



P/N: AMT-SPA-275310-2500

Product Feature:

- ★ Frequency coverage: 27.5-31GHz, Power: 1W-2.5KW
- ★ High linearity, high reliability, long lifespan
- ★ Outdoor use, waterproof design, liquid cooling system
- ★ Suitable for vehicular, naval, and airborne platform applications
- ★ Equipped with remote control and protections for over-temperature and excessive VSWR
- ★ Configurable 1:1 and 1:2 switching systems
- ★ Configurable with BUC (Block Up Converter)

Product Overview

Outdoor Ka-band SSPA/BUC is a specialized product for satellite communication, suitable for satellite ground stations, vehicle-mounted, shipborne, and airborne platforms. The product utilizes next-generation GaN devices combined with efficient power synthesis and linearization technology, offering advantages such as high reliability, long lifespan, and low maintenance costs. It supports 1:1 and 1:2 hot backup and power synthesis operational modes. Internally, the product is equipped with a comprehensive monitoring system, power system, and cooling system, providing functions such as output power monitoring and high VSWR protection, temperature monitoring and over-temperature protection, voltage and current monitoring and over-voltage and over-current protection, and remote power on/off capabilities. Communication with a host device can be achieved through interfaces including RS422, RS485, or RJ45.



Product Photo



Ka band 2.5KW Amplifier, Front and Side View



Ka band 2.5KW Amplifier, Rear View



Product Photo



Ka Band 2.5KW-Power Supply Chassis



Ka band 2.5KW Liquid-Cooled Compressor

**Technical Specification**

Technical Specification	Technical Specifications
Operating Frequency Range	27.5GHz-31GHz
Output Power Range	1W-2.5KW
Gain	$\geq 60\text{dB}$ (adjustable)
Gain Flatness	$\leq \pm 0.75\text{ dB@ any } 100\text{ MHz};$ $\leq \pm 2.5\text{ dB@ any } 1\text{ GHz};$ $\leq \pm 3\text{ dB@ any } 3.5\text{GHz}$
Gain Stability	$\leq \pm 0.25\text{ dB/24h}$
RF Level Adjustment Range	30dB, steps: 0.1dB (adjustable)
Spurious	$\leq -60\text{dBc}$
VSWR	Input ≤ 1.8 Output ≤ 1.8
IM3 (Third-order Intermodulation)	$\leq -25\text{dBc max@} 3\text{dB back-off from Psat,}$ 5MHz spacing
AM/PM Conversion	$2.0^\circ/\text{dB max. (linear power)}$
Group Delay	$\leq 2\text{ns @any } 750\text{ MHz};$ $\leq 0.01\text{ns/MHz linearly}$
Noise Power Density	$\leq -150\text{ dBW/4 kHz @receive band};$ $\leq -70\text{ dBW/4 kHz in transmit band}$
Phase Noise	$\leq -63\text{dBc/Hz @} 100\text{Hz};$ $\leq -73\text{dBc/Hz @} 1\text{KHz};$ $\leq -83\text{dBc/Hz @} 10\text{KHz};$ $\leq -93\text{dBc/Hz @} 100\text{KHz}$
Interfaces	RF Input: 2.92-K; RF Output: WR34; Coupled Sampling: 2.92-K; Power Supply Interface: Aviation socket; Communication/Control Interface: Ethernet or Serial Port
Environmental Temperature	Operating Temperature: -40°C to $+60^\circ\text{C};$ Storage Temperature: -50°C to $+80^\circ\text{C}$

