



ACCEPTANCE TEST DATA

Date	Job Number	Serial No.	SKU No.	Model	Rev.	Frequency	Output Power	Gain	Customer	PO
November 17, 2022		1001	2241-002	2241	1	9-10.2 GHz	1kW Pulsed/ 200W long pulse	60dB		

Power Amplifier Final Test	Test	Verify	QA	Approve
	RP/AN			

ELECTRICAL SPECIFICATIONS @ 220V_{AC}, 25°C ambient, 50Ω System

Parameter	Specifications						Frequency (GHz)										P/F				
	Symbol	Min	Typ	Max	Unit	Notes	9	9.2	9.4	9.6	9.8	10	10.1	10.2							
Operating Frequency - BW * Derate 6 dB linearly from 10 to 10.2 GHz	BW	9		10.2*	GHz		x	x	x	x	x	x	x	x					P		
Min. Pin for P _{OUT} = 1kWpk (520μS PW, DC = 20%, MGC and Gated Input)	Pin		-6		dBm	Record	-7.8	-7.4	-5.3	-4.2	-6.3	-3.0	-4.9 (57 dBm)	-3.5 (54 dBm)					P		
Min. Pin for P _{OUT} = 1KWpk (200nS PW, DC = 8.3%, MGC and Gated Input)								-9.0	-8.8	-8.5	-6.9	-8.6	-6.6	-6.5 (57 dBm)	-4.7 (54 dBm)					P	
Droop @ 1kWpk, 520μS PW, DC = 20% (MGC and Gated Input)	P _{Droop}			2	dB	Record	1.50	1.50	1.60	1.50	1.10	1.00	1.00	0.90					P		
Droop @ 1KWpk, 200nS PW, DC = 20% (MGC and Gated Input)								0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93					P	
Pulse Characteristics, P _{OUT} = 1kWpk @ 9.5 GHz (520μS PW, DC = 20%, MGC and Gated Input)	T _{RISE}			20	nSec	Plots 4-6	x	x	x	x	x	x	x	x					P		
	T _{FALL}			20			x	x	x	x	x	x	x	x	x					P	
Pulse Characteristics, P _{OUT} = 1kWpk @ 9.5 GHz (200nS PW, DC = 8.3%, MGC and Gated Input)	T _{RISE}			20			Plots 7-8	x	x	x	x	x	x	x	x					P	
	T _{FALL}			20				x	x	x	x	x	x	x	x	x					P
Min. P _{in} for P _{OUT} = 200Wpk (9-10.2 GHz) (2.2mS PW, DC = 20%, MGC and Gated Input)	Pin		-15		dBm	Record	-18.8	-18.1	-17.7	-16.6	-19.4	-16.9	-12.0	-6.2					P		
Pulse Characteristics, P _{OUT} = 200Wpk @ 9.5 GHz (2.2mS PW, DC = 20%, MGC and Gated Input)	T _{RISE}			70	nSec	Plots 9-11	x	x	x	x	x	x	x	x					P		
	T _{FALL}			70			x	x	x	x	x	x	x	x	x					P	
Input Return Loss	S11			-10	dB	Plot 1	√	√	√	√	√	√	√	√					P		
Small Gain Flatness (9-10 GHz)	ΔG			±3.5	dB	Plot 1	√	√	√	√	√	√	√	√					P		
Gain @ Shutdown Condition, P _{in} = 0dBm	G _{SD}			-35	dB	Plot 3	√	√	√	√	√	√	√	√					P		
Gain Adjustment Range (520μS Pulse Width MGC mode and gated input)	VVA	20			dB	Plot 2	√	√	√	√	√	√	√	√					P		
Noise Power density (Enabled)	N _{SD}			-10	dBm/1MHz	Record	-27														P
Noise Power density (Disabled)	N _{SD}		<-85		dBm/1MHz	Record	<-85														P



