONS	UNITS	SPECIFICATION		NOTES	
Station passband		MHZ	5 TO 42			
Station flatness	Normalized w / 0 dB slope	±dB	0.5			
Reverse - Station Gain						
Gain	Minimum @ 40 MHz	dB	18.0		Temperature stabilized	
Gain control type		N / A	Plug-in pads			
Gain control range		dB	12.0			
Gain control steps	Pad value steps	dB	0.5			
Reverse - Station Slope						
Slope control type	Cable equalizers	N / A	Plug-in EQs			
Slope control range		dB	0 to 12.0			
Slope control steps	Equalizer value steps	dB	1.5 cable steps		Approx. 1.1 dB slope steps	
Reverse - Station Output Levels						
@ Forward input port	Average	dBmV	35.0			
Reverse - Noise Figure						
Station noise figure (w / EQ)	Across the bandwidth	dB	13.0			
REVERSE - STATION DISTORTIONS						
Composite Second Order (CSO)	6 NTSC channel loading	-dBc	82.0			
Composite Triple Beat (CTB)	6 NTSC channel loading	-dBc	90.0			
Cross Modulation (XMOD)	6 NTSC channel loading	-dBc	80.0			
Reverse - Station Group Delay						
Group delay	5 MHz	nSec / 1.5 MHz	36			
Group delay	7 MHz	nSec / 1.5 MHz	16			
Group delay	10 MHz	nSec / 1.5 MHz	4			
Group delay	35 MHz	nSec / 1.5 MHz	8			
Group delay	38.5 MHz	nSec / 1.5 MHz	25			
Power Requirements:						
Station configuration	Includes reverse	N / A	AGC	Thermal	Manual	
Power Requirements	Worst case	W	51.8	50.4	49.3	
AC Voltage						
Input ranges		VAC	40 to 90			
Current Draw (with AGC)						
@ 40 VAC	Maximum	A	1.30			
@ 50 VAC	Maximum	A	1.04			
@ 60 VAC	Maximum	A	0.86			
@ 70 VAC	Maximum	A	0.74			
@ 80 VAC	Maximum	A	0.65			
@ 90 VAC	Maximum	A	0.58			
Environmental						
Operating temperature		°F (°C)	-40 to +140 (-40 to +60)			
Physical						
Dimensions (H X W X D)		In. (cm)	6.75 X 14.25 X 9.00 (17.1 X 36.2 X 22.9)			
Weight		lbs. (kg)	16.0 (7.26)			

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## SDAF (Type 2A-TRI, 2M-TRI, 2T-TRI) 870 MHz Amplifier Block Diagram



**Notes:**

1. Forward gain stated at 870 MHz with AGC. Reverse gain stated at 40 MHz.
2. Amplifiers are configured at the factory with jumper in Position #2. Splitters and couplers are sold separately.

Jumper Position #1	Jumper Position #2	SDASPLTR3.5	SDADC7	SDADC7	SDADC12	SDADC12	
Port	Fwd Gain (dB)	Port	Fwd Gain (dB)	Port	Fwd Gain (dB)	Port	Fwd Gain (dB)
P1	870	P1	870	P1	870	P1	870
P2	40.0	P2	33.0	P2	28.0	P2	38.0
P3	40.0	P3	40.0	P3	40.0	P3	40.0
P4	N/A	P4	37.5	P4	38.0	P4	28.0

ACI Communications, Inc.			Configurable Bridger Amplifier, SDAF 870 MHz (Type 2-TRI) 2 or 3 Output Feeder				
STATION PARAMETERS:		870 MHz 42-53 MHz with Jumper in position #2					
Description	CONDITIONS	UNITS	SPECIFICATION				NOTES
Housing passband		MHz	5 to 1000				
Input current capacity	Any port, worst case	Amperes	15				
Frequency range		MHz	5 - 10	11 - 600	600 - 750	751 - 870	
Hum modulation	Time domain @ rated current above	-dBc	55	65	60	55	
Return loss	Any port, worst case	dB	17.0				
<b>Test Points</b>							
Test point type	Directional coupler	N / A					
Test point level(s)		-dB	20.0				Fwd & Rev
Test point accuracy	Forward TP	±dB	0.5				
Frequency range		MHz	5 to 7	7 to 42			
Test point accuracy	Reverse TP	±dB	0.75	0.5			
Test point accuracy	Reverse injection	±dB	0.75	0.5			
<b>Station Gain</b>							
Station passband		MHz	54 to 870				
Station flatness - feeder out	Normalized w / 0 dB slope	±dB	0.75				
Gain feeder (Type 2A-TRI & 2T-TRI)	+0.5/-0 @ 870 MHz	dB	40.0				Temperature stabilized
Gain feeder (Type 2M-TRI)	+0.5/-0 @ 870 MHz	dB	43.0				Temperature stabilized
Gain control type		N / A	Plug-in pads				
Gain control steps	Pad value steps	dB	0.5				
<b>Station Slope</b>							
Operational slope	@ 54 / 550 / 870 MHz	dB	0 / 9.0 / 14.7				
Slope control type	Cable equalizers	N / A	Plug-in EQ's				
Slope control range	Includes cable equivalent	dB	-21.0 to +21.0				
Slope control steps	Equalizer value steps	dB	1.5 cable steps				Approx 1.1 dB slope steps
<b>Station Group Delay</b>							
Group delay	Channel 2 (Std)	nSec / 3.58 MHz	30				Typical 25
Group delay	Channel 3	nSec / 3.58 MHz	16				
Group delay	Channel 4	nSec / 3.58 MHz	10				
Group delay	Channel 5 & >	nSec / 3.58 MHz	3				
<b>AGC</b>							
Type			Single channel pilot AGC				
Range		dB	8.0				System compensation input change -3/+5 @ 870 MHz
Accuracy		±dB	0.5				
Nominal loss		dB	5.5				Loss @ room temp
Center frequency bandwidth		Fc +/- kHz	150				

