Section 1

GENERAL DESCRIPTION

1-1. INTRODUCTION

This manual contains information and procedures for installation, operation, and maintenance of Powerwave's Generation 3.1 amplifier system. The manual is organized into six sections as follows:

Section 1. General Description

Section 2. Installation

Section 3. Operating Instructions

Section 4. Principles of Operation

Section 5. Maintenance

Section 6. Troubleshooting

1-2. GENERAL DESCRIPTION

The G3X-800 Series (NTL107AA) amplifier (figure 1-1) is a linear, feed-forward power amplifier that operates in the 25-MHz frequency band from 869 MHz to 894 MHz. The amplifier can simultaneously transmit multiple frequencies, with better than -65 dBc third order intermodulation distortion (IMD). The amplifier system is modular in design, and is ideally suited for use in AMPS/TDMA/CDMA base stations. The plug-in G3X-800 Series (NTL107AA) amplifier modules can each provide 110 watts of power and function completely independently of each other. The amplifier modules are designed for parallel operation to produce high peak power output and backup redundancy for remote applications. The system is housed in the MCR20XX Series (NTL107AC) subrack (figure 1-2) which holds two G3X-800 Series (NTL107AA) amplifiers to produce up to 200 watts output. All solid-state, the system is designed to provide trouble-free operation with minimum maintenance. The system's modular construction and unique and highly effective LED-based operational status and fault indicators help minimize downtime. The turn-on and turn-off sequences of voltages are fully automatic, as is overload protection and recycling. Inadvertent operator damage from front panel manipulation is virtually impossible.

Notice

To comply with FCC regulations, no channels existing within 200 kHz spacing from the edges of any frequency block are to be used for transmission.

The MCR20XX Series (NTL107AC) subrack contains an RF power splitter/combiner and a control module that monitors the functional status of all plug-in amplifiers. The rear panel of the subrack has the system RF I/O connectors and DC power input terminals. The front panel of each amplifier module has unit level status/fault indicators and a power on/off circuit breaker. Primary power for the amplifier system is +27 Vdc. Cooling for each plug-in amplifier module is provided by two fans mounted on the front and two on the rear of the module. The fans draw outside air through the front of the module and exhaust hot air out through the rear of the module.

044-05055 Rev. A 1-1

1-3. FUNCTIONAL AND PHYSICAL SPECIFICATIONS

Functional and physical specifications for the amplifier system are listed in table 1-2.

1-4. EQUIPMENT CHANGES

Powerwave Technologies, Inc. reserves the right to make minor changes to the equipment, including but not necessarily limited to component substitution and circuitry changes. Changes that impact this manual may subsequently be incorporated in a later revision of this manual.

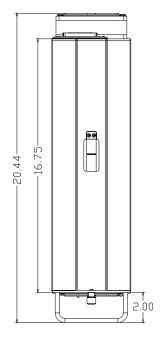
1-5. ORDERING INFORMATION

Table 1-1 following gives the part numbers and descriptions to be used when ordering either an entire system or individual major components that comprise the system.

Table 1-1. Major System Components

SYSTEM ORDER NUMBER	DESCRIPTION OF SYSTEM NUMBER	SUB- COMPONENT MODEL NUMBER	QTY PER SYSTEM	DESCRIPTION OF SUB- COMPONENT MODEL NUMBER
MCR20XX Series (NTL107AC)	200 W 869-894 MHz Linear System for Base Station Equipment.	MCR20XX Series (NTL107AC)	1	2-Unit 23" Subrack.
		G3X-800 Series (NTL107AA)	2	110 W 869-894 MHz Amplifier Module.
		800-00972-001	4	Front fan assembly (Intake)
		800-00972-002	4	Rear fan assembly (Exhaust)

