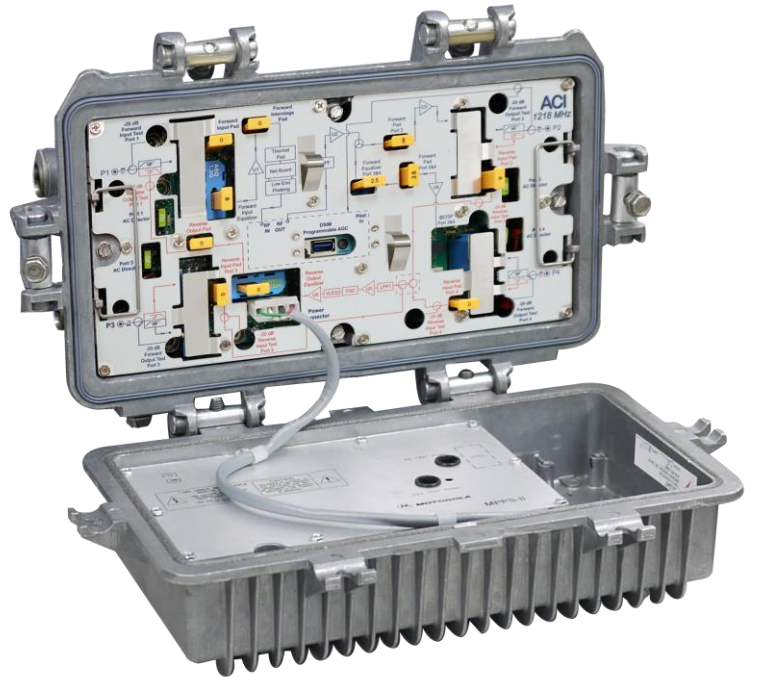




BLE
(1 Output Line Extender)



MB
(2 or 3 Output Mini Bridger)

ASEM™ Replacement Upgrade RF Modules 1218 MHz For GI/Motorola® BLE & MB

The ACI ASEM 1.2G replacement upgrade RF modules for the Moto BLE and MB are designed to work up to a high forward output of 57 dBmV. The return bandwidth split can be easily changed from 42 to 85 or 204 MHz with the use of field conversion kits. ACI's patented DSIM advanced technology keeps both the forward and return signals stable and reliable over extreme temperature swings. Having return band stabilization over temperature has become much more important as return band is increased to 204 MHz. Having the increased return gain of 28 dB enables these amplifiers to drop into existing designs from 750 MHz to 1 GHz.