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ACI Communications, Inc.			Configurable Bridger Amplifier, SDAF 870 MHz (Type 2-TRI) 2 or 3 Output Feeder		
550 MHz Analog Channel Loading, 79 Channels +320 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier					
Station Output Levels					
	Feeder out Port 3 & 4	@ 54 / 550 / 870 MHz	dBmV	36.3 / 45.3 / 51.0	
Station Noise Figure					
	Noise figure (w /1 dB for input EQ loss)	Typical @ 54 MHz	dB	11.6	
	Noise figure (w /1 dB for input EQ loss)	Typical. @ 550 MHz	dB	10.1	
	Noise figure (w /1 dB for input EQ loss)	Typical @ 870 MHz	dB	11.6	
Station Distortions				Worst Case	Average
	Composite Triple Beat (CTB)		-dBc	69.0	71.0
	Cross Modulation (XMOD)		-dBc	61.0	64.0
	Composite Second Order (CSO-)	(Vc +0.75 & 1.25 MHz)	-dBc	63.0	68.0
	Composite Second Order (CSO+)	(Vc +1.25 MHz )	-dBc	67.0	71.0
	Carrier-to-Intermodulation Noise (CIN)		-dBc	67.0	69.0
650 MHz Analog Channel Loading, 95 Channels +220 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier					
Station Output Levels					
	Feeder out Port 3 & 4	@ 54 / 650 / 870 MHz	dBmV	36.3 / 47.1 / 51.0	
Station Noise Figure					
	Noise figure (w /1 dB for input EQ loss)	Typical @ 54 MHz	dB	11.6	
	Noise figure (w /1 dB for input EQ loss)	Typical. @ 650 MHz	dB	10.2	
	Noise figure (w /1 dB for input EQ loss)	Typical @ 870 MHz	dB	11.6	
Station Distortions				Worst Case	Average
	Composite Triple Beat (CTB)		-dBc	61.0	64.0
	Cross Modulation (XMOD)		-dBc	55.0	58.0
	Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)	-dBc	58.0	63.0
	Composite Second Order (CSO+)	(Vc +1.25 MHz )	-dBc	63.0	66.0
	Carrier-to-Intermodulation Noise (CIN)		-dBc	59.0	62.0
750 MHz Analog Channel Loading, 110 Channels +120 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier					
Station Output Levels					
	Feeder out Port 3 & 4	@ 54 / 750 / 870 MHz	dBmV	36.3 / 48.8 / 51.0	
Station Noise Figure					
	Noise figure (w /1 dB for input EQ loss)	Typical @ 54 MHz	dB	11.6	
	Noise figure (w /1 dB for input EQ loss)	Typical. @ 750 MHz	dB	10.3	
	Noise figure (w /1 dB for input EQ loss)	Typical @ 870 MHz	dB	11.6	
Station Distortions				Worst Case	Average
	Composite Triple Beat (CTB)		-dBc	56.0	59.0
	Cross Modulation (XMOD)		-dBc	48.0	52.0
	Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)	-dBc	56.0	64.0
	Composite Second Order (CSO+)	(Vc +1.25 MHz )	-dBc	61.0	61.0
	Carrier-to-Intermodulation Noise (CIN)		-dBc	54.0	57.0

