

Solid State High Power Amplifier Systems

1-4GHz/70dB Gain/70dBm Psat/380V AC

Model: TLPA1G4G-70-70-P-BC

TLPA1G4G-70-70-P-BC is a solid state high power amplifier systems provides high output power and high gain across the 1 to 4 GHz frequency range. The amplifier features a built-in 380V power supply, making it easy to use in most lab environments. This model features thermal self protection, preventing damage to the amplifier and providing added reliability.

Features:

- Frequency range: 1-4GHz
- Gain: 70dB Min
- Psat Output Power: 70dBm Min
- Protection: Over TEM, over voltage, over current, over VSWR(3:1) protection
- 50 Ohm Matched Input / Output

电气特性 Electrical Characteristics:

参数 Parameter	代码 Symbol	Min	Typ	Max	单位 Units
频率范围 Frequency range	BW	1-4			GHz
工作模式 Working Mode	MOD	PULSE ONLY			
功率增益 Power Gain	GP	70			dB
增益平坦度 Gain flatness@Pout=69dBm	ΔGL		±4		dB
输入功率 Input Power	Pin		0	5	dBm
脉冲关闭隔离 Pulse Off Isolation	Piso		80		dBc
饱和输出功率 Output Psat	Psat	70			dBm
杂散 Spurious@Pout=70dBm	Spur			-60	dBc
谐波 Harmonics@Pout=70dBm	HAM		-15	-10	dBc
脉冲延时 Pulse Delay	Pd		250		ns
调制信号电平 Modulation Signal Level (50Ω)	TTL	0		5	V
调制频率 Modulation Frequency	MF	0.5		20	KHz
脉冲宽度 Pulse Width	T	0.3		300	us
占空比 Duty Cycle	τ			10	%
上升/下降沿 Rise/Fall Time(10% to 90%)	Tr		50	100	ns
脉宽失真 Pulse Width Distortion	PWd		±50		ns
顶降 Pulse Drop@T=100us	Pdrop		0.5		dB

电气特性 Electrical Characteristics:

参数 Parameter	代码 Symbol	Min	Typ	Max	单位 Units
底噪 Ground Noise(Pulse on)	NL1		-70	-55	dBm/Hz
底噪 Ground Noise(Pulse off)	NL2		-140		dBm/Hz
输入驻波 Input VSWR	VSWR			1.5	:1
交流电压 AC Voltage	Vac	380 VAC,50Hz			V AC
5%占空比功耗 Power Consumption@5% duty cycle	Pdiss		4500		W
10%占空比功耗 Power Consumption@10% duty cycle	Pdiss		9000		W
阻抗 Impedance	I/O-IMP	50			Ohms

机械特性 Mechanical Specifications:

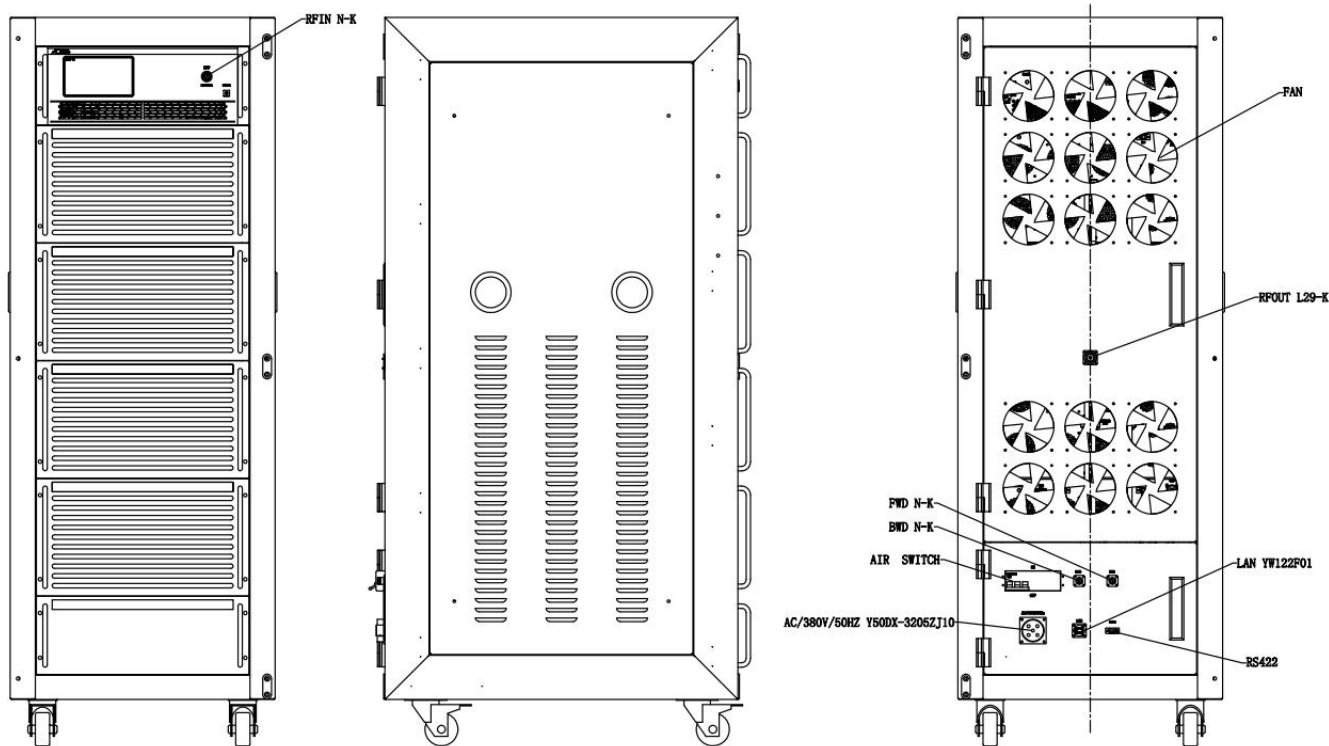
参数 Parameter	指标 Value	单位 Units
输入/输出接口 Input /Output Connector	N Female/L29 Female	
正向/反向耦合 Forward/Reverse Coupling	N Female/N Female	
液晶显示屏 Front Panel LCD Screen Display	7 inch LCD Screen Display	
脉冲输入接口 Pulse Input Connector	BNC Female	
通信接口 Communication Connector	DB-9/RJ-45	
尺寸 Size	32U*800 depth	mm
重量 Weight	≤500	Kg

