

R&K-CA500BW2-8085RP



- All Solid-State Amplifier
- Broadband Frequency: 500MHz \pm 1MHz
- Output Power : 300kW @Peak
- Consists of 4 rack-mounted 75kW SSAs.
- Building Block Construction

APPLICATION

- Accelerator

FEATURES

1) WILKINSON RADIAL COMBINER

Single-stage power combining of output transistors protected by each respective ferrite circulator provides high reliability in long-term operation.

2) BROADCAST-TRANSMITTER-LEVEL REDUNDANCY

High redundancy design of RF transistors and power supplies provides fault-tolerant and sustainable system operation.

3) PASSIVE ANALOG PRE-DISTORTION

Very ideal AB-class linear power amplifier is realized by passive analog predistortion circuit despite poor linearity of LD-MOS transistor.

4) MULTIPLE CPU CONTROLLER AND SENSORS

Multiple CPUs monitor and save the status data to an internal HD by use of Modbus protocol and through Ethernet.

5) ADVANCED ANALOG RF POWER TECHNOLOGY

Short-term (1sec) phase stability in free-running operation is within 0.1deg and RF voltage level stability is 0.1%.

SPECIFICATIONS @ +25°C

Frequency Range	: 500MHz \pm 1MHz
Small Signal Gain	: +79.0dB (min.) @Po=75kW (\times 4)
Gain Flatness	: \pm 0.5dB (max.) @Po=75kW (\times 4)
Output Power	: 300kW @Peak, 280kW(min.) *Each rack-mounted amplifier section individually delivers 75kW. (75kW/rack \times 4 outputs)
Duty	: 3% (max.)
Pulse Width	: 300 μ s (max.)
Operation Mode	: Class AB
Pulse Rise / Fall Time	: 300ns (max.)
Maximum RF Input Power	: +3dBm
Impedance	: 50 Ω
Input VSWR	: 1.5 (max.)
Output VSWR	: 1.5 (max.)
AC Supply Input	: AC200V \pm 10% / 3 ϕ *Delta Connection, 50/60Hz
Operating Temperature	: + 0°C to +35°C
Storage Temperature	: - 15°C to +55°C
Connectors	: RF - IN N - FEMALE RF - OUT WX-77D (3-1/8") Non-Flange
Size	: (W)2240mm \times (D)1300mm \times (H)1510mm
Cooling	: Forced Air Cooling and Water Cooling
Water Input Pressure	: 0.5Mpa(max.)
Water Temperature	: +30°C \pm 1°C
Water Flow Rate	: 5L/min @Po=75kW (\times 4)
Protection Circuits (All not listed)	: Over Temperature Protection Power Supply Voltage Protection Output Over Power Protection Output Over Reflected Power Protection
Remote Interface	: Ethernet
Other Functions	: R&K Multi Monitoring System Safety Interlock(EMERGENCY) With Output Circulator(each final device)