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ACI Communications, Inc.			Configurable Bridger Amplifier, SDAF 870 MHz (Type 2-TRI) 2 or 3 Output Feeder			
REVERSE SPECTRUM:						
Reverse - Channel Loading						
	Typically 23 each, 1.5 MHz wide QPSK channels.					
Reverse - General		CONDITIONS	UNITS	SPECIFICATION		NOTES
	Station passband		MHz	5 to 42		
	Station flatness	Normalized w / 0 dB slope	±dB	0.5		
Reverse - Station Gain						
	Gain	Minimum @ 40 MHz	dB	18.0		Temperature stabilized
	Gain control type		N / A	Plug-in pads		
	Gain control range		dB	12.0		
	Gain control steps	Pad value steps	dB	0.5		
Reverse - Station Slope						
	Slope control type	Cable equalizers	N / A	Plug-in EQs		
	Slope control range		dB	0 to 12.0		
	Slope control steps	Equalizer value steps	dB	1.5 cable steps		Approx. 1.1 dB slope steps
Reverse - Station Output Levels						
	@ Forward input port		dBmV	35.0		
Reverse - Noise Figure						
	Station noise figure (w/EQ)	Across the bandwidth	dB	13.0		
Reverse - Station Distortions						
	Composite Second Order (CSO)	6 NTSC channel loading	-dBc	82.0		
	Composite Triple Beat (CTB)	6 NTSC channel loading	-dBc	90.0		
	Cross Modulation (XMOD)	6 NTSC channel loading	-dBc	80.0		
Reverse - Station Group Delay						
	Group delay	5 MHz	nSec / 1.5 MHz	36		
	Group delay	7 MHz	nSec / 1.5 MHz	16		
	Group delay	10 MHz	nSec / 1.5 MHz	4		
	Group delay	35 MHz	nSec / 1.5 MHz	8		
	Group delay	38.5 MHz	nSec / 1.5 MHz	25		
Power Requirements:						
	Station configuration	Includes reverse	N / A	AGC	Thermal	Manual
	Power Requirements	Worst case	W	46.3	44.9	43.8
AC Voltage						
	Input Ranges		VAC	40 to 90		
Current Draw (with AGC)						
	@ 40 VAC	Maximum	A	1.16		
	@ 50 VAC	Maximum	A	0.93		
	@ 60 VAC	Maximum	A	0.77		
	@ 70 VAC	Maximum	A	0.66		
	@ 80 VAC	Maximum	A	0.58		
	@ 90 VAC	Maximum	A	0.51		
Environmental						
	Operating temperature		°F (°C)	-40 to +140 (-40 to +60)		
Physical						
	Dimensions (H X W X D)		In. (cm)	6.75 X 14.25 X 9.00 (17.1 X 36.2 X 22.9)		
	Weight		lbs. (kg)	16.0 (7.26)		

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ACI Communications, Inc.			High Performance Bridger Amplifier, SDBT 870 MHz (Type 6) 3 Output Feeder				
<b>STATION PARAMETERS:</b>		870 MHz 42-53 MHz					
Description	CONDITIONS	UNITS	SPECIFICATION				NOTES
Housing passband		MHz	5 to 1000				
Input current capacity	Any port, worst case	Amperes	15				
Frequency range		MHz	5 - 10	11 - 600	600 - 750	751 - 870	
Hum modulation	Time domain @ rated current above	-dBc	55	65	60	55	
Return loss	Any port, worst case	dB	17.0				
<b>Test Points</b>							
Test point type	Directional coupler	N / A					
Test point level(s)		-dB	20.0				Fwd & rev
Test point accuracy	Forward TP	±dB	0.5				
Frequency range		MHz	5 to 7	7 to 42			
Test point accuracy	Reverse TP	±dB	0.75	0.5			
Test point accuracy	Reverse injection	±dB	0.75	0.5			
<b>Station Gain</b>							
Station passband		MHz	54 to 870				
Station flatness - feeder out	Normalized w / 0 dB slope	±dB	0.75				
Gain feeder (Type 6A & 6T)	+0.5/-0 @ 870 MHz	dB	40.0				Temperature stabilized
Gain feeder (Type 6M)	+0.5/-0 @ 870 MHz	dB	43.0				Temperature stabilized
Gain control type		N / A	Plug-in pads				
Gain control steps	Pad value steps	dB	0.5				
<b>Station Slope</b>							
Operational slope	@ 54 / 550 / 870 MHz	dB	0 / 9.0 / 14.7				
Slope control type	Cable equalizers	N / A	Plug-in EQ's				
Slope control range	Includes cable equivalent	dB	-21.0 to +21.0				
Slope control steps	Equalizer value steps	dB	1.5 cable steps				Approx 1.1 dB slope steps
<b>Station Group Delay</b>							
Group delay	Channel 2 (Std)	nSec / 3.58 MHz	30				Typical 25
Group delay	Channel 3	nSec / 3.58 MHz	16				
Group delay	Channel 4	nSec / 3.58 MHz	10				
Group delay	Channel 5 & >	nSec / 3.58 MHz	3				
<b>AGC</b>							
Type		N / A	Single channel pilot AGC				
Range		dB	8.0				System compensation input change -3/+5 @ 870 MHz
Accuracy		±dB	0.5				
Nominal loss		dB	5.5				Loss @ room temp
Center frequency bandwidth		Fc +/- kHz	150				
550 MHz Analog Channel Loading, 79 Channels +320 MHz Digital Channel Loading, 256 QAM at -6 dBc relative to its associated visual carrier							
<b>Station Output Levels</b>							
Feeder out Port 2, 3, & 4	@ 54 / 550 / 870 MHz	dBmV	36.3 / 45.2 / 51.0				
<b>Station Noise Figure</b>							
Noise figure (w /1 dB for input EQ loss)	Typical @ 54 MHz	dB	7.7				
Noise figure (w /1 dB for input EQ loss)	Typical @ 550 MHz	dB	6.3				
Noise figure (w /1 dB for input EQ loss)	Typical @ 870 MHz	dB	6.9				
<b>Station Distortions</b>							
			Worst Case	Average			
Composite Triple Beat (CTB)		-dBc	69.0	71.0			
Cross Modulation (XMOD)		-dBc	58.0	60.0			
Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)	-dBc	69.0	71.0			
Composite Second Order (CSO+)	(Vc +1.25 MHz )	-dBc	67.0	69.0			
Carrier-to-Intermodulation Noise (CIN)		-dBc	67.0	69.0			

