

# Multimedia Stretch™ Tap Directional Coupler/Equalizer

## Description

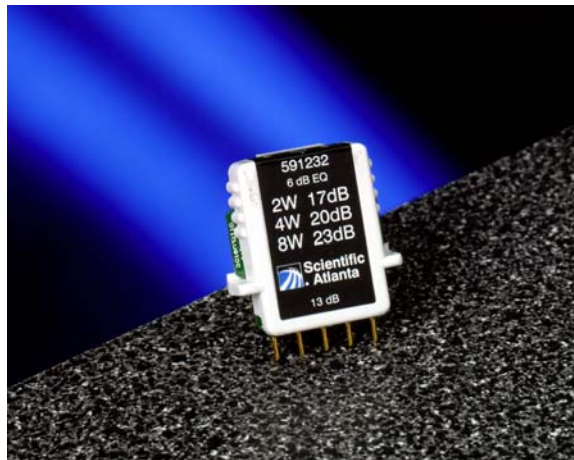
Scientific-Atlanta's Multimedia Stretch™ Tap Directional Coupler/Equalizer (DC/EQ) enables more flexible deployment of reverse services in a hybrid fiber/coax transmission system. The DC/EQ is a by-product of the extensive reverse path studies Scientific-Atlanta has conducted. This 5 - 870 MHz broadband equalizer adds attenuation to the reverse path of the tap port, allowing for a more flexible deployment of reverse services. The DC/EQ cost-effectively eliminates the need for high pass filters by adding a selectable 5 - 870 MHz broadband equalizer to all tap ports while providing the appropriate directional coupler (dB value of the tap).

Adding reverse path attenuation to the tap ports has several key benefits. In addition to eliminating the need for high pass filters, our analysis has conclusively determined that by strategically attenuating reverse path signals, systems are able to better support signal transmission in this challenging portion of the spectrum. With the use of the DC/EQ, telephony network interface units raise output levels to the upper ends of their dynamic range, thereby increasing overall signal-to-noise performance. By lowering the dynamic range variance, deployment of new services is simplified. The additional reverse attenuation minimizes concerns about overdriving optical return transmitter lasers.

The DC/EQ plugs into any of Scientific-Atlanta's Stretch Tap products and is available in six different equalizer values.

## Features

- Available in six equalizer values
- Plugs into all Scientific-Atlanta's Stretch Tap products
- Unique labeling to distinguish equalized directional coupler (DC) from standard DC
- Additional labels provided in packaging to mark the outside of tap containing a DC/EQ module



23077-D



**Specifications**  
**Multimedia Stretch Tap – DC/EQ**  
**2-Way - Revision A**

	Tap Value																
	Freq.	4 dB		8 dB		11 dB		14 dB		17 dB		20 dB		23 dB		26 dB	
	MHz	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
<b>Insertion Loss</b> (dB)	5	-	-	3.3	3.6	1.9	2.2	1.2	1.5	0.9	1.2	0.8	1.1	0.8	1.1	0.8	1.1
	40	-	-	3.3	3.6	1.5	1.8	0.9	1.2	0.7	1.0	0.5	0.8	0.5	0.8	0.5	0.8
	50	-	-	3.3	3.6	1.5	1.8	0.9	1.2	0.7	1.0	0.5	0.8	0.5	0.8	0.5	0.8
	450	-	-	4.0	4.3	2.6	2.9	1.9	2.2	1.5	1.8	1.3	1.6	1.3	1.6	1.3	1.6
	550	-	-	3.7	4.3	2.6	2.9	2.0	2.3	1.6	1.9	1.4	1.7	1.4	1.7	1.4	1.7
	750	-	-	3.5	3.9	2.5	2.9	2.0	2.4	1.7	2.1	1.4	1.8	1.4	1.8	1.4	1.8
	870	-	-	4.1	4.5	2.8	3.2	2.1	2.5	1.9	2.3	1.6	2.0	1.6	2.0	1.6	2.0
1000	-	-	4.7	5.2	3.3	3.8	2.7	3.2	2.4	2.9	2.1	2.6	2.1	2.6	2.1	2.6	

