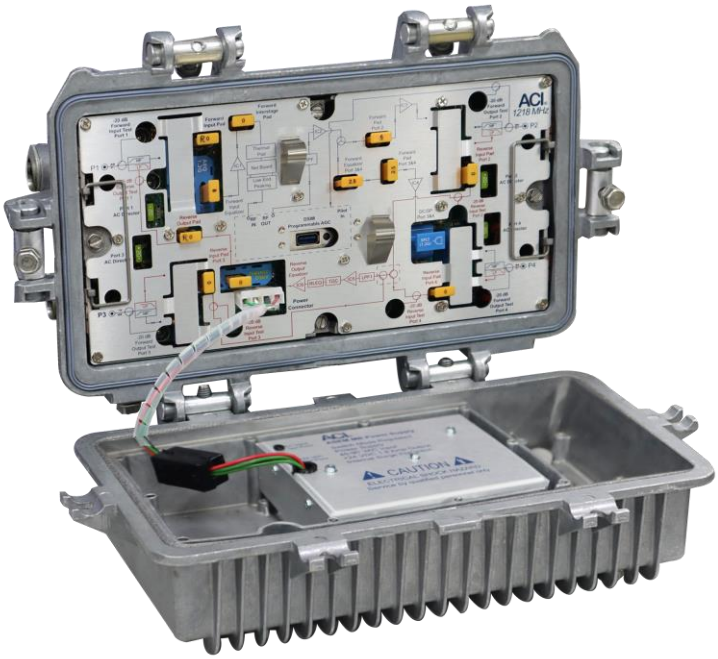
BLE
(1 Output Line Extender)



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.

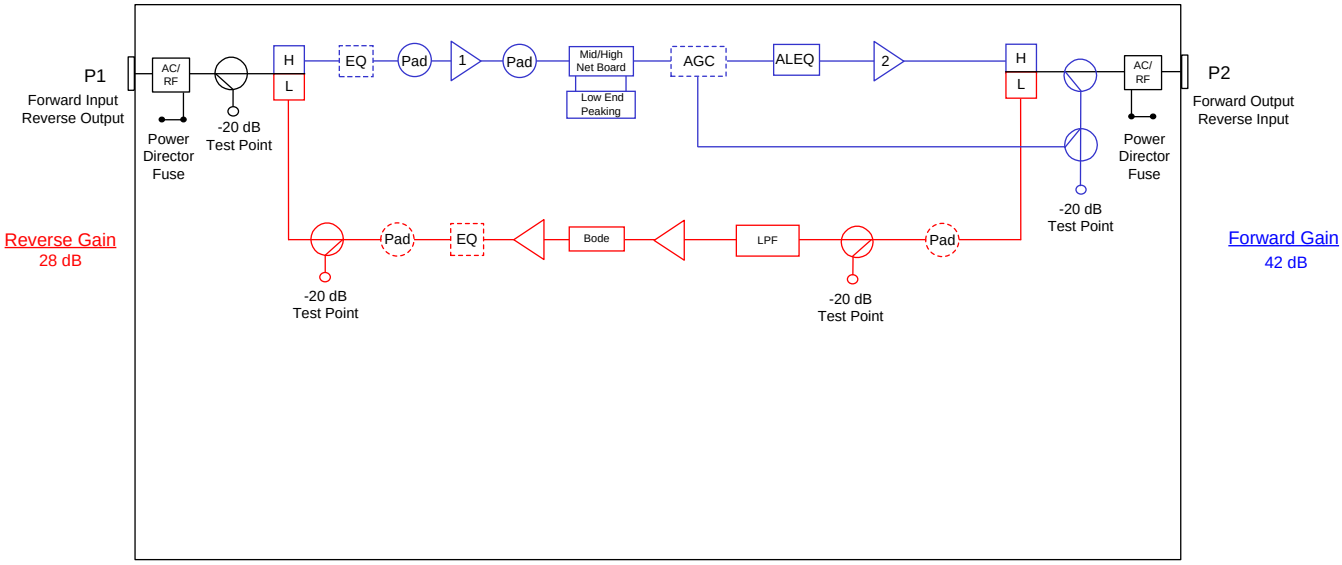
Features

- 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 (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