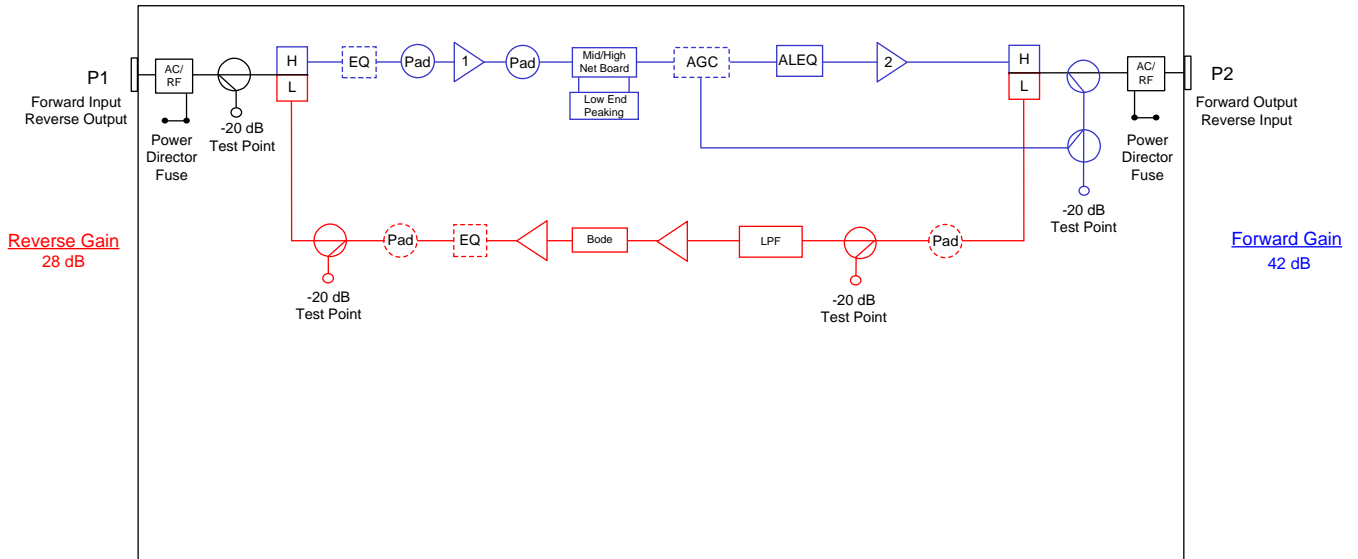
Features

- ◆ Drop-in 1.2G replacement RF modules for Motorola® Starline® MB Mini-Bridger and BLE Line Extender
- ◆ Easy upgrade to 85/105 or 204/258 MHz return bandwidth.
- ◆ -20.0 dB directional coupler test points
- ◆ 28 dB return gain
- ◆ RoHS Compliant
- ◆ Patented DSIM® Technology (smart, programmable AGC)
- ◆ Increased reliability with higher surge protection
- ◆ DSIM controlled return band AGC
- ◆ Pad adjustable forward and return EQ's
- ◆ DSIM Android & Apple iOS setup applications

BLOCK DIAGRAMS

ASEM-BLE

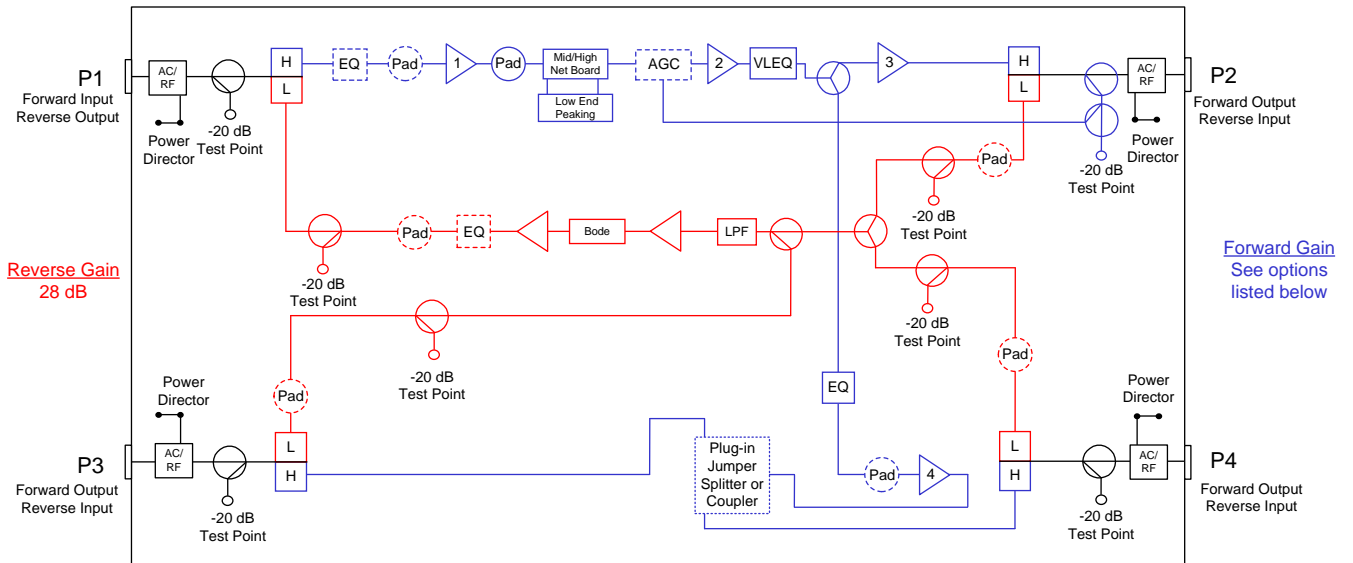
ASEM BLE 1218 MHz Amplifier Block Diagram



Note:
1. Forward gain stated at 1218 MHz with AGC. Reverse gain stated at 42, 85 or 204 MHz.

