

# C-Band Solid-State Power Amplifiers

## DPCD, DPCM6450N

Using technology developed for ModuMAX™ amplifiers, these outdoor SSPAs feature a modular architecture with field-replaceable RF assemblies and offer an output power of 450 watts across the standard 5.850–6.425 GHz or extended 5.850–6.725 GHz satellite uplink bands. Housed in a weatherproof NEMA 4X enclosure, the amplifiers can be mounted in an antenna hub or outdoors in applications where it is desirable to reduce cable losses by mounting the SSPA close to the antenna. Built for reliable, trouble-free service, the amplifiers incorporate a microprocessor-based monitor and control system.

### Features

- Field-replaceable RF assemblies
- 450 W saturated output power
- Microprocessor-based monitor and control
- Serial interface (RS-232/-422/-485)
- Output isolator for high load VSWR protection
- 20 dB range digital gain adjustment
- RF output sample port
- External mute input
- Reflected power monitoring

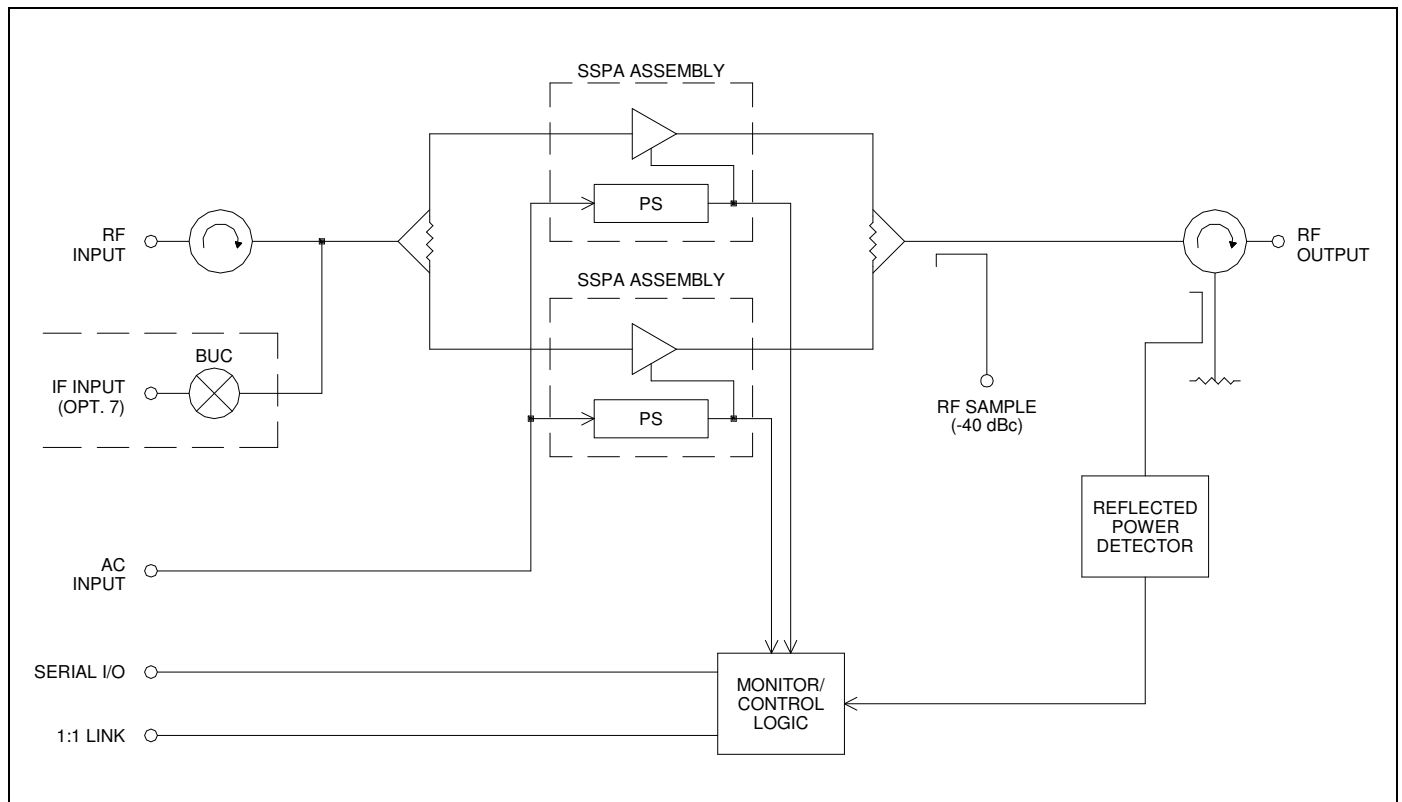
### Applications

- Stand-alone SSPA
- 1:1 and 1:2 redundant systems
- Commercial, Government, and Military systems

