Cisco Multimedia Stretch Tap Directional Coupler with Reverse Window

The Cisco Multimedia Stretch Tap™ Directional Coupler with Reverse Window (DC/RW) enables a more flexible deployment of reverse services in a hybrid fiber/coax transmission system.

The DC/RW is a by-product on the extensive reverse path. This 5–1000 MHz broadband Directional Coupler adds cable simulation attenuation to the forward path tap ports while providing a fixed “Reverse Window” of attenuation in the reverse path.

Benefits

The DC/RW has several key benefits.

- Provide high values of attenuation (and the addition of cable simulated slope) to the forward path.
- Prevent excessive signal from reaching the homes connected to the first few taps after the node.
- Allow the reverse signals to pass through the tap, yet maintain the higher signal level desired at the node.
- Improve the signal-to-noise ratio and decreases the dynamic range variance of the reverse signals at the node thus simplifying the deployment of new services. The high forward attenuation allows full use of the additional signal available from the high-output nodes.
- Compensate for the inverse cable slope present at the output of the node.

Scope of Application

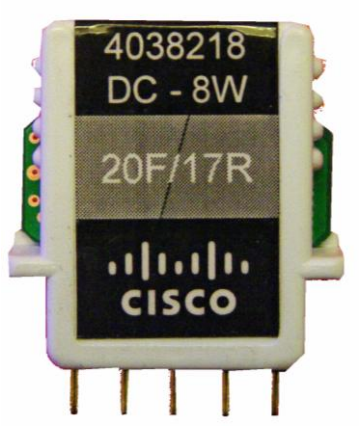
The DC/RW is designed for use with high output level nodes.

This DC/RW product comes in the following twelve attenuation values as referenced to 1 GHz:

17/20 dB, 17/23 dB, 17/26 dB, 17/29 dB, and 17/32 dB
20/23 dB, 20/26 dB, 20/29 dB, and 20/32 dB
23/26 dB, 23/29 dB, and 23/32 dB.

All the forward attenuation values have a single fixed “Reverse Window” of attenuation of 17/20/23 dB at 5 MHz. The loss shape between 5 MHz and 1 GHz follows that of cable slope. These new plug-in devices are fully compatible with all Multimedia Stretch Tap faceplates.

Figure 1. Cisco Multimedia Stretch Tap Directional Coupler with Reverse Window



Features

- Available in twelve cable slope values
- Available at 1 GHz frequency band
- Plugs into all Cisco Stretch Tap products
- Unique labeling to distinguish DC/RW from standard DC and DC/EQ
- Additional labels provided in packaging to mark the tap containing a DC/RW module

Product Specifications

See the table below for product specifications.

Table 1. 2-way Insertion Loss with DC/RW

2-way Insertion Loss with DC/RW										
Freq. (MHz)	17/20 dB		17/23 dB		17/26 dB		17/29 dB		17/32 dB	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean
5	1.2	0.9	1.2	0.9	1.2	0.9	1.2	0.9	1.2	0.9
40	1.1	0.8	1.1	0.8	1.1	0.8	1.1	0.8	1.1	0.8
50	1.0	0.7	1.0	0.7	1.0	0.7	1.0	0.7	1.0	0.7
300	1.5	1.2	1.5	1.2	1.5	1.2	1.5	1.2	1.5	1.2
450	1.8	1.5	1.8	1.5	1.8	1.5	1.8	1.5	1.8	1.5
550	1.9	1.6	1.9	1.6	1.9	1.6	1.9	1.6	1.9	1.6
750	2.1	1.7	2.1	1.7	2.1	1.7	2.1	1.7	2.1	1.7
870	2.3	1.9	2.3	1.9	2.3	1.9	2.3	1.9	2.3	1.9
1000	2.9	2.4	2.9	2.4	2.9	2.4	2.9	2.4	2.9	2.4
Freq. (MHz)	20/23 dB		20/26 dB		20/29 dB		20/32 dB			
	Max	Mean	Max	Mean	Max	Mean	Max	Mean		
5	1.1	0.8	1.1	0.8	1.1	0.8	1.1	0.8		
40	1.0	0.7	1.0	0.7	1.0	0.7	1.0	0.7		
50	0.8	0.5	0.8	0.5	0.8	0.5	0.8	0.5		
300	1.4	1.1	1.4	1.1	1.4	1.1	1.4	1.1		
450	1.6	1.3	1.6	1.3	1.6	1.3	1.6	1.3		
550	1.7	1.4	1.7	1.4	1.7	1.4	1.7	1.4		
750	1.8	1.4	1.8	1.4	1.8	1.4	1.8	1.4		
870	2.0	1.6	2.0	1.6	2.0	1.6	2.0	1.6		
1000	2.6	2.1	2.6	2.1	2.6	2.1	2.6	2.1		
Freq. (MHz)	23/26 dB		23/29 dB		23/32 dB					
	Max	Mean	Max	Mean	Max	Mean				
5	1.3	1.0	1.3	1.0	1.3	1.0				
40	1.0	0.7	1.0	0.7	1.0	0.7				
50	0.8	0.7	0.8	0.7	0.8	0.7				
300	1.4	0.9	1.4	0.9	1.4	0.9				
450	1.6	1.3	1.6	1.3	1.6	1.3				
550	1.7	1.3	1.7	1.3	1.7	1.3				
750	1.9	1.4	1.9	1.4	1.9	1.4				
870	2.1	1.5	2.1	1.6	2.1	1.6				
1000	2.3	1.5	2.3	1.6	2.3	1.6				

