



ASEM- LE
(1G shown)

ASEM- BT, UBT, HGD, LGD
(1G shown)

ASEM[™] Complete Stations & RF Modules 1218 MHz For SA[®]/Cisco[®] GainMaker[®]

The ACI ASEM 1.2G RF upgrade modules that are compatible to the GainMaker[®] amplifiers are now offered with the Gallium Nitride (GaN) hybrid technology that allows for 3 dB higher output levels while maintaining the same specifications as the previous stations with the old (GaAs) hybrids. With this increase in the output level capabilities the cable operators are now able to ensure that even the long amplifier spacings will work. The 1218 MHz module can be dropped into 750, 860 or 1002 MHz spacing and will include the patented ACI DSIM module for increased signal stability.

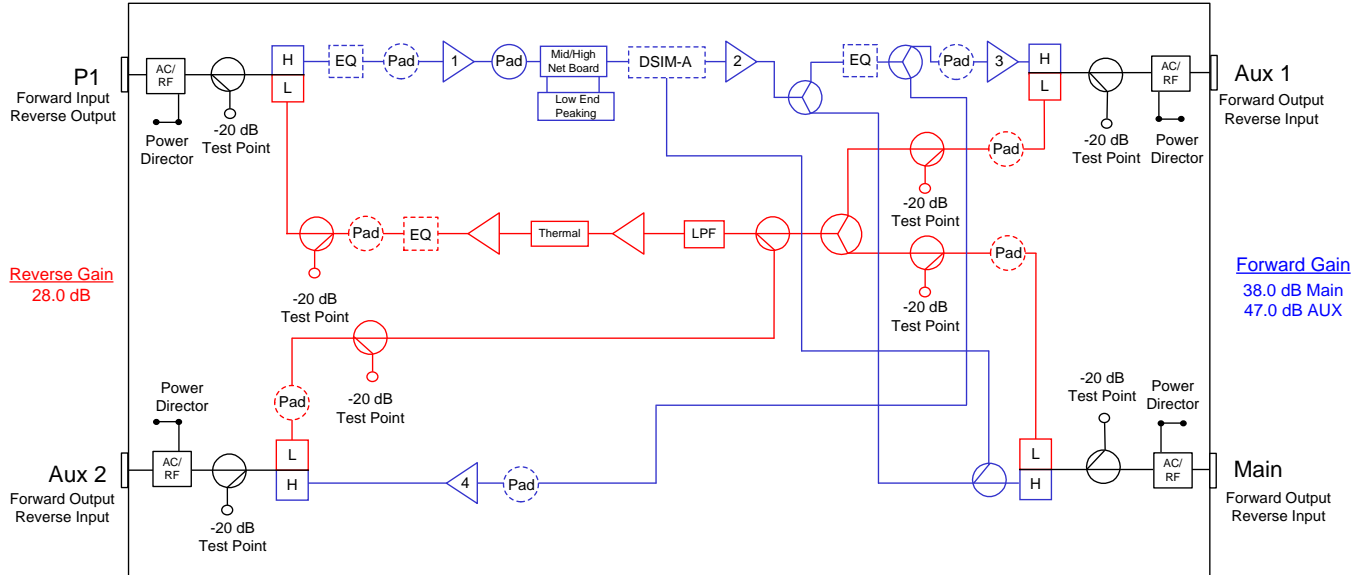
Features

- ◆ Drop-in 1.2G replacement RF modules for SA Sys II, III, and GainMaker[®]
- ◆ 5 to 42, 85 or 204 MHz reverse path
- ◆ Ideal for traditional HFC networks for increased performance & reliability
- ◆ Ideal for fiber deep networks with the extended reach of the amplifiers
- ◆ Lower power consumption the OEM amplifiers
- ◆ Increased reliability with higher surge protection in the GaN hybrids
- ◆ Pad Adjustable EQs & REQs
- ◆ Automatic Gain Control with the patented DSIM[®] technology