### Options

- Block upconverter

### Block Diagram



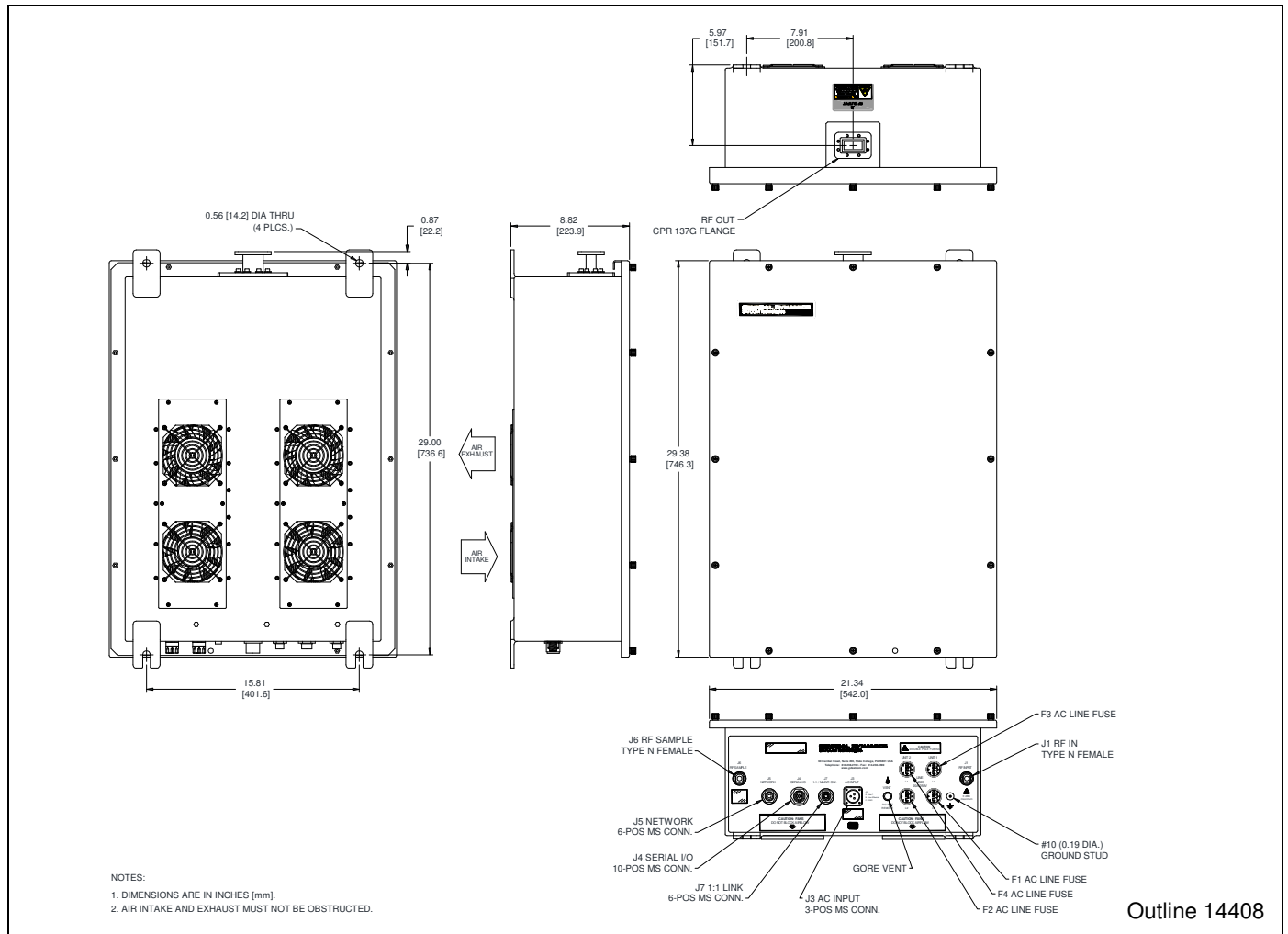
### Single-Thread SSPA Specifications

Parameter	Notes	Min	Nom/Typ <sup>†</sup>	Max	Units
Frequency Range	Band "D"	5.850		6.425	GHz
	Band "M"	5.850		6.725	GHz
Input Frequency Range with Option 7, Block Upconverter	Band "D"	950		1525	MHz
	Band "M"	950		1825	MHz
Gain, at max. gain setting	Standard	70	73		dB
	With Option 7	70	75		dB
Gain Adjust Range		20			dB
Gain Flatness	Full band, standard			±1.0	dB
	Full band, with Option 7			±2.0	dB
	Per 40 MHz, standard			±0.3	dB
	Per 40 MHz, with Option 7			±0.5	dB
Gain Stability vs. Temp.	-40 to +50 °C, standard		±1.0	±1.5	dB
	-40 to +50 °C, with Option 7		±2.0	±2.5	dB
Power Output	Saturated		+56.5 (450)		dBm (W)
	At 1 dB compression (P <sub>1 dB</sub> )	+56.0 (400)			dBm (W)
Two-tone Intermodulation	At 3 dB total backoff from 1 dB compression point		-30	-25	dBc
Group Delay	Linear			0.03	ns/MHz
	Parabolic			0.003	ns/MHz <sup>2</sup>
	Ripple			1.0	ns p-p
AM/PM Conversion	At 3 dB backoff from P <sub>1 dB</sub>		1.0	2.0	%/dB
Noise Figure, at max. gain	Standard		10		dB
	With Option 7		15		dB
VSWR	Input, Standard		1.25	1.30	:1
	Input, with Option 7		1.35	1.50	:1
	Output		1.20	1.30	:1
Output Sample Port			-40		dBc
