

Cisco Multimedia Stretch Taps

The Multimedia Stretch™ Tap (MMST) is designed to support the delivery of advanced applications and services in a cost-effective platform. In addition to providing high quality RF performance specifications that are essential to the reliable transmission of data and digital video services, the MMST includes the capability to house other performance enhancing options. For example, we have developed and field-tested a version of the plug-in directional coupler that cost-effectively balances reverse path signals resulting in a marked performance improvement in this challenging portion of the network.

During system upgrades, operators are challenged to quickly install new equipment while minimizing the impact on customers. Splicing taps is a time-consuming process complicated by a widened gap in the feeder cabling. The MMST features a nine-inch housing that fills this gap without using costly or performance reducing extension connectors while providing operators with the fastest way to restore service and complete upgrade efforts.

The MMST also provides an important level of network flexibility by enabling reversibility. As operators expand the fiber optic portion of their broadband networks, the result is often a reversal of the feeder signal flow. By simply changing the orientation of the plug-in directional coupler module, technicians can avoid time-consuming and expensive resplicing of the cable. The plug-in directional coupler module further adds to the flexibility of the tap, and helps to control inventory expense. By removing and replacing the on-board device, operators are able to modify tap values without costly resplicing.

Most importantly, the MMST is designed for the future. Our engineers have maximized available space in the device to allow for adding future advanced features.

Figure 1. Multimedia Stretch Tap



Features

- Patented Connection Beam's AC/RF bypass switch provides interruption-free service to downstream customers during faceplate removal
- Confined faceplate circuitry isolates and simplifies maintenance efforts
- Per-port power activation and protection maximizes cost and customer service effectiveness
- Nine-inch housing simplifies system upgrades
- Plug-in directional coupler module enables field modification without costly resplicing
- Available in 2-, 4-, and 8-way versions
- Compatible with aerial or pedestal mounting
- Available space for future enhancements
- Durable powder paint coating for superior environmental protection

Product Specifications

Table 1. Product Specifications

Specification	Value
Dimensions	
Product (H x W x D)	3.5 in. x 9.0 in. x 3.5 in. (88.9 mm x 228.6 mm x 88.9 mm)
Mechanical	
Material/Finish	AL360T housing with powder coat paint and aluminum end plugs for environmental protection
Port Type	Sealed and swaged extended F-ports for enhanced resistance to moisture ingress
Port Finish	Nickel-plated brass F-ports to ensure a corrosion-resistant drop interface
Housing Orientation	Versatile housing design permits aerial, pedestal, or MDU mounting schemes
Operating Temperature	-40°C to +60°C
EMI Shielding	minimum 100 dB
Pressure Testing	10 psi for 60 seconds under water
F-port Interface	ANSI/SCTE 01 1996
Entry-port Interface	SCTE IPS-SP-500
Electrical	
Thru continuous current	12 amps -60/90 VAC
Current limiting	250 mA @60C, per drop
Surge Resistance	1 KV
Impedance	75 ohm
Thru hum modulation	70 dB average @ 10 Amps 65 dB average @ 12 Amps
Tap Port Hum Modulation	65 dB average
Emissions	
FCC	Part 76, subpart K
EN 50083-2/A1	1998
Environment Specifications	
ASTM G 53	Weathering specification
ASTM B117	Salt spray specification
ASTM D 3170	Chip resistance specification
ASTM G21	Fungus growth rate of zero

Specification	Value
EN 50083	1/A2 1997
AC/RF Bypass Switch Performance	
System Open Circuit Time	0 ms
Contact Resistance	10 m Ohms max
Current and Voltage Carrying	12 A 60/90 VAC
RF Frequency Range	5 to 1000 MHz
Operating Temperature	-40° to 140°F (-40° to +60°C)

Table 2. General Station Performance

Specification	Value			
	5 MHz	550 MHz	750 MHz	1 GHz
Short Circuited Insertion Loss (dB)	0.1 Max	0.4 Max	0.5 Max	0.7 Max
	0.05 Mean	0.3 Mean	0.4 Mean	0.6 Mean
Return Loss (typical) Switch Active	40 Max	16 Max	16 Max	14 Max
	53 Mean	18 Mean	17 Mean	15 Mean

Note: Unless otherwise noted, specifications reflect typical performance and are referenced to 68°F (20°C). Specifications are based upon measurements made in accordance with SCTE/ANSI standards (where applicable) using standard frequency assignments.