044-05055 Rev. A 1-2



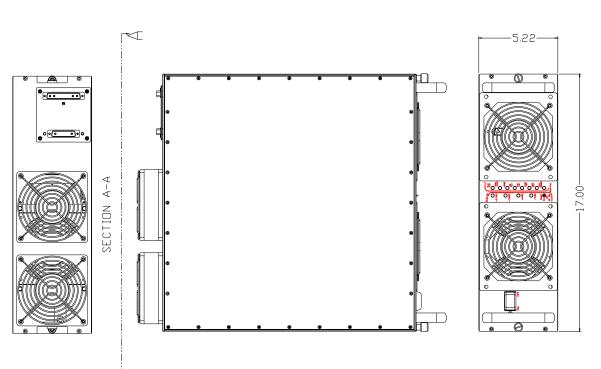
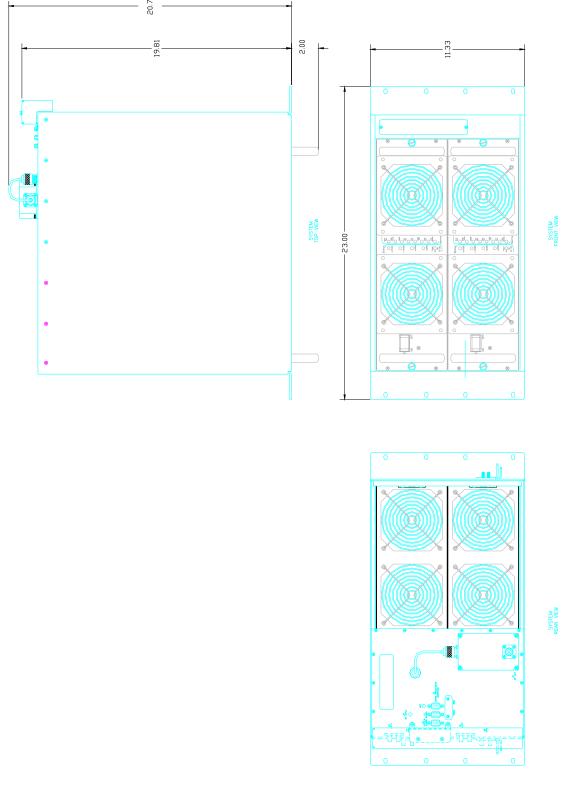


Figure 1-1. G3X-800 Series (NTL107AA) Amplifier

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MCR20XX Series (NTL107AC) Subrack with Two Amplifiers

Table 1-2. Generation 3.1 Multicarrier Cellular Amplifier System Functional Specifications