**Multimedia Stretch Tap – DC/EQ**  
**2-Way - Revision A**

	Freq.	4 dB	8 dB	11 dB	14 dB	17 dB	20 dB	23 dB	26 dB
<b>Equalizer 3 dB</b>	5	8.30	13.0	14.5	17.3	20.3	23.4	26.1	29.0
	40	7.30	12.1	14.1	16.7	19.9	23.0	25.6	28.5
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	6.90	11.7	13.7	16.5	19.9	22.8	25.6	28.4
	450	5.60	10.5	12.5	15.1	18.4	21.3	24.4	27.5
	550	5.30	10.6	12.5	15.2	18.5	21.3	24.6	27.9
	750	4.90	9.80	12.0	15.0	18.0	21.2	24.4	27.6
	870	5.40	9.90	12.8	14.8	17.8	20.9	24.2	27.7
<b>Equalizer 6 dB</b>	5	11.1	15.8	17.3	20.1	23.1	26.2	28.9	
	40	9.70	14.5	16.5	19.1	22.3	25.4	28.0	
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	9.30	14.1	16.1	18.9	22.3	25.2	28.0	
	450	6.50	11.4	13.4	16.0	19.3	22.2	25.3	
	550	5.90	11.2	13.1	15.8	19.1	21.9	25.2	
	750	5.10	10.0	12.2	15.2	18.2	21.4	24.6	
	870	5.20	9.70	12.6	14.6	17.6	20.7	24.0	
<b>Equalizer 9 dB</b>	5	13.9	18.6	20.1	22.9	25.9	29.0		
	40	12.1	16.9	18.9	21.5	24.7	27.8		
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	11.6	16.4	18.4	21.2	24.6	27.5		
	450	7.30	12.2	14.2	16.8	20.1	23.0		
	550	6.50	11.8	13.7	16.4	19.7	22.5		
	750	5.20	10.1	12.3	15.3	18.3	21.5		
	870	5.10	9.60	12.5	14.5	17.5	20.6		
<b>Equalizer 12 dB</b>	5	16.7	21.4	22.9	25.7	28.7			
	40	14.5	19.3	21.3	23.9	27.1			
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	13.9	18.7	20.7	23.5	26.9			
	450	8.20	13.1	15.1	17.7	21.0			
	550	7.10	12.4	14.3	17.0	20.3			
	750	5.30	10.2	12.4	15.4	18.4			
	870	5.00	9.50	12.4	14.4	17.4			
<b>Equalizer 15 dB</b>	5	19.5	24.2	25.7	28.5				
	40	16.9	21.7	23.7	26.3				
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	16.3	21.1	23.1	25.9				
	450	9.00	13.9	15.9	18.5				
	550	7.60	12.9	14.8	17.5				
	750	5.40	10.3	12.5	15.5				
	870	4.90	9.40	12.3	14.3				
<b>Equalizer 18 dB</b>	5	22.3	27.0	28.5					
	40	19.3	24.1	26.1					
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	18.6	23.4	25.4					
	450	9.90	14.8	16.8					
	550	8.20	13.5	15.4					
	750	5.60	10.5	12.7					
	870	4.70	9.20	12.1					

**Note:**  
 Unless otherwise noted, specifications are based on measurements made in accordance with NCTA Practices for Measurements on Cable Television Systems using standard frequency assignments and are referenced to 68°F (20°C). All ports are terminated.