Table 3. Tap Value – 2-Way MMST

	Tap Value																		
	Freq	4 dB		8 dB		11 dB		14 dB		17 dB		20 dB		23 dB		26 dB		29 dB	
	MHz	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
Insertion Loss (dB)	5	-	-	3.45	3.9	1.91	2.4	1.16	1.7	0.85	1.4	0.76	1.3	0.76	1.3	0.76	1.3	0.76	1.3
	40	-	-	3.18	3.7	1.47	1.9	0.87	1.4	0.60	1.1	0.49	1.0	0.50	1.0	0.50	1.0	0.50	1.0
	50	-	-	3.20	3.7	1.47	1.9	0.87	1.4	0.61	1.1	0.49	1.0	0.49	1.0	0.49	1.0	0.49	1.0
	450	-	-	4.13	4.4	2.29	2.9	1.64	2.0	1.39	1.8	1.19	1.7	1.22	1.6	1.22	1.5	1.22	1.6
	550	-	-	4.00	4.5	2.36	3.0	1.73	2.1	1.49	1.8	1.26	1.7	1.30	1.6	1.38	1.5	1.30	1.8
	750	-	-	3.69	4.7	2.40	3.5	1.82	2.3	1.60	2.0	1.34	1.8	1.38	1.8	1.46	1.8	1.30	1.8
	870	-	-	4.97	4.8	2.55	3.6	1.97	2.6	1.78	2.4	1.43	1.9	1.46	1.9	1.35	1.9	1.46	1.9
	1000	-	-	4.67	5.2	2.86	3.6	1.99	2.6	1.78	2.4	1.36	1.9	1.35	1.9	1.4	1.9	1.35	1.9
Tap Loss (dB) (max tolerance ± 1 dB)	5	4.98	5.0	7.76	9.0	11.39	12.0	13.79	15.0	16.68	18.0	19.87	21.0	22.71	24.0	28.70	29.5	29.27	30.0
	40	4.31	5.0	7.40	9.0	11.45	12.0	13.84	15.0	16.48	18.0	19.89	21.0	22.60	24.0	28.81	29.5	28.92	30.0
	50	4.10	5.0	7.40	9.0	11.44	12.0	13.82	15.0	16.43	18.0	19.86	21.0	22.58	24.0	28.80	29.5	28.90	30.0
	450	4.79	5.0	7.95	9.0	11.31	12.0	13.66	15.0	16.74	18.0	19.51	21.0	22.16	24.0	28.62	29.5	28.29	30.0
	550	4.44	5.0	8.10	9.0	11.24	12.0	13.63	15.0	16.84	18.0	19.31	21.0	22.06	24.0	28.61	29.5	28.20	30.0
	750	4.55	5.0	8.40	9.0	11.50	12.5	13.66	15.0	16.94	18.0	19.51	21.0	22.50	24.0	29.12	29.5	28.74	30.0
	870	4.87	5.0	8.48	9.0	11.69	12.5	13.92	15.0	17.21	18.0	19.87	21.0	22.90	24.0	29.66	30.0	29.23	30.0
	1000	4.97	5.0	8.56	9.0	11.17	12.5	13.67	15.0	16.39	18.0	19.56	21.0	22.65	24.0	30.04	30.5	28.96	30.5
Return Loss (dB, min)	5	14		14	13	14	14	14	14	14	14	14	14	14	14	14	14	14	
	10	14		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
	50	15		15	16	15	15	15	15	15	15	15	15	15	15	15	15	15	
	750	14		15	16	15	15	15	15	15	15	15	15	15	15	15	15	15	
	870	15		15	16	15	15	15	15	15	15	15	15	15	15	15	15	15	
	1000	15		14	16	14	14	14	14	14	14	14	14	15	14	14	15	15	
Tap-to-Tap Isolation (db, min)	5	18		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
	750	18		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
	1000	18		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
Out-to-Tap Isolation	5	-		18	20	22	25	25	25	25	25	25	25	25	35	35	35	35	
	750	-		18	20	22	25	25	25	25	25	25	25	25	35	35	35	35	
	1000	-		18	20	22	25	25	25	25	25	25	25	25	35	35	35	35	

Note: The Multimedia Stretch Tap consists of a housing and faceplate assemblies and a plug-in directional coupler module.

