



ACCEPTANCE TEST DATA

Date	Job Number	Serial No.	SKU No.	Model	Rev.	Frequency	Output Power	Gain	Customer	PO
September 7, 2023		1001	2221-001	2221		9-10 GHz	8kW Pulsed	80dB		

Power Amplifier Final Test	Test	Verify	QA	Approve
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ELECTRICAL SPECIFICATIONS @ 220V_{AC}, 25°C ambient, 50Ω System

Parameter	Specifications						Frequency (GHz)											P/F
	Symbol	Min	Typ	Max	Unit	Notes	9	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10	
Operating Frequency - BW	BW	9		10	GHz		x	x	x	x	x	x	x	x	x	x	x	P
Min. Pin for POUT = 8kWp (500μS PW, DC = 20%, MGC and Gated Input)	Pin				dBm	Record	-10.5	-7.4	-5.7	-6.1	-3.9	-6.0	-5.9	-5.0	-9.7	-7.2	-0.7	P
Min. Pin for POUT = 8kWpk (200nS PW, DC = 10%, MGC and Gated Input)			-6				-20.9	-18.9	-17.5	-17.9	-17.6	-18.9	-16.5	-16.6	-19.3	-16.1	-11.7	P
Min. Pin for POUT = 8kWpk (100μS PW, DC = 10%, MGC and Gated Input)							-13.5	-11.3	-9.3	-9.2	-8.6	-9.0	-9.6	-9.9	-13.4	-10.5	-6.5	P
Droop @ 8kWpk, 500μS PW, DC = 20% (MGC and Gated Input)	P _{Droop}			2	dB	Record	3.0	3.5	3.5	3.8	4.5	4.0	4.0	4.6	4.1	4.0	4.0	P
Droop @ 8kWpk, 200nS PW, DC = 10% (MGC and Gated Input)							0.5	0.7	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	P
Droop @ 8kWpk, 100μS PW, DC = 10% (MGC and Gated Input)							1.3	1.4	1.3	1.3	1.5	1.5	1.5	1.7	1.8	1.5	1.5	P
Pulse Characteristics, P _{OUT} = 8kWpk @ 9.5 GHz (500μS PW, DC = 20%, MGC and Gated Input)	T _{RISE}			20	nSec	Plots 4-6	x	x	x	x	x	x	x	x	x	x	x	P
	T _{FALL}			20			x	x	x	x	x	x	x	x	x	x	x	P
Pulse Characteristics, P _{OUT} = 8kWpk @ 9.5 GHz (200nS PW, DC = 10%, MGC and Gated Input)	T _{RISE}			20		Plots 7-8	x	x	x	x	x	x	x	x	x	x	x	P
	T _{FALL}			20			x	x	x	x	x	x	x	x	x	x	x	P
Pulse Characteristics, P _{OUT} = 8kWpk @ 9.5 GHz (100μS PW, DC = 10%, MGC and Gated Input)	T _{RISE}			20		Plots 9-11	x	x	x	x	x	x	x	x	x	x	x	P
	T _{FALL}			20			x	x	x	x	x	x	x	x	x	x	x	P
Input Return Loss	S11			-10	dB	Plot 1	√	√	√	√	√	√	√	√	√	√	√	P
Small Signal Gain Flatness (9-10 GHz)	ΔG			±4.0	dB	Plot 1	√	√	√	√	√	√	√	√	√	√	√	P
Gain @ Shutdown Condition, P _N = 0dBm	G _{SD}			-35	dB	Plot 3	√	√	√	√	√	√	√	√	√	√	√	P
Gain Adjustment Range (500μS Pulse Width MGC mode and gated input)	VVA	20			dB	Plot 2	√	√	√	√	√	√	√	√	√	√	√	P
Noise Power density (Enabled)	N _{SD}			-10	dBm/1MHz	Record	-50											P
Noise Power density (Disabled)	N _{SD}		<-85		dBm/1MHz	Record	-106											P