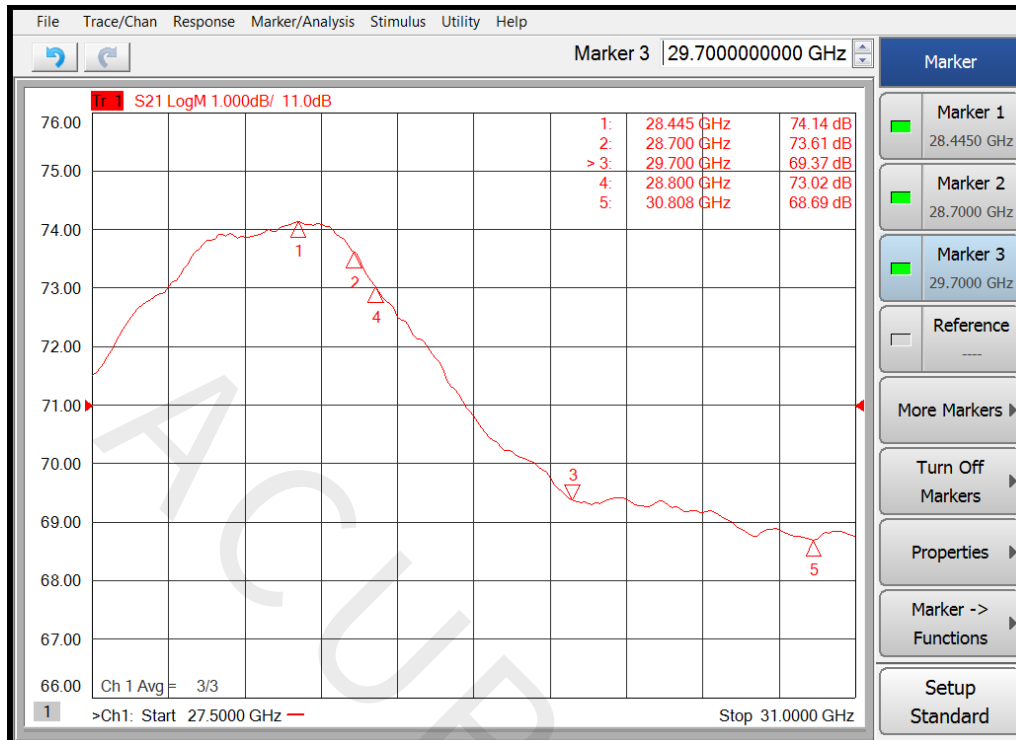


Technical Specification	Technical Specifications
Power Supply	380VAC, single phase, 47 - 53Hz
Power Consumption	≤25kW
Weight and Dimensions	To be determined based on specific model
Control Functions	Monitoring of temperature, voltage, and current; Protection against over-voltage, over-current, and over-temperature; Output power monitoring and protection from overdrive and excessive reflection; Automatic level control (ALC) and fault location capabilities; Real-time equipment status upload; configurable 1:1 and 1:2 switching network.