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ACI Communications, Inc.			High Performance Bridger Amplifier, SDBT 870 MHz (Type 6) 3 Output Feeder			
REVERSE SPECTRUM:						
Reverse - Channel Loading						
	Typically 23 each, 1.5 MHz wide QPSK channels.					
Reverse - General		CONDITIONS	UNITS	SPECIFICATION	NOTES	
	Station passband		MHz	5 to 42		
	Station flatness	Normalized w / 0 dB slope	±dB	0.5		
Reverse - Station Gain						
	Gain	Minimum @ 40 MHz	dB	18.0	Temperature stabilized	
	Gain control type		N / A	Plug-in pads		
	Gain control range		dB	12.0		
	Gain control steps	Pad value steps	dB	0.5		
Reverse - Station Slope						
	Slope control type	Cable equalizers	N / A	Plug-in EQs		
	Slope control range		dB	0 to 12.0		
	Slope control steps	Equalizer value steps	dB	1.5 (Cable steps)	Approx 1.1 dB slope steps	
Reverse - Station Output Levels						
	@ Forward input port		dBmV	35.0		
Reverse - Noise Figure						
	Station noise figure (w/EQ)	Across the bandwidth	dB	13.0		
Reverse - Station Distortions						
	Composite Second Order (CSO)	6 channel loading	-dBc	82.0		
	Composite Triple Beat (CTB)	6 channel loading	-dBc	90.0		
	Cross Modulation (XMOD)	6 channel loading	-dBc	80.0		
Reverse - Station Group Delay						
	Group delay	5 MHz	nSec / 1.5 MHz	36		
	Group delay	7 MHz	nSec / 1.5 MHz	16		
	Group delay	10 MHz	nSec / 1.5 MHz	4		
	Group delay	35 MHz	nSec / 1.5 MHz	8		
	Group delay	38.5 MHz	nSec / 1.5 MHz	25		
Power Requirements:						
	Station configuration	Includes reverse	N / A	AGC	Thermal	Manual
	Power Requirements	Worst case	W	47.1	45.4	44.8
AC Voltage						
	Input ranges		VAC	40 to 90		
Current Draw (with AGC)						
	@ 40 VAC	Maximum	A	1.35		
	@ 50 VAC	Maximum	A	1.14		
	@ 60 VAC	Maximum	A	0.99		
	@ 70 VAC	Maximum	A	0.92		
	@ 80 VAC	Maximum	A	0.82		
	@ 90 VAC	Maximum	A	0.76		
Environmental						
	Operating temperature		°F (°C)	-40 to +140 (-40 to +60)		
Physical						
	Dimensions (H X W X D)		In, (cm)	6.75 X 14.25 X 9.00 (17.1 X 36.2 X 22.9)		
	Weight		lbs. (kg)	16.0 (7.26)		