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PULSED RF POWER AMPLIFIER

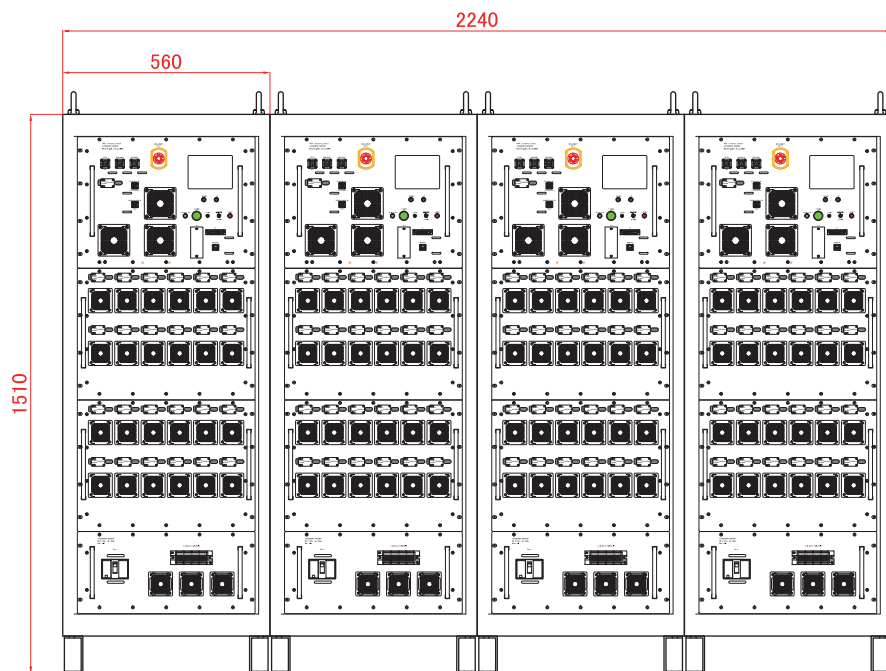


OUTLINE DRAWING

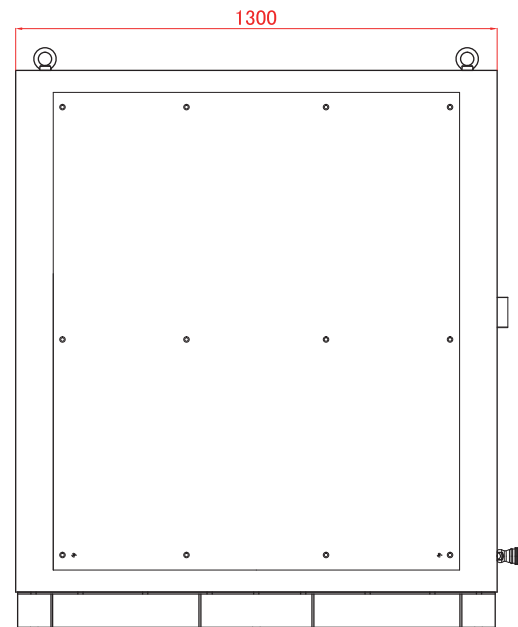
※IN MILLIMETERS

R&K-CA500BW2-8085RP

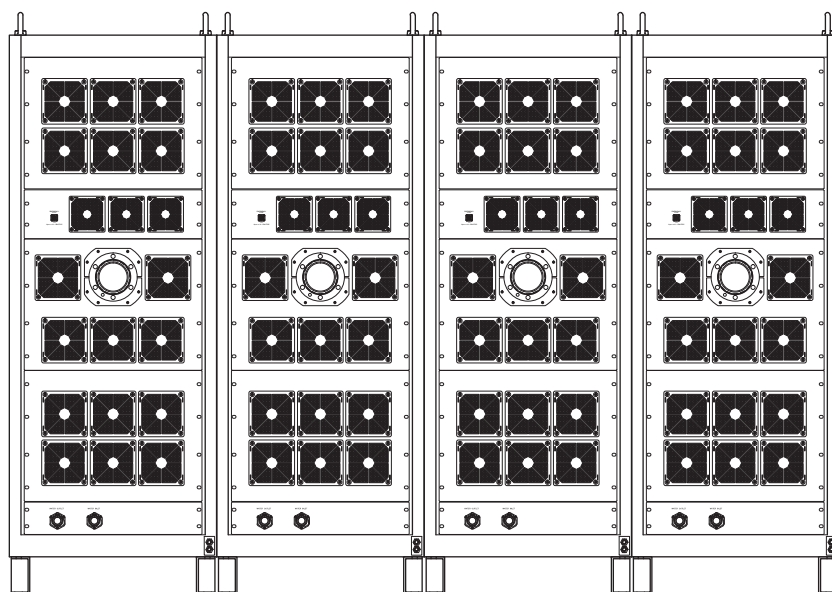