Table 4. Tap Value – 4-Way MMST

	Freq	Tap Value															
		8 dB		11 dB		14 dB		17 dB		20 dB		23 dB		26 dB		29 dB	
	MHz	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
Insertion Loss (dB)	5	-	-	3.45	3.9	1.91	2.4	1.16	1.7	0.85	1.4	0.76	1.3	0.76	1.3	0.76	1.3
	40	-	-	3.18	3.7	1.47	1.9	0.87	1.4	0.60	1.1	0.49	1.0	0.50	1.0	0.50	1.0
	50	-	-	3.20	3.7	1.47	1.9	0.87	1.4	0.61	1.1	0.49	1.0	0.49	1.0	0.49	1.0
	450	-	-	4.13	4.4	2.29	2.9	1.64	2.0	1.39	1.8	1.19	1.7	1.22	1.5	1.22	1.5
	550	-	-	4.00	4.5	2.36	3.0	1.73	2.1	1.49	1.8	1.26	1.7	1.30	1.5	1.30	1.5
	750	-	-	3.69	4.7	2.40	3.5	1.82	2.3	1.60	2.0	1.34	1.8	1.38	1.8	1.38	1.8
	870	-	-	4.97	4.8	2.55	3.6	1.97	2.6	1.78	2.4	1.43	1.9	1.46	1.9	1.46	1.9
	1000	-	-	4.67	5.2	2.86	3.6	1.99	2.6	1.78	2.4	1.36	1.9	1.35	1.9	1.35	1.9
Tap Loss (dB) (max ± tolerance)	5	8.15	9.0	10.86	12.0	14.18	16.0	16.67	18.0	19.95	21.0	22.89	23.5	25.70	26.5	28.70	29.5
	40	7.58	9.0	10.58	12.0	14.57	16.0	17.03	18.0	19.67	21.0	23.05	23.5	25.82	26.5	28.81	29.5
	50	7.38	9.0	10.58	12.0	14.55	16.0	17.02	18.0	19.63	21.0	23.03	23.5	25.80	26.5	28.80	29.5
	450	7.86	9.0	11.11	12.0	14.51	16.0	16.75	18.0	20.0	21.0	22.77	23.5	25.57	26.5	28.62	29.5
	550	7.56	9.0	11.38	12.0	14.43	16.0	16.72	18.0	20.27	21.0	22.59	23.5	25.52	26.5	28.61	29.5
	750	7.74	9.0	11.72	12.0	14.80	16.0	16.76	18.0	20.24	21.0	22.85	23.5	25.67	26.5	29.12	29.5
	870	8.12	9.5	12.27	12.0	15.04	16.0	17.15	18.5	20.69	21.5	23.37	24.0	26.21	27.0	29.66	30.0
	1000	8.73	9.5	12.44	12.0	15.18	16.0	17.11	18.5	20.50	21.5	23.60	24.0	26.31	27.0	30.04	30.5
Return Loss (dB, min)	5	14		14		13		14		14		14		14		14	
	10	14		15		15		15		15		15		15		15	
	50	15		15		16		15		15		15		15		15	
	750	14		15		16		15		15		15		15		15	
	870	15		15		16		15		15		15		15		15	
	1000	15		14		16		14		14		14		15		14	
Tap-to-Tap Isolation (dB, min)	5	18		18		18		18		18		18		18		18	
	750	18		18		18		18		18		18		18		18	
	1000	18		18		18		18		18		18		18		18	
Out-to-Tap Isolation	5	-		18		20		22		25		25		35		35	
	750	-		18		20		22		25		25		35		35	
	1000	-		18		20		22		25		25		35		35	

Table 5. Tap Value – 8-Way MMST

	Freq	Tap Value													
		11 dB		14 dB		17 dB		20 dB		23 dB		26 dB		29 dB	
	MHz	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
Insertion Loss (dB)	5	-	-	3.45	3.9	1.91	2.4	1.16	1.7	0.85	1.4	0.76	1.3	0.76	1.3
	40	-	-	3.18	3.7	1.47	1.9	0.87	1.4	0.60	1.1	0.49	1.0	0.50	1.0
	50	-	-	3.20	3.7	1.47	1.9	0.87	1.4	0.61	1.1	0.49	1.0	0.49	1.0
	450	-	-	4.13	4.4	2.29	3.2	1.64	2.0	1.39	1.8	1.19	1.6	1.22	1.5
	550	-	-	4.00	4.5	2.36	3.2	1.73	2.1	1.49	1.8	1.26	1.7	1.30	1.5
	750	-	-	3.69	4.6	2.40	3.5	1.82	2.3	1.60	2.0	1.34	1.8	1.38	1.8
	870	-	-	4.97	4.8	2.55	3.6	1.97	2.4	1.78	2.2	1.43	1.9	1.46	1.9
	1000	-	-	4.67	5.2	2.86	3.6	1.99	2.6	1.78	2.4	1.36	1.9	1.35	1.9
Tap Loss (dB)	5	11.34	12.0	14.50	15.0	17.71	19.0	20.21	21.0	23.43	24.0	26.13	27.0	28.93	30.5
	40	10.84	12.0	13.91	15.5	17.82	19.0	20.34	21.0	22.79	24.0	26.16	27.0	29.07	30.5
(Max tolerance ±1 dB)	50	10.62	12.0	13.90	15.5	17.79	19.0	20.31	21.0	22.80	24.0	26.20	27.0	29.06	30.5
	450	11.07	12.0	15.56	15.5	17.77	19.0	20.16	21.0	23.28	24.0	25.95	27.0	28.87	30.5
	550	11.17	12.0	14.85	15.5	17.95	19.0	20.24	21.0	23.53	24.0	25.96	27.0	28.84	30.5
	750	11.33	12.0	15.55	16.5	18.52	19.0	20.44	21.5	23.94	24.0	26.28	27.5	29.25	30.5
	870	11.87	13.0	16.18	17.0	18.96	20.0	20.92	22.0	24.53	25.0	26.78	28.0	30.08	31.0
	1000	12.35	13.5	16.34	17.5	19.05	20.0	21.08	22.0	24.48	25.0	27.06	28.0	30.48	31.0
Return Loss (dB, min)	5	14		14		12		14		14		14		14	
	10	14		15		15		15		15		15		15	
	50	15		15		15		15		15		15		15	
	750	15		15		15		15		15		15		15	
	870	15		15		15		15		15		15		15	
	1000	14		14		14		14		14		14		14	
Tap-to-Tap Isolation (dB, min)	5	18		18		18		18		18		18		18	
	750	18		18		18		18		18		18		18	
	1000	18		18		18		18		18		18		18	
Out-to-Tap Isolation	5	-		20		22		25		25		35		35	
	750	-		20		22		25		25		35		35	
	1000	-		20		22		25		25		35		35	