Total Output Power (Minimum) in MCR20XX (NTL107AA) System: MCR20XX (NTL107AA) System: MCR20XX (NTL107AA) System: Moximum Input Power Intermodulation Distortion And In-Band Spurious: Gain Variation: Gain Variation: Gutput Port Return Loss: Output Port Return Loss: 16 dB (Min) Out of Band Spurious: -13 dBm (Max) Out of Band Spurious: -60 dBc (Max) @ +24 to +28 Vdc Out of Band Spurious: -13 dBm (Max) Out of Band Spurious: -60 dBc (Max) @ +24 to +28 Vdc DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -50 Co +60 C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: Storage Humidity: Oy -95 % Relative Humidity (Noncondensing) Storage Humidity: Oy -95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms MCR20XX Series (NTL107AA) Amplifier: MCR20XX Series (NTL107AC): MCR20XX Series (With amplifiers inserted)	Frequency Range:	869-894 MHz		
Maximum Input Power Overdrive fault activates when input power >5 dBm Intermodulation Distortion -68 dBc (Typical) @ +24 to +28 Vdc @ 200 Watts and In-Band Spurious: (-65 dBc (Max) @ +21.7 to +24 Vdc) Nominal RF Gain: 31 ±1 dB to 49 ±1 dB Adjustable Gain Variation: ± 0.6 dB @ 27 Vdc ±1 Vdc + 0.6 / -0.8 dB @ 24 to 26 Vdc Output Port Return Loss: 16 dB (Min) Output Protection: Mismatch Protected (Isolator) Input Port Return Loss: 16 dB (Min) Second Harmonic: -13 dBm (Max) Out of Band Spurious: -60 dBc (Max) @ +24 to +28 Vdc DC Input Voltage: 21.7 to 30 Vdc (24 to 28 Vdc for rated operation) DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: 5% - 95% Relative Humidity (Noncondensing) Connectors 5MA DC Power: 4-20 studs RF INPUT	Total Output Power (Minimum) in	110 W typical (1 Module)		
Intermodulation Distortion and In-Band Spurious: Nominal RF Gain: Gain Variation: Gain Variation: 4 0.6 dB @ 27 Vdc ±1 Vdc + 0.6 / -0.8 dB @ 24 to 26 Vdc Output Port Return Loss: 16 dB (Min) Output Protection: Input Port Return Loss: 16 dB (Min) Second Harmonic: -13 dBm (Max) Out of Band Spurious: 60 dBc (Max) @ +24 to +28 Vdc Output Voltage: 21.7 to 30 Vdc (24 to 28 Vdc Output Voltage: 21.7 to 30 Vdc (24 to 28 Vdc Output Voltage: 21.7 to 30 Vdc (24 to 28 Vdc Output Voltage: 21.7 to 30 Vdc (24 to 28 Vdc Output Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% -95% Relative Humidity (Noncondensing) Storage Humidity: O% -95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Forward Power and Reverse Power Uncluding handles, rear fans) MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep	MCR20XX (NTL107AA) System:			
and In-Band Spurious: (-65 dBc (Max) @ +21.7 to +24 Vdc) Nominal RF Gain: 31 ± 1 dB to 49 ± 1 dB Adjustable Gain Variation: ± 0.6 dB @ 27 Vdc ± 1 Vdc + 0.6 / - 0.8 dB @ 24 to 26 Vdc Output Port Return Loss: 16 dB (Min) Output Port Return Loss: 16 dB (Min) Input Port Return Loss: 16 dB (Min) Second Harmonic: -13 dBm (Max) Out of Band Spurious: -60 dBc (Max) @ +24 to +28 Vdc DC Input Voltage: 21.7 to 30 Vdc (24 to 28 Vdc for rated operation) DC Input Current: 110 Amps (Typical) @ 27 ± 1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: 0% - 95 % Relative Humidity (Noncondensing) Connectors V-20 studs DC Power: 1/2 20 studs RF INPUT: SMA SYSTEM ALARM: 9-Pin D-Subminiature Female 9-Pin D-Subminiature Female 9-Pin D-Subminiature Female <	Maximum Input Power			
Nominal RF Gain: 31 ±1 dB to 49 ±1 dB Adjustable ± 0.6 dB @ 27 Vdc ±1 Vdc + 0.6 / -0.8 dB @ 24 to 26 Vdc	Intermodulation Distortion	-68 dBc (Typical) @ +24 to +28 Vdc @ 200 Watts		
Gain Variation: ± 0.6 dB @ 27 Vdc±1 Vdc + 0.6 / -0.8 dB @ 24 to 26 Vdc Output Port Return Loss: 16 dB (Min) Output Port Return Loss: 16 dB (Min) Second Harmonic: -13 dBm (Max) Out of Band Spurious: -60 dBc (Max) @ +24 to +28 Vdc DC Input Voltage: 21.7 to 30 Vdc (24 to 28 Vdc for rated operation) DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: 0% - 95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Amplifier: MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep	and In-Band Spurious:	(-65 dBc (Max) @ +21.7 to +24 Vdc)		
+ 0.6 / -0.8 dB @ 24 to 26 Vdc Output Port Return Loss: 16 dB (Min) Output Protection: Mismatch Protected (Isolator) Input Port Return Loss: 16 dB (Min) Second Harmonic: -13 dBm (Max) Out of Band Spurious: -60 dBc (Max) @ +24 to +28 Vdc DC Input Voltage: 21.7 to 30 Vdc (24 to 28 Vdc for rated operation) DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: 0% - 95 % Relative Humidity (Noncondensing) Connectors DC Power:		31 ±1 dB to 49 ±1 dB Adjustable		