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ACI Communications, Inc.		Dual Output Line Extender, SDLA 870 MHz (Type 3 Dual) 2 Output Line Extender				
STATION PARAMETERS:		870 MHz 42-53 MHz Split				
Description	CONDITIONS	UNITS	SPECIFICATION			NOTES
Housing passband		MHz	5 to 1000			
Input current capacity	Any port, worst case	Amperes	15			
Frequency range		MHz	5 - 10	11 - 600	600 - 750	751 - 870
Hum modulation	Time domain @ rated current above	-dBc	55	65	60	55
Return loss	Any port, worst case	dB	17.0			
<b>Test Points</b>						
Test point type	Directional coupler	N / A				
Test point level(s)		-dB	20.0			Fwd & Rev
Test point accuracy	Forward TP	±dB	0.5			
Frequency range		MHz	5 to 7	7 to 42		
Test point accuracy	Reverse TP	±dB	0.75	0.5		
Test point accuracy	Reverse Injection	±dB	0.75	0.5		
<b>Station Gain</b>						
Station passband		MHz	54 to 870			
Station flatness - feeder out	Normalized w/0 dB slope	±dB	0.5			
Gain (Type 3A & 3T Dual)	+0.5/-0 @ 870 MHz	dB	31.0			Temperature stabilized
Gain (Type 3M Dual)	+0.5/-0 @ 870 MHz	dB	36.0			Temperature stabilized
Gain control type		N / A	Plug-in pads			
Gain control steps	Pad value steps	dB	0.5			
<b>Station Slope</b>						
Operational slope	@ 54 / 550 / 870 MHz	dB	0 / 9.0 / 14.7			
Slope control type	Cable equalizers	N / A	Plug-in EQ's			
Slope control range	Includes cable equivalent	dB	-21.0 to +21.0			
Slope control steps	Equalizer value steps	dB	1.5 cable steps			Approx 1.1 dB slope steps
<b>Station Group Delay</b>						
Group delay	Channel 2 (Std)	nSec / 3.58 MHz	30			Typical 25
Group delay	Channel 3	nSec / 3.58 MHz	16			
Group delay	Channel 4	nSec / 3.58 MHz	10			
Group delay	Channel 5 & >	nSec / 3.58 MHz	3			
<b>AGC</b>						
Type		N / A	Single channel pilot AGC			
Range		dB	8.0			System compensation input change -3/+5 @ 870 MHz
Accuracy		±dB	0.5			
Nominal loss		dB	5.5			Loss @ room temp
Center frequency bandwidth		Fc +/- kHz	150			

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<b>ACI Communications, Inc.</b>			Dual Output Line Extender, SDLA 870 MHz (Type 3 Dual) 2 Output Line Extender		
550 MHz Analog Channel Loading, 79 Channels +320 MHz Digital Channel Loading, 56 QAM, at -6 dBc relative to its associated visual carrier					
<b>Station Output Levels</b>					
Feeder out Port 2 & 4	@ 54 / 550 / 870 MHz	dBmV	36.3 / 45.3 / 51.0		
<b>Station Noise Figure</b>					
Noise figure (w/1 dB for Input EQ Loss)	Typical @ 54 MHz	dB	9.1		
Noise figure (w/1 dB for Input EQ Loss)	Typical @ 550 MHz	dB	8.2		
Noise figure (w/1 dB for Input EQ Loss)	Typical @ 870 MHz	dB	8.0		
<b>Station Distortions</b>			<b>Worst Case</b>	<b>Average</b>	
Composite Triple Beat (CTB)		-dBc	64.0	66.0	
Cross Modulation (XMOD)		-dBc	55.0	57.0	
Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)	-dBc	62.0	69.0	
Composite Second Order (CSO+)	(Vc +1.25 MHz )	-dBc	66.0	73.0	
Carrier-to-Intermodulation Noise (CIN)		-dBc	62.0	64.0	
650 MHz Analog Channel Loading, 95 Channels +220 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier					
<b>Station Output Levels</b>					
Feeder out Port 2 & 4	@ 54 / 650 / 870 MHz	dBmV	36.3 / 47.1 / 51.0		
<b>Station Noise Figure</b>					
Noise figure (w/1 dB for Input EQ Loss)	Typical @ 54 MHz	dB	9.2		
Noise figure (w/1 dB for Input EQ Loss)	Typical @ 650 MHz	dB	8.2		
Noise figure (w/1 dB for Input EQ Loss)	Typical @ 870 MHz	dB	8.0		
<b>Station Distortions</b>			<b>Worst Case</b>	<b>Average</b>	
Composite Triple Beat (CTB)		-dBc	60.0	62.0	
Cross Modulation (XMOD)		-dBc	50.0	53.0	
Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)	-dBc	57.0	65.0	
Composite Second Order (CSO+)	(Vc +1.25 MHz )	-dBc	62.0	69.0	
Carrier-to-Intermodulation Noise (CIN)		-dBc	58.0	60.0	
750 MHz Analog Channel Loading, 110 Channels +120 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier					
<b>Station Output Levels</b>					
Feeder out Port 2 & 4	@ 54 / 750 / 870 MHz	dBmV	36.3 / 48.8 / 51.0		
<b>Station Noise Figure</b>					
Noise figure (w/1 dB for Input EQ Loss)	Typical @ 54 MHz	dB	9.2		
Noise figure (w/1 dB for Input EQ Loss)	Typical @ 750 MHz	dB	8.1		
Noise figure (w/1 dB for Input EQ Loss)	Typical @ 870 MHz	dB	8.0		
<b>Station Distortions</b>			<b>Worst Case</b>	<b>Average</b>	
Composite Triple Beat (CTB)		-dBc	54.0	57.0	
Cross Modulation (XMOD)		-dBc	45.0	49.0	
Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)	-dBc	54.0	60.0	
Composite Second Order (CSO+)	(Vc +1.25 MHz )	-dBc	59.0	62.0	
Carrier-to-Intermodulation Noise (CIN)		-dBc	52.0	55.0	

