

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

Electrical Characteristics:

Parameter	Symbol	Min	Typ	Max	Units
Frequency range	BW	1-4			GHz
Working Mode	MOD	PULSE ONLY			
Power Gain	GP	70			dB
Gain flatness@Pout=69dBm	Δ GL		± 4		dB
Input Power	Pin		0	5	dBm
Pulse Off Isolation	Piso		80		dBc
Output Psat	Psat	70			dBm
Spurious@Pout=70dBm	Spur			-60	dBc
Harmonics@Pout=70dBm	HAM		-15	-10	dBc
Pulse Delay	Pd		250		ns
Modulation Signal Level (50 Ω)	TTL	0		5	V
Modulation Frequency	MF	0.5		20	KHz
Pulse Width	T	0.3		300	us
Duty Cycle	τ			10	%
Rise/Fall Time(10% to 90%)	Tr		50	100	ns
Pulse Width Distortion	PWd		± 50		ns
Pulse Drop@T=100us	Pdrop		0.5		dB

Electrical Characteristics:

Parameter	Symbol	Min	Typ	Max	Units
Ground Noise(Pulse on)	NL1		-70	-55	dBm/Hz
Ground Noise(Pulse off)	NL2		-140		dBm/Hz
Input VSWR	VSWR			1.5	:1
AC Voltage	Vac	380 VAC,50Hz			V AC
Power Consumption@5% duty cycle	Pdiss		4500		W
Power Consumption@10% duty cycle	Pdiss		9000		W
Impedance	I/O-IMP	50			Ohms

Mechanical Specifications:

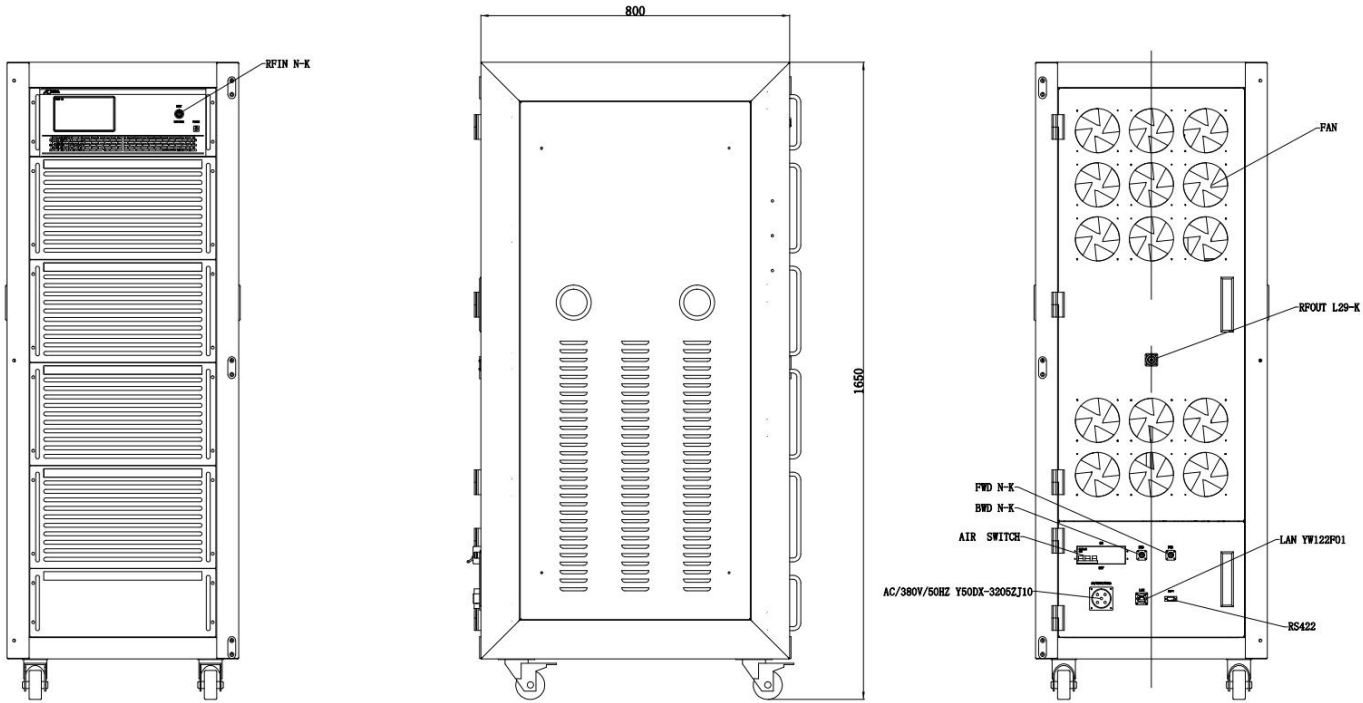
Parameter	Value	Units
Input /Output Connector	N Female/L29 Female	
Forward/Reverse Coupling	N Female/N Female	
Front Panel LCD Screen Display	7 inch LCD Screen Display	
Pulse Input Connector	BNC Female	
Communication Connector	DB-9/RJ-45	
Size	32U*800 depth	mm
Weight	≤500	Kg