Output Port Return Loss: Output Protection: Input Port Return Loss: Second Harmonic: Out of Band Spurious: DC Input Voltage: DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: Operating Humidity: Storage Humidity: Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient -5 °C to +85 °C Operating Humidity: -5 °C to +85 °C Operating Humidity (Noncondensing) Storage Humidity: -5 °C to +85 °C Operating Humidity (Noncondensing) Sys Relative Humidity (Noncondensing) -5 °C to +85 °C Operating Humidity: -5 °C to +85 °C Operating Humidity: -5 °C to +60 °C Ambient -5 °C to +85 °C -5 °C to +60 °C Ambient -5 °C to +85 °C Operating Humidity (Noncondensing) -	Gain Variation:	± 0.6 dB @ 27 Vdc ±1 Vdc		
Output Protection: Input Port Return Loss: Input Port Return Loss: Second Harmonic: -13 dBm (Max) Out of Band Spurious: -60 dBc (Max) @ +24 to +28 Vdc DC Input Voltage: 21.7 to 30 Vdc (24 to 28 Vdc for rated operation) DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: 0% - 95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep		+ 0.6 / -0.8 dB @ 24 to 26 Vdc		
Input Port Return Loss: Second Harmonic: Out of Band Spurious: DC Input Voltage: DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5°C to +60°C Ambient Storage Temperature: -40°C to +85°C Operating Humidity: Soft Relative Humidity (Noncondensing) Storage Humidity: Office of Soft Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Monitors MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep	Output Port Return Loss:			
Second Harmonic: Out of Band Spurious: -60 dBc (Max) @ +24 to +28 Vdc DC Input Voltage: 21.7 to 30 Vdc (24 to 28 Vdc for rated operation) DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep	Output Protection:	Mismatch Protected (Isolator)		
Out of Band Spurious: -60 dBc (Max) @ +24 to +28 Vdc DC Input Voltage: 21.7 to 30 Vdc (24 to 28 Vdc for rated operation) DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: 0% - 95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep		16 dB (Min)		
DC Input Voltage: DC Input Current: DC Input Current: 110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: 0% - 95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Monitors Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep	Second Harmonic:	-13 dBm (Max)		
DC Input Current: PA Self Protection: MCA Disabled Upon 5-Second Continuous Alarm Operating Temperature: -5 °C to +60 °C Ambient Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: 0% - 95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Monitors Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep	Out of Band Spurious:	-60 dBc (Max) @ +24 to +28 Vdc		
PA Self Protection: Operating Temperature: Storage Temperature: Operating Humidity: Storage Humidity: Storage Humidity: Operating Humidity: Storage Humidity: Operating Humidity: Storage Humidity: Operating Humidity: Operating Humidity: Operating Humidity: Storage Humidity: Operating Humidity: Noncondensing) W-20 studs SMA Type N SYSTEM ALARM: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Operating Humidity (Noncondensing) Nonectors SMA Type N S-20 studs SMA Type N S-Pin D-Subminiature Female S-Pin D-Subminiature Female S-Pin D-Subminiature Female Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Forward Power and Reverse Power Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep		21.7 to 30 Vdc (24 to 28 Vdc for rated operation)		
Operating Temperature: Storage Temperature: -40 °C to +85 °C Operating Humidity: 5% - 95% Relative Humidity (Noncondensing) Storage Humidity: 0% - 95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Anonitors Monitors Monitors Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series -5 °C to +60 °C Ambient -5 °C to +60 °C Ambient -5 °C to +60 °C Ambient -40 °C to +85 °C -60 °C Ambient -5 °C to +60 °C Ambient -5 °C to +60 °C Ambient -5 °C to +60 °C Ambient -40 °C to +85 °C -60 °C Ambient -40 °C to +85 °C -50 °C to +85 °C -60 °C Ambient -40 °C to +85 °C -60 °C Ambient -40 °C to +85 °C -40 °C Ambient -40 °C to +85 °C -40 °C Ambient -40 °C to +85 °C -40 °C Ambient -40 °C A	DC Input Current:	110 Amps (Typical) @ 27 ±1 Vdc Input, 200 Watts		