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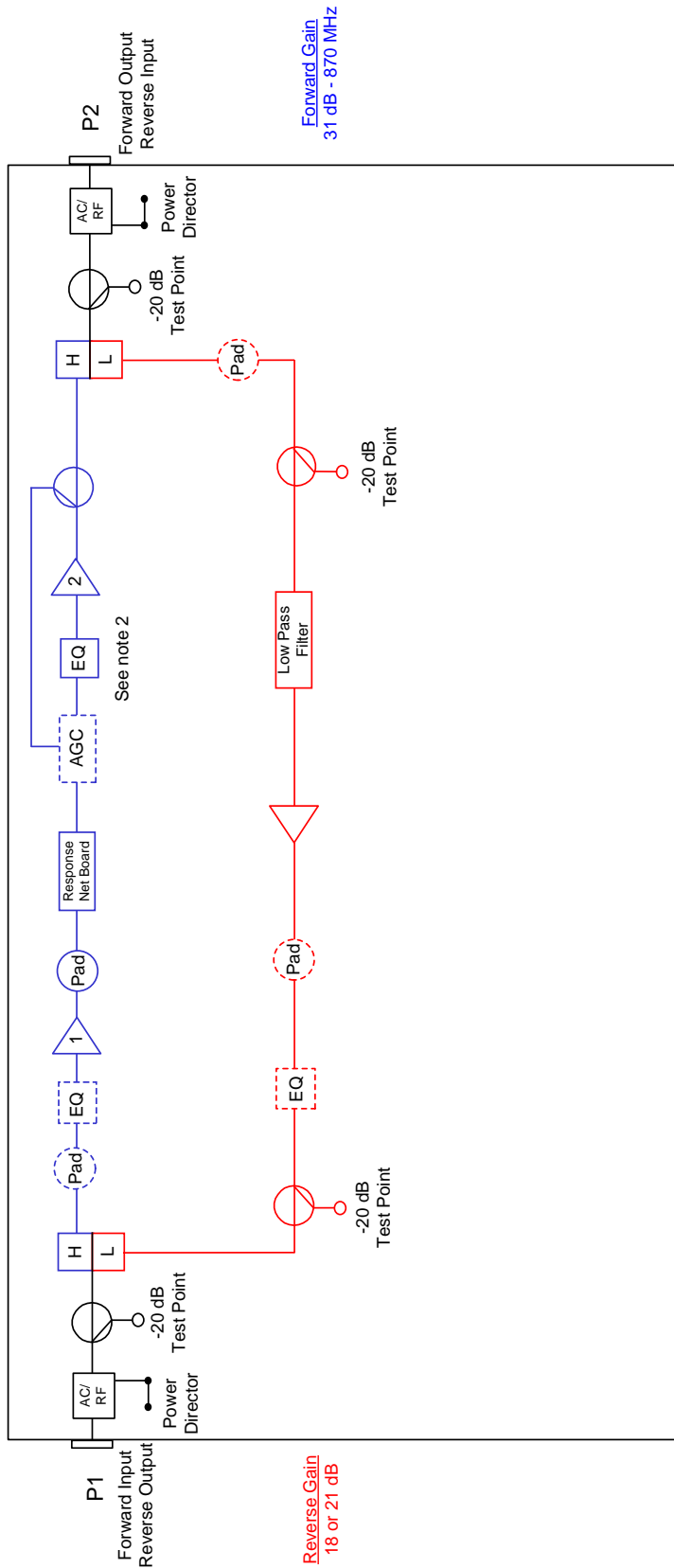
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ACI Communications, Inc.			Dual Output Line Extender, SDLA 870 MHz (Type 3 Dual) 2 Output Line Extender			
REVERSE SPECTRUM:						
Reverse - Channel Loading	CONDITIONS	UNITS	SPECIFICATION		NOTES	
	Typically 23 each, 1.5 MHz wide QPSK channels.					
Reverse - General						
Station passband		MHz	5 to 42			
Station flatness	Normalized w / 0 dB slope	±dB	0.5			
Reverse - Station Gain						
Gain	Minimum @ 40MHz	dB	18.0		Temperature stabilized	
Gain control type		N / A	Plug-in pads			
Gain control range		dB	12.0			
Gain control steps	Pad value steps	dB	0.5			
Reverse - Station Slope						
Slope control type	Cable equalizers	N / A	Plug-in EQs			
Slope control range		dB	0 to 12.0			
Slope control steps	Equalizer value steps	dB	1.5 cable steps			
Reverse - Station Output Levels						
@ Forward input port		dBmV	35.0			
Reverse - Noise Figure						
Station noise figure (w/EQ)		dB	13.0			
Reverse - Station Distortions						
Composite Second Order (CSO)	6 NTSC channel loading	-dBc	82.0			
Composite Triple Beat (CTB)	6 NTSC channel loading	-dBc	90.0			
Cross Modulation (XMOD)	6 NTSC channel loading	-dBc	80.0			
Reverse - Station Group Delay						
Group delay	5 MHz	nSec / 1.5 MHz	36			
Group delay	7 MHz	nSec / 1.5 MHz	16			
Group delay	10 MHz	nSec / 1.5 MHz	4			
Group delay	35 MHz	nSec / 1.5 MHz	8			
Group delay	38.5 MHz	nSec / 1.5 MHz	25			
Power Requirements:						
Station configuration	Includes reverse	N / A	AGC	Thermal	Manual	
Power Requirements	Worst case	W	34.2	32.8	32.3	
AC Voltage						
Input ranges		VAC	40 to 90			
Current Draw (with AGC)						
@ 40 VAC	Maximum	A	0.99			
@ 50 VAC	Maximum	A	0.85			
@ 60 VAC	Maximum	A	0.77			
@ 70 VAC	Maximum	A	0.71			
@ 80 VAC	Maximum	A	0.64			
@ 90 VAC	Maximum	A	0.60			
Environmental						
Operating temperature		°F (°C)	-40 to +140 (-40 to +60)			
Physical						
Dimensions (H X W X D)		In. (cm)	6.75 X 14.25 X 9.00 (17.1 X 36.2 X 22.9)			
Weight		lbs. (kg)	14.5 (6.58)			