BLOCK DIAGRAMS

ASEM-Balanced Triple

Unbalanced Triple (UBT) 1218 MHz GaN Amplifier Block Diagram

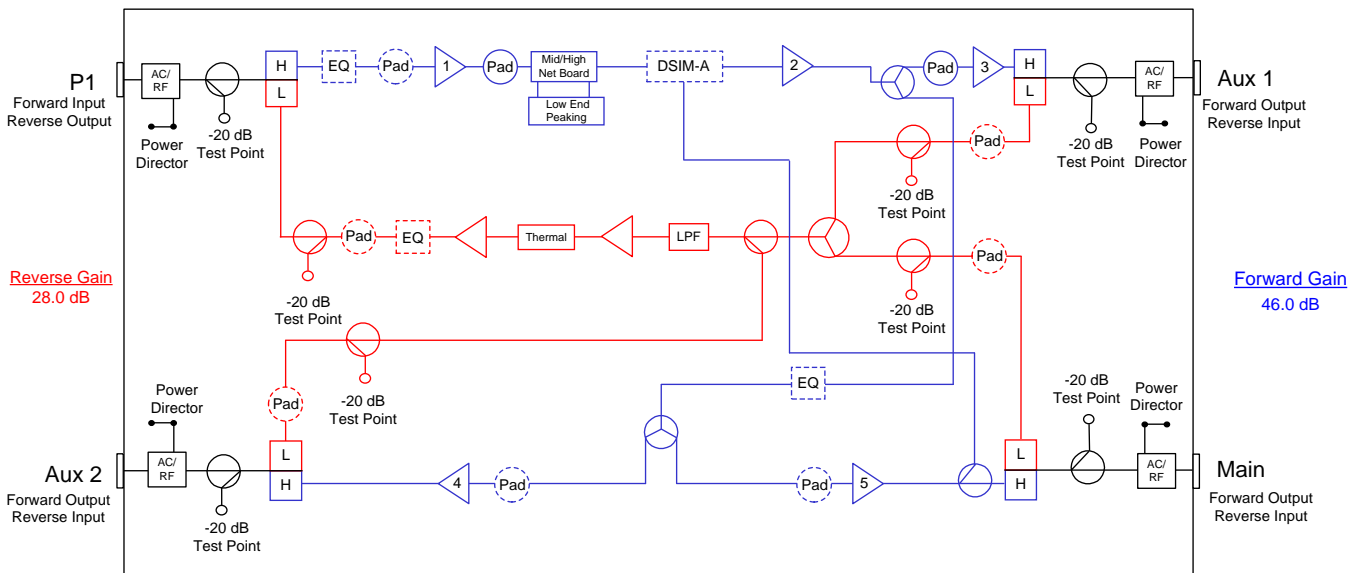


Note:

1. Forward gain stated at 1218 MHz with AGC. Reverse gain stated at 42 MHz.

ASEM-Unbalanced Triple

Balanced Triple (BT) 1218 MHz GaN Amplifier Block Diagram

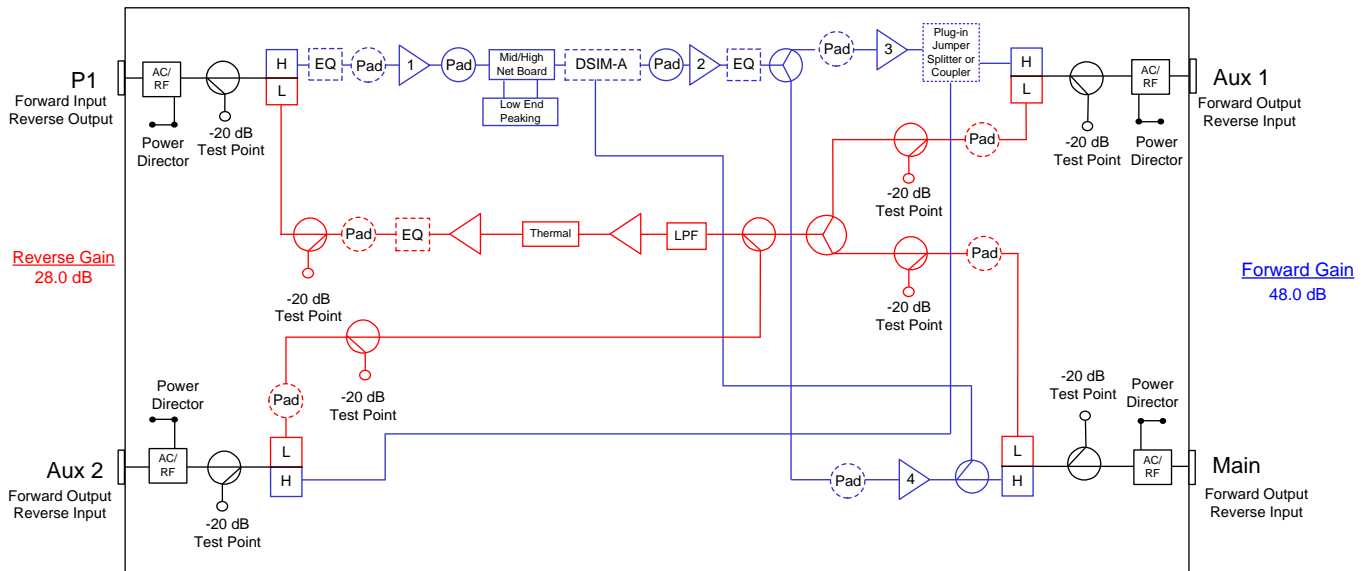


Note:

1. Forward gain stated at 1218 MHz with AGC. Reverse gain stated at 42 MHz.

ASEM-High Gain Dual

High Dual (HGD) 1218 MHz GaN Amplifier Block Diagram

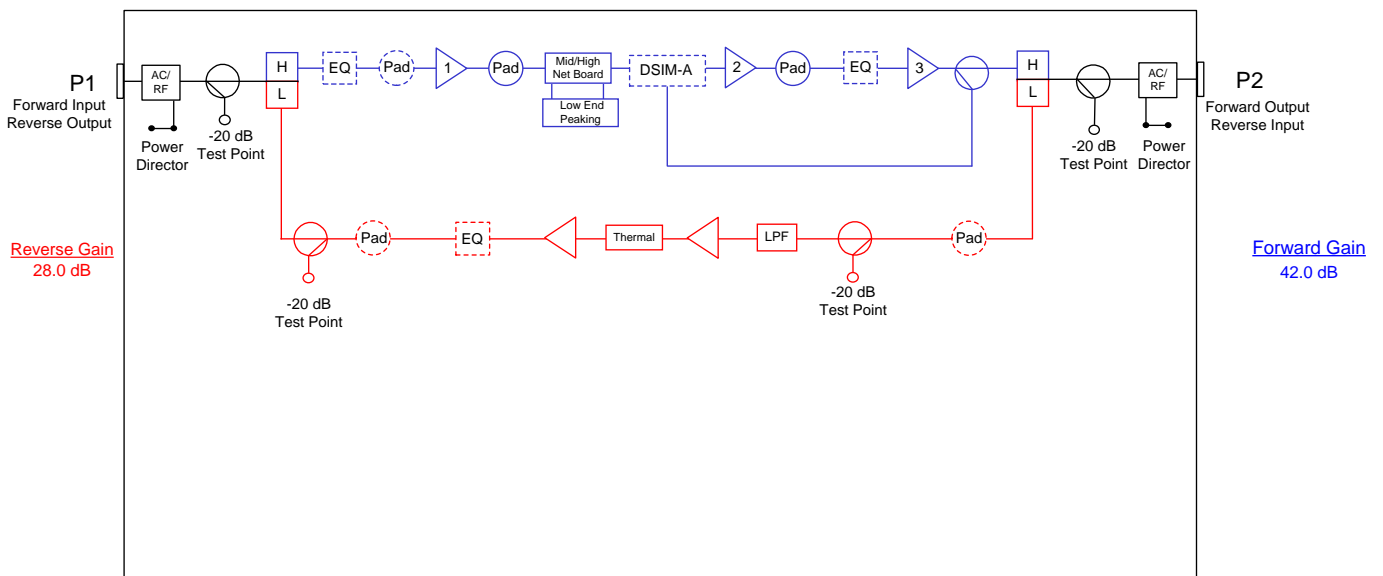


Note:

1. Forward gain stated at 1218 MHz with AGC. Reverse gain stated at 42 MHz.

ASEM-One Output Line Extender

Line Extender (LE) 1218 MHz GaN Amplifier Block Diagram



Note:

1. Forward gain stated at 1218 MHz with AGC. Reverse gain stated at 42 MHz.

STATION SPECIFICATIONS 42/53 MHz Split

STATION PARAMETERS: 1218 MHz 42-53 MHz Split			ASEM FOR CISCO GainMaker RF Modules 1218 MHz With GaN Hybrids				
	CONDITIONS	UNITS	SPECIFICATIONS				
Housing passband		MHz	5 to 1218				
Max AC current	Continuous	Amps	15				
Max AC current	Surge	Amps	25				
Hum modulation	Time domain @ rated current above	-dBc	65 @ 5-42 MHz 70 @ 54-1218 MHz				
Return loss	Any port, worst case	dB	18.0				
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	0.5				
Station Slope			BT	UBT	HGD	LE	
Internal Slope (Tilt)	± 0.5 dB	dB	19.0	19.0	19.0	19.0	
Slope control type	Cable equalizers	dB	Plug-in Pad Adjustable EQ's				
Slope control range	Includes cable equivalent	dB	-12 to +22				
Slope control steps	Equalizer value steps	dB	1.0				
Station Group Delay							
Group delay	Channel 2 (Std)	nSec / 3.58 MHz	30				
Group delay	Channel 3		16				
Group delay	Channel 4		10				
Group delay	Channel 5 & >		3				
AGC							
Pilot Channel Type	Up to 1002 MHz	N / A	DSIM-A Single Pilot Channel AGC NTSC Analog or QAM				
Compensation Range		dB	System compensation input change +4.0/-8.0 @ 1218 MHz				
Accuracy		±dB	0.5				
Nominal loss	@ 77 °F (25 °C)	dB	6.25				
Configuration			BT	UBT	HGD	LE	
Operational Specifications				Main	AIX		
Station passband		MHz	54 to 1218				
Station flatness	Normalized w / 0 dB slope	±dB	0.5	0.5	0.6	0.5	0.3
Gain - With DSIM AGC	Minimum @ 1218 MHz (Temperature stabilized)	dB	46.0	38.0	47.0	48.0	42.0
496 MHz analog channel loading, 79 channels + 660 MHz digital channel loading, 256 QAM at -6 dBc relative to its associated visual carrier							
Station Output Levels			BT	UBT		HGD	LE
				Main	AUX		
Output Level @...	1218 MHz	dBmV	57.0	48.0	57.0	57.0	57.0
	1002 MHz		53.5	44.5	53.5	53.5	53.5
	550 MHz		46.1	37.1	46.1	46.1	46.1
	54 MHz		38.0	29.0	38.0	38.0	38.0
Reference Output Slope (Tilt)	54-1218MHz	dB	19.0				
Station Noise Figure							
Station noise figure (w / EQ)	Max	dB	9.0	9.0		9.0	9.0
Station Distortions (Worse Case)							
				Main	AUX		
Composite Triple Beat (CTB)		-dBc	68	77	68	68	70
Cross Modulation (XMOD)		-dBc	64	74	64	64	64
Composite Second Order (CSO -)		-dBc	68	78	68	68	67
Composite Second Order (CSO +)		-dBc	68	77	68	68	67
Carrier-to-Intermodulation Noise (CIN)		-dBc	50	50		50	52
MER		-dBc	≥40	≥40		≥40	≥40
BER		-dBc	≤ 1 x 10 ⁻⁹	≤ 1 x 10 ⁻⁹		≤ 1 x 10 ⁻⁹	≤ 1 x 10 ⁻⁹