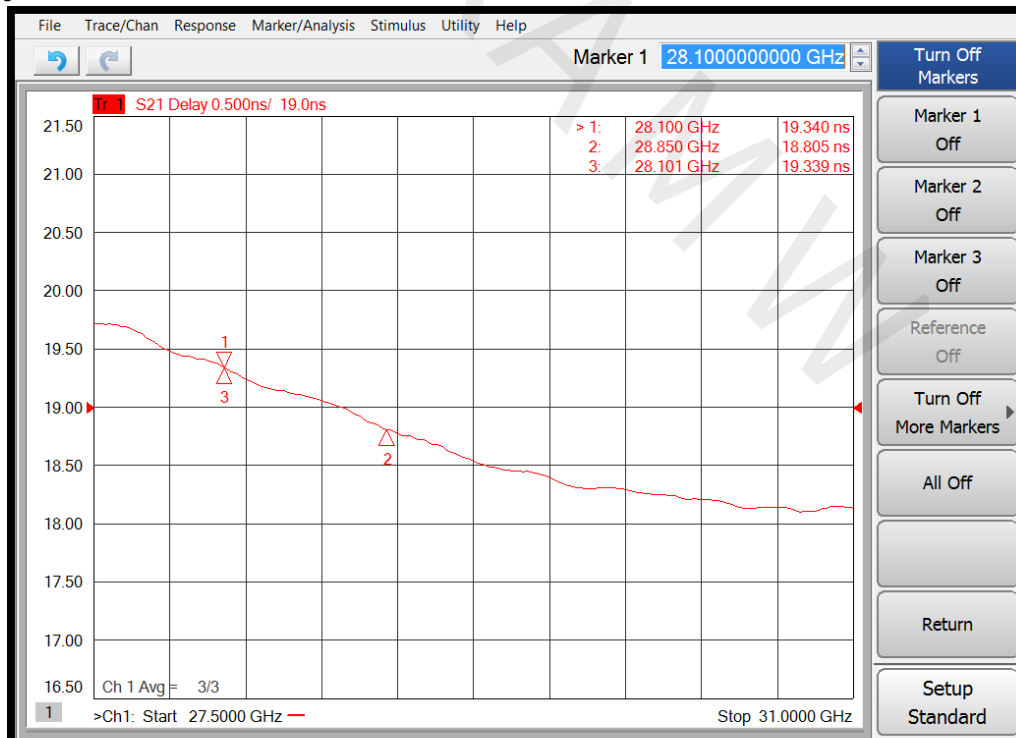


Test Result

Gain and Gain Flatness

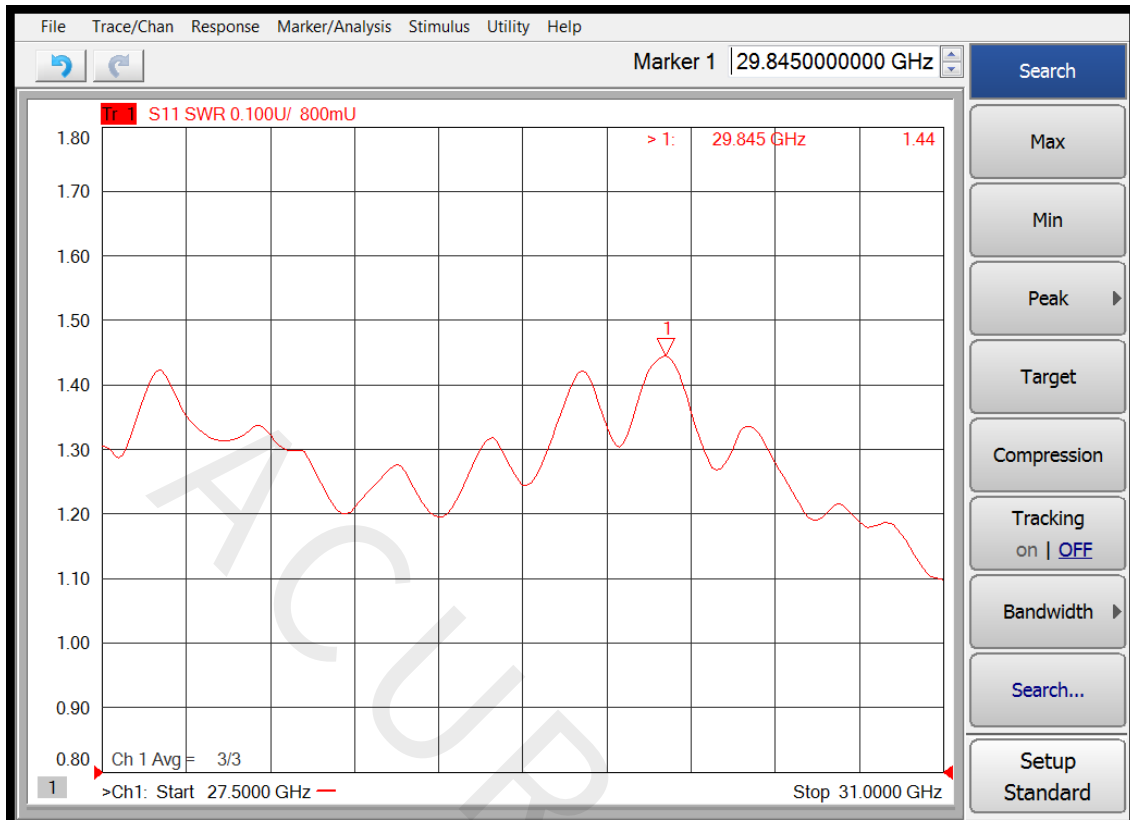