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ELECTRICAL SPECIFICATIONS (cont.) @ 220V_{AC}, 25°C ambient, 50Ω System																				
Parameter	Specifications						Frequency (GHz)													
	Symbol	Min	Typ	Max	Unit	Notes	9	9.2	9.4	9.6	9.8	10	10.1	10.2					P/F	
Operating Voltage	V _{dc}	200	208	220	V	Record	203	203	203	203	203	203	203	203					P	
Power Consumption @ P _{OUT} = 1kW (520μS PW, DC=20%, MGC and Gated Input)	P _D			2	kVA	Record	1.48	1.44	1.51	1.39	1.30	1.26	0.90	0.74					P	
Power Consumption @ P _{OUT} = 1kW (200nS PW, DC=8.3%, MGC and Gated Input)				1			0.76	0.73	0.76	0.76	0.70	0.65	0.54	0.49						P
Power Consumption @ P _{OUT} = 200W (2.2mS PW, DC=20%, MGC and Gated Input)	P _D			1	kVA	Record	0.82	0.80	0.83	0.82	0.75	0.68	0.68	0.72					P	
Sample Port @ 1kWpk 520μS pulse width; 20% duty cycle, MGC = 100% (Measured at the middle of the pulse)	PSAMPLE		8		dBm	Record	8.50	8.90	9.00	8.90	9.20	9.20	6.30	3.40					P	
Efficiency @ 1kW	η		15		%	Computed	13.5	13.9	13.3	14.4	15.4	15.9	11.1	6.7					P	
Power Consumption @ Shutdown	P _{SD}		0.2		kVA	Record	0.2													P
Quiescent Power Consumption	P _{DO}		0.4		kVA	Record	0.4													P
NTE Test @ limiter threshold	P _{OOD}			60.5	dBm	Record P _{OUT}	-	-	-	60.5	-	-	-	-	-				P	
Input Overdrive - Shutdown	P _{IOD}			10	dBm	Verify	N/A													P
VSWR - Backoff	VSWR		2:01		-	Verify	N/A													P
Thermal Overload - Shutdown	T _{OD}			95	°C	Verify	√													P

INTERFACE

System Controller	SW/FW	NTE	Max MGC	Set Point		Fwd./Rev.	Watt/dB	USB	RS232/RS422	Monitors
	Version	dBm	Percent	Min	Max	-	-	-	-	-
Verify / Record	01.29.23	60.5	100	0	100	√	√	-	√	-

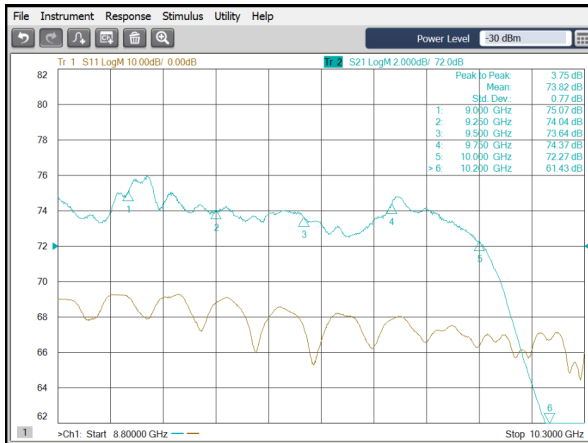
Ethernet Setting

MAC Address (factory set unit specific)	IP Address (default)	Display IP	Net Mask (default)	Gateway	SOM Alias	DNS	Port
00:30:23:39:25:9A	192.168.1.50	192.168.64.129	255.255.255.0	192.168.1.1	192.168.64.1	-	3000

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Plot 1 - Small Signal Gain and Input Return Loss (Peak)

Top Curve: Small Signal Gain @ $P_{IN} = -30dBm$
 Reference: 72dB, 2dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



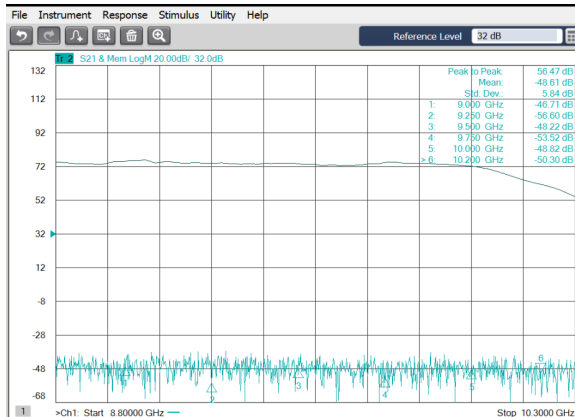
Plot 2 -Gain adjustment range

Top Curve (Trace Memory): Maximum Gain (MGC Mode and $P_{IN} = -30dBm$)
 Reference :72dB, 10dB/div.
 Bottom Curve (Active Trace): Minimum Gain (MGC Mode and $P_{IN} = -30dBm$)