Table 2. 4-way Insertion Loss with DC/RW

4-way Insertion Loss with DC/RW										
Freq. (MHz)	17/20 dB		17/23 dB		17/26 dB		17/29 dB		17/32 dB	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean
5	1.5	1.2	1.5	1.2	1.5	1.2	1.5	1.2	1.5	1.2
40	1.3	1.0	1.3	1.0	1.3	1.0	1.3	1.0	1.3	1.0
50	1.2	0.9	1.2	0.9	1.2	0.9	1.2	0.9	1.2	0.9
300	1.8	1.5	1.8	1.5	1.8	1.5	1.8	1.5	1.8	1.5
450	2.2	1.9	2.2	1.9	2.2	1.9	2.2	1.9	2.2	1.9
550	2.3	2.0	2.3	2.0	2.3	2.0	2.3	2.0	2.3	2.0
750	2.4	2.0	2.4	2.0	2.4	2.0	2.4	2.0	2.4	2.0
870	2.5	2.1	2.5	2.1	2.5	2.1	2.5	2.1	2.5	2.1
1000	3.2	2.7	3.2	2.7	3.2	2.7	3.2	2.7	3.2	2.7
Freq. (MHz)	20/23 dB		20/26 dB		20/29 dB		20/32 dB			
	Max	Mean	Max	Mean	Max	Mean	Max	Mean		
5	1.2	0.9	1.2	0.9	1.2	0.9	1.2	0.9		
40	1.1	0.8	1.1	0.8	1.1	0.8	1.1	0.8		
50	1.0	0.7	1.0	0.7	1.0	0.7	1.0	0.7		
300	1.5	1.2	1.5	1.2	1.5	1.2	1.5	1.2		
450	1.8	1.5	1.8	1.5	1.8	1.5	1.8	1.5		
550	1.9	1.6	1.9	1.6	1.9	1.6	1.9	1.6		
750	2.1	1.7	2.1	1.7	2.1	1.7	2.1	1.7		
870	2.3	1.9	2.3	1.9	2.3	1.9	2.3	1.9		
1000	2.9	2.4	2.9	2.4	2.9	2.4	2.9	2.4		
Freq. (MHz)	23/26 dB		23/29 dB		23/32 dB					
	Max	Mean	Max	Mean	Max	Mean				
5	1.3	1.0	1.3	1.0	1.3	1.0				
40	1.0	0.7	1.0	0.7	1.0	0.7				
50	0.8	0.7	0.8	0.7	0.8	0.7				
300	1.4	0.9	1.4	0.9	1.4	0.9				
450	1.6	1.3	1.6	1.3	1.6	1.3				
550	1.7	1.4	1.7	1.4	1.7	1.4				
750	1.9	1.4	1.9	1.4	1.9	1.4				
870	2.1	1.6	2.1	1.6	2.1	1.6				
1000	2.3	1.6	2.3	1.6	2.3	1.6				

Table 3. 8-way Insertion Loss with DC/RW

8-way Insertion Loss with DC/RW										
Freq. (MHz)	17/20 dB		17/23 dB		17/26 dB		17/29 dB		17/32 dB	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean
5	2.2	1.9	2.2	1.9	2.2	1.9	2.2	1.9	2.2	1.9
40	2.0	1.7	2.0	1.7	2.0	1.7	2.0	1.7	2.0	1.7
50	1.8	1.5	1.8	1.5	1.8	1.5	1.8	1.5	1.8	1.5
300	2.7	2.4	2.7	2.4	2.7	2.4	2.7	2.4	2.7	2.4
450	2.9	2.6	2.9	2.6	2.9	2.6	2.9	2.6	2.9	2.6
550	2.9	2.6	2.9	2.6	2.9	2.6	2.9	2.6	2.9	2.6
750	2.9	2.5	2.9	2.5	2.9	2.5	2.9	2.5	2.9	2.5
870	3.2	2.8	3.2	2.8	3.2	2.8	3.2	2.8	3.2	2.8
1000	3.8	3.3	3.8	3.3	3.8	3.3	3.8	3.3	3.8	3.3
Freq. (MHz)	20/23 dB		20/26 dB		20/29 dB		20/32 dB			
	Max	Mean	Max	Mean	Max	Mean	Max	Mean		
5	1.5	1.2	1.5	1.2	1.5	1.2	1.5	1.2		
40	1.3	1.0	1.3	1.0	1.3	1.0	1.3	1.0		
50	1.2	0.9	1.2	0.9	1.2	0.9	1.2	0.9		
300	1.8	1.5	1.8	1.5	1.8	1.5	1.8	1.5		
450	2.2	1.9	2.2	1.9	2.2	1.9	2.2	1.9		
550	2.3	2.0	2.3	2.0	2.3	2.0	2.3	2.0		
750	2.4	2.0	2.4	2.0	2.4	2.0	2.4	2.0		
870	2.5	2.1	2.5	2.1	2.5	2.1	2.5	2.1		
1000	3.2	2.7	3.2	2.7	3.2	2.7	3.2	2.7		
Freq. (MHz)	23/26 dB		23/29 dB		23/32 dB					
	Max	Mean	Max	Mean	Max	Mean				
5	1.4	1.1	1.4	1.1	1.4	1.1				
40	1.1	0.8	1.1	0.8	1.1	0.8				
50	1.1	0.8	1.1	0.8	1.1	0.8				
300	1.5	1.1	1.5	1.1	1.5	1.1				
450	1.8	1.5	1.8	1.5	1.8	1.5				
550	2.1	1.6	2.1	1.6	2.1	1.6				
750	2.3	1.7	2.3	1.7	2.3	1.7				
870	2.4	1.9	2.4	1.9	2.4	1.9				
1000	2.6	2.1	2.6	2.1	2.6	2.1				