Absolute Maximum Ratings:

Parameter	Value
RF Input Power	+5 dBm
ESD sensitivity (HBm)	Class 0, passed 150V

Outline Drawing:

Unit:mm



Key Features:

Parameter	Advantages
Control functions	1,Power setting on/off 2,RF setting on/off 3,Gain adjustment 4,ALC automatic level control
Protection functions	1,Over TEM 2,Over voltage 3,Over current 4,Over VSWR(3:1)
Remote control	RS422/Ethernet
Cooling system	Built in Cooling system,forced air cooling

Environmental Conditions:

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

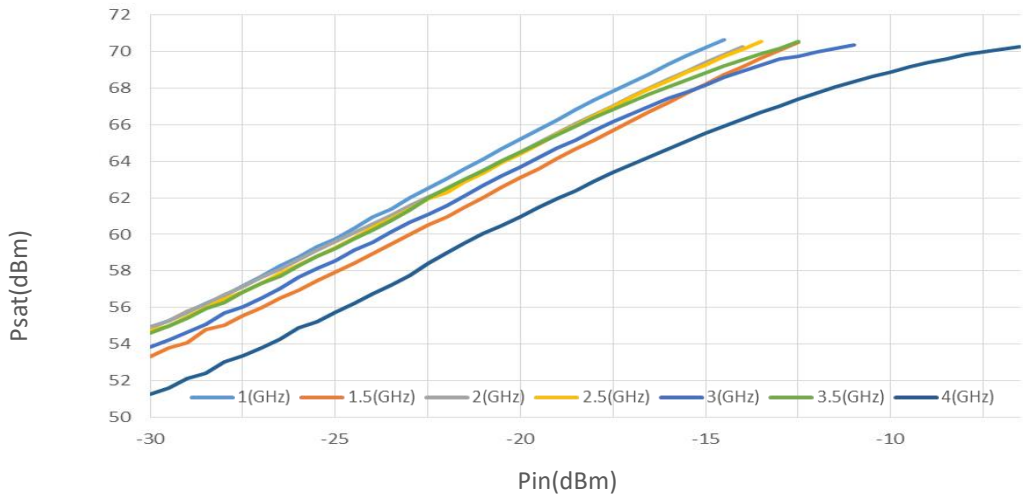
*Note: For a wider temperature range, please consult the manufacturer.

Ordering Information:

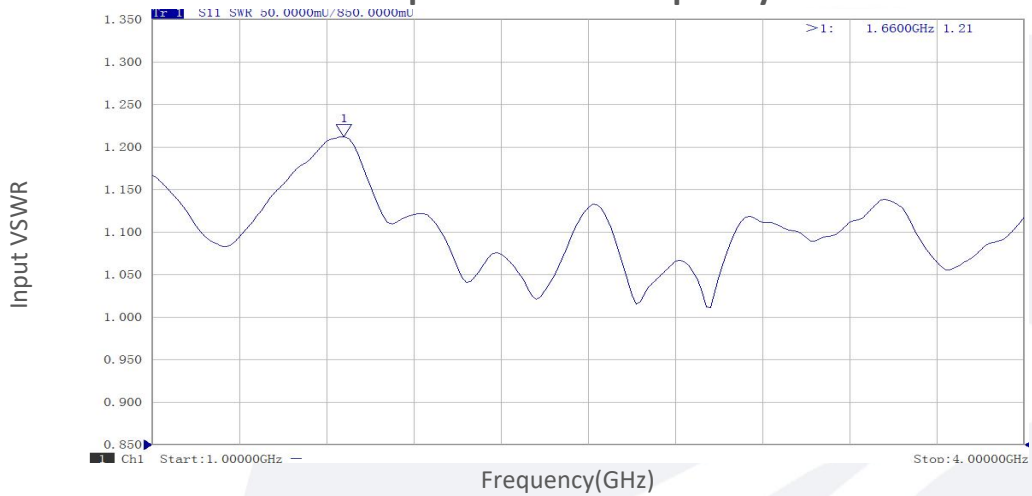
Base Number	Description	Revision
TLPA1G4G-70-70-P-BC	Solid State High Power Amplifier Systems 1-4GHz, Gain:70dB, Psat:70dBm, 380V AC, Built in Fan Cooling	Rev.1.1

Typical Performance Data:

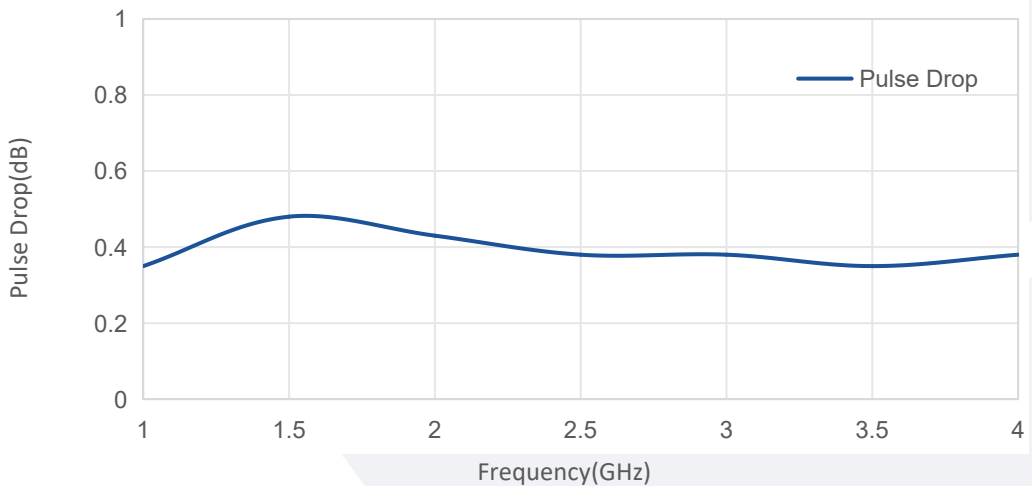
Psat vs Pin



Input VSWR vs Frequency



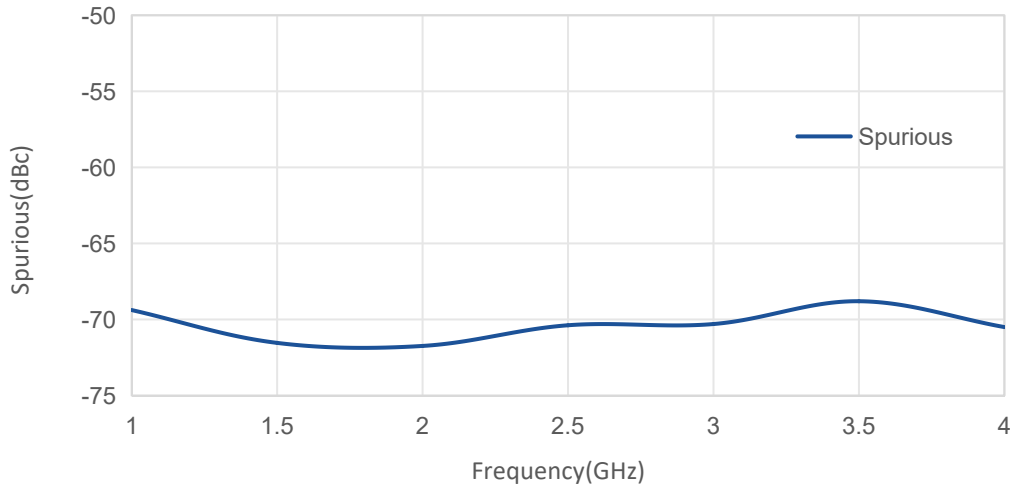
Pulse Drop vs Frequency



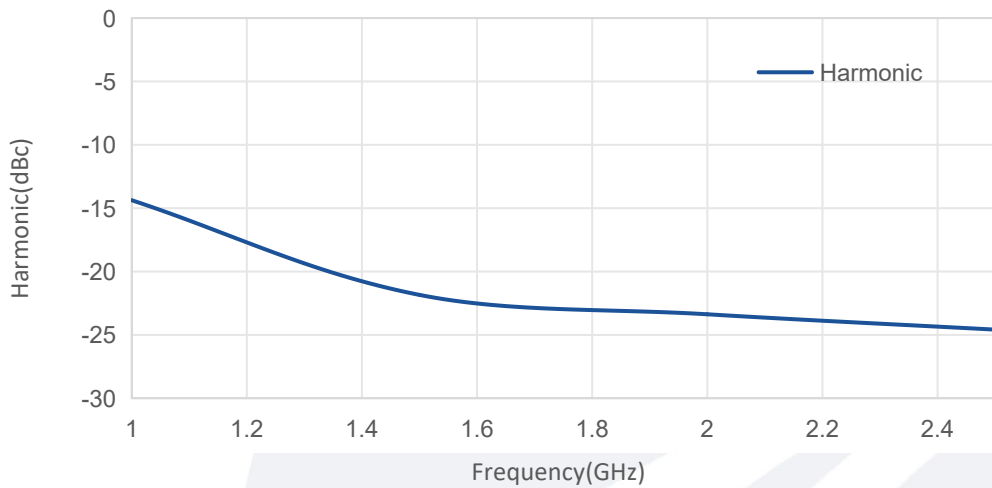
Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

Performance Data:

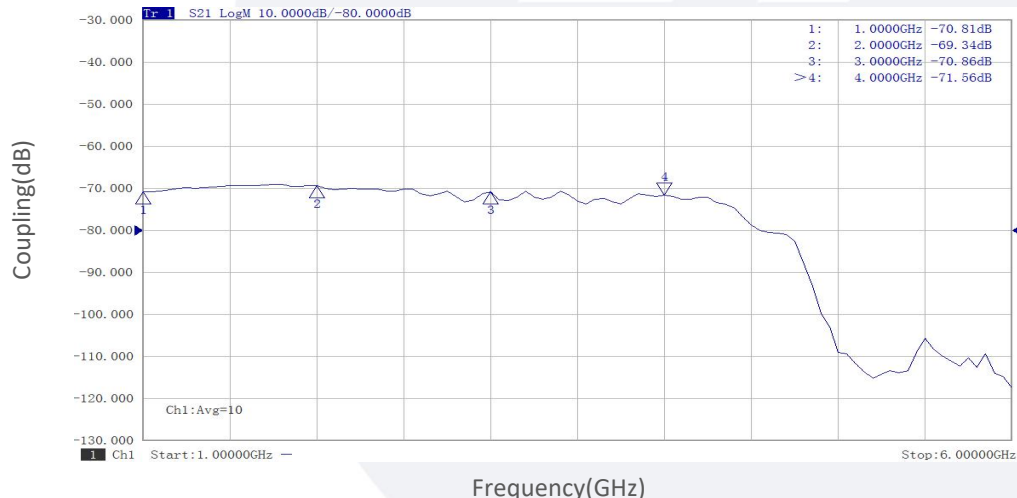
Spurious vs Frequency



Harmonic vs Frequency



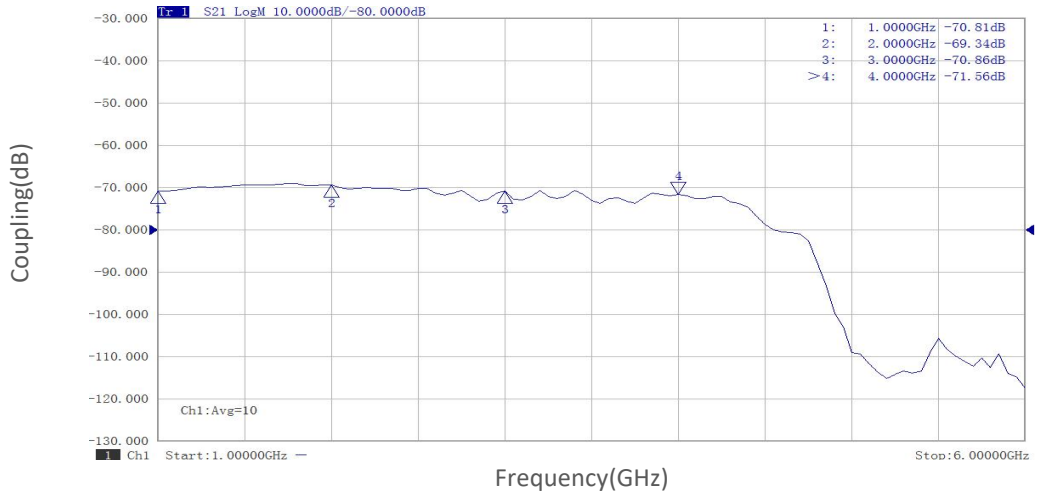
Forward Coupling vs Frequency



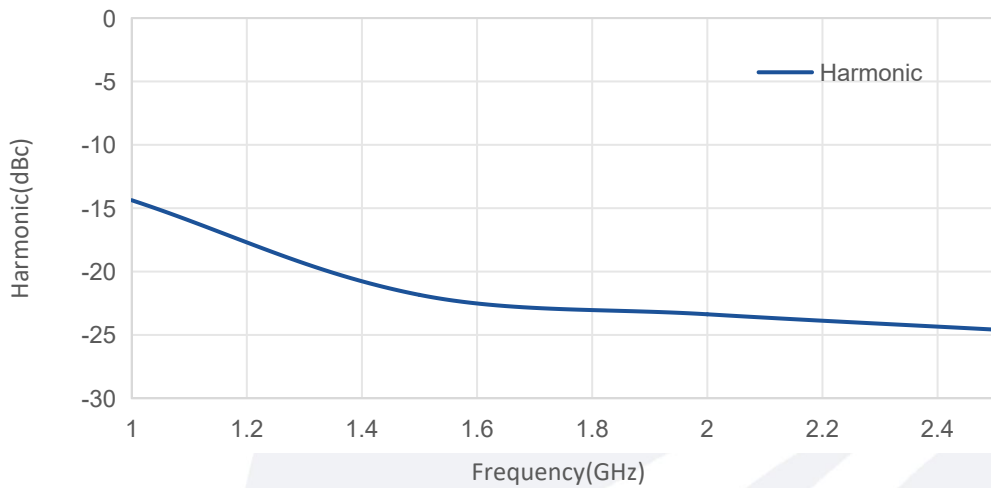
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Typical Performance Data:

Reverse Coupling vs Frequency

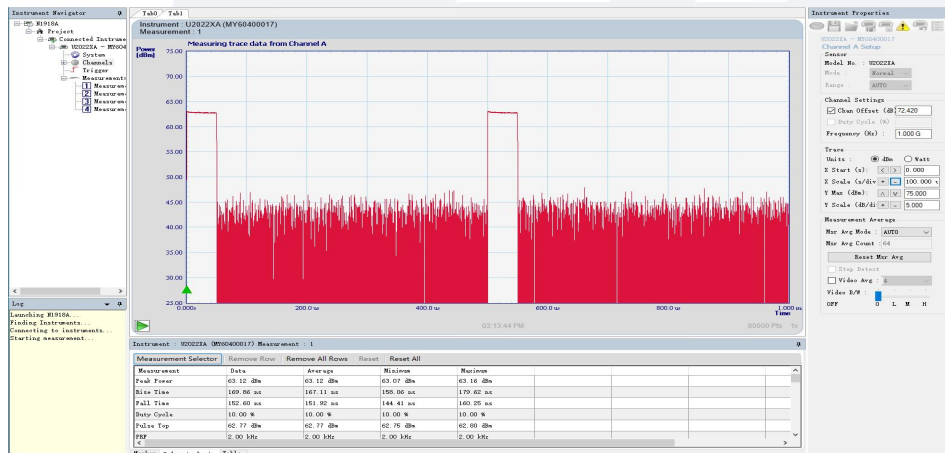


Harmonic vs Frequency



1GHz:

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



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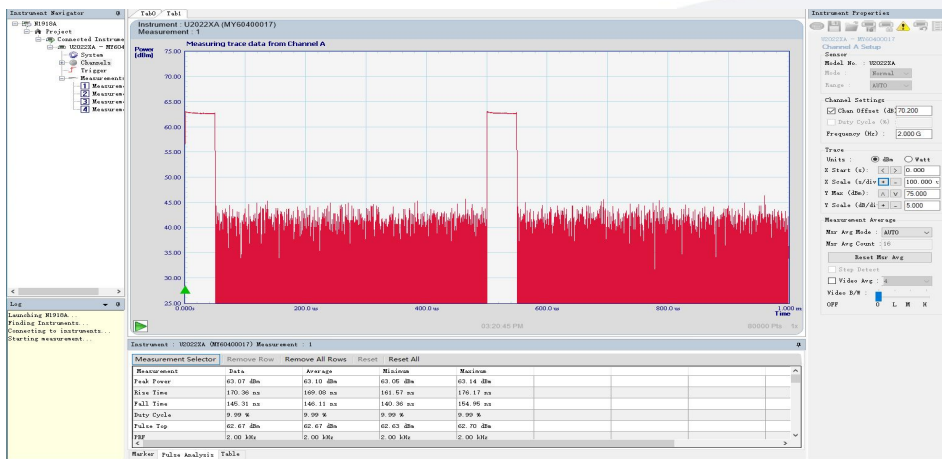
1.5GHz:

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



2GHz:

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



2.5GHz:

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

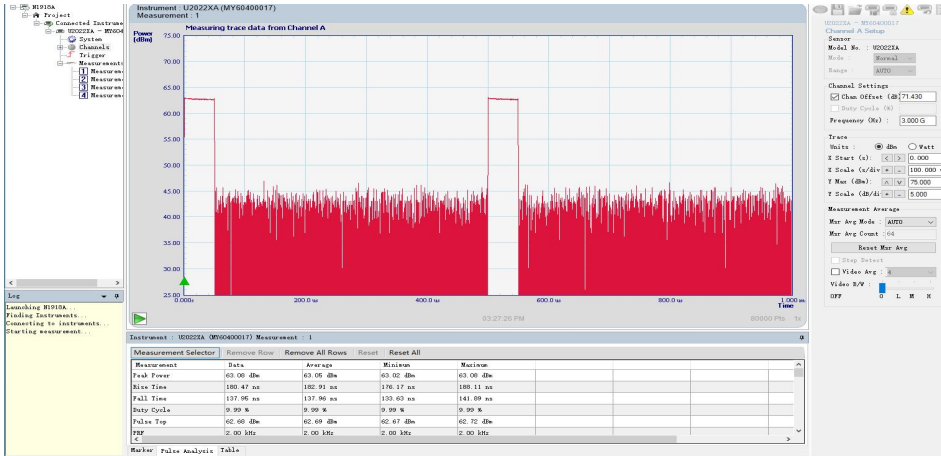


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Typical Performance Data:

3GHz:

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



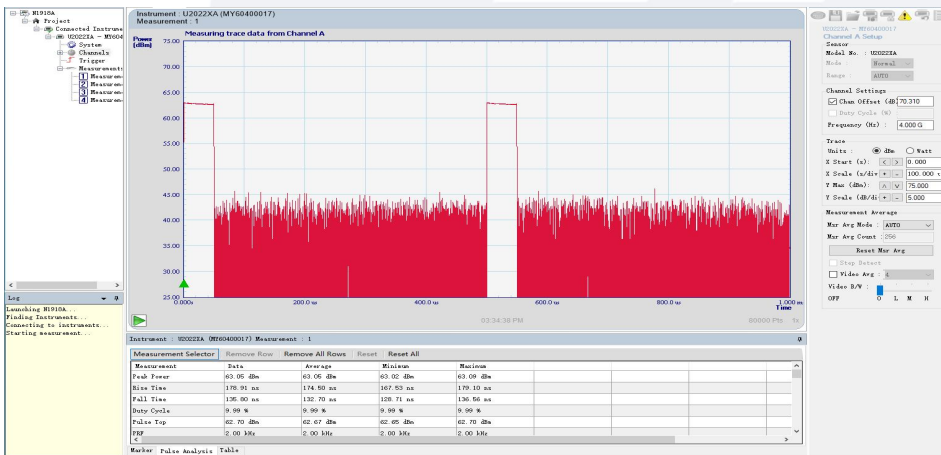
3.5GHz:

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



4GHz:

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

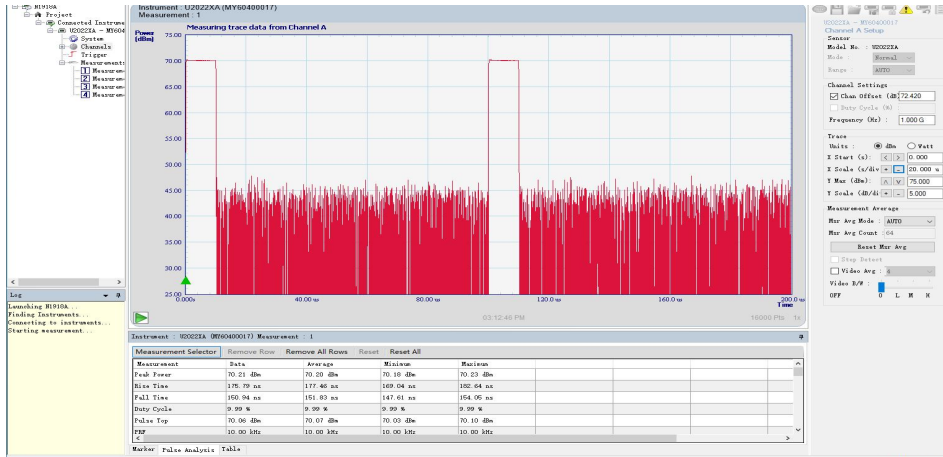


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Typical Performance Data:

1GHz:

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



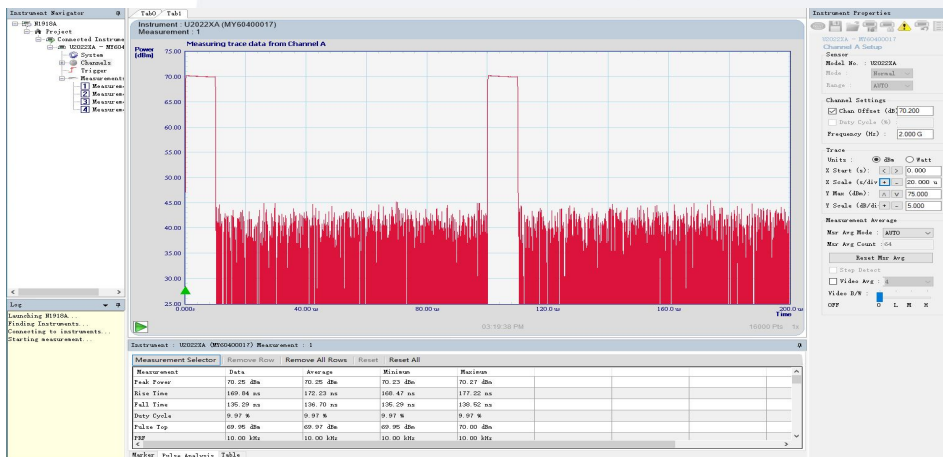
1.5GHz:

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



2GHz:

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

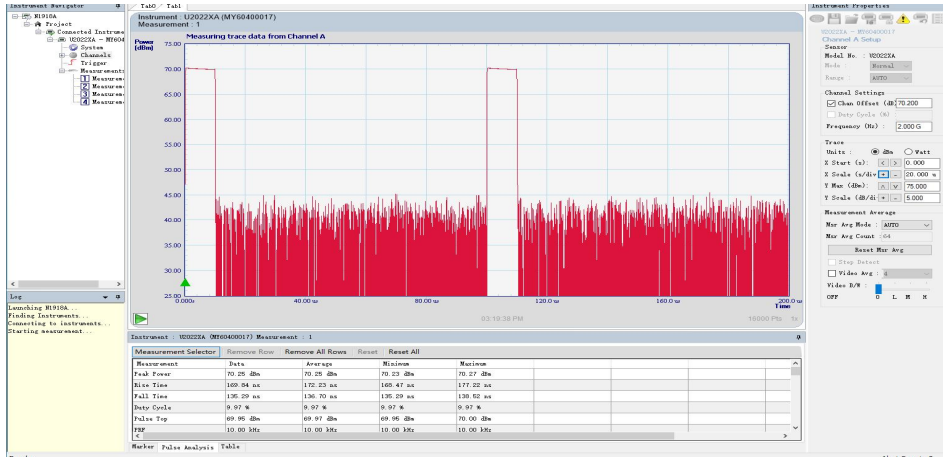


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Typical Performance Data:

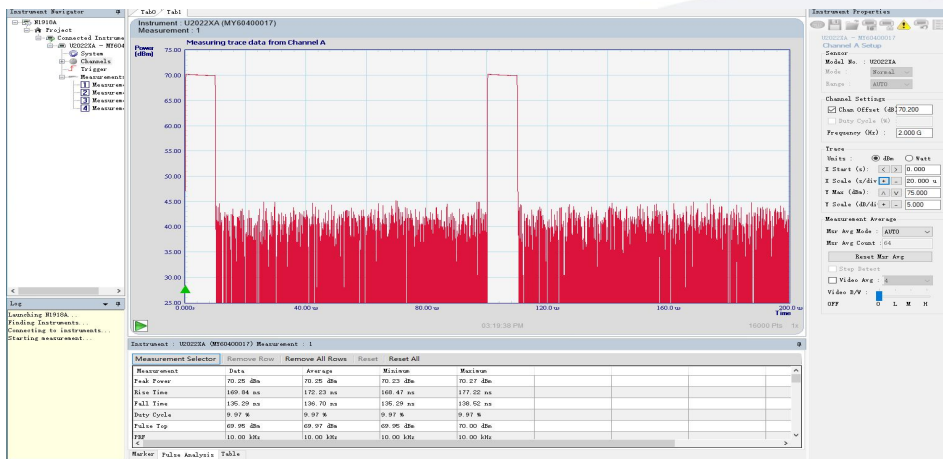
2.5GHz:

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



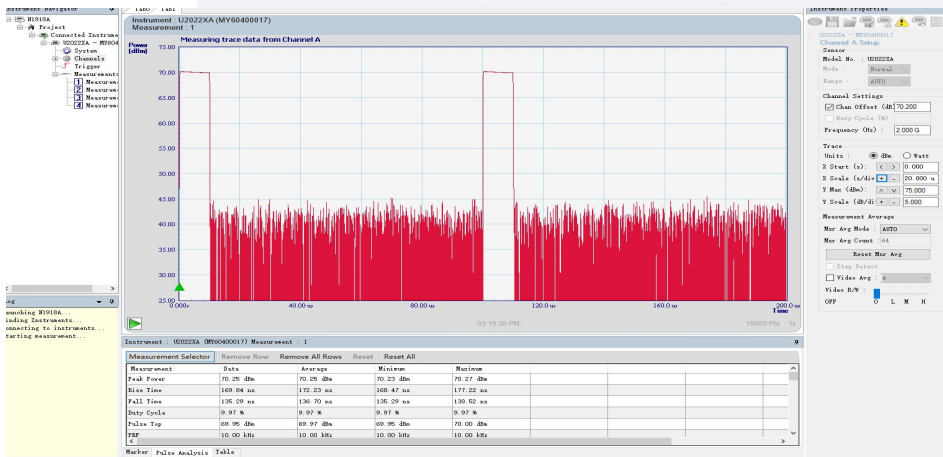
3GHz:

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



3.5GHz:

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



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Typical Performance Data:

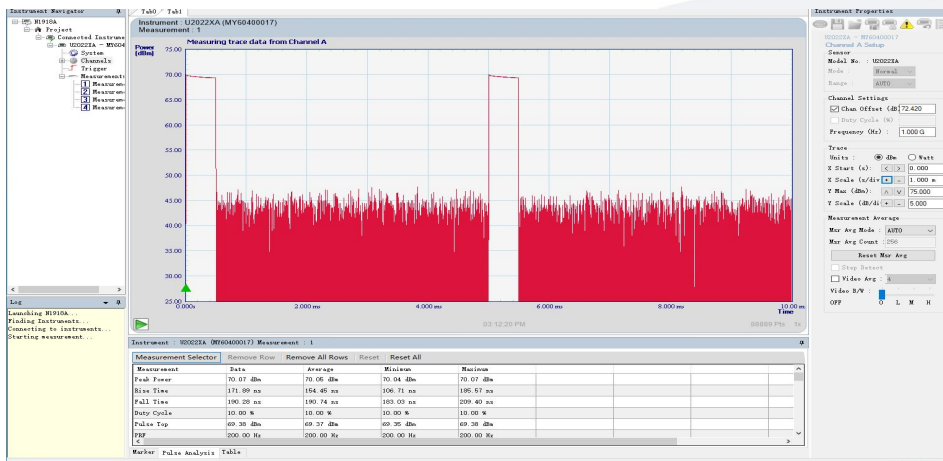
4GHz:

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



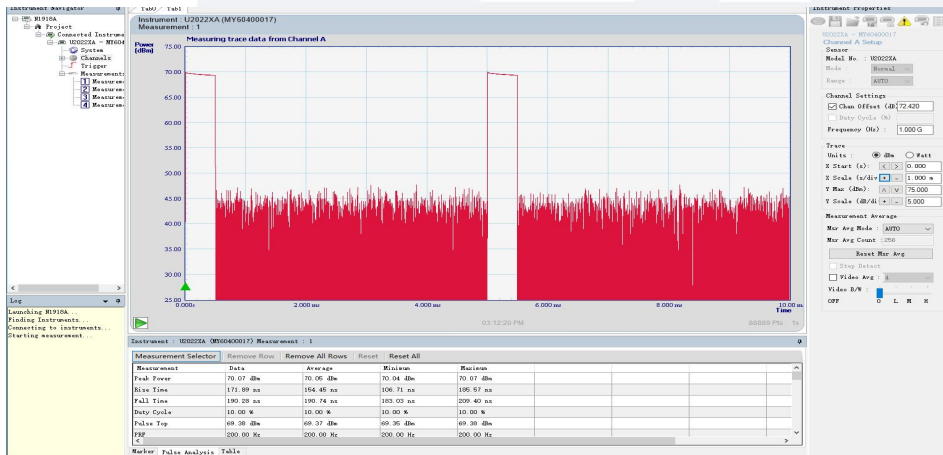
1GHz:

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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Typical Performance Data:

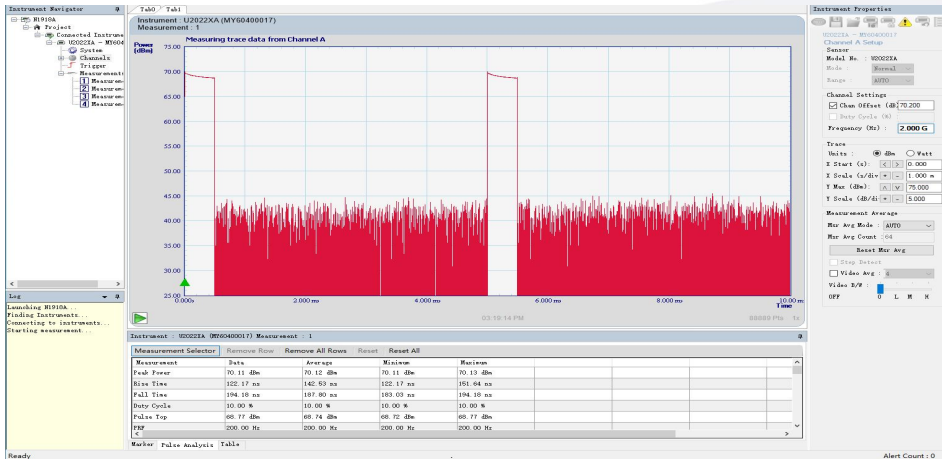
2GHz:

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

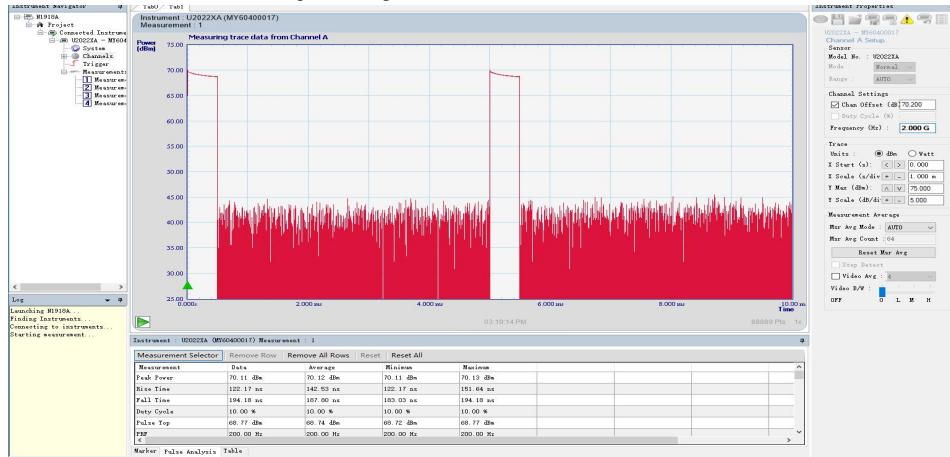


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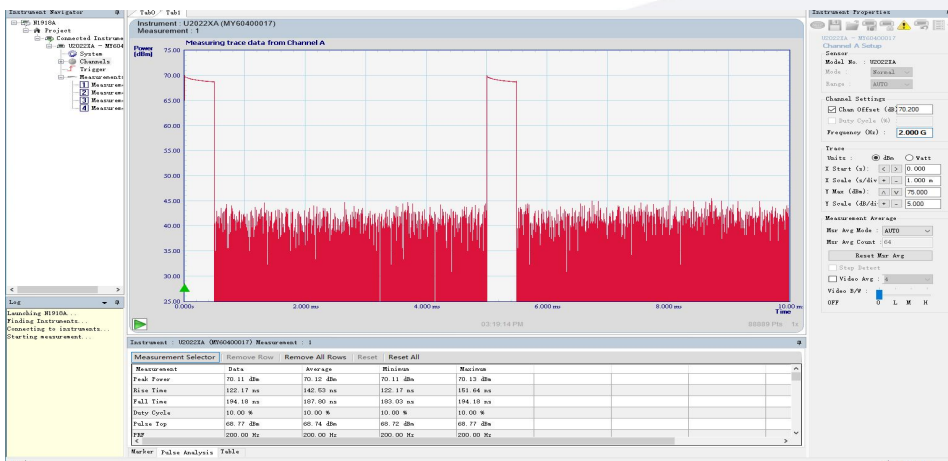
3.5GHz:

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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