FRONT VIEW



SIDE VIEW



REAR VIEW



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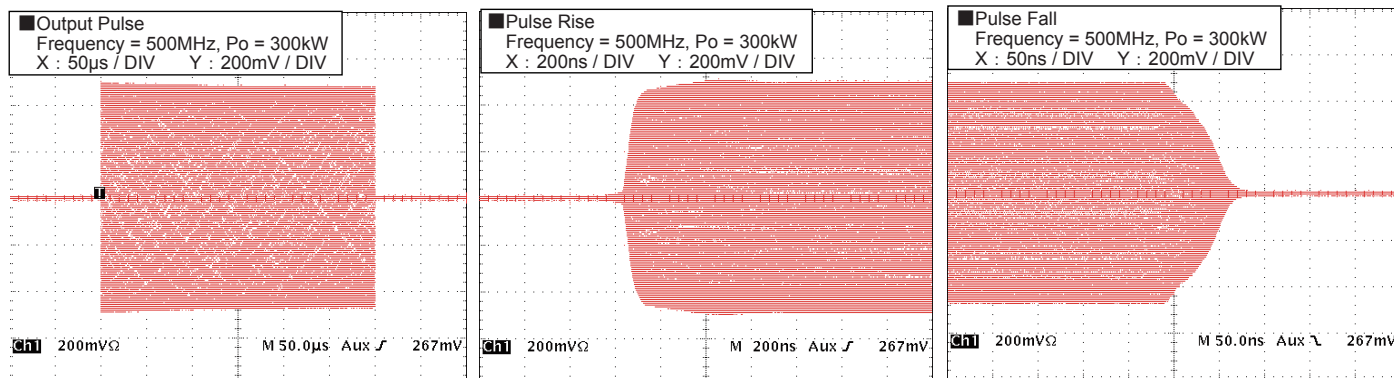
Fax : +81-545-31-1600 URL : <http://rk-microwave.com>

TYPICAL PERFORMANCE (Temp @+25°C)