绝对最大值 Absolute Maximum Ratings:

参数 Parameter	指标 Value
输入功率 RF Input Power	+5 dBm
ESD灵敏度 ESD sensitivity (HBm)	Class 0, passed 150V

外形图 Outline Drawing:

Unit:mm



主要功能 Key Features:

参数 Parameter	特点 Advantages
控制功能 Control functions	1,Power setting on/off 2,RF setting on/off 3,Gain adjustment 4,ALC automatic level control
内置保护功能 Protection functions	1,Over TEM 2,Over voltage 3,Over current 4,Over VSWR(3:1)
监控和控制 Remote control	RS422/Ethernet
冷却系统 Cooling system	Built in Cooling system,forced air cooling

温度环境 Environmental Conditions:

参数 Parameter	Min	Typ	Max	单位 Units
操作温度 Operating Temperature*	-20		+40	°C
存储温度 Non-operating Temperature*	-30		+50	°C
相对湿度 Relative humidity		95		%
海拔 Altitude	10,000			feet
震动 Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
冲击 Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

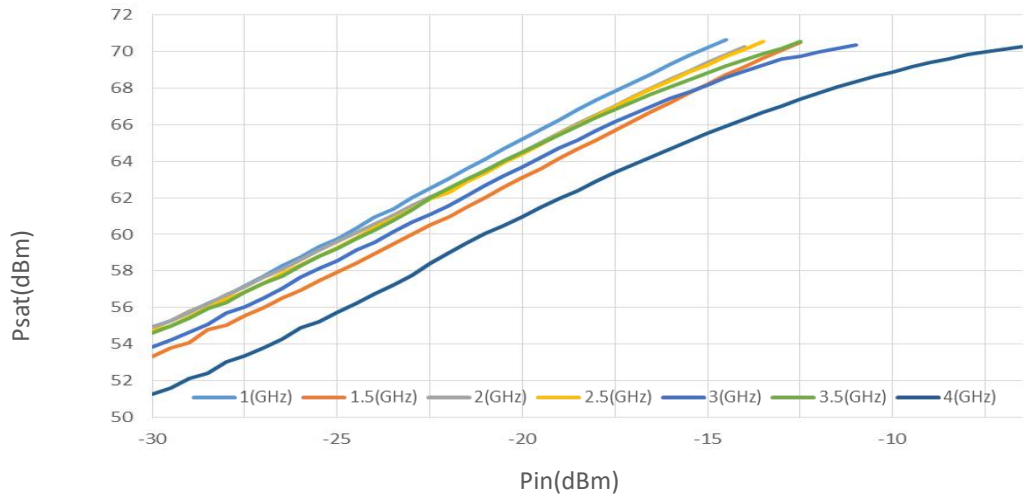
*Note: For a wider temperature range, please consult the manufacturer.

订货信息 Ordering Information:

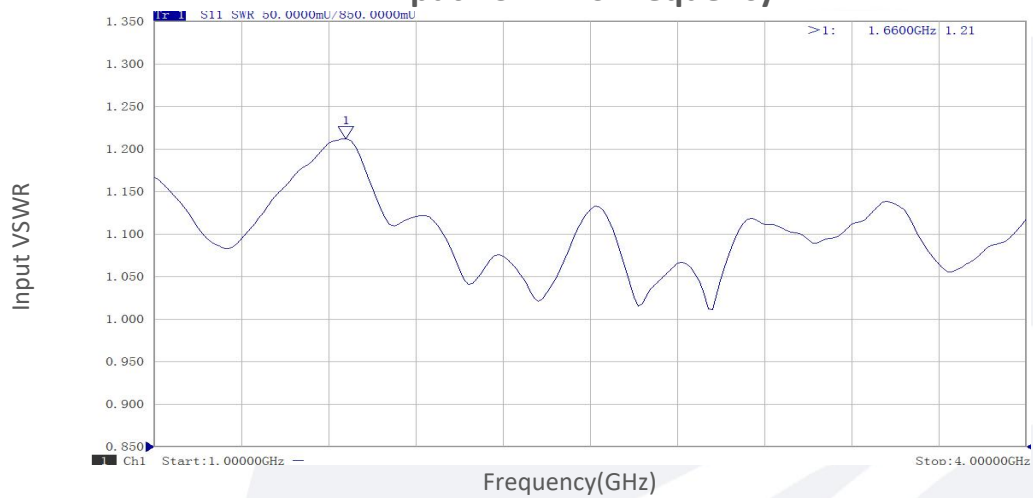
标准型号 Base Number	描述 Description	版本号 Revision
TLPA1G4G-70-70-P-BC	Solid State High Power Amplifier Systems 1-4GHz,Gain:70dB,Psat:70dBm,380V AC,Built in Fan Cooling	Rev.1.1