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

Parameter	Specifications						Frequency (GHz)											P/F	
	Symbol	Min	Typ	Max	Unit	Notes	9	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10		
Operating Voltage	V _{dc}	200	208	220	V	Record	203	203	203	203	203	203	203	203	203	203	203	203	P
Power Consumption @ P _{OUT} = 8kW (500μS PW, DC=20%, MGC and Gated Input)	P _D			12	kVA	Record	10.06	9.93	10.10	9.93	10.40	10.40	10.64	10.30	9.87	9.37	9.23	P	
Power Consumption @ P _{OUT} = 8kW (200nS PW, DC=10%, MGC and Gated Input)				7			6.32	6.15	5.78	5.81	5.97	6.04	6.41	6.31	6.3	5.8	5.65	P	
Power Consumption @ P _{OUT} = 8KW (100μS PW, DC=10%, MGC and Gated Input)				7			5.99	5.95	5.93	5.97	6.12	6.22	6.14	5.92	5.70	5.30	5.16	P	
Sample Port @ 8kWpk 500μS pulse width; 20% duty cycle, MGC = 100% (Measured at the middle of the pulse)	PSAMPLE		8		dBm	Record	3.70	3.76	3.80	3.52	3.50	3.60	3.84	3.85	3.99	3.91	4.03	P	
Efficiency @ 8kW	η		15		%	Computed	15.9	16.1	15.8	16.1	15.4	15.4	15.0	15.5	16.2	17.1	17.3	P	
Power Consumption @ Shutdown	P _{SD}		0.8		kVA	Record	0.8											P	
Quiescent Power Consumption	P _{DQ}		2.5		kVA	Record	2.7											P	
NTE Test @ limiter threshold	P _{OOD}			70	dBm	Record P _{OUT}	-	-	-	-	-	69.7	-	-	-	-	-	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	

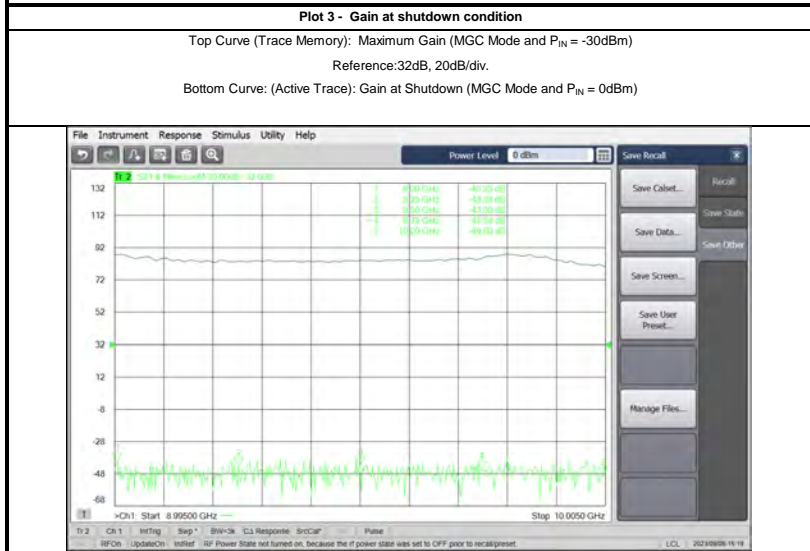
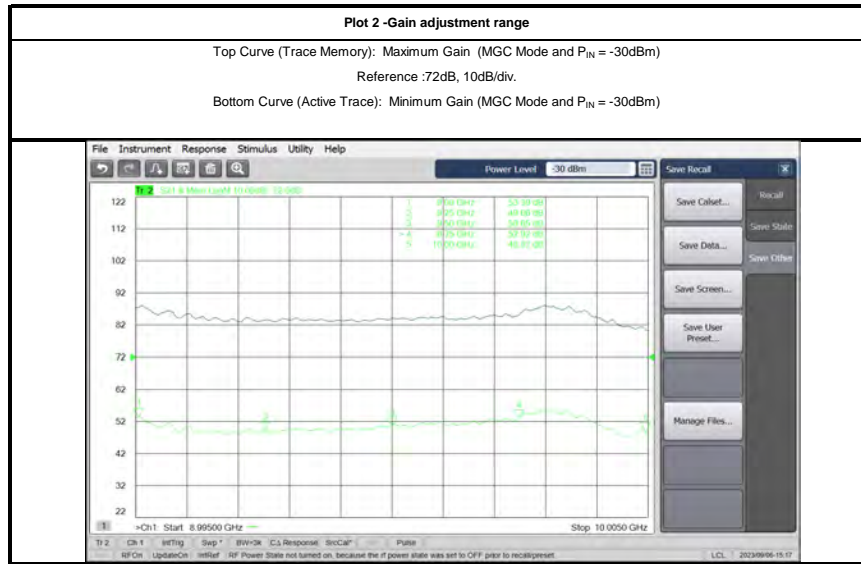
INTERFACE