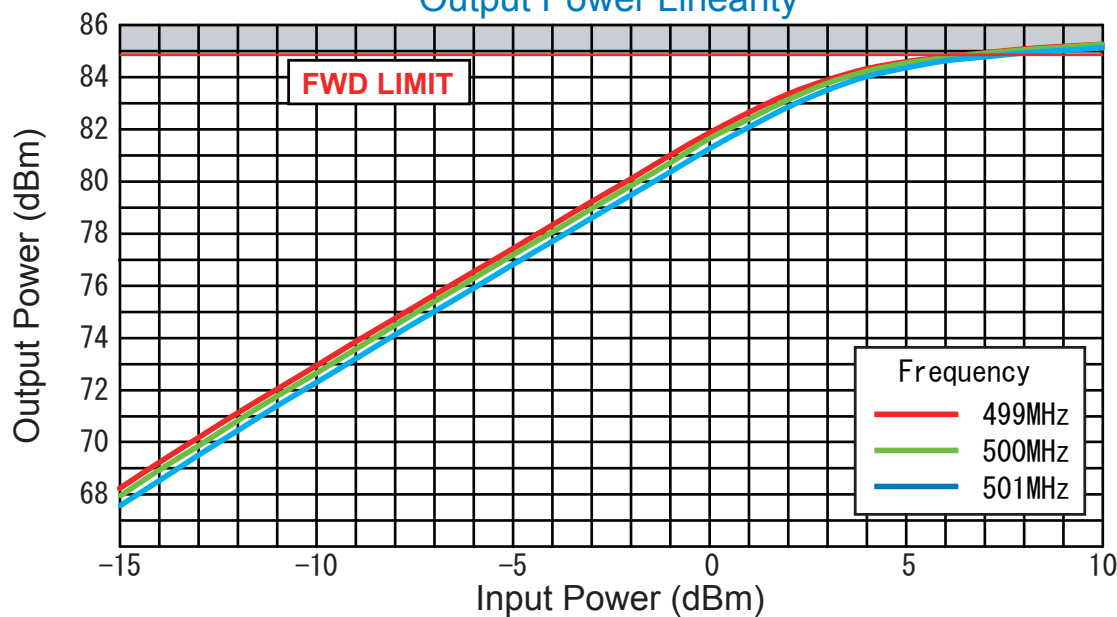
R&K-CA500BW2-8085RP

300kW SSA (75kW × 4 SSAs) Data

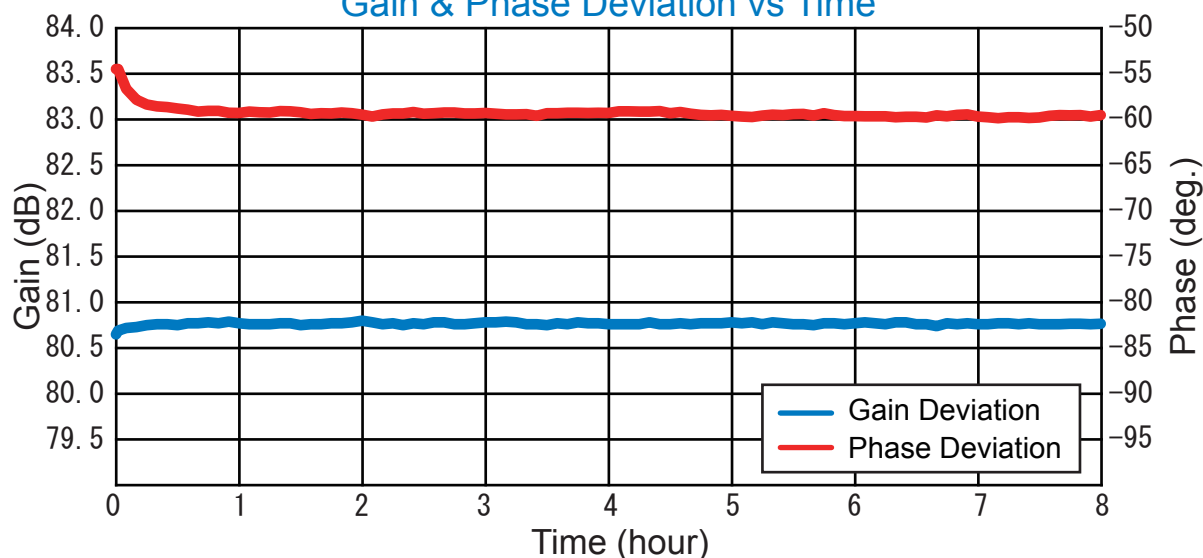
Pulse Characteristics



Output Power Linearity



Gain & Phase Deviation vs Time



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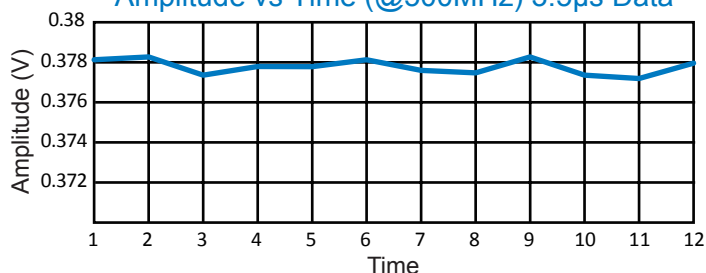
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R&K-CA500BW2-8085RP

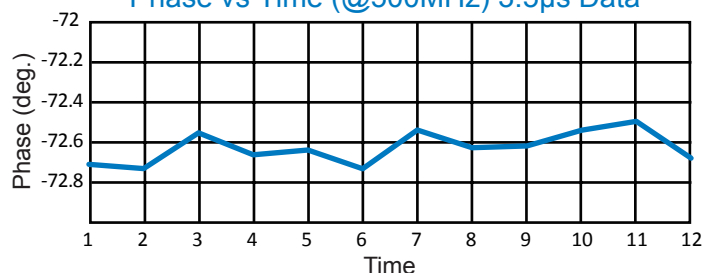
■ 300kW SSA (75kW × 4 SSAs) Data

Short-Term Amplitude & Phase Stability [Packet Sampling every 2seconds]