Table 4. Stretch Tap Loss with DC/RW

Stretch Tap Loss with DC/RW				
Equalizer 3 dB **Tap Loss** (dB) (max tolerance ±1 dB)	**Freq.(MHz)**	**17/20 dB**	**20/23 dB**	**23/26 dB**
	5	17.0	20.0	23.0
	40	17.5	20.5	23.6
	50	17.6	20.6	23.9
	300	18.5	21.5	24.8
	450	18.8	21.8	25.1
	550	19.1	22.1	25.3
	750	19.5	22.5	25.5
	870	19.7	22.7	25.7
	1000	20.0	23.0	26.0
Equalizer 6 dB **Tap Loss** (dB) (max tolerance ±1 dB)	**Freq.(MHz)**	**17/23 dB**	**20/26 dB**	**23/29 dB**
	5	17.0	20.0	23.0
	40	18.0	21.0	24.1
	50	18.1	21.1	24.6
	300	20.0	23.0	26.6
	450	20.8	23.8	27.0
	550	21.2	24.2	27.5
	750	22.1	25.1	28.1
	870	22.5	25.5	28.5
	1000	23.0	26.0	29.0
Equalizer 9 dB **Tap Loss** (dB) (max tolerance ±1 dB)	**Freq.(MHz)**	**17/26 dB**	**20/29 dB**	**23/32 dB**
	5	17.0	20.0	23.0
	40	18.4	21.4	24.5
	50	18.5	21.5	25.1
	300	21.3	24.3	28.1
	450	22.4	25.4	28.8
	550	23.2	26.2	29.5
	750	24.5	27.5	30.5
	870	25.2	28.2	31.2
	1000	26.0	29.0	32.0
Equalizer 12 dB **Tap Loss** (dB) (max tolerance ±1 dB)	**Freq.(MHz)**	**17/29 dB**	**20/32 dB**	**-**
	5	17.1	20.1	-
	40	18.5	21.5	-
	50	18.8	21.8	-
	300	22.8	25.8	-
	450	24.4	27.4	-
	550	25.4	28.4	-
	750	27.1	30.1	-
	870	28.1	31.1	-
	1000	29.0	32.0	-
Equalizer 15 dB **Tap Loss** (dB) (max tolerance ±1 dB)	**Freq.(MHz)**	**17/32 dB**	**-**	**-**
	5	17.1	-	-
	40	18.9	-	-
	50	19.2	-	-
	300	24.2	-	-
	450	26.3	-	-
	550	27.5	-	-
	750	29.6	-	-
	870	30.8	-	-
	1000	32.0	-	-

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 ^{o}F(20 ^{o}C). All ports are terminated.

Ordering Information

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

Table 5. Ordering Information

EQ Value	2-way	4-way	8-way	Part Number
3 dB			17/20 dB	4038218
		17/20 dB	20/23 dB	4038203
	17/20 dB	20/23 dB	23/26 dB	734126
	20/23 dB	23/26 dB		734123
	23/26 dB			734120
6 dB			17/23 dB	4038217
		17/23 dB	20/26 dB	4038202
	17/23 dB	20/26 dB	23/29 dB	734127
	20/26 dB	23/29 dB		734124
	23/29 dB			734121
9 dB			17/26 dB	4038216
		17/26 dB	20/29 dB	4038201
	17/26 dB	20/29 dB	23/32 dB	734128
	20/29 dB	23/32 dB		734125
	23/32 dB			734122
12 dB			17/29 dB	4038215
		17/29 dB	20/32 dB	4038200
	17/29 dB	20/32 dB		4038196
	20/32 dB			4038192
15 dB			17/32 dB	4038214
		17/32 dB		4038209
	17/32 dB			4038204

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