ASEM-MB

ASEM MB 1218 MHz Amplifier Block Diagram



Notes:
1. Forward gain stated at 1218 MHz with AGC. Reverse gain stated at 42, 85 or 204 MHz.
2. Amplifiers are configured at the factory with jumper in Position #2 to have P2 & P4 active.
Splitters and Couplers are sold separately.

Jumper Position #1	Jumper Position #2	SDA1.2-SPLT	SDA1.2-DC8	SDA1.2-DC8	SDA1.2-DC10	SDA1.2-DC10	SDA1.2-DC12	SDA1.2-DC12
Port	Port	Port	Port	Port	Port	Port	Port	Port
Fwd Gain (dB)	Fwd Gain (dB)	Fwd Gain (dB)	Fwd Gain (dB)	Fwd Gain (dB)	Fwd Gain (dB)	Fwd Gain (dB)	Fwd Gain (dB)	Fwd Gain (dB)
P2 48.0	P2 48.0	P2 48.0	P2 48.0	P2 48.0	P2 48.0	P2 48.0	P2 48.0	P2 48.0
P3 48.0	P3 N/A	P3 44.0	P3 40.0	P3 45.0	P3 38.0	P3 46.0	P3 36.0	P3 46.0
P4 N/A	P4 48.0	P4 44.0	P4 45.0	P4 40.0	P4 46.0	P4 38.0	P4 46.0	P4 36.0

Station Parameters 42/53

STATION PARAMETERS:		1218 MHz 42-53 MHz Split		ASEM For Motorola 1218 MHz MB & BLE	
		CONDITIONS	UNITS	SPECIFICATIONS	
Housing passband			MHz	5 to 1218	
Input current capacity	Any port, worst case		Amp	15	
Hum modulation	Time domain @ rated current above		-dBc	65 @ 5-42 MHz 65 @ 54-1218 MHz	
Return loss	Any port, worst case		dB	16.0	
Test Points					
Frequency range			MHz	5 to 42 (Reverse) / 54 to 1218 (Forward)	
Test point type	Directional coupler		N / A		
Test point level	Forward & reverse		-dB	20.0	
Test point accuracy	Forward & reverse		±dB	0.75	
Station Slope				MB (Mini Bridger)	BLE (Line Extender)
Operational slope (Tilt)	@ 54 / 550 / 1218 MHz		dB	0 / 8.1 / 19.0	0 / 8.1 / 19.0
Slope control type	Cable equalizers		dB	Pad Adjustable EQ's	
Slope control range	Includes cable equivalent		dB	-12.0 to +22	
Slope control steps	Equalizer value steps		dB	1.0	
Station Group Delay					
Group delay	Channel 2 (Std)		nSec / 3.58 MHz	37	
Group delay	Channel 3			16	
Group delay	Channel 4			10	
Group delay	Channel 5 & up			3	
AGC					
Pilot channel type	Up to 1002 MHz		N / A	DSIM-A Single Pilot Channel AGC Analog or QAM	
Compensation range			dB	System compensation input change +4/-8 @ 1218 MHz	
Accuracy			±dB	0.5	
Nominal loss	@ 77 °F (25 °C)		dB	6.25	
Configuration				MB (Mini Bridger)	BLE (Line Extender)
Operational Specifications					
Station flatness	Normalized w / 0 dB slope		±dB	0.50	0.30
Gain - Port 2 (W/DSIM)	+1.0 / -0 @ 1218 MHz		dB	48.0	42.0
Gain - Port 3 (W/DSIM)			dB	-	-
Gain - Port 4 (W/DSIM)			dB	48.0	-
496 MHz analog channel loading, 79 channels + 660 MHz digital channel loading, 256 QAM at -6 dBc relative to its associated visual carrier					
Station Referenced Output Levels				MB (Mini Bridger)	BLE (Line Extender)
Port 2	@ 54 / 550 / 1218 MHz		dBmV	38.0 / 46.1 / 57.0	38.0 / 46.1 / 57.0
Port 3				-	-
Port 4					38.0 / 46.1 / 57.0
Reference output slope (Tilt)	54-1218 MHz		dB	19.0	19.0
Station Noise Figure					
Noise figure (W/1 dB for input EQ loss)	Typ. @ 54 to 1002 MHz		dB	9.0	9.0
	Typ. @ 1218 MHz		dB	9.5	10.0
Station Distortions (Worse Case)					
Composite Triple Beat (CTB)			-dBc	67	67
Cross Modulation (XMOD)			-dBc	65	64
Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)		-dBc	67	67
Composite Second Order (CSO+)	(Vc +1.25 MHz)		-dBc	67	67
MER			dB	≥40	≥40
BER			N / A	≤ 1 x 10 ⁻⁹	≤ 1 x 10 ⁻⁹

