

R&K-CA1300BW1-5867R-SL



- All Solid-State Amplifier
- Frequency Range: 1300MHz \pm 0.5MHz
- Output Power : 4.6kW (min.) @1dB Comp.
- CW, 100% DUTY CAPABILITY
- VERY HIGH RELIABILITY

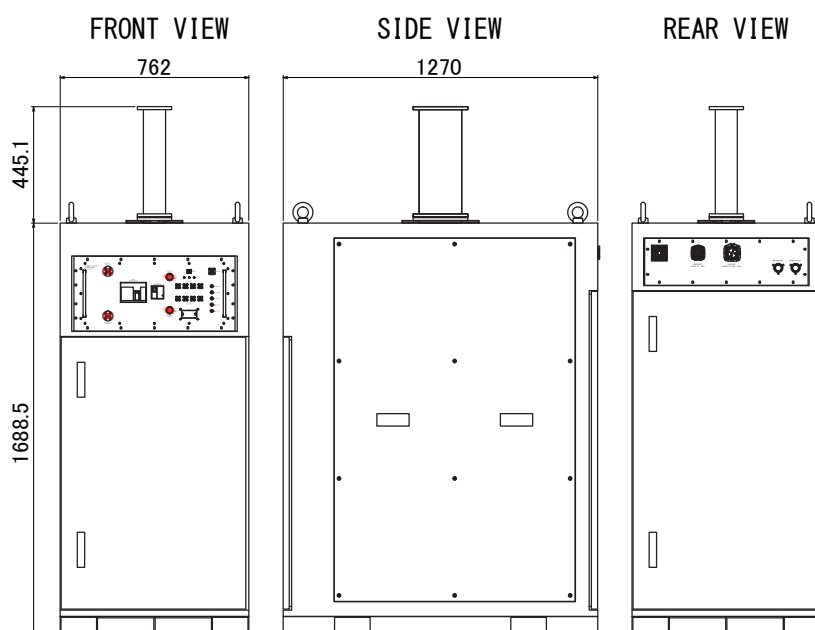
4.6kW

SPECIFICATIONS @ +25°C

Frequency Range	: 1300MHz \pm 0.5MHz
Small Signal Gain	: +57.6dB (min.)
Output Power	: 4.6kW (min.) @1dB Comp.
Amplitude Flatness	: 5% (max.) @1300MHz \pm 100kHz
Phase Linearity	: 5deg (max.) @1300MHz \pm 100kHz
Delay	: 300ns (max.)
Phase Variation	: 10deg (max.) @Po=200W~4.6kW
Harmonics	: -30.0dBc (max.) @Po=4.6kW
Spurious	: -70.0dBc (max.) @Po=4.6kW
Noise Figure	: 10dB (max.)
Efficiency	: 40% (min.) @Po=4.6kW
AC to RF Efficiency	
• Optimum Efficiency Performance	>41.7% at Vdd +42VDC Control
• Optimum P@-1dB Performance	>38.9% at Vdd +48VDC Control
Impedance	: 50 Ω
Maximum RF Input Power	: +10.0dBm
AC Supply Input	: AC480V \pm 5% / 3 ϕ , 60Hz AC120V \pm 5% / 1 ϕ , 60Hz
Consumption Power	: 11.5kVA(max.)
Connectors	: RF - IN N - FEMALE RF - OUT WR650
Size	: (W)762mm \times (D)1270mm \times (H)1688.5mm (Excluding Projection)
Weight	: 680kg (typ.)
Cooling	: Forced Air Cooling and Water Cooling
Water Input Pressure	: 40-75psi(nominal), 150psi(max.)
Water Temperature	: +30°C \pm 0.5°C
Water Flow Rate	: 5gpm (min.)
Protection Circuits	: Over Temperature Protection Power Supply Voltage Protection Output Over Power Protection
Other Function	: With Output Circulator (each final device)

OUTLINE DRAWING

※IN MILLIMETERS



FEATURES

1) DOUBLE SHIELDED RACK CONSTRUCTION

Internal heat is water-cooled and discharged outside by self-contained heat exchanger. Double-layer housing provides high RF/EMI shielding performance.

2) WILKINSON RADIAL COMBINER

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

3) BROADCAST-TRANSMITTER-LEVEL REDUNDANCY

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

4) 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.

5) MULTIPLE CPU CONTROLLER AND SENSORS

Multiple CPUs monitor a total of 85 points and save the status data to an internal SD memory card by use of Modbus protocol and through Ethernet.

6) 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%.

