

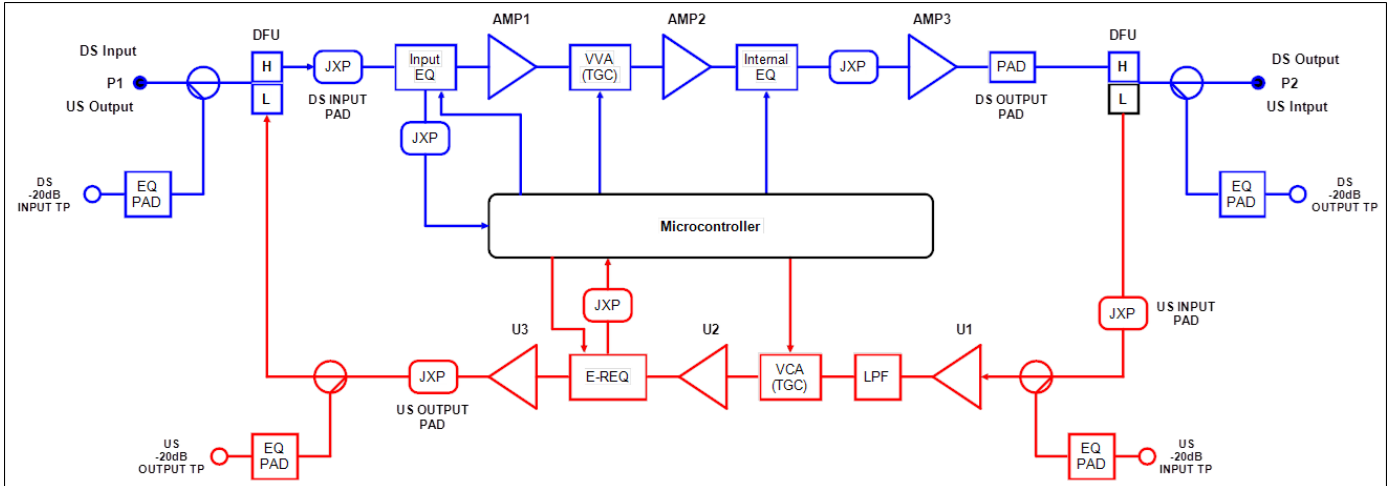
MFTJ MultiFlex-J (MDU) Amplifier 1.2 & 1.8 GHz

The ACI Communications' MultiFlex-J Amplifier is specifically designed for use in vertical mount applications. It is ideal for apartment complexes or business high-rise situations. The housing is mounted vertically with the input and output ports on the bottom. The UL approved power supply is mounted inside the housing that eliminates the need to have an external transformer.

Features

- ◆ Adjustments for forward/reverse gain, input/output levels, and slope are easily accomplished with the use of plug-in JXP style attenuators pads and pad adjustable equalizers.
- ◆ Pad adjustable forward and return equalizers that only require the JXP pad value to be changed for different slopes.
- ◆ Forward slopes and levels are easily configured for 1002, 1218 or 1794 MHz.
- ◆ Mounting is accomplished using easily accessible external tabs allowing a variety of placements in vented lock boxes or pedestals.
- ◆ The amplifier is housed in a finned aluminum die-cast housing for superior heat dissipation.
- ◆ -20 dB directional coupler test points are provided in the forward path at both the input and output with separate test points in the reverse path.
- ◆ RF connections are made through high performance SCTE compliant "F" type cable or 5/8" standard hard-line type cable connectors allowing the flexibility to place the unit on any type of cable.
- ◆ Internal UL approved power supply – No need for an external transformer.