Connectors	Input Output Sample Port Serial I/O 1:1 Link Power		Type N Female CPR137G Waveguide Type N Female 10-pos MS, mate supplied 6-pos MS, mate supplied 4-pos MS, mate supplied		
Power Requirements	Voltage	180		264	Vac
	Frequency	47		63	Hz
	Power		2050	3300 <sup>A</sup>	W
	Power factor corrected		0.98		
Cooling System			Forced air		
Operating Temp. Range	Ambient air temperature	-40		+50	°C
Weight	Approximate		104 (47)		lb (kg)
Dimensions	See outline drawing		29.38 H x 21.34 W x 8.82 D		inches
			746 H x 542 W x 224 D		mm

<sup>†</sup> When there is only one value on a line, this column is a nominal value. Otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

<sup>A</sup> Cold start, at -40 °C and P<sub>OUT</sub> in saturation.

## Outline Drawing, SSPA



Outline 14408

## Part Number/Ordering Information

### SSPA:

Part/Model No. **DPC**  **6450N-X**  
 5.850–6.425 GHz = D  
 5.850–6.725 GHz = M

### Options:

**Block Upconverter** ..... 7  
 L-Band IF Input

\* Performance specifications of a redundant system depend on the installed configuration and optional accessories. Contact the factory for more information and for 1:2 system capabilities.

**Redundant Systems\*** (Consists of 1:1 switching assembly, indoor redundancy controller, two SSPAs, and cabling):

Part/Model No. **DPRC1**  **450N-XX**  
 5.850–6.425 GHz = D  
 5.850–6.725 GHz = M