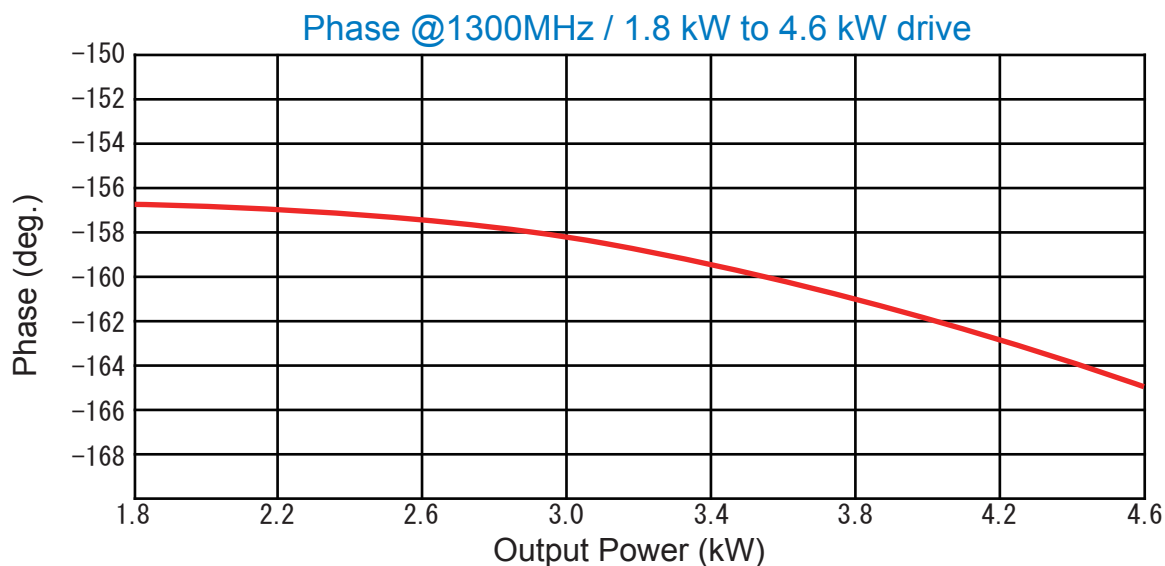
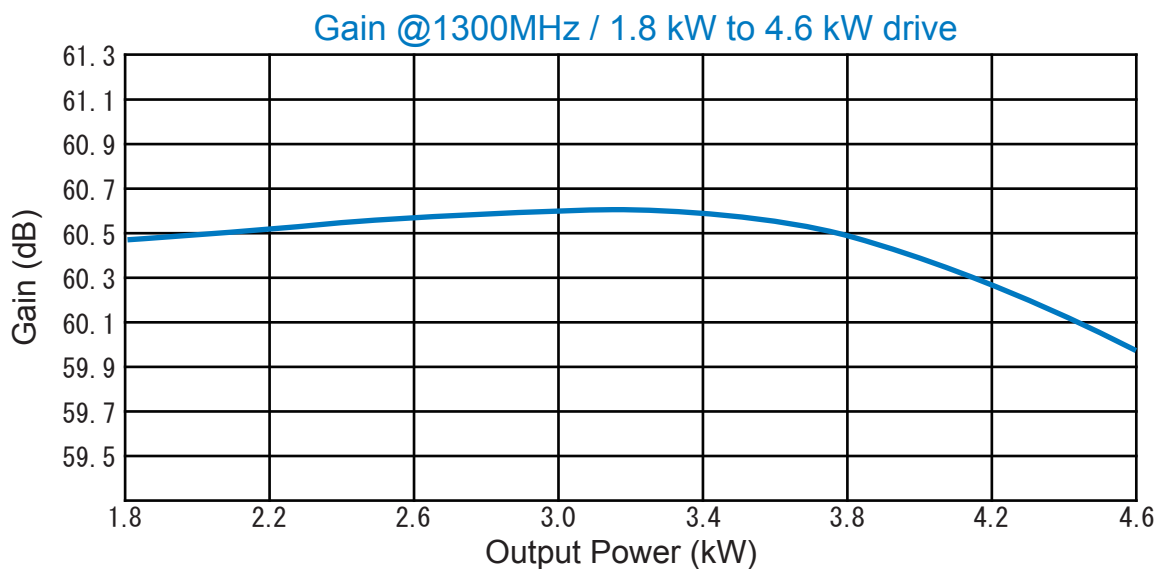
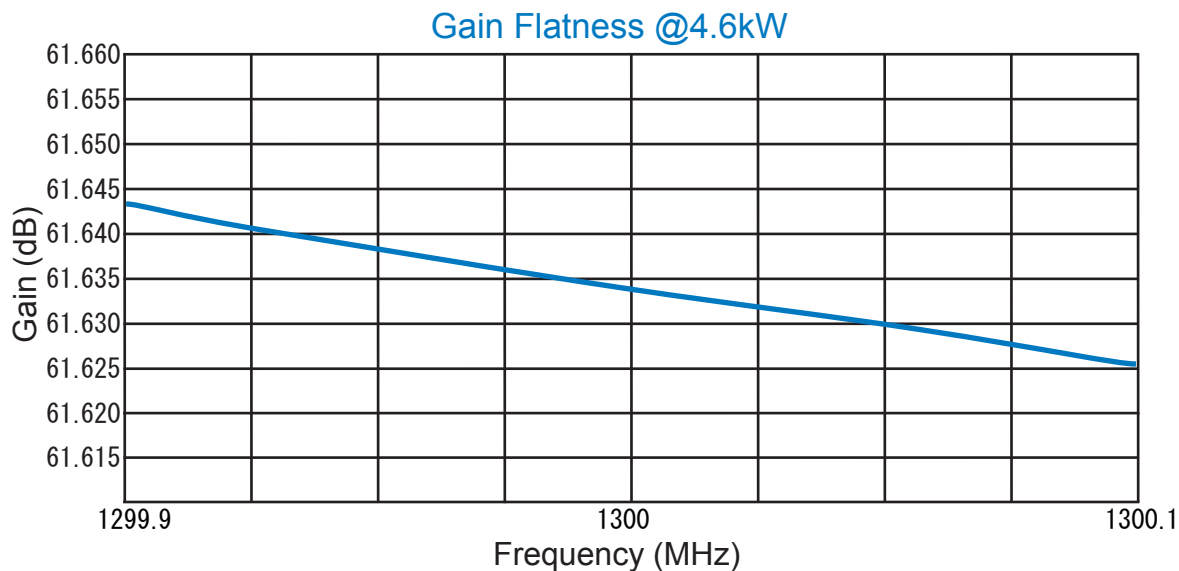
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TYPICAL PERFORMANCE (Temp @+25°C)