Station Parameters 85/105

STATION PARAMETERS:			1218 MHz 85-105 MHz Split	ASEM For Motorola 1218 MHz MB & BLE	
		CONDITIONS	UNITS	SPECIFICATIONS	
Housing passband			MHz	5 to 1218	
Input current capacity	Any port, worst case		Amp	15	
Hum modulation	Time domain @ rated current above		-dBc	65 @ 5-85 MHz 65 @ 105-1218 MHz	
Return loss	Any port, worst case		dB	16.0	
Test Points					
Frequency range			MHz	5 to 85 (Reverse) / 105 to 1218 (Forward)	
Test point type	Directional coupler		N / A		
Test point level	Forward & reverse		-dB	20.0	
Test point accuracy	Forward & reverse		±dB	0.75	
Station Slope				MB (Mini Bridger)	BLE (Line Extender)
Operational slope (Tilt)	@ 105 / 550 / 1218 MHz		dB	0 / 7.2 / 18.0	0 / 7.2 / 18.0
Slope control type	Cable equalizers		dB	Pad Adjustable EQ's	
Slope control range	Includes cable equivalent		dB	-12.0 to +22.0	
Slope control steps	Equalizer value steps		dB	1.0	
Station Group Delay					
Group delay	Channel A-2	nSec / 3.58 MHz		30	
Group delay	Channel A-1			16	
Group delay	Channel 14			10	
Group delay	Channel 15 & up			3	
AGC					
Pilot channel type	Up to 1002 MHz		N / A	DSIM-A Single Pilot Channel AGC Analog or QAM	
Compensation range			dB	System compensation input change +4/-8 @ 1218 MHz	
Accuracy			±dB	0.5	
Nominal loss	@ 77 °F (25 °C)		dB	6.25	
Configuration				MB (Mini Bridger)	BLE (Line Extender)
Operational Specifications					
Station flatness	Normalized w / 0 dB slope		±dB	0.50	0.35
Gain - Port 2 (W/DSIM)	+1.0 / -0 @ 1218 MHz		dB	48.0	42.0
Gain - Port 3 (W/DSIM)			dB	-	-
Gain - Port 4 (W/DSIM)			dB	48.0	-
Gain - Port 4 (W/DSIM)			dB	48.0	-
442 MHz analog channel loading, 74 channels + 660 MHz digital channel loading, 256 QAM at -6 dBc relative to its associated visual carrier					
Station Referenced Output Levels				MB (Mini Bridger)	BLE (Line Extender)
Port 2	@ 105 / 550 / 1218 MHz		dBmV	39.0 / 46.2 / 57.0	
Port 3				-	
Port 4				39.0 / 46.2 / 57.0	
Reference output slope (Tilt)				105-1218 MHz	dB
Station Noise Figure					
Noise figure (W/1 dB for input EQ loss)	Typ. @ 105 to 1002 MHz		dB	9.0	9.0
	Typ. @ 1218 MHz		dB	9.5	10.0
Station Distortions (Worse Case)					
Composite Triple Beat (CTB)			-dBc	67	67
Cross Modulation (XMOD)			-dBc	65	64
Composite Second Order (CSO-)	(Vc +0.75 & -1.25 MHz)		-dBc	67	67
Composite Second Order (CSO+)	(Vc +1.25 MHz)		-dBc	67	67
MER			dB	≥40	≥40
BER			N / A	≤ 1 x 10 ⁻⁹	≤ 1 x 10 ⁻⁹