REVERSE SPECIFICATIONS 42/53 MHz Split

REVERSE SPECTRUM: 42-53 MHz Split							
Reverse - General		CONDITIONS	UNITS	SPECIFICATION			
	Station passband		MHZ	5 to 42			
	Station flatness	Normalized w / 0 dB slope	±dB	0.5			
Reverse - Station Gain			BT	UBT	HGD	LE	
	Gain	Minimum	dB	28.0	28.0	28.0	28.0
	Gain control type			Plug-in pads			
	Gain control steps	Pad value steps	dB	0.5			
Reverse - Station Slope							
	Slope control type	Cable equalizers	N / A	Plug-in Pad Adjustable EQ's			
	Slope control range		dB	0 to 12.0			
	Slope control steps	Equalizer value steps	dB	1.0			
Reverse - NPR Performance			BT	UBT	HGD	LE	
	Reference Output Level		dB	42.0	42.0	42.0	42.0
	NPR at 50 dB CNR at 42 MHz		dB	21.0	21.0	21.0	27.0
Reverse - Station Group Delay							
	Group delay	5 MHz	nSec / 1.5 MHz	36			
	Group delay	7 MHz		16			
	Group delay	10 MHz		4			
	Group delay	35 MHz		10			
	Group delay	38.5 MHz		25			
Reverse - Noise Figure			BT	UBT	HGD	LE	
	Station noise figure (w / EQ)	Max	dB	10.0	10.0	10.0	5.0

STATION SPECIFICATIONS 85/105 MHz Split

STATION PARAMETERS: 1218 MHz 85-105 MHz Split			ASEM FOR CISCO GainMaker RF Modules 1218 MHz With GaN Hybrids				
	CONDITIONS	UNITS	SPECIFICATIONS				
Housing passband		MHz	5 to 1218				
Max AC current	Continuous	Amps	15				
Max AC current	Surge	Amps	25				
Hum modulation	Time domain @ rated current above	-dBc	65 @ 5-85 MHz 70 @ 105-1218 MHz				
Return loss	Any port, worst case	dB	18.0				
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	0.5				
Station Slope			BT	UBT	HGD	LE	
Internal Slope (Tilt)	± 0.5 dB	dB	18.0	18.0	18.0	18.0	
Slope control type	Cable equalizers	dB	Plug-in Pad Adjustable EQ's				
Slope control range	Includes cable equivalent	dB	-12 to +22				
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	NTSC Analog or QAM				
Compensation Range		dB	System compensation input change +4.0/-8.0 @ 1218 MHz				
Accuracy		±dB	0.5				
Nominal loss	@ 77 °F (25 °C)	dB	6.25				
Configuration			BT	UBT	HGD	LE	
Operational Specifications				Main	AUX		
Station passband		MHz	105 to 1218				
Station flatness	Normalized w / 0 dB slope	±dB	0.5	0.5	0.6	0.5	0.3
Gain - With DSIM AGC	Minimum @ 1218 MHz (Temperature stabilized)	dB	46.0	38.0	47.0	48.0	42.0
442 MHz analog channel loading 74 channels + 660 MHz digital channel loading, 256 QAM at -6 dBc relative to its associated visual carrier							
Station Output Levels			BT	UBT		HGD	LE
				Main	AUX		
Output Level @ ...	1218 MHz	dBmV	57.0	48.0	57.0	57.0	57.0
	1002 MHz		53.5	44.5	53.5	53.5	53.5
	550 MHz		46.2	37.2	46.2	46.2	46.2
	105 MHz		39.0	30.0	39.0	39.0	39.0
Reference Output Slope (Tilt)	105-1218MHz	dB	18.0				
Station Noise Figure							
Station noise figure (w / EQ)	Max	dB	9.0	9.0		9.0	9.0
Station Distortions (Worse Case)							
				Main	AUX		
Composite Triple Beat (CTB)		-dBc	68	77	68	68	70
Cross Modulation (XMOD)		-dBc	64	74	64	64	64
Composite Second Order (CSO -)		-dBc	68	78	68	68	67
Composite Second Order (CSO +)		-dBc	68	77	68	68	67
Carrier-to-Intermodulation Noise (CIN)		-dBc	50	50		50	52
MER		-dBc	≥40	≥40		≥40	≥40
BER		-dBc	≤ 1 x 10 ⁻⁹	≤ 1 x 10 ⁻⁹		≤ 1 x 10 ⁻⁹	≤ 1 x 10 ⁻⁹