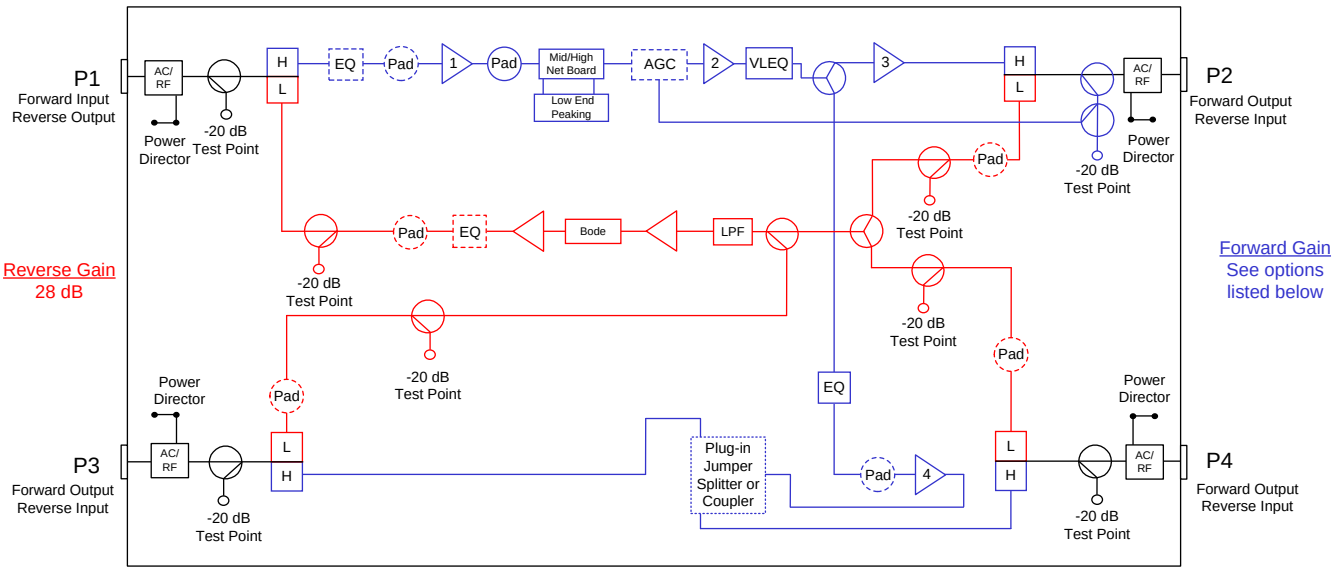
ASEM BLE 1218 MHz Amplifier Block Diagram



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

Port	Fwd Gain (dB)
P2	48.0
P3	48.0
P4	N/A

Jumper Position #2

Port	Fwd Gain (dB)
P2	48.0
P3	N/A
P4	48.0

SDA1.2-SPLT

Port	Fwd Gain (dB)
P2	48.0
P3	44.0
P4	44.0

SDA1.2-DC8

Port	Fwd Gain (dB)
P2	48.0
P3	40.0
P4	45.0

SDA1.2-DC8

Port	Fwd Gain (dB)
P2	48.0
P3	45.0
P4	40.0

SDA1.2-DC10

Port	Fwd Gain (dB)
P2	48.0
P3	38.0
P4	46.0

SDA1.2-DC10

Port	Fwd Gain (dB)
P2	48.0
P3	46.0
P4	38.0

SDA1.2-DC12

Port	Fwd Gain (dB)
P2	48.0
P3	36.0
P4	46.0

SDA1.2-DC12

Port	Fwd Gain (dB)
P2	48.0
P3	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		4	
AGC			DSIM-A Single Pilot Channel AGC	
Pilot channel type	Up to 1002 MHz	N / A	Analog or QAM	
Compensation range		dB	System compensation input change +4/-8 @ 1218 MHz	
Accuracy		±dB	0.5	
Nominal loss	@ 77 ºF (25 ºC)	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	10.5
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	$\leq 1 \times 10^{-9}$	$\leq 1 \times 10^{-9}$