Group Delay

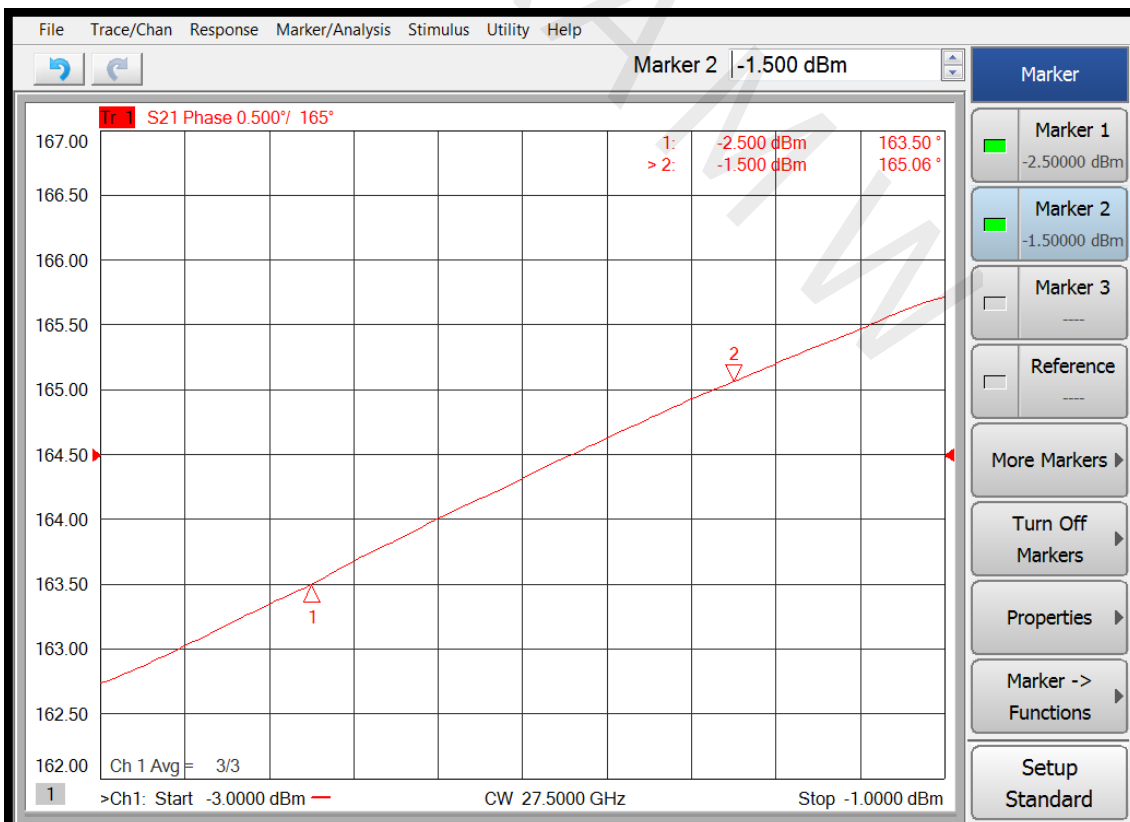




Input VSWR

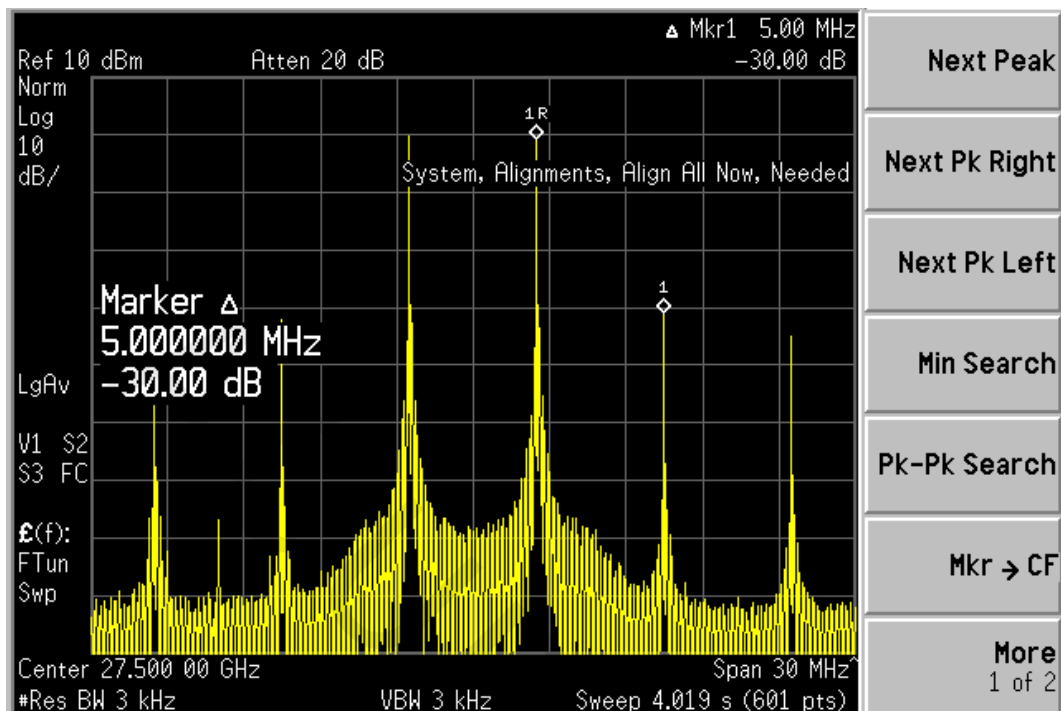