REVERSE SPECIFICATIONS 85/105 MHz Split

REVERSE SPECTRUM: 85-105 MHz Split							
Reverse - General		CONDITIONS	UNITS	SPECIFICATION			
Station passband			MHZ	5 to 85			
Station flatness		Normalized w / 0 dB slope	±dB	0.5			
Reverse - Station Gain			BT	UBT	HGD	LE	
Gain		Minimum	dB	28.0	28.0	28.0	28.0
Gain control type				Plug-in pads			
Gain control steps		Pad value steps	dB	0.5			
Reverse - Station Slope							
Slope control type		Cable equalizers	N / A	Plug-in Pad Adjustable EQ's			
Slope control range			dB	0 to 12.0			
Slope control steps		Equalizer value steps	dB	1.0			
Reverse - NPR Performance			BT	UBT	HGD	LE	
Reference Output Level			dB	42.0	42.0	42.0	42.0
NPR at 50 dB CNR at 85 MHz			dB	17.0	17.0	17.0	24.0
Reverse - Station Group Delay							
Group delay		5 MHz	nSec / 1.5 MHz	36			
Group delay		7 MHz		16			
Group delay		10 MHz		4			
Group delay		80 MHz		10			
Group delay		83.5 MHz		25			
Reverse - Noise Figure			BT	UBT	HGD	LE	
Station noise figure (w / EQ)		Max	dB	10.0	10.0	10.0	5.0

STATION SPECIFICATIONS 204/258 MHz Split

STATION PARAMETERS: 1218 MHz 204-258 MHz Split			ASEM FOR CISCO GainMaker RF Modules 1218 MHz With GaN Hybrids				
	CONDITIONS	UNITS	SPECIFICATIONS				
Housing passband		MHz	5 to 1218				
Max AC current	Continuous	Amps	15				
Max AC current	Surge	Amps	25				
Hum modulation	Time domain @ rated current above	-dBc	65 @ 5-204 MHz 70 @ 258-1218 MHz				
Return loss	Any port, worst case	dB	18.0				
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	0.5				
Station Slope							
			BT	UBT	HGD	LE	
Internal Slope (Tilt)	± 0.5 dB	dB	15.5	15.5	15.5	15.5	
Slope control type	Cable equalizers	dB	Plug-in Pad Adjustable EQ's				
Slope control range	Includes cable equivalent	dB	-12 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	NTSC Analog or QAM				
Compensation Range		dB	System compensation input change +4.0/-8.0 @ 1218 MHz				
Accuracy		±dB	0.5				
Nominal loss	@ 77 °F (25 °C)	dB	6.25				
Configuration							
			BT	UBT	HGD	LE	
Operational Specifications							
				Main	AUX		
Station passband		MHz	258 to 1218				
Station flatness	Normalized w / 0 dB slope	±dB	0.5	0.5	0.6	0.5	0.3
Gain - With DSIM AGC	Minimum @ 1218 MHz (Temperature stabilized)	dB	46.0	38.0	47.0	48.0	42.0
292 MHz analog channel loading 58 channels + 660 MHz digital channel loading, 256 QAM at -6 dBc relative to its associated visual carrier							
Station Output Levels							
			BT	UBT		HGD	LE
				Main	AUX		
Output Level @...	1218 MHz	dBmV	57.0	48.0	57.0	57.0	57.0
	1002 MHz		53.5	44.5	53.5	53.5	53.5
	550 MHz		46.2	37.2	46.2	46.2	46.2
	105 MHz		41.5	32.5	41.5	41.5	41.5
Reference Output Slope (Tilt)	258-1218MHz	dB	15.5				
Station Noise Figure							
Station noise figure (w / EQ)	Max	dB	9.0	9.0		9.0	9.0
Station Distortions (Worse Case)							
				Main	AUX		
Composite Triple Beat (CTB)		-dBc	68	77	68	68	70
Cross Modulation (XMOD)		-dBc	64	74	64	64	64
Composite Second Order (CSO -)		-dBc	68	78	68	68	67
Composite Second Order (CSO +)		-dBc	68	77	68	68	67
Carrier-to-Intermodulation Noise (CIN)		-dBc	50	50		50	52
MER		-dBc	≥40	≥40		≥40	≥40
BER		-dBc	≤ 1 x 10 ⁻⁹	≤ 1 x 10 ⁻⁹		≤ 1 x 10 ⁻⁹	≤ 1 x 10 ⁻⁹