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## SDLE & ALX (Type 3A, 3T, & 3M) 870 MHz Amplifier Block Diagram



**Note:**

1. Forward gain stated at 870 MHz with AGC. Reverse gain stated at 40 MHz.
2. The interstage EQ is not present in the ALX amplifiers.

ACI Communications, Inc.,		Line Extender, SDLE & ALX 870 MHz (Type 3) 1 Output Line Extender				
STATION PARAMETERS:		870 MHz 42-53 MHz Split				
Description	CONDITIONS	UNITS	SPECIFICATION			NOTES
Housing passband		MHz	5 to 1,000			
Input current capacity	Any port, worst case	Amperes	15			
Frequency range		MHz	5 - 10	11 - 600	600 - 750	751 - 870
Hum modulation	Time domain @ rated current above	-dBc	55	65	60	55
Return loss	Any port, worst case	dB	17.0			
<b>Test Points</b>						
Test point type	Directional coupler	N / A				
Test point level(s)		-dB	20.0			Fwd & Rev
Test point accuracy	Forward TP	±dB	0.5			
Frequency range		MHz	5 to 7	7 to 42		
Test point accuracy	Reverse TP	±dB	0.75	0.5		
Test point accuracy	Reverse injection	±dB	0.75	0.5		
<b>Station Gain</b>						
Station passband		MHz	54 to 870			
Station flatness - feeder out	Normalized w / 0 dB slope	±dB	0.5			
Gain (Type 3A, 3T)	+0.5/-0 @ 870 MHz	dB	31.0			
Gain (Type 3M)	+0.5/-0 @ 870 MHz	dB	36.0			
Gain control type		N / A	Plug-in pads			
Gain control steps	Pad value steps	dB	0.5			
<b>Station Slope</b>						
Operational slope	@ 54 / 550 / 870 MHz	dB	0 / 9.0 / 14.7			
Slope control type	Cable equalizers	N / A	Plug-in EQ's			
Slope control range	Includes cable equivalent	dB	-21.0 to +21.0			
Slope control steps	Equalizer value steps	dB	1.5			Approx 1.1 dB slope steps
<b>Station Group Delay</b>						
Group delay	Channel 2 (Std)	nSec / 3.58 MHz	30			Typical 25
Group delay	Channel 3	nSec / 3.58 MHz	16			
Group delay	Channel 4	nSec / 3.58 MHz	10			
Group delay	Channel 5 & >	nSec / 3.58 MHz	3			
<b>AGC</b>						
Type		N / A	Single channel pilot AGC			
Range		dB	8.0			System compensation input change -3/+5 @ 870 MHz
Accuracy		±dB	0.5			
Nominal loss		dB	5.5			Loss @ room temp
Center frequency bandwidth		Fc +/- kHz	150			