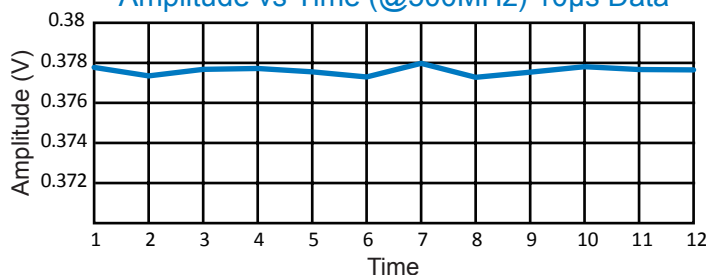
Amplitude vs Time (@500MHz) 3.5μs Data



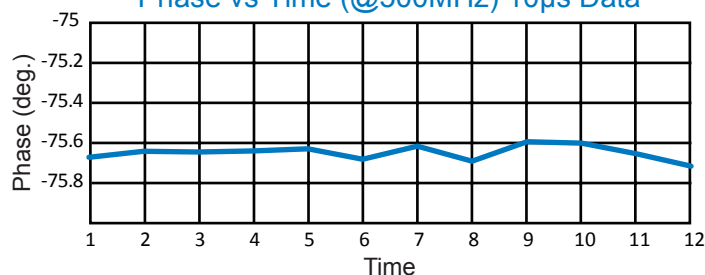
Phase vs Time (@500MHz) 3.5μs Data



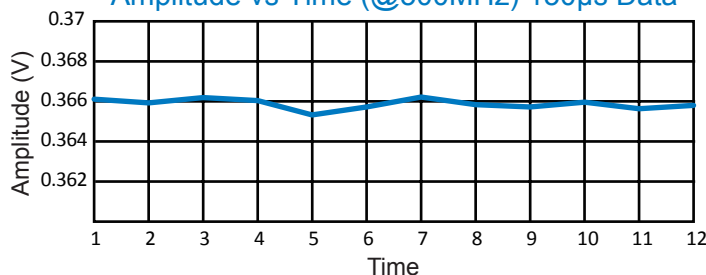
Amplitude vs Time (@500MHz) 10μs Data



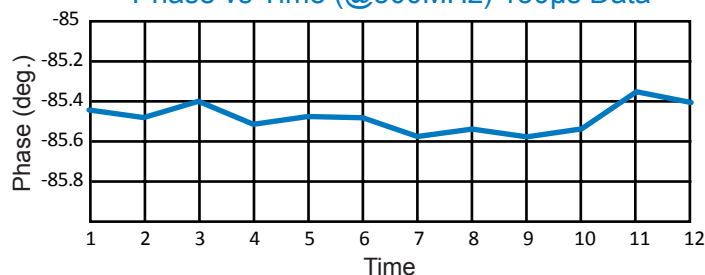
Phase vs Time (@500MHz) 10μs Data



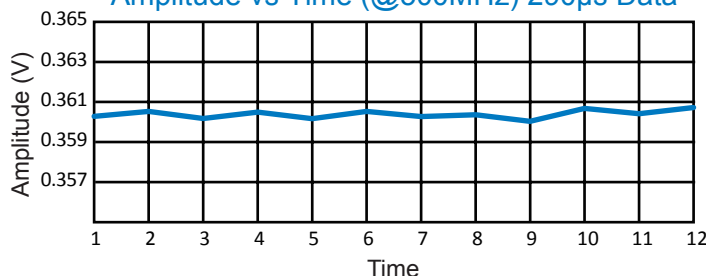
Amplitude vs Time (@500MHz) 150μs Data



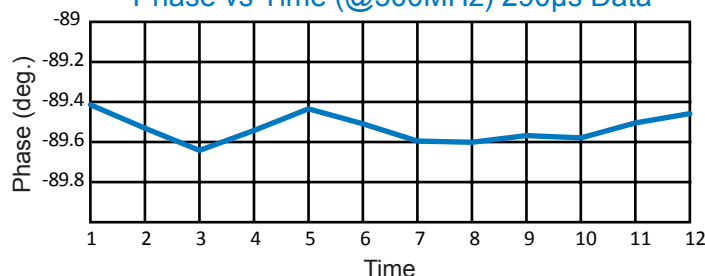
Phase vs Time (@500MHz) 150μs Data



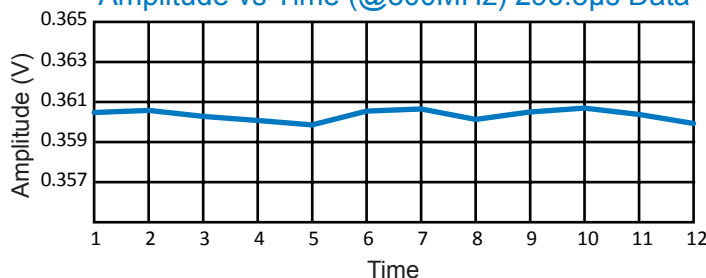