**Multimedia Stretch Tap – DC/EQ  
4-Way - Revision A**

		Tap Value														
		Freq.	8 dB		11 dB		14 dB		17 dB		20 dB		23 dB		26 dB	
		MHz	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
<b>Insertion Loss</b> (dB)	5	-	-	3.3	3.6	1.9	2.2	1.2	1.5	0.9	1.2	0.8	1.1	0.8	1.1	
	40	-	-	3.3	3.6	1.5	1.8	0.9	1.2	0.7	1.0	0.5	0.8	0.5	0.8	
	50	-	-	3.3	3.6	1.5	1.8	0.9	1.2	0.7	1.0	0.5	0.8	0.5	0.8	
	450	-	-	4.0	4.3	2.6	2.9	1.9	2.2	1.5	1.8	1.3	1.6	1.3	1.6	
	550	-	-	3.7	4.0	2.6	2.9	2.0	2.3	1.6	1.9	1.4	1.7	1.4	1.7	
	750	-	-	3.5	3.9	2.5	2.9	2.0	2.4	1.7	2.1	1.4	1.8	1.4	1.8	
	870	-	-	4.1	4.5	2.8	3.2	2.1	2.5	1.9	2.3	1.6	2.0	1.6	2.0	
	1000	-	-	4.7	5.2	3.3	3.8	2.7	3.2	2.4	2.9	2.1	2.6	2.1	2.6	
<b>Equalizer 3 dB</b>	5	11.5		16.2		17.6		20.3		23.3		26.5		29.2		
	40	10.5		15.3		17.2		19.9		23.0		26.2		28.8		
<b>Tap Loss</b> (dB)	50	10.1		15.0		16.9		19.7		23.1		26.0		28.8		
(max tolerance ±1 dB)	450	8.90		13.7		15.8		18.4		21.7		24.6		27.7		
	550	8.60		13.8		16.0		18.5		21.7		24.6		27.8		
	750	8.10		13.3		15.4		18.3		21.2		24.4		27.5		
	870	9.20		14.0		15.7		18.7		21.7		24.7		27.5		
<b>Equalizer 6 dB</b>	5	14.3		19.0		20.4		23.1		26.1		29.3		32.0		
	40	12.9		17.7		19.6		22.3		25.4		28.6		31.2		
<b>Tap Loss</b> (dB)	50	12.5		17.4		19.3		22.1		25.5		28.4		31.2		
(max tolerance ±1 dB)	450	9.80		14.6		16.7		19.3		22.6		25.5		28.6		
	550	9.20		14.4		16.6		19.1		22.3		25.2		28.4		
	750	8.30		13.5		15.6		18.5		21.4		24.6		27.7		
	870	9.00		13.8		15.5		18.5		21.5		24.5		27.3		
<b>Equalizer 9 dB</b>	5	17.1		21.8		23.2		25.9		28.9		32.1				
	40	15.3		20.1		22.0		24.7		27.8		31.0				
<b>Tap Loss</b> (dB)	50	14.8		19.7		21.6		24.4		27.8		30.7				
(max tolerance ±1 dB)	450	10.6		15.4		17.5		20.1		23.4		26.3				
	550	9.80		15.0		17.2		19.7		22.9		25.8				
	750	8.40		13.6		15.7		18.6		21.5		24.7				
	870	8.90		13.7		15.4		18.4		21.4		24.4				
<b>Equalizer 12 dB</b>	5	19.9		24.6		26.0		28.7		31.7						
	40	17.7		22.5		24.4		27.1		30.2						
<b>Tap Loss</b> (dB)	50	17.1		22.0		23.9		26.7		30.1						
(max tolerance ±1 dB)	450	11.5		16.3		18.4		21.0		24.3						
	550	10.4		15.6		17.8		20.3		23.5						
	750	8.50		13.7		15.8		18.7		21.6						
	870	8.80		13.6		15.3		18.3		21.3						
<b>Equalizer 15 dB</b>	5	22.7		27.4		28.8		31.5								
	40	20.1		24.9		26.8		29.5								
<b>Tap Loss</b> (dB)	50	19.5		24.4		26.3		29.1								
(max tolerance ±1 dB)	450	12.3		17.1		19.2		21.8								
	550	10.9		16.1		18.3		20.8								
	750	8.60		13.8		15.9		18.8								
	870	8.70		13.5		15.2		18.2								
<b>Equalizer 18 dB</b>	5	25.5		30.2		31.6										
	40	22.5		27.3		29.2										
<b>Tap Loss</b> (dB)	50	21.8		26.7		28.6										
(max tolerance ±1 dB)	450	13.2		18.0		20.1										
	550	11.5		16.7		18.9										
	750	8.80		14.0		16.1										
	870	8.50		13.3		15.0										

**Note:**  
Unless otherwise noted, specifications are based on measurements made in accordance with NCTA Practices for Measurements on Cable Television Systems using standard frequency assignments and are referenced to 68°F (20°C). All ports are terminated.