Block Diagram



Specifications 85/105 Split 1.2G

STATION PARAMETERS: 1218 MHz 85-105 MHz Split			MFTJ 85/105 1218 MHz (MDU Amplifier)	
Parameters	Conditions	Units	Specifications	Note
Bandwidth		MHz	5 to 1218	
Return Loss	Any port, WC (As per ANSI_SCTE_279_2022)	dB	>12	
RF Test Point Level Accuracy	Forward & Reverse	dB	20 ± 0.75	
Downstream Station				
Downstream Bandwidth	85/105 MHz Split	MHz	105 to 1218	
Station Flatness	105 to 1218 MHz	±dB	0.5	(1)
	1186 to 1218 MHz	±dB	0.3	
Gain	@ 1218 MHz	dB	45 +1 /-0	
Internal Slope	105 - 1218 MHz Flat input, IP EQ set to 0 dB	dB	11 ± 1.0	Electronic control
Reference Output Slope	105 - 1218 MHz Flat input, IP EQ set to 7 dB	dB	18 ± 1.0	JXP PAD control
Input EQ Range		dB	0 to 7	
Slope Control Step Size	JXP Pad Value	dB	0.5	
Nominal Input Level @ 1218 MHz	Analog REF level	dBmV/ch	12	
	Virtual Digital Level		6	
Output Level @ 1215 MHz	Analog REF level	dBmV	58	
	Virtual digital level		52	
Output Level Stability		±dB	1.0	
Gain Control Step Size	JXP Pad	dB	0.5	
MGC Range	Electronic Control	dB	0 to 15	
Noise Figure	Max	dB	10	EQ Set to 0 dB (JXP)
Composite Triple Beat (CTB)	74 ch Analog + 75 ch 256 QAM Digital is -6 dB from Analog	dBc	-67	(2)
Cross Modulation (XMOD)		dBc	-64	
Composite Second Order (CSO)		dBc	-67	
MER	All Digital, -6 dB tilt input 108 - 1215 MHz	dB	40	(4)
BER		N/A	10 ⁻⁹	
Group Delay	Channel A-2	nsec / 3.58MHz	30	
	Channel A1		16	
	Channel 14		10	
	Channel 15 & Up		3	
Parameters	Conditions	Units	Specifications	Note
Upstream Station				
Upstream Bandwidth	85/105 Split	MHz	5 to 85	
Station Flatness	Normalized to 0 dB Slope	dB	0 ± 0.5	
Slope	5 to 10 MHz	dB	1.0 to 1.5	
	10 to 85 MHz	dB	-1.0 to 1.0	
Gain @ 85 MHz		dB	32 -0/+1	
Nominal Input Level		dBmV/ch	11	Digital Level
Output Level @ 85 MHz		dBmV	43	
Output Level Stability		±dB	1.0	
Gain Control Step Size	JXP Pad	dB	0.5	
MGC Range	Electronic Control	dB	0 to 15	
Noise Figure	Max	dB	7	(3)
NPR @ 50 dB	5 - 85 MHz, 28 dB Gain	dB	21	
MER	Digital Loading: 7 to 85 MHz	dB	40	MER value is source + DUT
BER			10 ⁻⁹	
Group Delay	5 MHz	nsec / 1.5 MHz	45	
	7 MHz		16	
	10 MHz		5	
	80 MHz		10	
	83.5 MHz		25	

Notes:

- (1) Flatness is tuned with the cable profile, IP EQ set to 7 dB, 18 dB output slope
- (2) 12 dBmV/ch for Analog, -6 dB digital, 7 dB IP EQ, 18 dB output slope
- (3) RF Atten and RTN EQ set to 0 dB
- (4) IP EQ set to 7 dB, 18 dB output slope, MER value is Source + DUT