Amplitude vs Time (@500MHz) 290μs Data



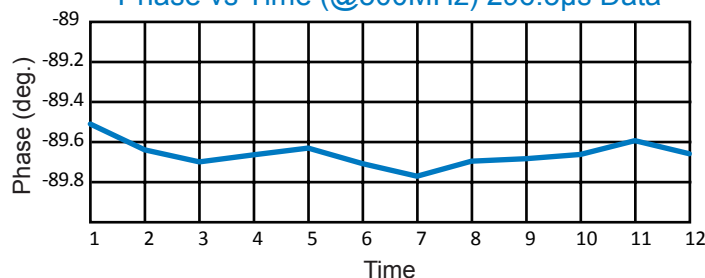
Phase vs Time (@500MHz) 290μs Data



Amplitude vs Time (@500MHz) 296.5μs Data



Phase vs Time (@500MHz) 296.5μs Data



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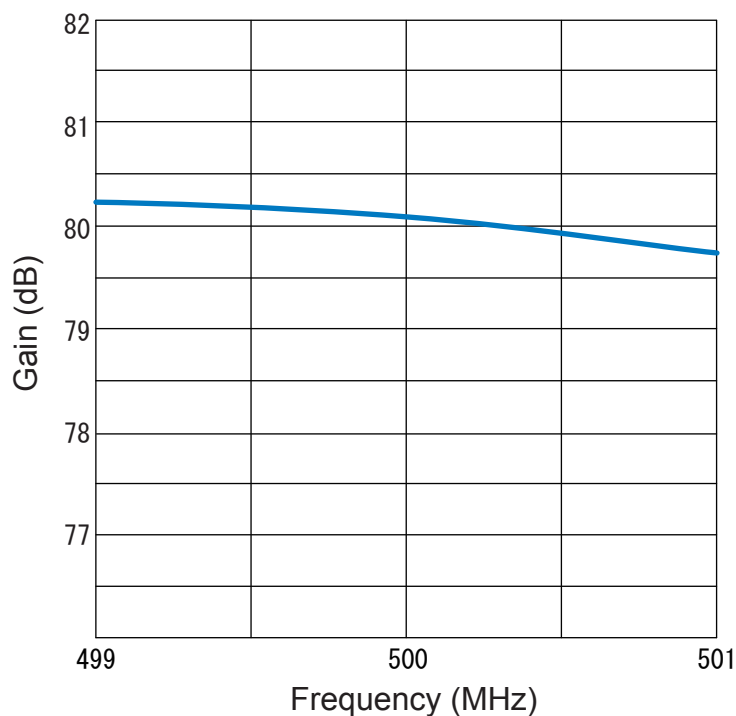
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TYPICAL PERFORMANCE (Temp @+25°C)

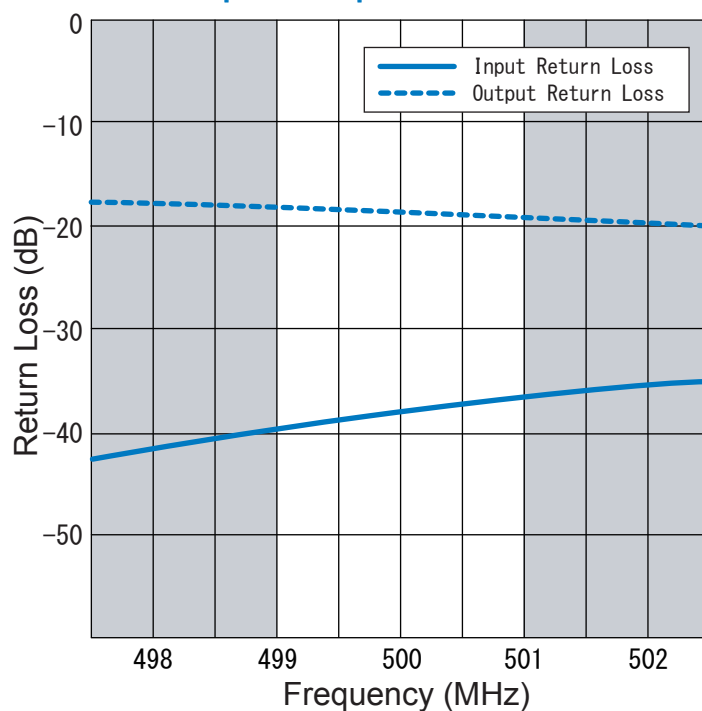
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■ 75kW SSA (Single) Data