REVERSE SPECIFICATIONS 204/258 MHz Split

REVERSE SPECTRUM: 204-258 MHz Split							
Reverse - General		CONDITIONS	UNITS	SPECIFICATION			
Station passband			MHZ	5 to 204			
Station flatness	Normalized w / 0 dB slope		±dB	0.5			
Reverse - Station Gain			BT	UBT	HGD	LE	
Gain	Minimum		dB	28.0	28.0	28.0	28.0
Gain control type				Plug-in pads			
Gain control steps	Pad value steps		dB	0.5			
Reverse - Station Slope							
Slope control type	Cable equalizers		N / A	Plug-in Pad Adjustable EQ's			
Slope control range			dB	0 to 12.0			
Slope control steps	Equalizer value steps		dB	1.0			
Reverse - NPR Performace			BT	UBT	HGD	LE	
Reference Output Level			dB	42.0	42.0	42.0	42.0
NPR at 50 dB CNR at 204 MHz			dB	12.0	12.0	12.0	19.0
Reverse - Station Group Delay							
Group delay	5 MHz	nSec / 1.5 MHz		36			
Group delay	7 MHz			16			
Group delay	10 MHz			4			
Group delay	199 MHz			10			
Group delay	202.5 MHz			25			
Reverse - Noise Figure			BT	UBT	HGD	LE	
Station noise figure (w / EQ)	Max		dB	10.0	10.0	10.0	5.0

Accessory Ordering Information:

The ASEM Cisco 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 	JXP138-XX (0 to 20 dB in 0.5 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
Cisco HGD DC/SP3 For AUX 1 & 2	SDA1.2-SPLTR3.5 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 Black Cisco LE (QTY 2)	120594-02
Seizure 15 Amp White Cisco HGD, LGD, BT, UBT (QTY 4)	120595-04
HSG-SA-TB	Cisco GainMaker Compatible Trunk Housing
HSG-SA-LE	Cisco GainMaker Compatible Line Extender Housing

Ordering Matrix

ASEM 1.2G for SA/Cisco GainMaker Product Configuration Worksheet

Customer: _____

Created By: _____ Order Date: _____

ORDERING MATRIX

April 2, 2021

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14
PART NUMBER	A	G	M	-										

5,6 **STATION TYPE**

LE = 1 Output LE

UT = High Gain Unbalanced Triple (UBT)

HD = 3 Output Bridger High Gain (HGD)

BT = High Gain Balanced Triple (BT)

7 **BANDWIDTH FREQUENCY**

2 = 1218 MHz

8,9 **STATION GAIN (Forward)**

Amplifier Model	LE	HD	BT	UT
Max gain with DSIM-A	42.0	48.0	46.0	38.0

10 **FORWARD GAIN CONTROL TYPE**

D = Digital Station Intelligence Manger (DSIM-A)

11 H **STATION FORWARD SLOPE**

	54-1218	105-1218	258-1218
V =	19.0	18.0	15.0

12 **BANDPASS SPLIT**

4 = 42/53

8 = 85/105

2 = 204/258

13 **STATION GAIN (Reverse)**

L = 28.0 dB

14 **CUSTOM OPTIONS**

0 = NONE

C = Complete Station With Housing

X = Determined by Product Management

Generic Order Form: Not all configurations are available



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