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			DSIM-A Single Pilot Channel AGC	
Pilot channel type	Up to 1002 MHz	N / A	Analog or QAM	
Compensation range		dB	System compensation input change +4/-8 @ 1218 MHz	
Accuracy		±dB	0.5	
Nominal loss	@ 77 ºF (25 ºC)	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	-
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	39.0 / 46.2 / 57.0
Port 3			-	-
Port 4			39.0 / 46.2 / 57.0	-
Reference output slope (Tilt)	105-1218 MHz	dB	18.0	18.0
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	10.5
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	$\leq 1 \times 10^{-9}$	$\leq 1 \times 10^{-9}$

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	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			DSIM-A Single Pilot Channel AGC	
Pilot channel type	Up to 1002 MHz	N / A	Analog or QAM	
Compensation range		dB	System compensation input change +4/-8 @ 1218 MHz	
Accuracy		±dB	0.5	
Nominal loss	@ 77 ºF (25 ºC)	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	-
Station Referenced Output Levels			MB (Mini Bridger)	BLE (Line Extender)
Port 2	@ 258 / 550 / 1218 MHz	dBmV	41.5 / 46.2 / 57.0	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	15.5
Station Noise Figure				
Noise figure (W/1 dB for input EQ loss)	Typ. @ 258 to 1002 MHz	dB	9.0	9.0
	Typ. @ 1218 MHz	dB	9.5	10.5
Station BER/MER Performance				
MER		dB	≥40	≥40
BER		N / A	$\leq 1 \times 10^{-9}$	$\leq 1 \times 10^{-9}$

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 - 5 to 42 MHz	Normalized w / 0 dB slope	±dB	0.50	
Station flatness - 5 to 85 MHz	Normalized w / 0 dB slope	±dB	0.50	
Station flatness - 5 to 204 MHz	Normalized w / 0 dB slope	±dB	0.65	
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	42.0
NPR at 50 dB CNR at 42 MHz	42/53 Split	dB	21.0	24.0
NPR at 50 dB CNR at 85 MHz	85/105 Split	dB	18.0	21.0
NPR at 50 dB CNR at 204 MHz	204/258 Split	dB	12.0	17.0
Reverse - Noise Figure				
Noise figure (W/1 dB for input EQ loss)	Maximum	dB	11.5	6.0
Power Requirements:				
Max Watts	Includes reverse & DSIM (Worst case)	W	42.9	27.2
AC Voltage				
Input ranges		VAC	45 to 90	
Current Draw (with DSIM AGC)				
@ 45 VAC	Maximum	A	1.28	0.70
@ 50 VAC		A	1.15	0.65
@ 60 VAC		A	1.07	0.57
@ 70 VAC		A	0.93	0.55
@ 80 VAC		A	0.81	0.51
@ 90 VAC		A	0.74	0.48
Weight			MB	BLE
Weight		lbs. (kg)	3.75 (1.7)	3.31 (1.5)
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 = dB value)
JXP style attenuator pads • 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 White 15 Amp Housing Motorola BLE (QTY 2)	120636-02
Split Conversion Kit, Moto MB 85/105 1.2G 18 dB Slope	120620-01
Split Conversion Kit, Moto BLE 85/105 1.2G 18 dB Slope	120619-01
Split Conversion Kit, Moto BLE 85/105 1.2G 11 dB Slope	120662-01
Split Conversion Kit, Moto MB 204/258 1.2G 15.5 dB Slope	120622-01
Split Conversion Kit, Moto BLE 204/258 1.2G 15.5 dB Slope	120621-01
Split Conversion Kit, Moto BLE 204/258 1.2G 8.5 dB Slope	120663-01
Moto MB 45-90 VAC Power Supply for Jerrold Housings	MB-MPPS
Moto MB 45-90 VAC Power Supply for GI/Motorola Housings	MB-MPPS-II

Ordering Matrix

ASEM™ 1.2G Moto Product Configuration Worksheet

Customer: _____

Created By: _____ Order Date: _____

ORDERING MATRIX October 26, 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

	Type	54-1218	105-1218	258-1218
V =	MB or BLE	19.0	18.0	15.5
W =	BLE Only	12.0	11.0	8.5

9 [ ] STATION GAIN (Reverse)

L = 28 dB

10 [ ] HOUSING OPTIONS

M = RF Module Only
C = Complete Station With Housing

11 [ ] CUSTOM OPTIONS

0 = NONE
X = Determined by Product Management

Generic Order Form: Not all configurations are available

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Rev J 10-26-2022 Printed in U.S.A.