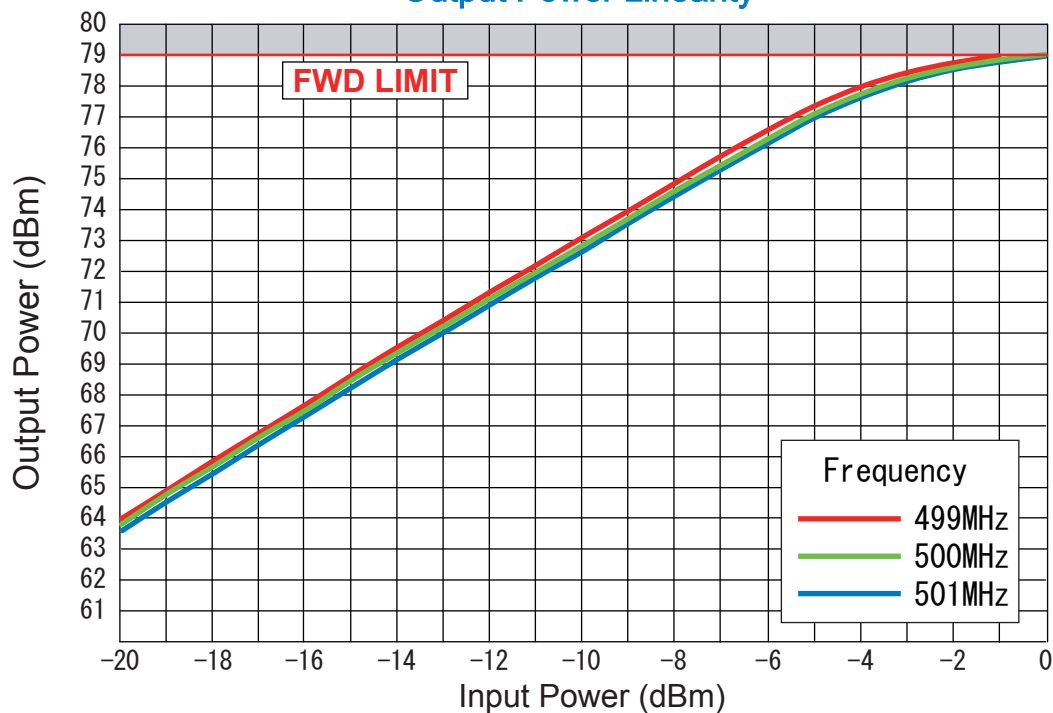
Gain Flatness



Input / Output Return Loss



Output Power Linearity



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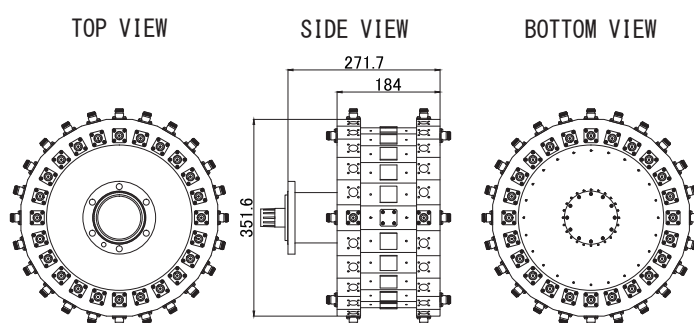
■ 96-way radial combiner for final power combining of 75kW SSA.