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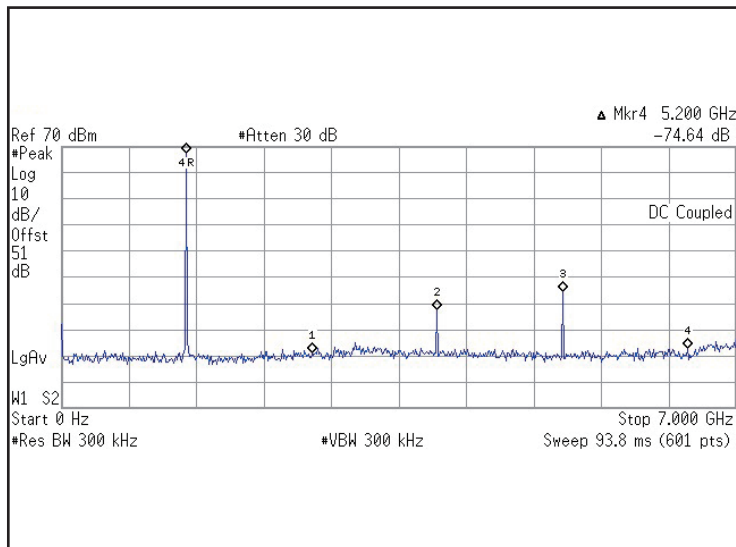
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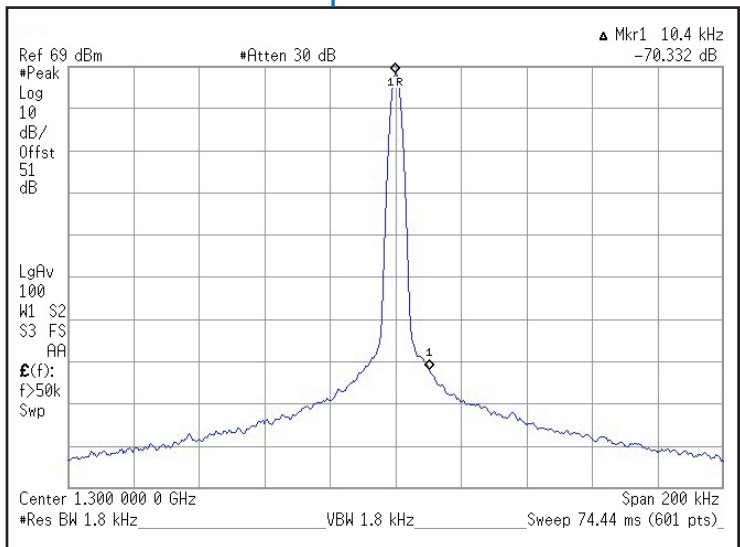
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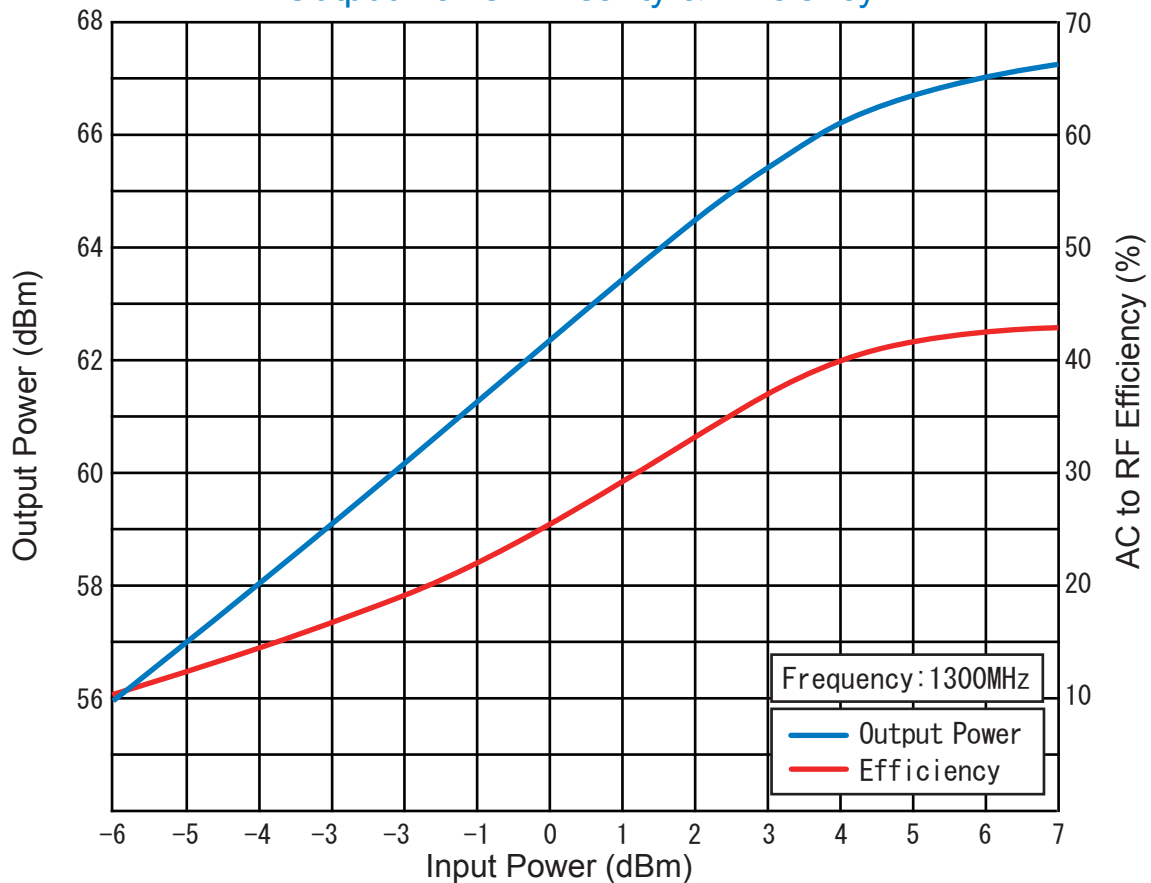
Harmonics