Specifications 204/258 1.8 GHz

STATION PARAMETERS: 1.8 GHz 204-258 MHz Split			MFTJ 204/258 1.8 GHz (MDU Amplifier)	
Parameters	Conditions	Units	Specifications	Notes
Bandwidth		MHz	5 to 1794	
Return Loss	Any port, WC (As per ANSI_SCTE_279_2022)	dB	>12	
RF Test Point Level Accuracy	Forward & Reverse		20.0 ± 0.75	
Downstream Station				
Downstream Bandwidth	204/258 MHz Split	MHz	258 to 1794	
Station Flatness	258 to 1218 MHz	±dB	0.50	(1)
	258 to 1794 MHz	±dB	0.75	
	1762 to 1794 MHz	±dB	0.30	
Gain	REF @ 1794 MHz Input EQ set to 1 dB	dB	45 +1.0 / -0	
Internal Slope	105 - 1218 MHz Flat input, IP EQ set to 0 dB	dB	15 ± 1.0	Electronic control
Reference Output Slope	105 - 1218 MHz Flat input, IP EQ set to 7 dB	dB	23 ± 1.0	JXP PAD control
Input EQ Range		dB	0 to 8	
Slope Control Step Size	JXP Pad Value	dB	0.5	
Nominal Input Level @ 1794 MHz	Analog REF level	dBmV/ch	12	
	Virtual Digital Level		6	
Output Level @ 1794 MHz	Analog REF level	dBmV	58	
	Virtual digital level		52	
Output Level Stability		±dB	1.0	
Gain Control Step Size	JXP Pad	dB	0.5	
MGC Range	Electronic Control	dB	0 to 15	
Noise Figure @ 1794 MHz	Max	dB	10	EQ Set to 0 dB (JXP)
MER	All Digital, flat input 261 - 1791 MHz, -6 dB @ 1218 MHz	dB	40	(2)
BER		N/A	10 ⁻⁹	
Group Delay	Ch 30 (259.2625 to 262.8425)	nsec/ 3.58MHz	10	
	Ch 31 (265.2625 to 268.8425)		8	
	Ch 32 (271.2625 to 274.8425)		7	
	Ch 33 (277.2625 to 280.8425)		5	
Parameters	Conditions	Units	Specifications	Note
Upstream Station				
Upstream Bandwidth	204/258 Split	MHz	5 to 204	
Station Flatness	Normalized to 0 dB Slope	dB	0 ± .75	
Gain	@ 204 MHz	dB	32 -0/+1	
Slope	5 to 10 MHz	dB	1.0 to 1.5	
	10 to 204 MHz	dB	-1.0 to 1.0	
Nominal Input Level		dBmV/ch	11.0	Digital Level
Output Level @ 204 MHz		dBmV	43.0	
Output Level Stability		±dB	1.0	
Gain Control Step Size	JXP Pad	dB	0.5	
MGC Range	Electronic Control	dB	0 to 15	
Noise Figure	Max	dB	7	(3)
NPR @ 55dB	5 - 204 MHz, 27 dB Gain	dB	10	
MER	31 ch Digital: 7 to 201 MHz	dB	40	MER value is source + DUT
BER			10 ⁻⁹	
Group Delay	5 to 6.5 MHz	ns	60	
	7 to 8 MHz		22	
	8.5 to 9.5 MHz		12	
	199.5 to 201 MHz		6	
	201 to 202.5 MHz		4	
	202.5 to 204 MHz		7	

Notes:

- (1) Flatness is tuned with the cable profile, IP EQ set to 8 dB, 23 dB output slope
- (2) IP EQ set to 8 dB, 23 dB output slope, MER value is Source + DUT
- (3) RF Atten and RTN EQ set to 0 dB

Specifications 396/492 Split

STATION PARAMETERS: 1.8 GHz 396-492 MHz Split			MFTJ 396/492 1.8 GHz (MDU Amplifier)	
Parameters	Conditions	Units	Specifications	Notes
Bandwidth		MHz	5 to 1794	
Return Loss	Any port, WC (As per ANSI_SCTE_279_2022)	dB	>12	
RF Test Point Level Accuracy	Forward & Reverse		20.0 ± 0.75	
Downstream Station				
Downstream Bandwidth	396/492 MHz Split	MHz	492 to 1794	
Station Flatness	492 to 1218 MHz	±dB	0.50	(1)
	492 to 1794 MHz	±dB	0.75	
	1762 to 1794 MHz	±dB	0.30	
Gain	REF @ 1794 MHz Input EQ set to 1 dB	dB	45 +1.0 / -0	
Internal Slope	492 - 1794 MHz Flat input, IP EQ set to 0dB	dB	11.5 ± 1.0	Electronic control
Reference Output Slope	492 - 1794 MHz Flat input, IP EQ set to 8dB	dB	19.5 ± 1.0	JXP PAD control
Input EQ Range		dB	0 to 8	
Slope Control Step Size	JXP Pad Value	dB	0.5	
Nominal Input Level @ 1794 MHz	Analog REF level	dBmV/ch	12	
	Virtual Digital Level		6	
Output Level @ 1794 MHz	Analog REF level	dBmV	58	
	Virtual digital level		52	
Output Level Stability		±dB	1.0	
Gain Control Step Size	JXP Pad	dB	0.5	
MGC Range	Electronic Control	dB	0 to 15	
Noise Figure	Max	dB	10	EQ Set to 0 dB (JXP)
MER	All Digital, flat input 495 - 1791 MHz, -6 dB @ 1218 MHz	dB	40	(2)
BER		N/A	10 ⁻⁹	
Group Delay	Ch 69 (493.25 - 496.83 MHz)	nsec/ 3.58MHz	10	
	Ch 70 (499.25 - 502.83 MHz)		8	
	Ch 71 (505.25 - 508.83 MHz)		7	
	Ch 72 (511.25 - 514.83 MHz)		5	
Parameters	Conditions	Units	Specifications	Notes
Upstream Station				
Upstream Bandwidth	396/492MHz Split	MHz	5 to 396	
Station Flatness	Normalized to 0 dB Slope	±dB	0.75	
Gain	@ 396 MHz	dB	32 -0/+1	
Slope	5 to 10 MHz	dB	1.0 to 1.5	
	10 to 396 MHz	dB	-1.0 to 1.0	
Nominal Input Level		dBmV/ch	11	Digital level
Output Level @ 396 MHz		dBmV	43	
Output Level Stability		±dB	1.0	
Gain Control Step Size	JXP Pad	dB	0.5	
MGC Range	Electronic Control	dB	0 to 15	
Noise Figure @ 396 MHz		dB	7	(3)
NPR @ 51 dB	5 - 396 MHz, 32 dB Gain	dB	7	
MER	31 ch Digital: 7 to 201 MHz	dB	40	MER value is source + DUT
BER			10 ⁻⁹	
Group Delay	5 to 6.5 MHz	ns	60	
	7 to 8 MHz		22	
	8.5 to 9.5 MHz		12	
	391.5 to 393 MHz		10	
	393 to 394.5 MHz		10	
	394.5 to 396 MHz		10	