Station Parameters 204/258

STATION PARAMETERS:			1218 MHz 204-258 MHz Split		ASEM For Motorola 1218 MHz MB & BLE	
		CONDITIONS	UNITS	SPECIFICATIONS		
Housing passband			MHz	5 to 1218		
Input current capacity	Any port, worst case		Amp	15		
Hum modulation	Time domain @ rated current above		-dBc	65 @ 5-204 MHz 65 @ 258-1218 MHz		
Return loss	Any port, worst case		dB	16.0		
Test Points						
Frequency range			MHz	5 to 204 (Reverse) / 258 to 1218 (Forward)		
Test point type	Directional coupler		N / A			
Test point level	Forward & reverse		-dB	20.0		
Test point accuracy	Forward & reverse		±dB	0.75		
Station Slope				MB (Mini Bridger)	BLE (Line Extender)	
Operational slope (Tilt)	@ 258 / 550 / 1218 MHz		dB	0 / 4.7 / 15.5		
Slope control type	Cable equalizers		dB	Pad Adjustable EQ's		
Slope control range	Includes cable equivalent		dB	-12.0 to +22		
Slope control steps	Equalizer value steps		dB	1.0		
Station Group Delay						
Group delay	Channel 30		nSec / 3.58 MHz	30		
Group delay	Channel 31			16		
Group delay	Channel 32			10		
Group delay	Channel 33 & up			3		
AGC						
Pilot channel type	Up to 1002 MHz		N / A	DSIM-A Single Pilot Channel AGC Analog or QAM		
Compensation range			dB	System compensation input change +4/-8 @ 1218 MHz		
Accuracy			±dB	0.5		
Nominal loss	@ 77 °F (25 °C)		dB	6.25		
Configuration				MB (Mini Bridger)	BLE (Line Extender)	
Operational Specifications						
Station flatness	Normalized w / 0 dB slope		±dB	0.50		
Gain - Port 2 (W/DSIM)	+1.0 / -0 @ 1218 MHz		dB	48.0		
Gain - Port 3 (W/DSIM)			dB	-		
Gain - Port 4 (W/DSIM)			dB	48.0		
Station Referenced Output Levels				MB (Mini Bridger)	BLE (Line Extender)	
Port 2	@ 258 / 550 / 1218 MHz		dBmV	41.5 / 46.2 / 57.0		
Port 3				-		
Port 4				41.5 / 46.2 / 57.0		
Reference output slope (Tilt)	258-1218 MHz		dB	15.5		
Station Noise Figure						
Noise figure (W/1 dB for input EQ loss)	Typ. @ 258 to 1002 MHz		dB	9.0		
	Typ. @ 1218 MHz		dB	9.5		
Station BER/MER Performance						
MER			dB	≥40		
BER			N / A	≤ 1 x 10 ⁻⁹		

Reverse Spectrum

REVERSE SPECTRUM:			ASEM For Motorola 1218 MHz MB & BLE	
REVERSE				
Reverse - General		CONDITIONS	UNITS	
Station passband			MHz	5 to 42, 5 to 85, 5 to 204
Station flatness	Normalized w / 0 dB slope		±dB	0.5
Reverse - Station Gain				
Gain	+1.0 / -0 @ HF		dB	28.0
Gain control type				JXP Plug-in pads
Reverse - Station Slope				
Slope control type	Cable equalizers		N / A	Pad Adjustable Eqs
Slope control range			dB	0 to 15.0
Slope control steps	Equalizer value steps		dB	1.0
Reverse - Station Group Delay				
Group delay	5 MHz	nSec / 1.5 MHz		45
Group delay	7 MHz			16
Group delay	10 MHz			5
Group delay	35 / 80 / 199 MHz			10
Group delay	38.5 / 83.5 / 202.5 MHz			25
Configuration			MB (Mini Bridger)	BLE (Line Extender)
Reverse - Station Dynamic Range				
Reference Output Level			dBmV	42.0
NPR at 50 dB CNR at 42 MHz	42/53 Split		dB	21.0
NPR at 50 dB CNR at 85 MHz	85/105 Split		dB	18.0
NPR at 50 dB CNR at 204 MHz	204/258 Split		dB	12.0
Reverse - Noise Figure				
Noise figure (W/1 dB for input EQ loss)	Maximum		dB	11.5
Power Requirements:				
Max Watts	Includes reverse & DSIM (Worst case)		W	42.9
AC Voltage				
Input ranges			VAC	45 to 90
Current Draw (with DSIM AGC)				
@ 45 VAC	Maximum		A	1.28
@ 50 VAC			A	1.15
@ 60 VAC			A	1.07
@ 70 VAC			A	0.93
@ 80 VAC			A	0.81
@ 90 VAC			A	0.74
Weight			MB	BLE
Weight			lbs. (kg)	3.75 (1.7)
Physical				
Dimensions	(H X W X D)		In, (cm)	5.9 X 12.6 X 2.36 (15 X 32 X 6)
				5.12 X 8.72 X 3.20 (13.0 X 22.14 X 8.20)
Environmental				
Operating temperature			°F (°C)	-40 to +140 (-40 to +60)