Spurious



Output Power Linearity & Efficiency



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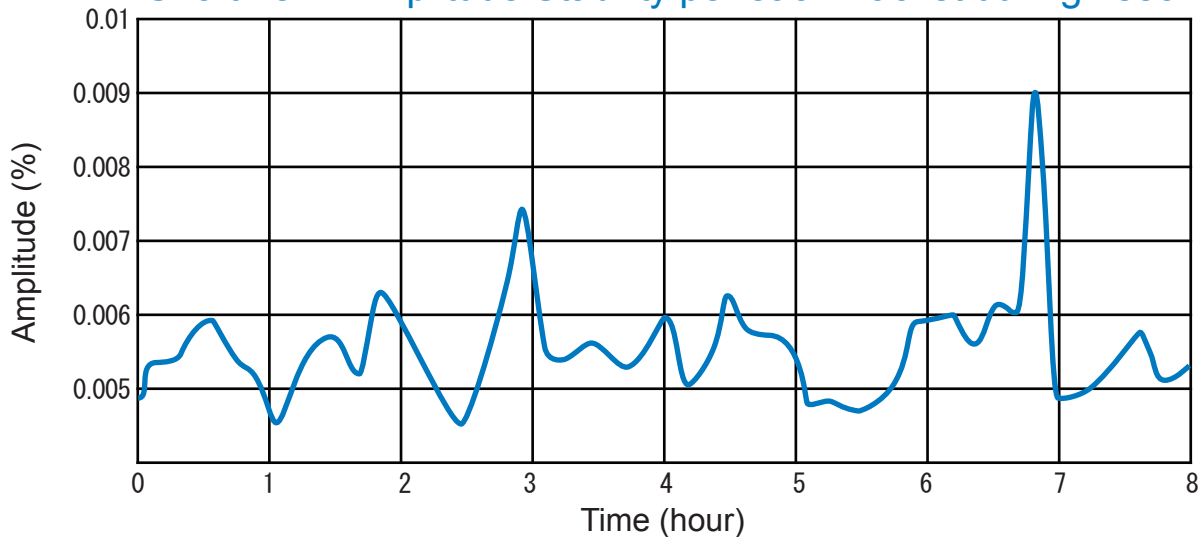
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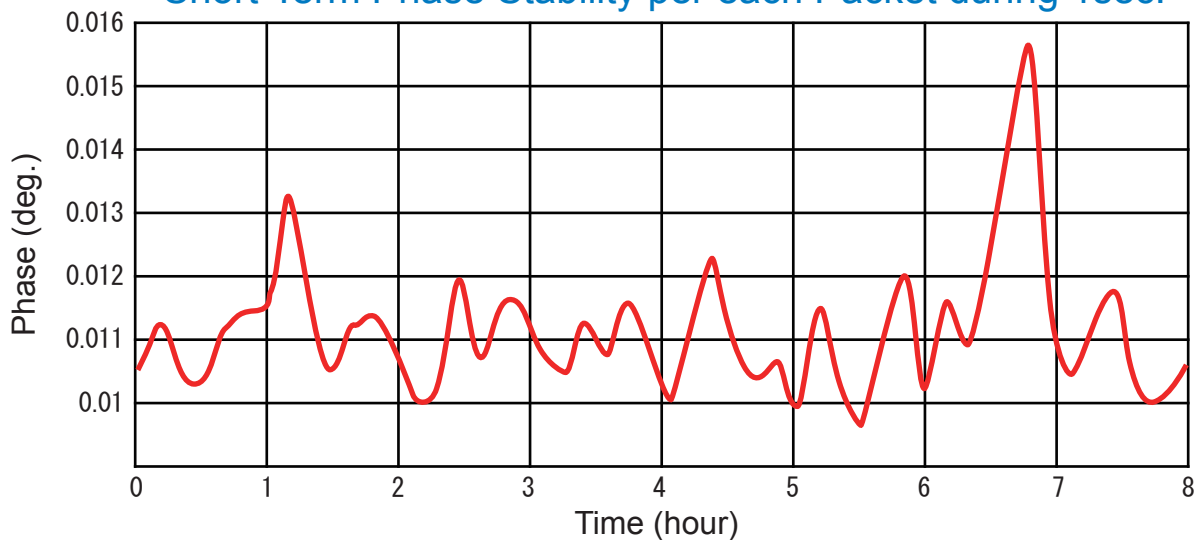
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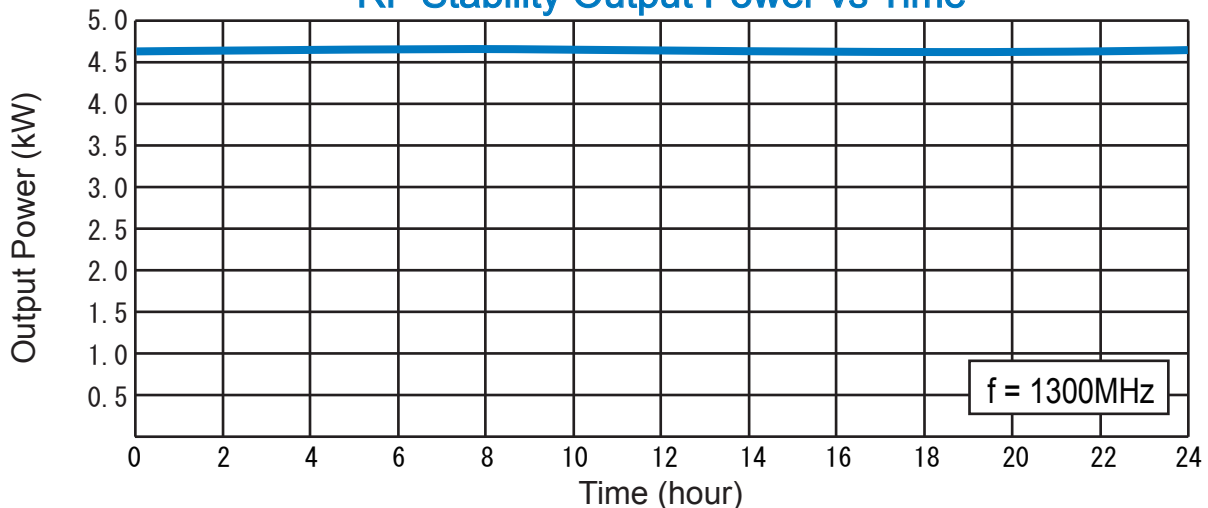
Short-Term Amplitude Stability per each Packet during 1sec.