Storage Temperature: Operating Humidity: Storage Humidity: O% - 95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Monitors Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series Alarms -40 °C to +85 °C -40 °C to +85 °C 5% - 95% Relative Humidity (Noncondensing) 0% - 95 % Relative Humidity (Noncondensing) 14-20 studs SMA Type N SMA Type N 9-Pin D-Subminiature Female 9-Pin D-Subminiature Female 9-Pin D-Subminiature Female Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Forward Power and Reverse Power (Including handles, rear fans) MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep	PA Self Protection:	MCA Disabled Upon 5-Second Continuous Alarm		
Operating Humidity: Storage Humidity: O% - 95 % Relative Humidity (Noncondensing) Omnectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series S% - 95% Relative Humidity (Noncondensing) 0% - 95 % Relative Humidity (Noncondensing) 89-98	Operating Temperature:	-5 °C to +60 °C Ambient		
Storage Humidity: O% - 95 % Relative Humidity (Noncondensing) Connectors DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Monitors Monitors G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series Over - 95 % Relative Humidity (Noncondensing) 14-20 studs SMA Type N 9-Pin D-Subminiature Female 9-Pin D-Subminiature Female 9-Pin D-Subminiature Female Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure 5.22" High, 17.00" Wide, 20.44" Deep (Including handles, rear fans) MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep	Storage Temperature:	-40 °C to +85 °C		
Connectors DC Power: RF INPUT: SMA Type N SYSTEM ALARM: P-Pin D-Subminiature Female 9-Pin D-Subminiature Female	Operating Humidity:	5% - 95% Relative Humidity (Noncondensing)		
DC Power: RF INPUT: RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Monitors Monitors G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 1/4-20 studs SMA Type N 9-Pin D-Subminiature Female 10-Pin D-Subminiature	Storage Humidity:	0% - 95 % Relative Humidity (Noncondensing)		
RF INPUT: RF OUT (Antenna): SYSTEM ALARM: P-Pin D-Subminiature Female Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Forward Power and Reverse Power Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep				
RF OUT (Antenna): SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Forward Power and Reverse Power Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series Type N 9-Pin D-Subminiature Female		1/4-20 studs		
SYSTEM ALARM: RS-485 MICROPROCESSOR INTERFACE Alarms Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Forward Power and Reverse Power Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 9-Pin D-Subminiature Female		SMA		
RS-485 MICROPROCESSOR INTERFACE Alarms Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Forward Power and Reverse Power Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 9-Pin D-Subminiature Female		7 1		
MICROPROCESSOR INTERFACE 9-Pin D-Subminiature Female Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Forward Power and Reverse Power Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 9-Pin D-Subminiature Female Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Forward Power and Reverse Power 5.22" High, 17.00" Wide, 20.44" Deep (Including handles, rear fans)				
Alarms Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Monitors Forward Power and Reverse Power Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series Over Power, VSWR, DC Failure, High Temperature, Loop Failure, Fan Failure Forward Power and Reverse Power 5.22" High, 17.00" Wide, 20.44" Deep (Including handles, rear fans)				
Failure, Fan Failure Monitors Forward Power and Reverse Power Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series Failure Forward Power and Reverse Power 5.22" High, 17.00" Wide, 20.44" Deep (Including handles, rear fans)				
Monitors Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series Forward Power and Reverse Power 5.22" High, 17.00" Wide, 20.44" Deep (Including handles, rear fans) 11.33" High, 23.00" Wide, 22.77" Deep	Alarms			
Dimensions: G3X-800 Series (NTL107AA) Amplifier: MCR20XX Series 5.22" High, 17.00" Wide, 20.44" Deep (Including handles, rear fans) 11.33" High, 23.00" Wide, 22.77" Deep				
G3X-800 Series (NTL107AA) Amplifier: 5.22" High, 17.00" Wide, 20.44" Deep (Including handles, rear fans) MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep	Monitors	Forward Power and Reverse Power		
Amplifier: (Including handles, rear fans) MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep				
MCR20XX Series 11.33" High, 23.00" Wide, 22.77" Deep				
	Amplifier:	(Including handles, rear fans)		
	MCR20XX Series	11.33" High, 23.00" Wide, 22.77" Deep		
	(NTL107AC) Subrack:	(With amplifiers inserted)		

044-05055 Rev. A 1-5