Ordering Information

Table 6. Ordering Information

Description	Part Number
2-Way Complete Tap Assembly	
SAT ST2-4, Multimedia Stretch Tap 2-Way 4 dB	562732
SAT ST2-8, Multimedia Stretch Tap 2-Way 8 dB	562733
SAT ST2-11, Multimedia Stretch Tap 2-Way 11 dB	562734
SAT ST2-14, Multimedia Stretch Tap 2-Way 14 dB	562735
SAT ST2-17, Multimedia Stretch Tap 2-Way 17 dB	562736
SAT ST2-20, Multimedia Stretch Tap 2-Way 20 dB	562737
SAT ST2-23, Multimedia Stretch Tap 2-Way 23 dB	562738
SAT ST2-26, Multimedia Stretch Tap 2-Way 26 dB	562739
SAT ST2-29, Multimedia Stretch Tap 2-Way 29 dB	562740
4-Way Complete Tap Assembly	
SAT ST4-8, Multimedia Stretch Tap 4-Way 8 dB	562742
SAT ST4-11, Multimedia Stretch Tap 4-Way 11 dB	562743
SAT ST4-14, Multimedia Stretch Tap 4-Way 14 dB	562744
SAT ST4-17, Multimedia Stretch Tap 4-Way 17 dB	562745
SAT ST4-20, Multimedia Stretch Tap 4-Way 20 dB	562746
SAT ST4-23, Multimedia Stretch Tap 4-Way 23 dB	562747
SAT ST4-26, Multimedia Stretch Tap 4-Way 26 dB	562748
SAT ST4-29, Multimedia Stretch Tap 4-Way 29 dB	562749
8-Way Complete Tap Assembly	
SAT ST8-11, Multimedia Stretch Tap 8-Way 11 dB	562751
SAT ST8-14, Multimedia Stretch Tap 8-Way 14 dB	562752
SAT ST8-17, Multimedia Stretch Tap 8-Way 17 dB	562753
SAT ST8-20, Multimedia Stretch Tap 8-Way 20 dB	562754
SAT ST8-23, Multimedia Stretch Tap 8-Way 23 dB	562755
SAT ST8-26, Multimedia Stretch Tap 8-Way 26 dB	562756
SAT ST8-29, Multimedia Stretch Tap 8-Way 29 dB	562757
Faceplate Assemblies	
SAT STF-2, Multimedia Stretch Tap 2-Way Faceplate Assembly	573542
SAT STF-4, Multimedia Stretch Tap 4-Way Faceplate Assembly	573543
SAT STF-8, Multimedia Stretch Tap 8-Way Faceplate Assembly	573544

DC Part Number	DC Value	Tap Value		
		2-Way	4-Way	8-Way
543487	0 dB	4 dB	8 dB	11 dB
562108	4 dB	8 dB	11 dB	14 dB
562109	7 dB	11 dB	14 dB	17 dB
562110	10 dB	14 dB	17 dB	20 dB
562111	13 dB	17 dB	20 dB	23 dB
562112	16 dB	20 dB	23 dB	26 dB
562113	19 dB	23 dB	26 dB	29 dB
562114	22 dB	26 dB	29 dB	-
562115	25 dB	29 dB	-	-



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