Short-Term Phase Stability per each Packet during 1sec.



RF Stability Output Power vs Time



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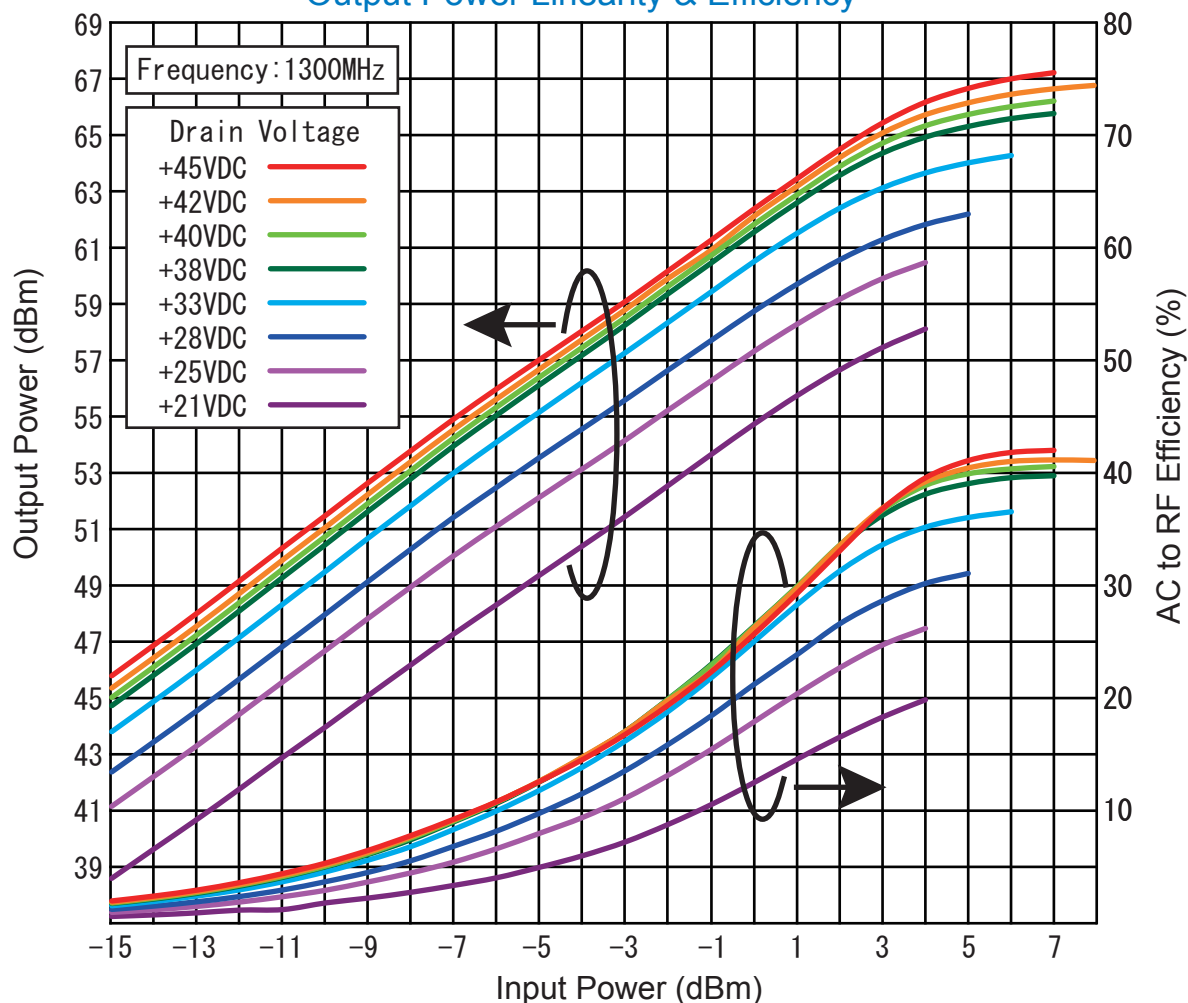
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■ AM-AM / AM-PM Performance @ Drain Voltage Control

