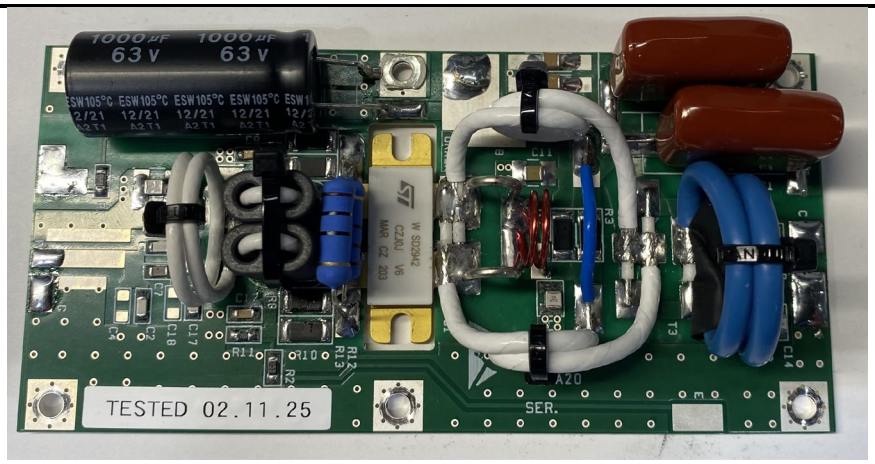
Broadcast Concepts Inc
10100 NW 116th Way Suite 6, Medley FL 33178
TEL: 305.887.8400 FAX 305.887.8444; website: http://broadcastconcepts.com

Model: NAPA20-BCI RF Amplifier Card

This amplifier module is designed to replace Nautel amplifier cards that use the SD2942

- **88-108MHz**
- **50Volts**
- **Gain matched to original PA**
- **Phase matched to original PA**
- **Precision reverse engineered using calibrated imaging equipment.**



Dimension (L x W x H inch) [5.0" x 2.425" x 1.5"]

Absolute Maximum Ratings (T case = 25C)			
Symbol	Parameter	Value	Unit
Vs	Drain voltage supply	52	V DC
Is	Supply Current	12	A dc
VSWR	Load Mismatch (All phase angles, Id=48A, TC=+55C)	5 to 1	
Tstg	Storage temperature range	-40 to +85C	Celsius
Tc	Base plate operating temperature	-40 to +70C	Celsius

Electrical Specifications (T case = 25C, 50 ohm loaded, VS=50V bias=100ma)				
Characteristics	min	typ	max	unit
Operating Frequency range	88		108	MHz
Fundamental output power P1dB	n/a	n/a	350W	W
Power Input	n/a	2.0	3.0	W
Input Return Loss		-15	-12	dB
Power Gain @ maximum power	19.0	19.5	20	dB
Insertion Phase variation (unit to unit)		+/-1.0		degrees
Transistor Bias Current: set by system refer to Nautel user manual.		100		Ma

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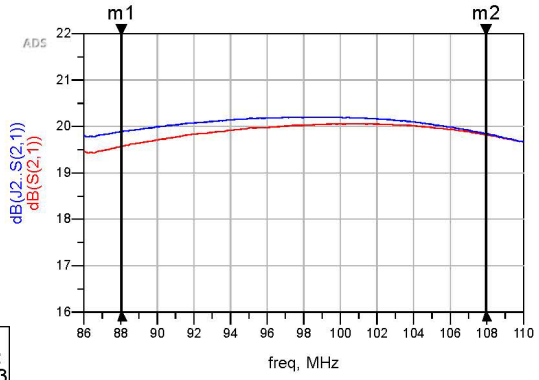
Amplifier test data

Gain

Red trace is Nautel Original Pallet

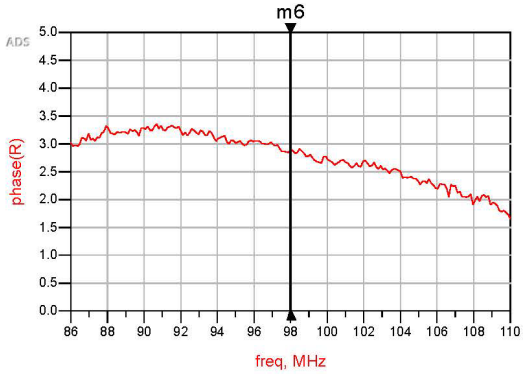
m1
freq=88.04MHz
dB(S(2,1))=19.564
dB(J2..S(2,1))=19.884

m2
freq=108.0MHz
dB(S(2,1))=19.810
dB(J2..S(2,1))=19.839

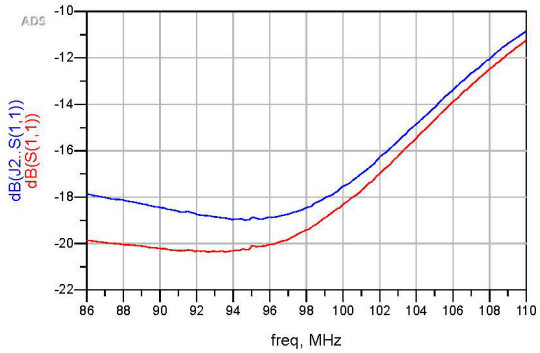


Test Conditions: power sweep at 275W
For all 3 plots

m6
freq=98.00MHz
phase(R)=2.883



Red trace is Nautel Original Pallet



Eqn R=S(2,1)/J2..S(2,1)

Phase difference Nautel/Broadcast Concepts Inc.

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Technical and installation notes:

These pallets get obtain their bias from the system. The bias line is soldered to the left side of the board marked “A”. We did our testing at 100ma; however, its up to the installer to verify that the correct bias is supplied to the modules per Nautel’s specifications. Every transistor lot varies so caution is advised to prevent an over bias condition.

There is a .030 inch thick metal plate located under the pallets. We milled our manufacturing fixture to .034 inch depth to make sure there is mechanical pressure between the transistor and amplifier heat sink.

For heat sink compound we suggest Arctic Silver 5. Its very important to make sure that the transistor mounting surface is clean. Alcohol should be used to clean the heatsink surface. Any dirt or debris between the transistor and the heatsink will result in destruction of the transistor.

The SD2942 based Nautel amplifiers are very reliable; however, if multiple amplifier card failures have occurred and the transmitter is more than 10 years old, we suggest replacing all the amplifier cards. There are components on the original amplifier card that age with time. The fact is all electronics have a limited life expectancy.

Our amplifier is gain and phase matched to operate with the existing Nautel pallets because we know some customers do not have the budget to replace all the amplifier cards.

Some of the Nautel amplifier cards do not have the bypass capacitors shown in the photo on page 1 since there are 2 different versions. Please specify your version when ordering.

Legal Notice: Our amplifier card was precision reverse engineered from fit and function from the original card. We do not re-sell original factory parts for Nautel Transmitters.

We can repair your amplifier drawers for you for an additional cost as we understand some customers are not comfortable with the repair process.