Plot 3 - Gain at shutdown condition

Top Curve (Trace Memory): Maximum Gain (MGC Mode and $P_{IN} = -30dBm$)
 Reference: 32dB, 20dB/div.
 Bottom Curve: (Active Trace): Gain at Shutdown (MGC Mode and $P_{IN} = 0dBm$)

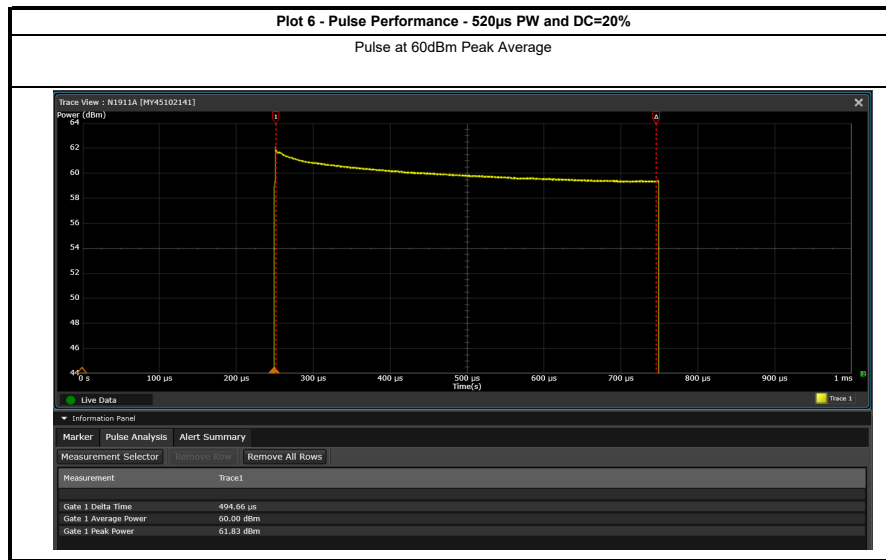




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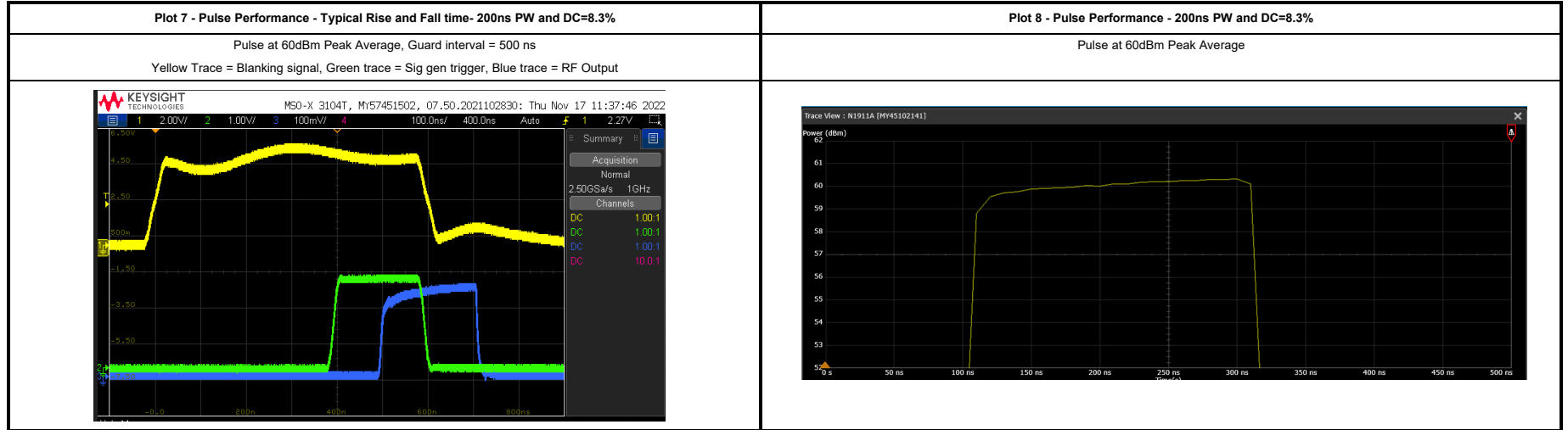
Performance Plots



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Performance Plots





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Performance Plots