Output Power Linearity & Efficiency



Efficiency @Rated Drain Voltage

RF Output	Drain Voltage	AC to RF Efficiency
4600W	+45V	40.84%
3910W	+45V	≒ 38.0%
3450W	+45V	≒ 35.5%
2300W	+45V	≒ 29.0%
1380W	+45V	≒ 22.0%
920W	+45V	≒ 17.5%
460W	+45V	≒ 12.0%

Efficiency @Drain Voltage Control

RF Output	Drain Voltage	AC to RF Efficiency
4600W	+42V	41.12%
3910W	+40V	40.19%
3450W	+38V	39.22%
2300W	+33V	35.06%
1380W	+28V	28.98%
920W	+25V	23.81%
460W	+21V	16.37%

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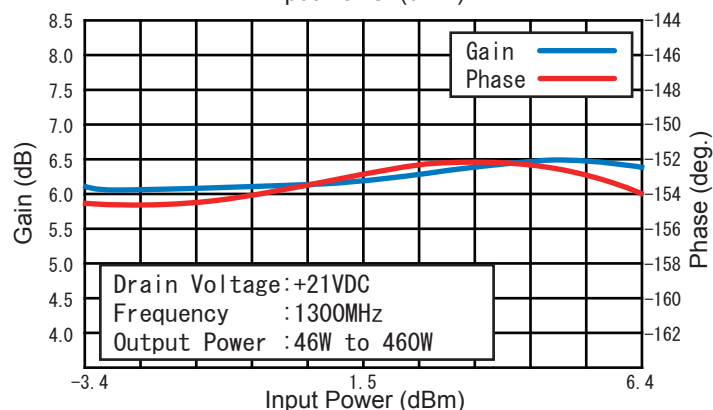