Amplitude-Phase Transformation Test Curve

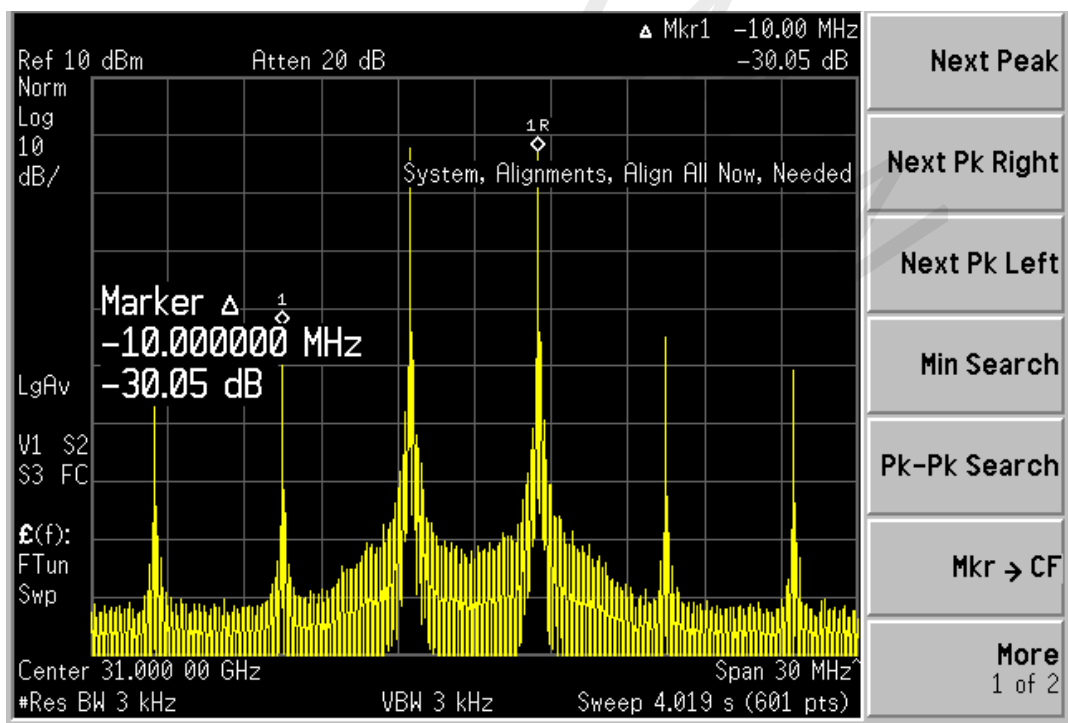


Third-Order Intermodulation