Notes:

(1) Flatness is tuned with the cable profile, IP EQ set to 8 dB, 19.5 dB output slope

(2) IP EQ set to 8 dB, 19.5 dB output slope, MER value is Source + DUT

(3) RF Atten and RTN EQ set to 0 dB

Power, Standards & Environmental

POWER, STANDARDS & ENVIRONMENTAL				MFTJ (MDU Amplifier)
Power Requirments				
AC Input Power		Vac	90 to 240	
Power Dissipation		W	28	
Enviromental				
Weight		lbs. (kg)	7.8 (9.5)	
Dimensions	(H x W x D)	in (cm)	16.9 x 11.0 x 6.3 (43 x 28 x 16)	
Operating Temperature		°F (°C)	-40 to +140 (-40 to +60)	
Standards				
Surge Withstand	IEEE C62.45 Category A3 Ring Waveforms Reference to ANSI/SCTE 81		6 kV/200 A	
ESD Withstand	IEC/EN61000-4-2, Level IV HBM Refernce to ANSI/SCTE 279		8 kV direct contact 15 kV air discharge (IEC 61000)	

Ordering Information

MFTJ Configuration Sheet 1.2 & 1.8 GHz

Customer: _____

Created By: _____ Order Date: _____

ORDERING MATRIX

August 2, 2023

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PART NUMBER	M	F	T	J		/								-	

5 BANDWIDTH
 2 = 1.2 GHz - For 85/105 Split
 8 = 1.8 GHz - For 204/258 or 369/492 Split

12 STATUS MONITORING & REMOTE CONTROL
 N= None
 D = DOCSIS 3.0 Transponder

7-8 FORWARD GAIN
 45 = 45 dB

13 POWERING
 9 = Mains switch mode power supply
 (90 - 240 VAC)

9 STATION SLOPE

1.2 GHz	105-1218
W =	11.0

15 POWER CORD SETS OR CUSTOM
 0 = None
 1 = North America
 2 = International / Europe
 3 = Japan
 4 = Australia
 5 = Argentina
 X = Custom - (Determined by product management)

1.8 GHz	258-1794	492-1794
A =	15.0	11.5

10 FREQUENCY SPLIT (MHz)
 8 = Mid-Split 85/105 (MS 1.2G)
 2 = High-Split 204/258 (HS 1.8G)
 3 = Ultra-High-Split 396/492 (UHS 1.8G)

11 REVERSE GAIN
 R= 32 dB

NOTES:

- For proper setup it is recommended to only use the ACI Communications test probe (P/N 100685-01 or TP-7504).