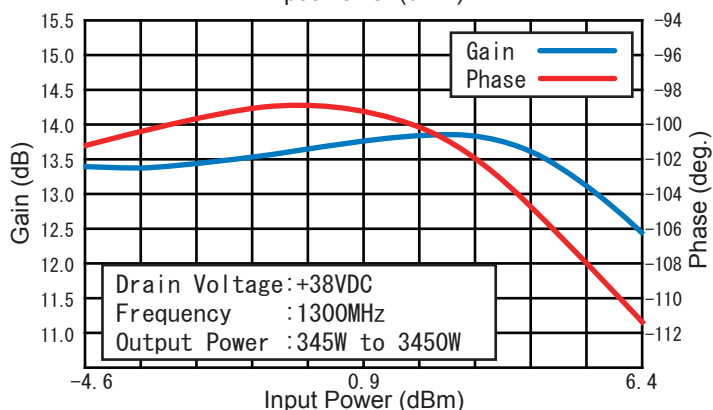
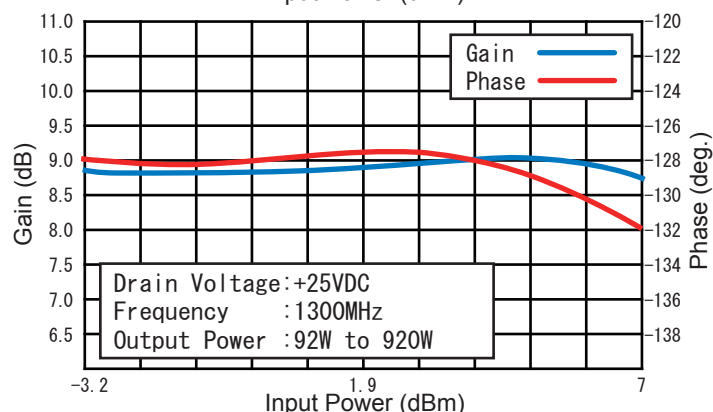
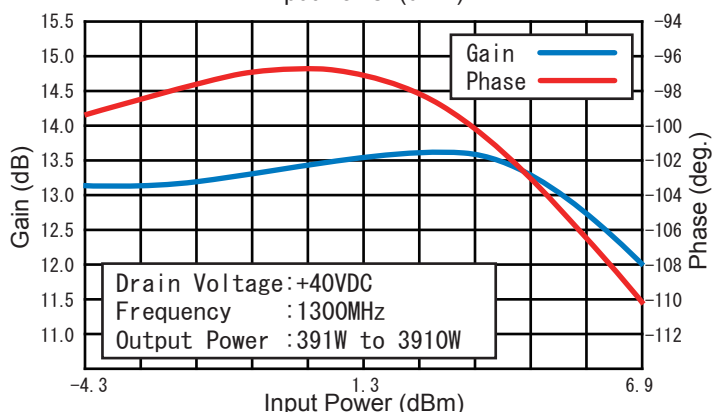
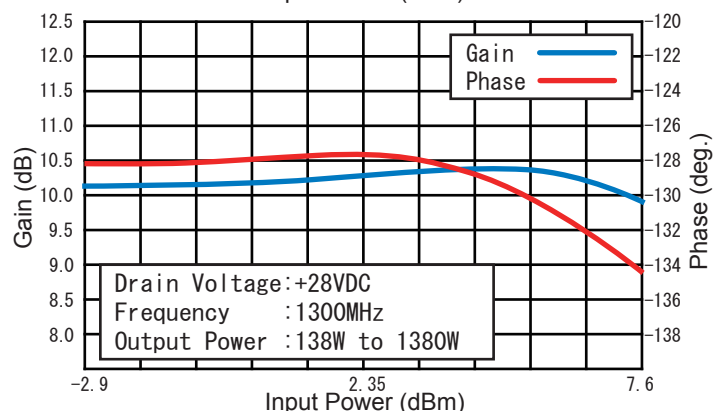
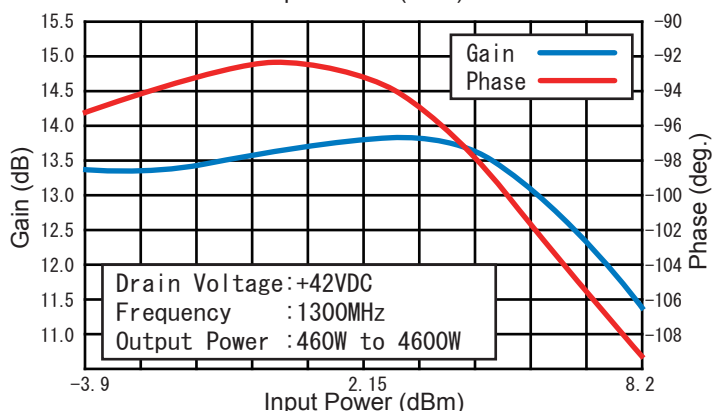
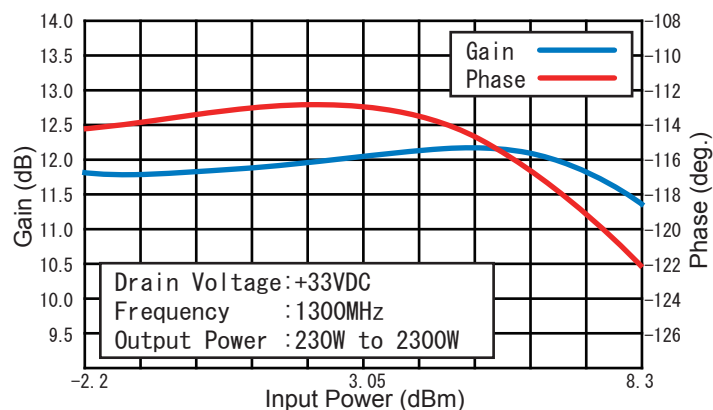
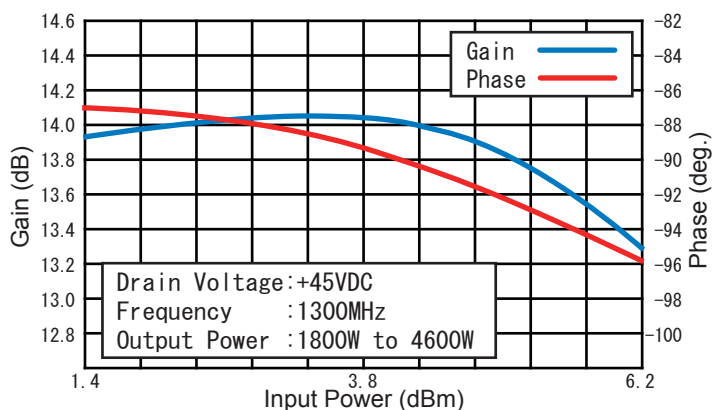
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■ AM-AM / AM-PM Performance @ Drain Voltage Control, Cont'd Gain & Phase Flatness



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