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ACI Communications, Inc			Line Extender, SDLE & ALX 870 MHz (Type 3) 1 Output Line Extender		
550 MHz Analog Channel Loading, 79 Channels +320 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier					
Station Output Levels					
Feeder out Port 2	@ 54 / 550 / 870 MHz		dBmV	36.3 / 45.3 / 51.0	
Station Noise Figure					
Noise figure (w / 1 dB for input EQ loss)	Typical @ 54 MHz		dB	8.5	
Noise figure (w / 1 dB for input EQ loss)	Typical @ 550 MHz		dB	8.2	
Noise figure (w / 1 dB for input EQ loss)	Typical @ 870 MHz		dB	9.5	
Station Distortions				Worst Case	Average
Composite Triple Beat (CTB)			-dBc	66.0	68.0
Cross Modulation (XMOD)			-dBc	58.0	61.0
Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)		-dBc	62.0	67.0
Composite Second Order (CSO+)	(Vc +1.25 MHz )		-dBc	66.0	70.0
Composite Intermodulation Noise (CIN)			-dBc	64.0	66.0
650 MHz Analog Channel Loading, 95 Channels +220 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier					
Station Output Levels					
Feeder out Port 2	@ 54 / 650 / 870 MHz		dBmV	36.3 / 47.1 / 51.0	
Station Noise Figure					
Noise figure (w / 1 dB for input EQ loss)	Typical @ 54 MHz		dB	8.5	
Noise figure (w / 1 dB for input EQ loss)	Typical @ 650 MHz		dB	8.6	
Noise figure (w / 1 dB for input EQ loss)	Typical @ 870 MHz		dB	9.5	
Station Distortions				Worst Case	Average
Composite Triple Beat (CTB)			-dBc	62.0	64.0
Cross Modulation (XMOD)			-dBc	53.0	56.0
Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)		-dBc	57.0	63.0
Composite Second Order (CSO+)	(Vc +1.25 MHz )		-dBc	62.0	67.0
Composite Intermodulation Noise (CIN)			-dBc	60.0	62.0
750 MHz Analog Channel Loading, 110 Channels +120 MHz Digital Channel Loading 256 QAM, at -6 dBc relative to its associated visual carrier					
Station Output Levels					
Feeder out Port 2	@ 54 / 750 / 870 MHz		dBmV	36.3 / 48.8 / 51.0	
Station Noise Figure					
Noise figure (w / 1 dB for input EQ loss)	Typical @ 54 MHz		dB	8.5	
Noise figure (w / 1 dB for input EQ loss)	Typical @ 750 MHz		dB	8.5	
Noise figure (w / 1 dB for input EQ loss)	Typical @ 870 MHz		dB	9.5	
Station Distortions				Worst Case	Average
Composite Triple Beat (CTB)			-dBc	55.0	59.0
Cross Modulation (XMOD)			-dBc	47.0	52.0
Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)		-dBc	55.0	62.0
Composite Second Order (CSO+)	(Vc +1.25 MHz )		-dBc	60.0	65.0
Composite Intermodulation Noise (CIN)			-dBc	53.0	57.0

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ACI Communications, Inc.			Line Extender, SDLE & ALX 870 MHz (Type 3) Output Line Extender			
REVERSE SPECTRUM:						
Reverse - Channel Loading	CONDITIONS	UNITS	SPECIFICATION		NOTES	
	Typically 23 each, 1.5 MHz wide QPSK channels.					
Reverse - General						
Station passband		MHz	5 to 42			
Station flatness	Normalized w / 0 dB slope	±dB	0.5			
Reverse - Station Gain						
Gain	Minimum @ 40 MHz	dB	18.0 or 21.0			
Gain control type		N / A	Plug-in pads			
Gain control range		dB	12.0			
Gain control steps	Pad value steps	dB	0.5			
Reverse - Station Slope						
Slope control type	Cable equalizers	N / A	Plug-in EQ's			
Slope control range		dB	0 to 12.0			
Slope control steps	Equalizer value steps	dB	1.5 cable steps			
Reverse - Station Output Levels						
@ Forward input port		dBmV	35.0			
Reverse - Noise Figure						
Station noise figure (w/EQ)		dB	8.5			
Reverse - Station Distortions						
Composite Second Order (CSO)	6 NTSC channel loading	-dBc	82.0			
Composite Triple Beat (CTB)	6 NTSC channel loading	-dBc	90.0			
Cross Modulation (XMOD)	6 NTSC channel loading	-dBc	80.0			
Reverse - Station Group Delay						
Group delay	5 MHz	nSec / 1.5 MHz	36			
Group delay	7 MHz	nSec / 1.5 MHz	16			
Group delay	10 MHz	nSec / 1.5 MHz	4			
Group delay	35 MHz	nSec / 1.5 MHz	8			
Group delay	38.5 MHz	nSec / 1.5 MHz	25			
Power Requirements:						
Station configuration	Includes reverse	N / A	AGC	Thermal	Manual	
Power Requirements	Worst case	W	27.2	25.8	24.7	
AC Voltage						
Input ranges		VAC	40 to 90			
Current Draw (with AGC)						
@ 40 VAC	Maximum	A	0.68			
@ 50 VAC	Maximum	A	0.54			
@ 60 VAC	Maximum	A	0.45			
@ 70 VAC	Maximum	A	0.39			
@ 80 VAC	Maximum	A	0.34			
@ 90 VAC	Maximum	A	0.30			
Environmental						
Operating temperature		°F (°C)	-40 to +140 (-40 to +60)			
Physical (SDLE)						
Dimensions (H X W X D)		In. (cm)	6.75 X 14.25 X 9.00 (17.1 X 36.2 X 22.9)			
Weight		lbs. (kg)	14.5 (6.58)			
Physical (ALX)						
Dimensions (H X W X D)		In. (cm)	4.00 X 14.25 X 9.00 (10.2 X 36.2 X 22.9)			
Weight		lbs. (kg)	11.0 (4.99)			

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