System Controller	SW/FW	NTE	Max MGC	Set Point		Fwd./Rev.	Watt/dB	USB	RS232/RS422	Monitors
	Version	dBm	Percent	Min	Max	-	-	-	-	-
Verify / Record		70	100	0	100	√	√	-	-	-

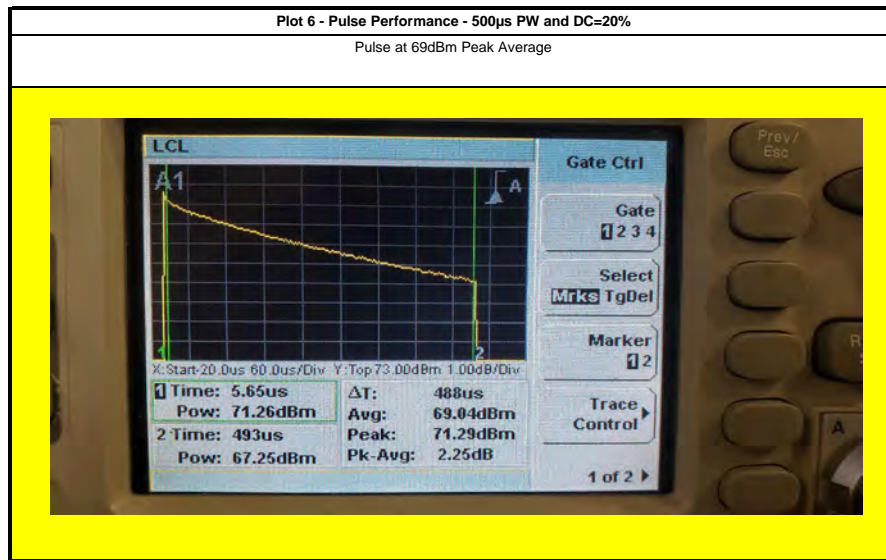
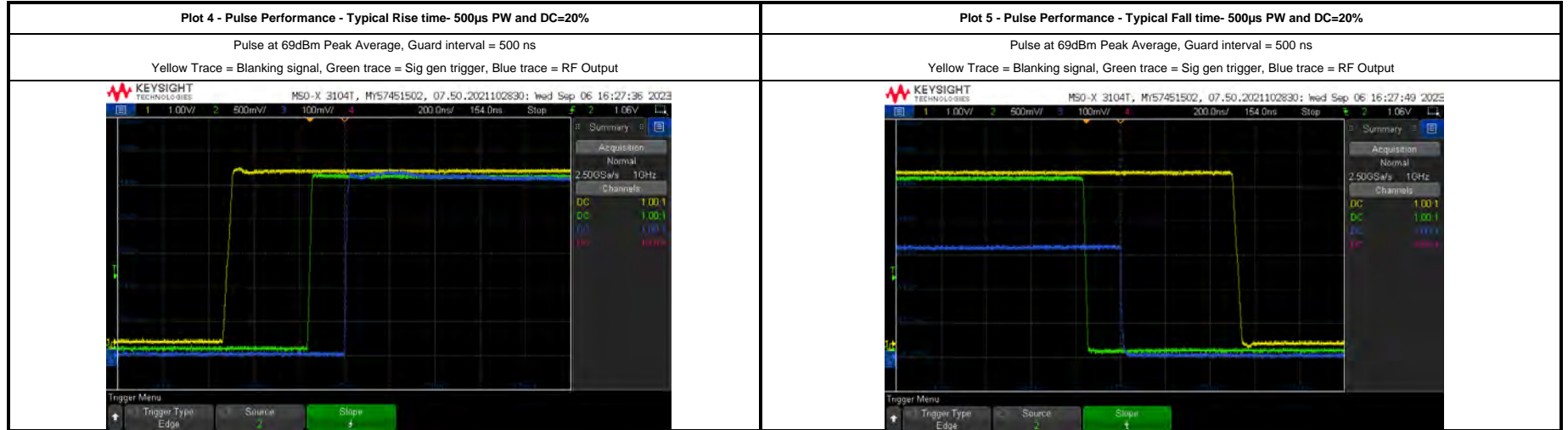
Ethernet Setting