### Options:

**Block Upconverter** ..... 7  
 L-Band IF Input

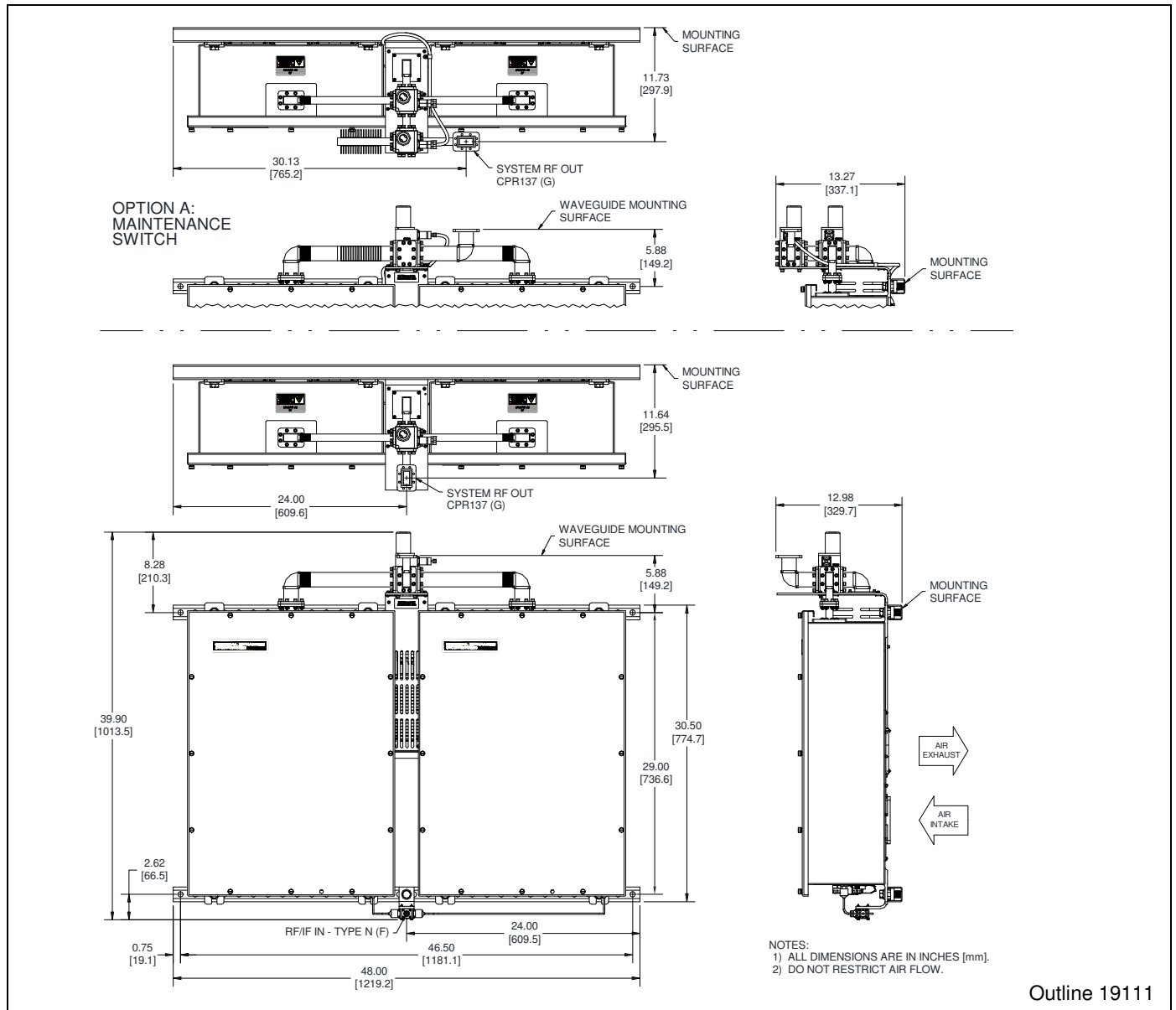
**Maintenance Switch** ..... A  
 Selects antenna or dummy load at system output

### Related Accessory:

#### RCP-2001, SSPA Remote Control Panel

1U-high rack-mount panel enables remote manual control of the SSPA. Can be located up to 1.3 km (4000 ft.) away and interconnects with inexpensive cable.

## Typical 1:1 System Outline



## Connector Interface

Ref. Des.	Function	Connector Type	Mating Connector	Comment
J1	RF/IF Input	Type N Female	Type N Male	
J2	RF Output	CPR137G Waveguide	CPR137 Flange	
J3	AC In	3-pos MS, Male	3-pos MS, Female	Mate supplied
J4	Serial I/O	10-pos MS, Female	10-pos MS, Male	Mate supplied
J6	Output Sample	Type N Female	Type N Male	
J7	1:1 Link	6-pos MS, Female	6-pos MS, Male	Mate supplied

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