Accessory Ordering Information:

The ASEM Moto ordering matrix provides the part number information to order the configured stations. This page contains the ordering information for the required accessories that will be needed to make the stations functional in the field or the optional accessories that can be ordered separately.

Required Accessories

Description	Part Numbers (Where XX.X = dB value)
JXP style attenuator pads <ul style="list-style-type: none"> • 1 Required for forward input • 1 Required for reverse output • 1 Required for forward input Equalizer • 1 Required for reverse output Equalizer 	JXP137B-XX (0 to 20 dB in 1.0 dB steps)

Optional Accessories

Description	Part Numbers
Digital Station Intelligence Manager - Single Pilot AGC Module (Analog or Digital)	DSIM-A-MDL-1201
Digital Station Intelligence Manager -Controller	DSCT-xxx-yyy xxx = Pilot Channel Number yyy = Channel Type IRC = Analog IRC Spacing DIG = Digital / QAM
DSIM Bluetooth Dongle Apple iOS or android	DSIM-DONGLE-02
Cable assembly DSIM adaptor to connect controller	240330-01
Pad Adjustable Equalizer JXP Platform 0-22 dB	AEQ1.2G
Pad Adjustable Cable Equivalent Equalizers JXP Platform 0-12 dB	ACEQ1.2G
Pad Adjustable Reverse Equalizers 5-42, 85 and 204 MHz JXP Platform 0-12 dB (5 Pin)	AREQPE42 AREQPE85 AREQPE204
Motorola MB DC/SP2 For P3 or P4	SDA1.2-SPLT SDA1.2-DC8 SDA1.2-DC10 SDA1.2-DC12
Test Probe (5.5" Long)	100685-01
Test Probe (1.57" / 4 cm Long)	TP-7504
Seizure 15 Amp RED 15 Amp Housing for Motorola MB (QTY 4)	120578-04
Seizure 15 Amp RED 15 Amp Housing Motorola BLE (QTY 2)	TBD
Split Conversion Kit, Moto BLE 85/105 1.2G	120619-01
Split Conversion Kit, Moto MB 85/105 1.2G	120620-01
Split Conversion Kit, Moto BLE 204/258 1.2G	120621-01
Split Conversion Kit, Moto MB 204/258 1.2G	120622-01

Ordering Matrix

ASEM™ 1.2G Moto Product Configuration Worksheet

Customer: _____

Created By: _____ Order Date: _____

ORDERING MATRIX

March 21, 2022

Position	1	2	3	4	5	6	7	8	9	10	11
PART NUMBER											

1,2 STATION TYPE

BL = 1 Output LE MB = 2 or 3 Output Bridger

3 BANDWIDTH FREQUENCY

2 = 1218 MHz Upper Frequency

4 BANDPASS SPLIT

K = 5-42 MHz / 54- 1218 MHz MHz H = 5-204 MHz / 258-1218 MHz
N = 5-85 MHz / 105-1218 MHz MHz

5,6 STATION GAIN (Forward)

Amplifier Model	BL	MB
Max gain with DSIM-A AGC	42	48

7 FORWARD GAIN CONTROL TYPE

D = Digital Station Intelligence Manger (DSIM-A)

8 STATION SLOPE

	54-1218	105-1218	258-1218
V =	19.0	18.0	15.5

9 STATION GAIN (Reverse)

L = 28 dB

10 HOUSING OPTIONS

M = RF Module Only

11 CUSTOM OPTIONS

0 = NONE

X = Determined by Product Management

Generic Order Form: Not all configurations are available



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