27.5GHz Third-Order Intermodulation



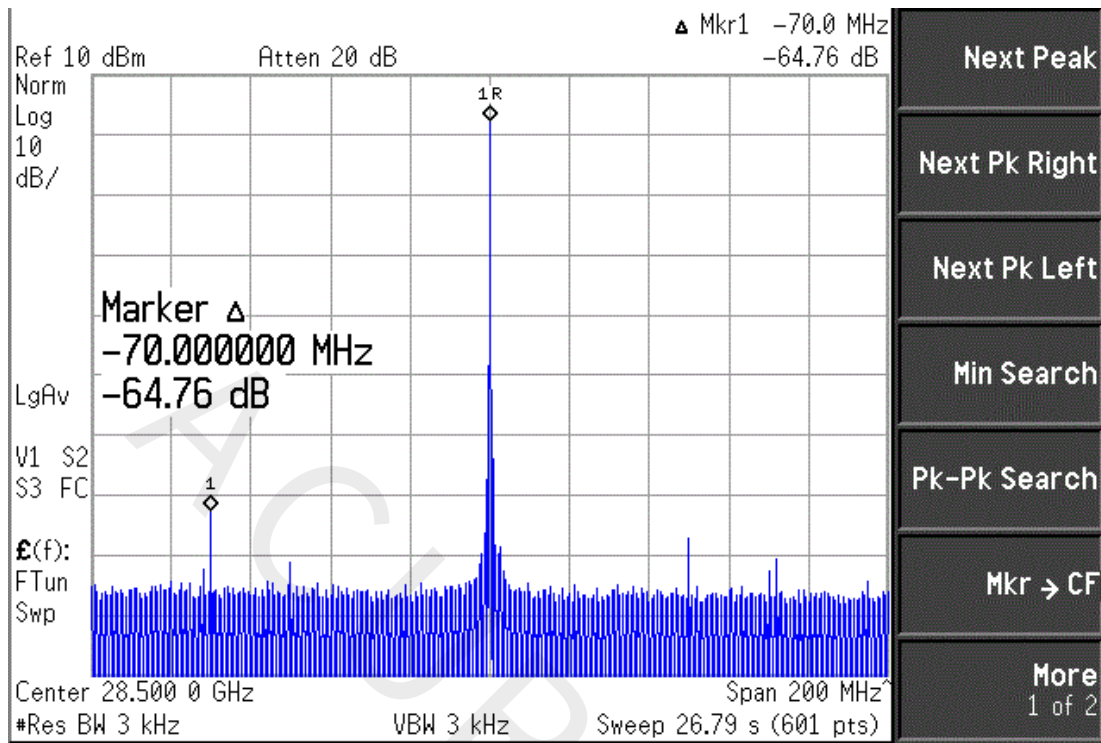
31GHz Third-Order Intermodulation Test Curve