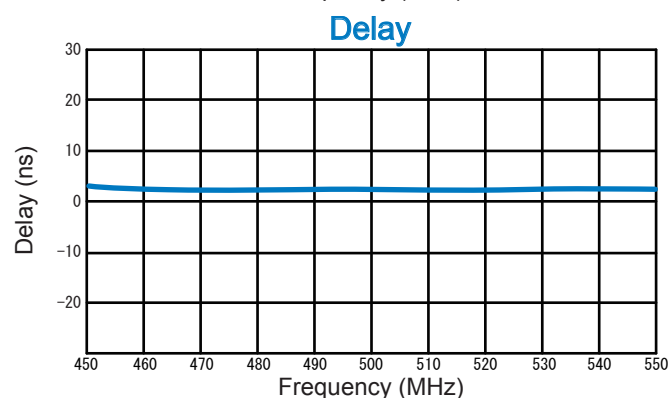
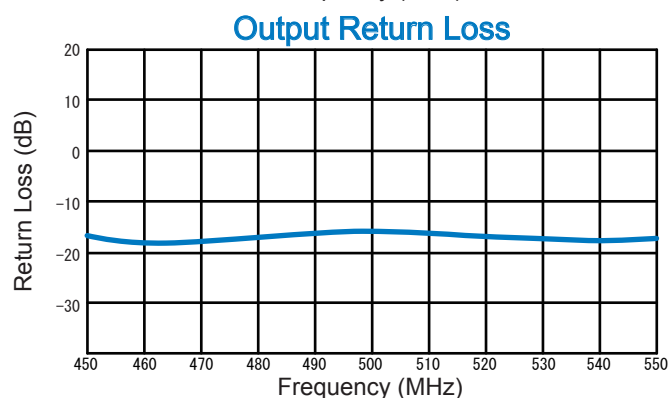
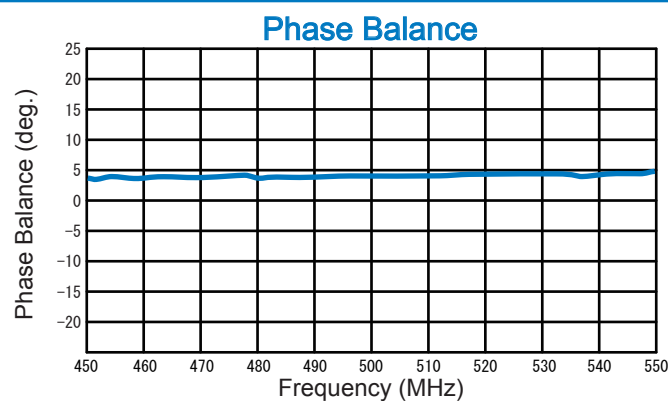
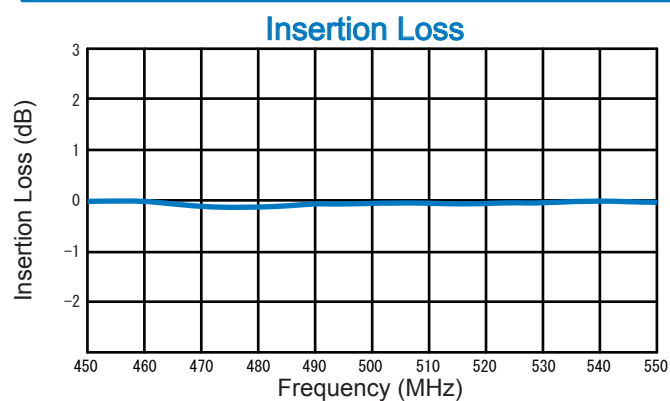
- 96-way Radial Combiner
- Frequency Range: 500MHz \pm 1MHz
- Power Handling : 100kW (max.) @Pulse
- Connectors
 Input Port : N - FEMALE
 Output Port : 3-1/8"

OUTLINE DRAWING

※ IN MILLIMETERS



TYPICAL PERFORMANCE (Temp @+25°C)



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