MAC Address (factory set unit specific)	IP Address (default)	Display IP	Net Mask (default)	Gateway	SOM Alias	DNS	Port
	192.168.1.50		255.255.255.0	192.168.1.1	192.168.64.1	-	3000

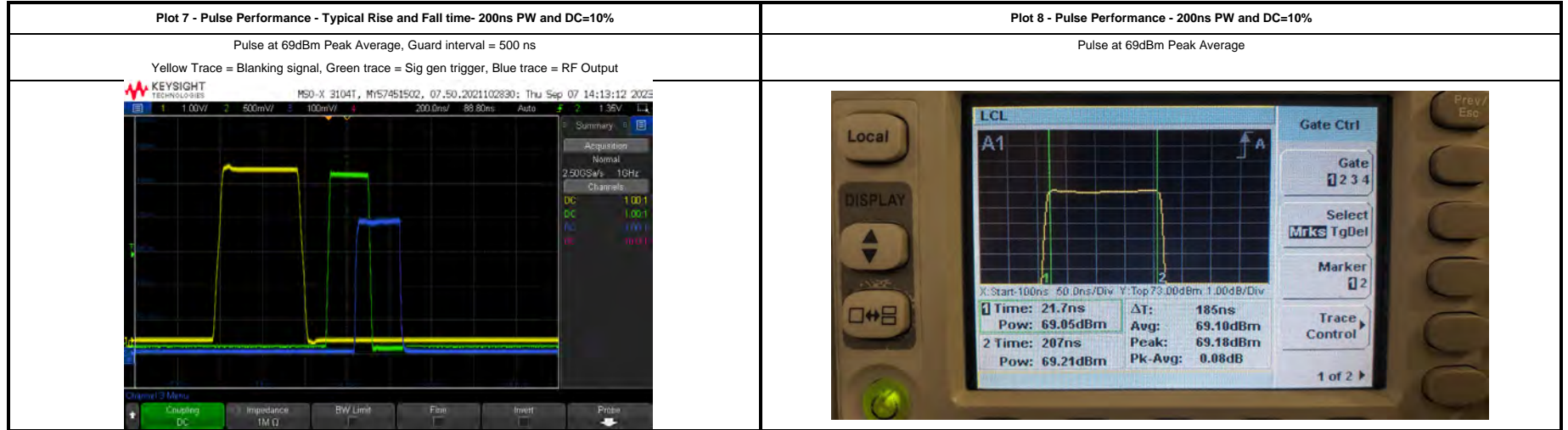
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Performance Plots


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Performance Plots