典型曲线 Typical Performance Data:

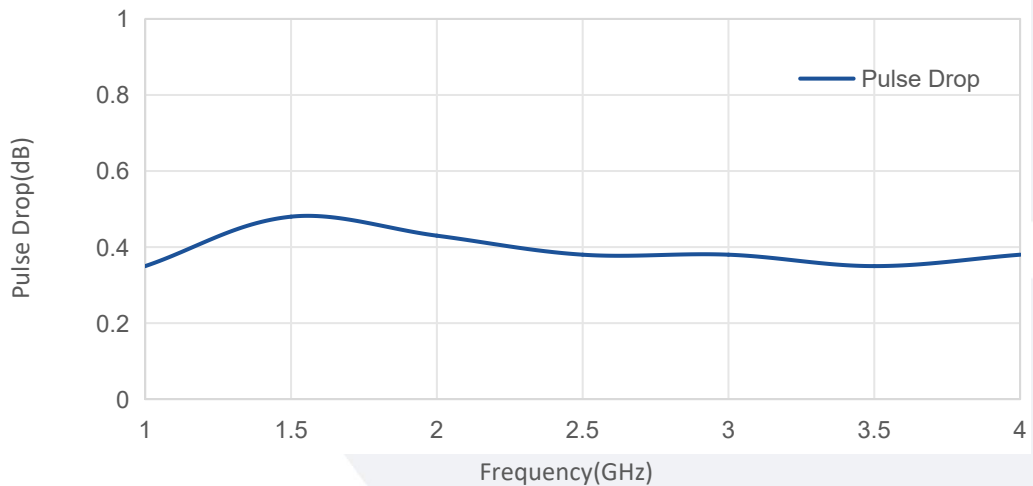
Psat vs Pin



Input VSWR vs Frequency



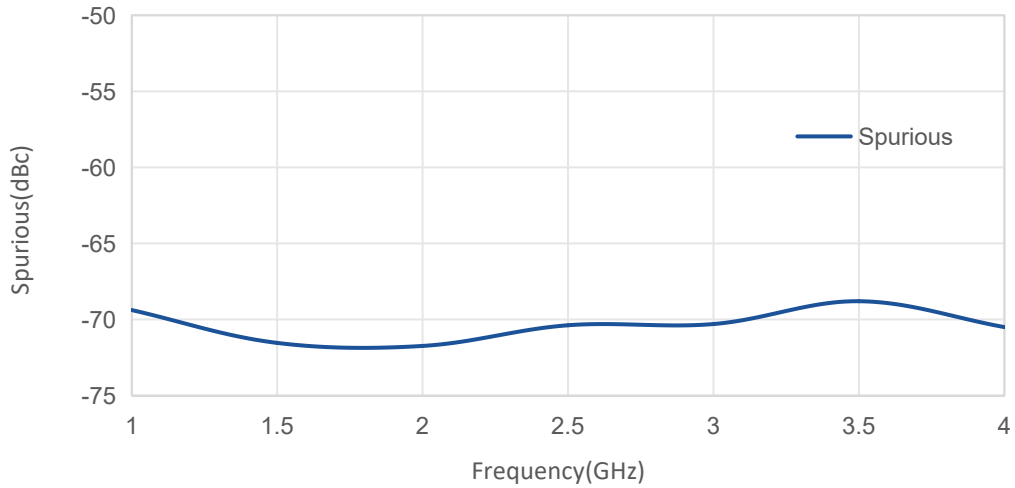
Pulse Drop vs Frequency



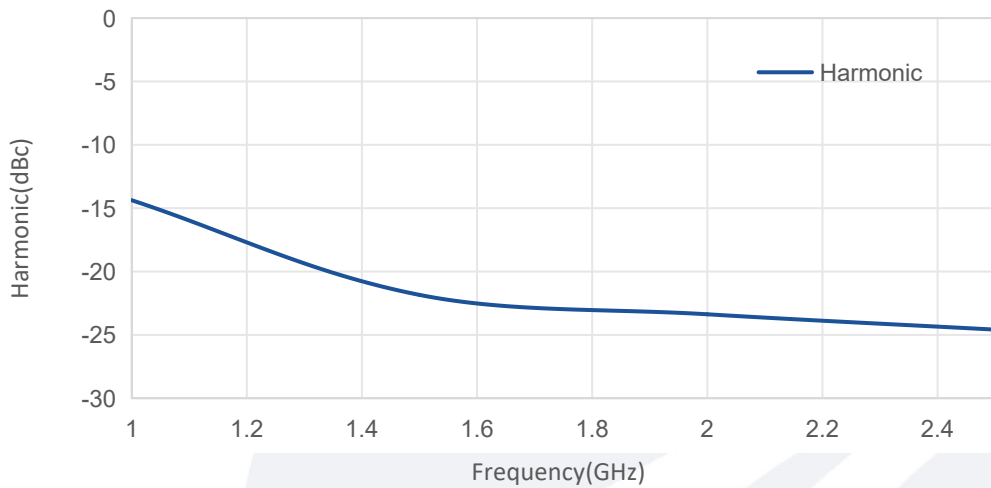
Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