**Multimedia Stretch Tap – DC/EQ  
8-Way - Revision A**

		Tap Value												
		Freq.	11 dB		14 dB		17 dB		20 dB		23 dB		26 dB	
		MHz	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
<b>Insertion Loss</b> (dB)	5	-	-	3.3	3.6	1.9	2.2	1.2	1.5	0.9	1.2	0.8	1.1	
	40	-	-	3.3	3.6	1.5	1.8	0.9	1.2	0.7	1.0	0.5	0.8	
	50	-	-	3.3	3.6	1.5	1.8	0.9	1.2	0.7	1.0	0.5	0.8	
	450	-	-	4.0	4.3	2.6	2.9	1.9	2.2	1.5	1.8	1.3	1.6	
	550	-	-	3.7	4.0	2.6	2.9	2.0	2.3	1.6	1.9	1.4	1.7	
	750	-	-	3.5	3.9	2.5	2.9	2.0	2.4	1.7	2.1	1.4	1.8	
	870	-	-	4.1	4.5	2.8	3.2	2.1	2.5	1.9	2.3	1.6	2.0	
	1000	-	-	4.7	5.2	3.3	3.8	2.7	3.2	2.4	2.9	2.1	2.6	
<b>Equalizer 3 dB</b>	5	14.5		19.4		20.7		23.4		26.4		29.6		
	40	13.8		18.6		20.5		23.1		26.2		29.4		
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	13.4		18.3		20.2		22.9		26.3		29.3		
	450	12.4		17.4		19.0		21.9		25.3		28.1		
	550	12.2		17.2		19.3		22.0		25.2		27.9		
	750	11.8		16.9		19.4		21.8		24.9		27.8		
	870	12.9		17.4		20.1		22.3		25.4		28.5		
<b>Equalizer 6 dB</b>	5	17.3		22.2		23.5		26.2		29.2		32.4		
	40	16.2		21.0		22.9		25.5		28.6		31.8		
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	15.8		20.7		22.6		25.3		28.7		31.7		
	450	13.3		18.3		19.9		22.8		26.2		29.0		
	550	12.8		17.8		19.9		22.6		25.8		28.5		
	750	12.0		17.1		19.6		22.0		25.1		28.0		
	870	12.7		17.2		19.9		22.1		25.2		28.3		
<b>Equalizer 9 dB</b>	5	20.1		25.0		26.3		29.0		32.0		35.2		
	40	18.6		23.4		25.3		27.9		31.0		34.2		
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	18.1		23.0		24.9		27.6		31.0		34.0		
	450	14.1		19.1		20.7		23.6		27.0		29.8		
	550	13.4		18.4		20.5		23.2		26.4		29.1		
	750	12.1		17.2		19.7		22.1		25.2		28.1		
	870	12.6		17.1		19.8		22.0		25.1		28.2		
<b>Equalizer 12 dB</b>	5	22.9		27.8		29.1		31.8		34.8				
	40	21.0		25.8		27.7		30.3		33.4				
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	20.4		25.3		27.2		29.9		33.3				
	450	15.0		20.0		21.6		24.5		27.9				
	550	14.0		19.0		21.1		23.8		27.0				
	750	12.2		17.3		19.8		22.2		25.3				
	870	12.5		17.0		19.7		21.9		25.0				
<b>Equalizer 15 dB</b>	5	25.7		30.6		31.9		34.6						
	40	23.4		28.2		30.1		32.7						
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	22.8		27.7		29.6		32.3						
	450	15.8		20.8		22.4		25.3						
	550	14.5		19.5		21.6		24.3						
	750	12.3		17.4		19.9		22.3						
	870	12.4		16.9		19.6		21.8						
<b>Equalizer 18 dB</b>	5	28.5		33.4		34.7								
	40	25.8		30.6		32.5								
<b>Tap Loss</b> (dB) (max tolerance ±1 dB)	50	25.1		30.0		31.9								
	450	16.7		21.7		23.3								
	550	15.1		20.1		22.2								
	750	12.5		17.6		20.1								
	870	12.2		16.7		19.4								

**Note:**  
Unless otherwise noted, specifications are based on measurements made in accordance with NCTA Practices for Measurements on Cable Television Systems using standard frequency assignments and are referenced to 68°F (20°C). All ports are terminated.

## Ordering Information

The following table lists the part numbers (P/N) for the DC/EQ.

Tap Loss Value		
2-way	4-way	8 way
4 dB	8 dB	11 dB
8 dB	11 dB	14 dB
11 dB	14 dB	17 dB
14 dB	17 dB	20 dB
17 dB	20 dB	23 dB
20 dB	23 dB	26 dB
23 dB	26 dB	-
26 dB	-	-

EQ Value					
3 dB	6 dB	9 dB	12 dB	15 dB	18 dB
DC/EQ P/N					
591220	591228	591235	591241	591246	591250
591221	591229	591236	591242	591247	591251
591222	591230	591237	591243	591248	591252
591223	591231	591238	591244	591249	-
591224	591232	591239	591245	-	-
591225	591233	591240	-	-	-
591226	591234	-	-	-	-
591227	-	-	-	-	-



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