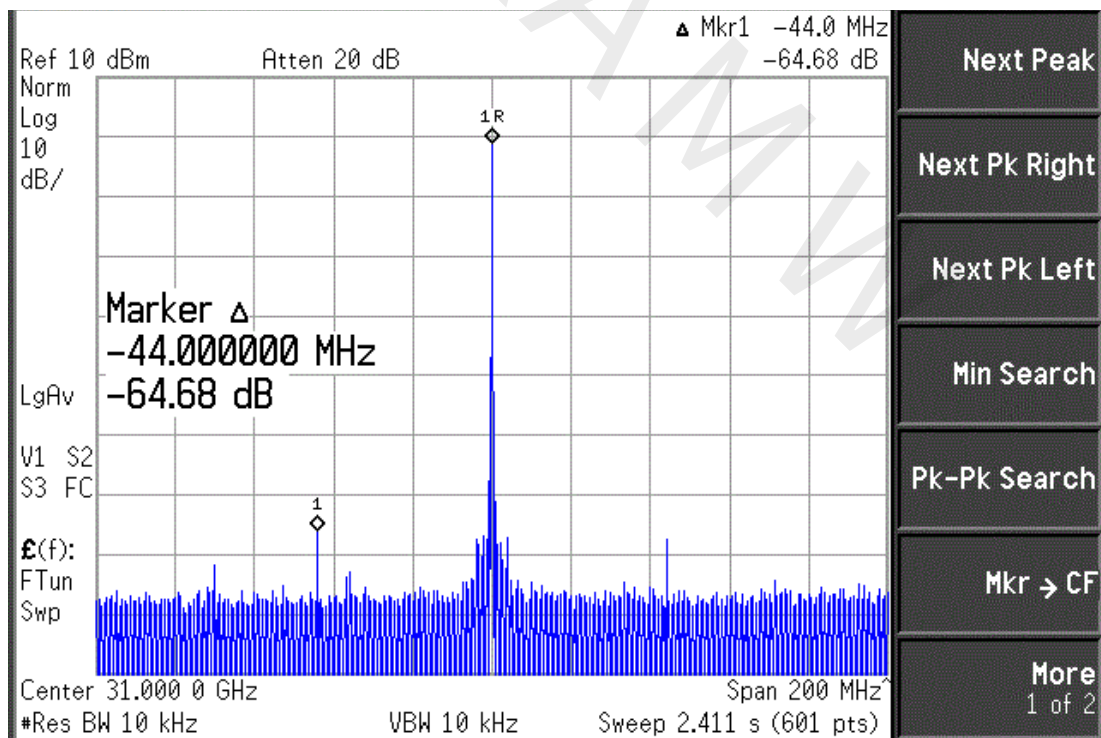


Spurious

28.5GHz

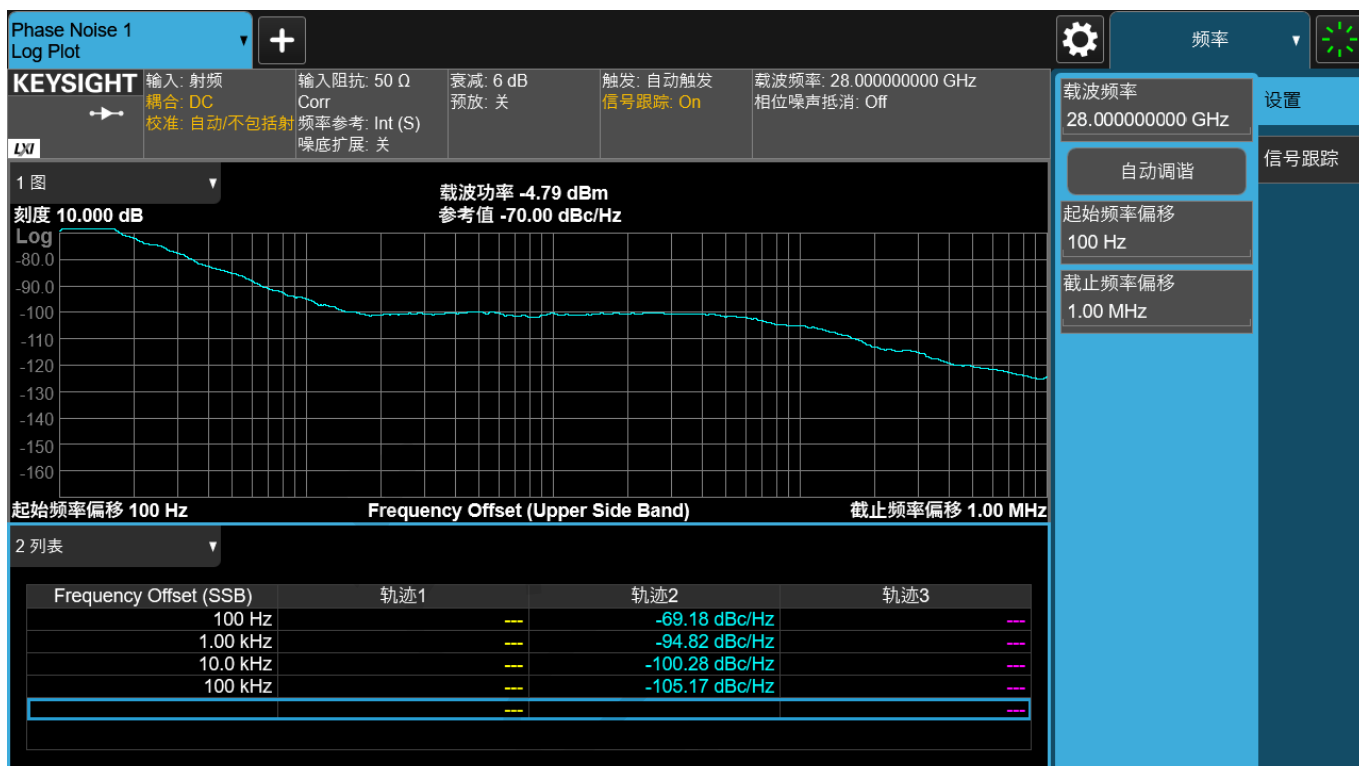


31GHz





28GHz phase noise test



Saturated output power and frequency

饱和输出功率 vs. 频率