典型曲线 Typical Performance Data:

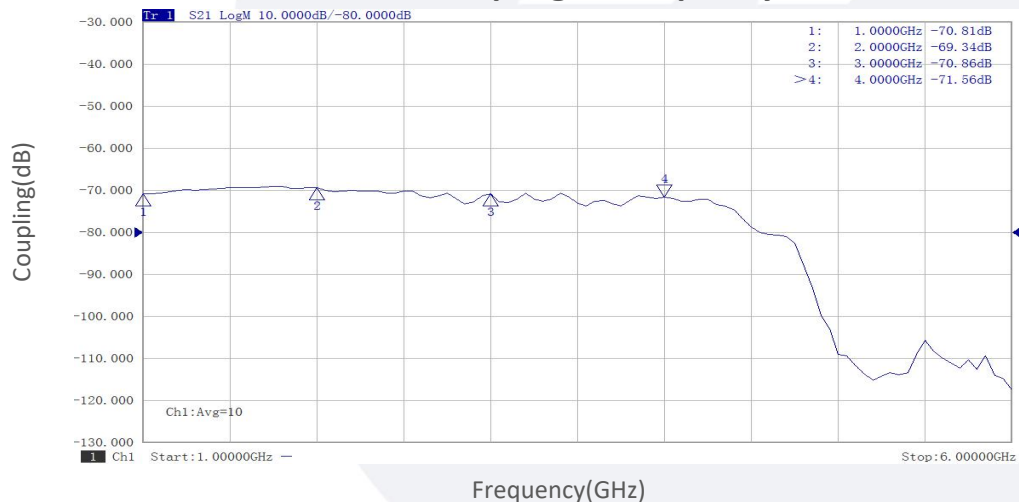
Spurious vs Frequency



Harmonic vs Frequency



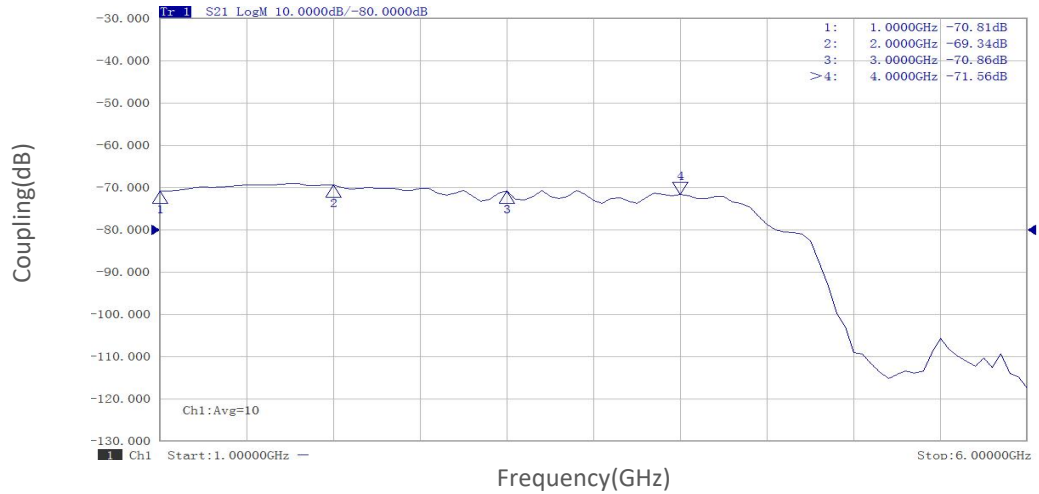
Forward Coupling vs Frequency



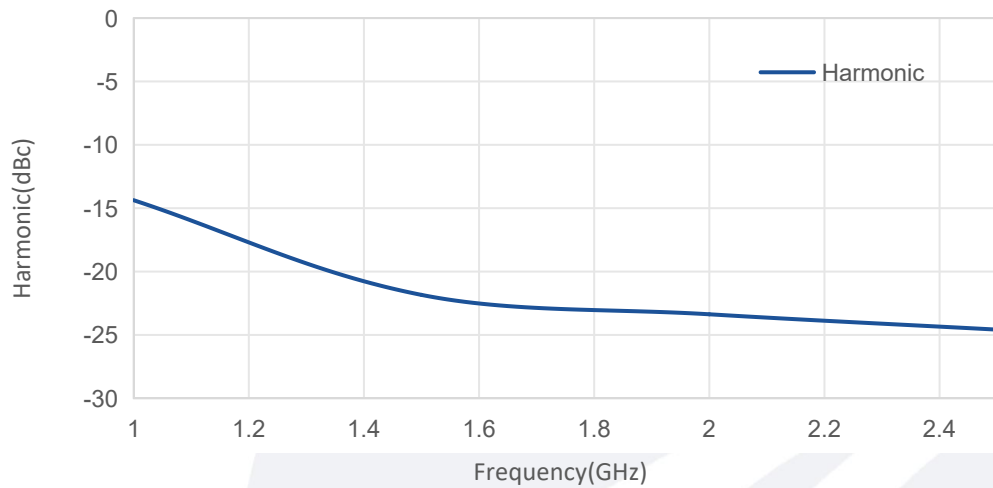
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典型曲线 Typical Performance Data:

Reverse Coupling vs Frequency

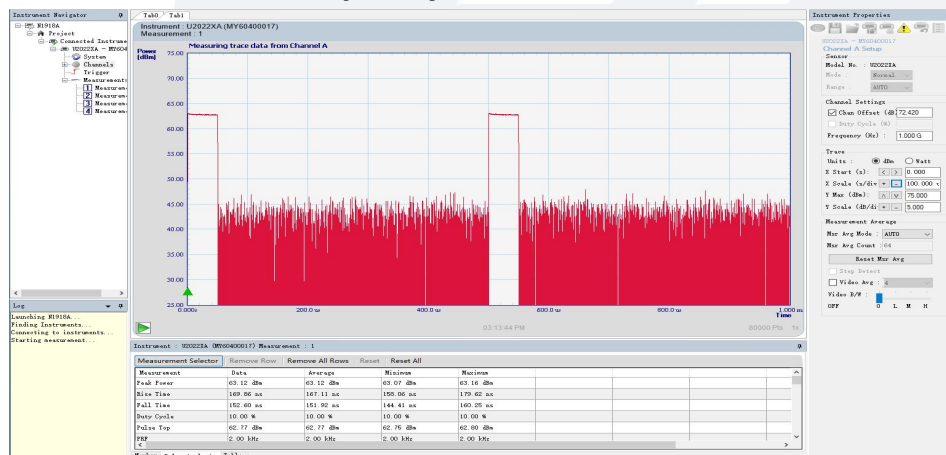


Harmonic vs Frequency



1GHz:

2KHz refrequency, $\tau=10\%$, $P_{out}=63\text{dBm}$



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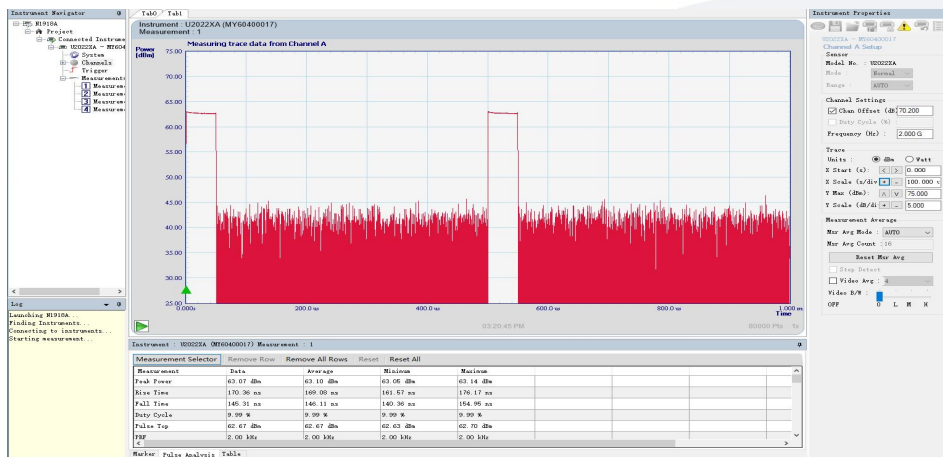
1.5GHz:

2KHz refrequency, $\tau=10\%$, Pout=63dBm



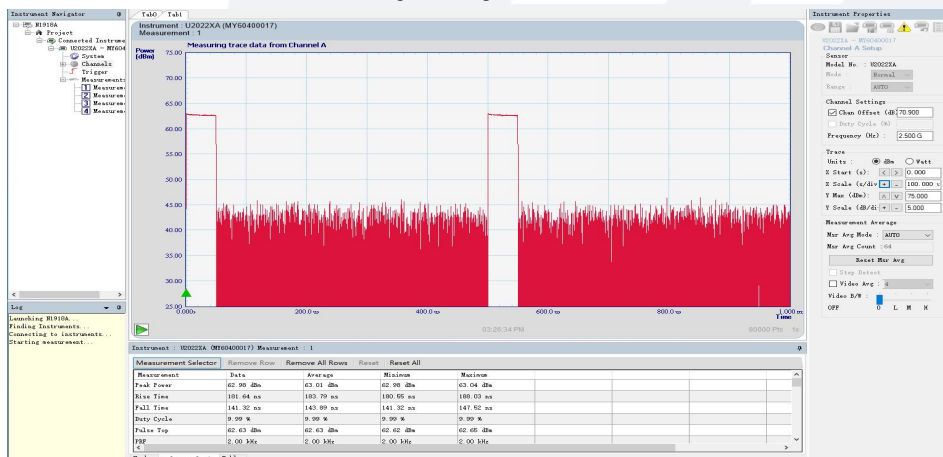
2GHz:

2KHz refrequency, $\tau=10\%$, Pout=63dBm



2.5GHz:

2KHz refrequency, $\tau=10\%$, Pout=63dBm

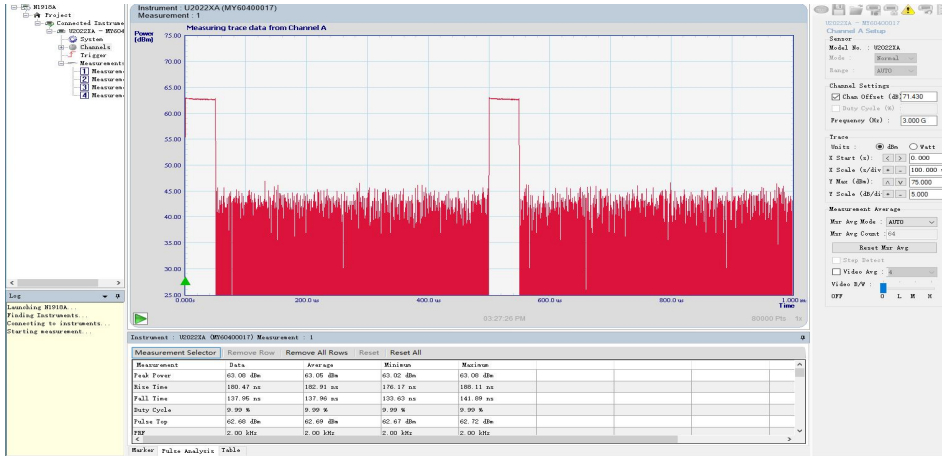


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典型曲线 Typical Performance Data:

3GHz:

2KHz refrequency, $\tau=10\%$, Pout=63dBm



3.5GHz:

2KHz refrequency, $\tau=10\%$, Pout=63dBm



4GHz:

2KHz refrequency, $\tau=10\%$, Pout=63dBm



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典型曲线 Typical Performance Data:

1GHz:

10KHz refrequency, $\tau=10\%$, $T=10\mu s$, $P_{out}=70\text{dBm}$



1.5GHz:

10KHz refrequency, $\tau=10\%$, $T=10\mu s$, $P_{out}=70\text{dBm}$



2GHz:

10KHz refrequency, $\tau=10\%$, $T=10\mu s$, $P_{out}=70\text{dBm}$

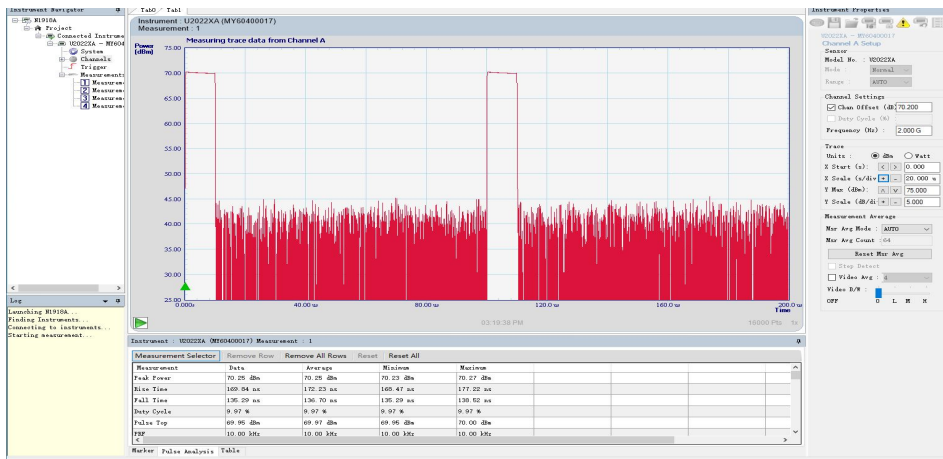


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典型曲线 Typical Performance Data:

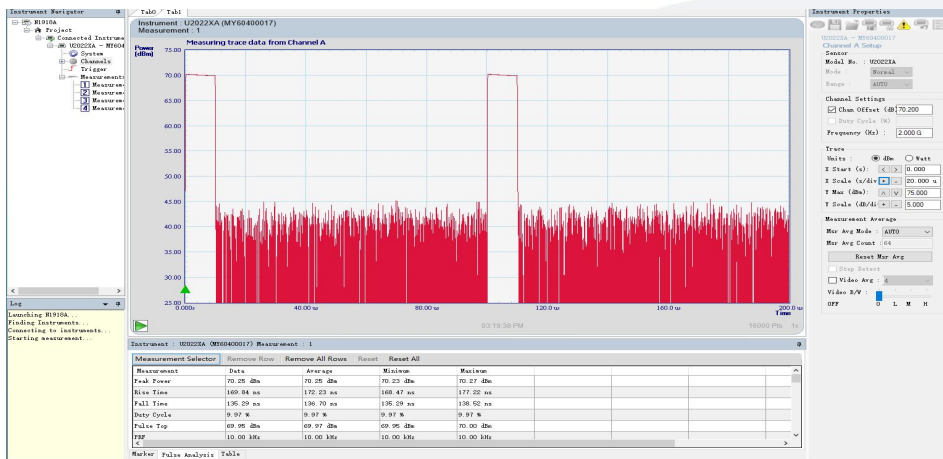
2.5GHz:

10KHz refrequency, $\tau=10\%$, $T=10\mu s$, $P_{out}=70dBm$



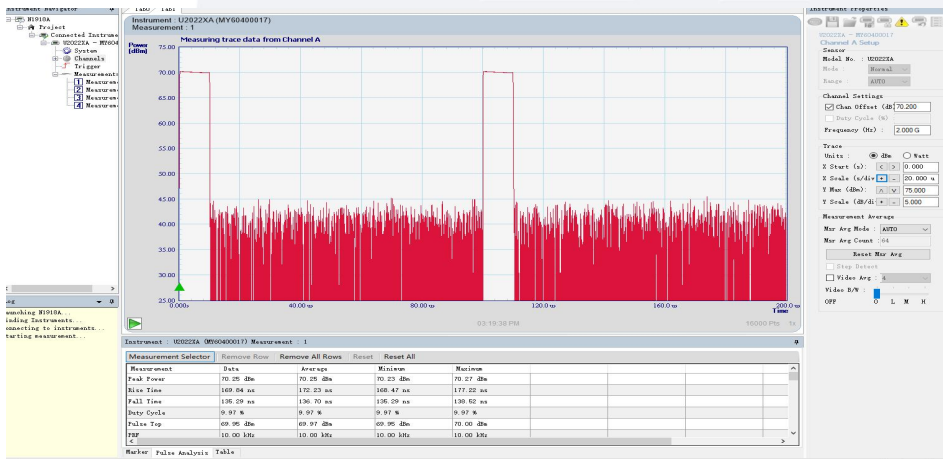
3GHz:

10KHz refrequency, $\tau=10\%$, $T=10\mu s$, $P_{out}=70dBm$



3.5GHz:

10KHz refrequency, $\tau=10\%$, $T=10\mu s$, $P_{out}=70dBm$

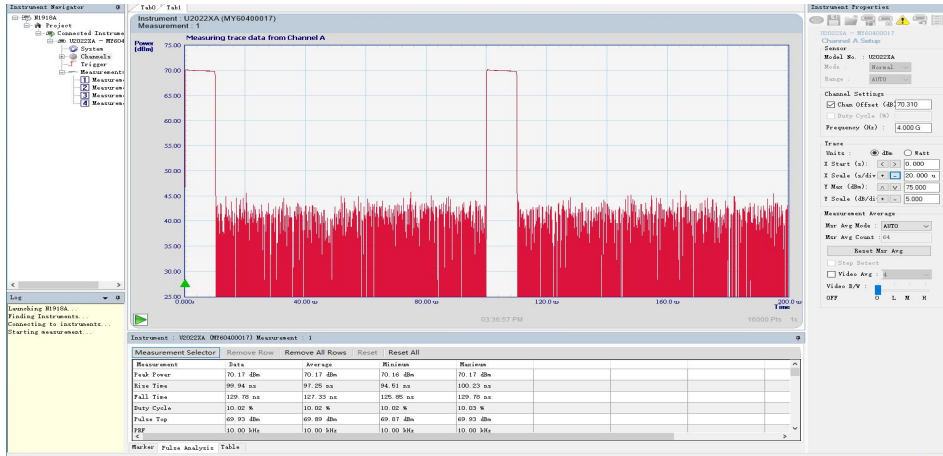


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典型曲线 Typical Performance Data:

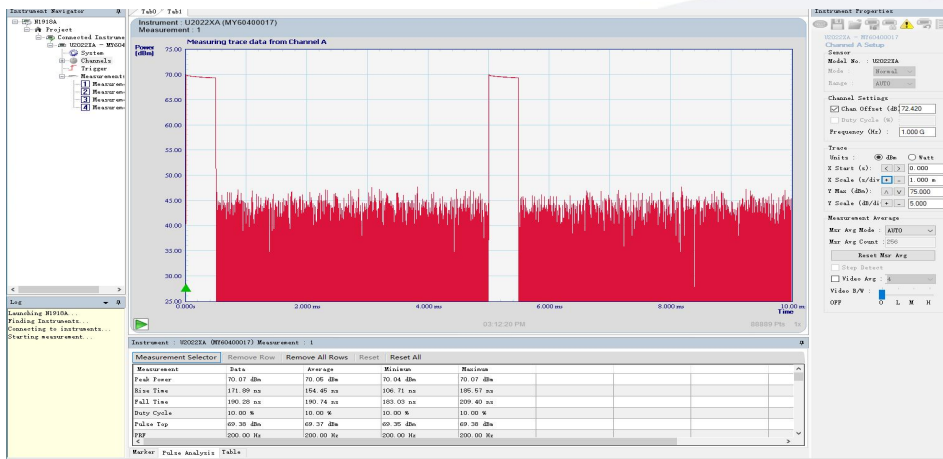
4GHz:

10KHz refrequency, $\tau=10\%$, $T=10\mu s$, $P_{out}=70\text{dBm}$



1GHz:

200Hz refrequency, $\tau=10\%$, $T=500\mu s$, $P_{out}=70\text{dBm}$



1.5GHz:

200Hz refrequency, $\tau=10\%$, $T=500\mu s$, $P_{out}=70\text{dBm}$

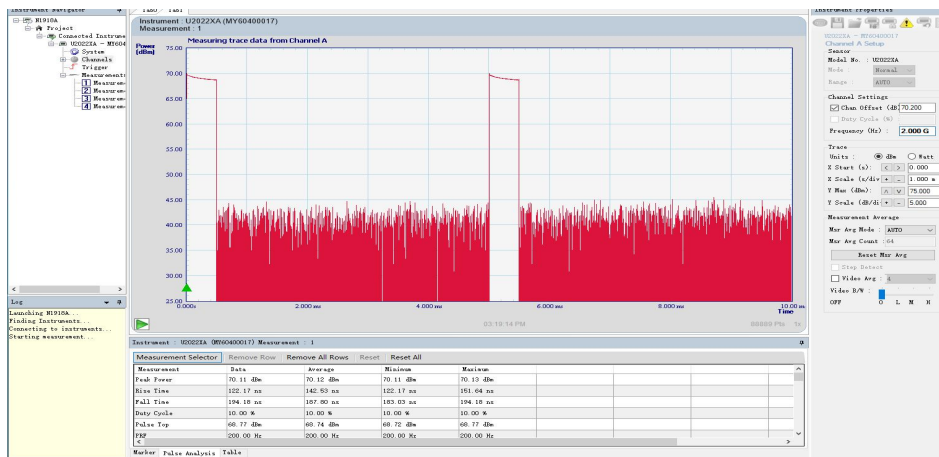


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典型曲线 Typical Performance Data:

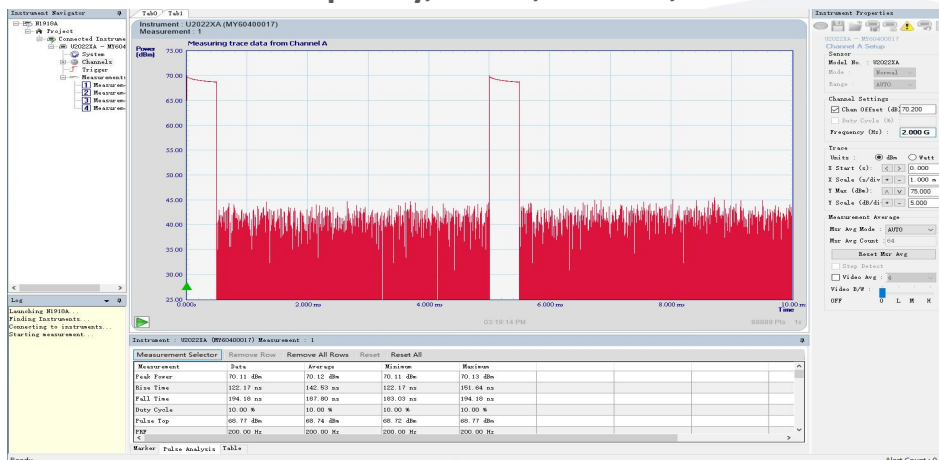
2GHz:

200Hz refrequency, $\tau=10\%$, $T=500\mu s$, $P_{out}=70\text{dBm}$



2.5GHz:

200Hz refrequency, $\tau=10\%$, $T=500\mu s$, $P_{out}=70\text{dBm}$



3GHz:

200Hz refrequency, $\tau=10\%$, $T=500\mu s$, $P_{out}=70\text{dBm}$

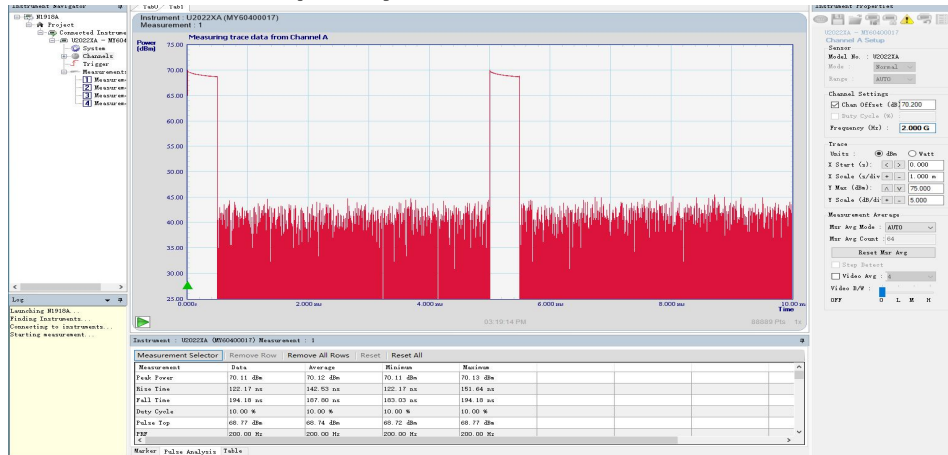


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典型曲线 Typical Performance Data:

3.5GHz:

200Hz refrequency, $\tau=10\%$, $T=500\mu s$, $P_{out}=70\text{dBm}$



4GHz:

200Hz refrequency, $\tau=10\%$, $T=500\mu s$, $P_{out}=70\text{dBm}$



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