EMPOWER RF SYSTEMS, INC.

ACCEPTANCE TEST REPORT

SKU 2191

ELECTRICAL SPECIFICATIONS @ 120VAC, 25°C ambient, 50Ω System, MGC mode unless specified otherwise

Parameter	Specifications						Frequency (MHz) & Test Results											
	Symbol	Min	Typ	Max	Unit	Notes	20	100	200	300	400	500	600	700	800	900	1000	Pass/Fail
Operating Frequency Range	BW	20		1000	MHz	Plot 1 (pg4)	x	x	x	x	x	x	x	x	x	x	x	Pass
Input Frequency Hopping F1=20MHz, F2=500MHz Min. Dwell =20µS *(ALC fast Peak Detection mode only)*	F_{1-2}	100			µSec	DVT Only	x	x	x	x	x	x	x	x	x	x	x	-
Output Power CW @ 900W (into 2:1 VSWR)	P_{out}	59.6			dBm	Record	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	Pass
Power Reporting Accuracy	P_{FWD}			±1.0	dB	Record (see pg3)	x	x	x	x	x	x	x	x	x	x	x	Pass
Sample Port @ P_{OUT} = 49.0 dBm	P_{sample}	-5		5	dBm	Record	0.76	0.75	0.67	0.56	0.51	0.47	0.4	0.33	0.29	0.15	-0.14	Pass
Input Power for Rated P_{OUT} = 80W (CW-MGC MODE minimum VVA attenuation)	P_{IN}		-5		dBm	Record	-10.6	-7.4	-7.9	-10.1	-10.7	-6.9	-5.4	-6.9	-9.9	-7	-9	Pass
Small Signal Gain Flatness, P_{IN} = -30dBm	ΔG			±3.5	dB	Plot 1 (pg4)	x	x	x	x	x	x	x	x	x	x	x	Pass
Leveled ALC Flatness @ 49dBm	ΔALC			±1.0	dB	Plot 2 (pg4)	x	x	x	x	x	x	x	x	x	x	x	Pass
Gain Adjustment Range	VVA	20			dB	Plot 3 (pg4)	x	x	x	x	x	x	x	x	x	x	x	Pass
Wide Band Noise Level, beyond 3MHz from carrier, including phase noise	No_{WIDE}			-50	dBm/kHz	DVT Only	x	x	x	x	x	x	x	x	x	x	x	-
RF Noise in transmission mode @ 59.6dB Gain, @ 5MHz from carrier, inc phase noise	No			-80	dBm/Hz	DVT Only	x	x	x	x	x	x	x	x	x	x	x	-
Input Return Loss	S_{11}			-10	dB	Plot 1(pg4)	x	x	x	x	x	x	x	x	x	x	x	Pass
Inter-modulation (3rd Order) 2-Tones @ 44dBm/Tone	IMD_{3rd} Δ=1MHz		-20		dB	Record	-34.3	-28.8	-26.6	-33.5	-37.7	-34.6	-24.1	-30.4	-34	-30.7	-29	Pass
	>520MHz			-60	dBc	Record	x	x	x	x	x	x	x	x	x	x	-66.17	Pass
	IP3		54				61.1	58.4	57.3	60.7	62.8	61.3	56.0	59.2	61.0	59.3	58.5	Pass
Out-of-Band Harmonic Distortion Level @ Pout = 900W	>500-700MHz			-25	dBc	Record	-75	-57.94	-28.27	-58.79	-27.29	-87.39	-81.06	-86.59	-80	-80	-80	Pass
	>700MHz			-60	dBc		-75	-75	-90.8	-92.11	-89.36	-91.83	-89.3	-91.85	-91.87	-90.63	-86.71	Pass
Spurious Signals	Spur		-70	-60	dBc	Record	-70	x	x	x	x	-70	x	x	x	x	-70	Pass
Pulse performance Fc =225MHz, P_{OUT} = 900W(peak) Pulse Period: 100µSec, 50%	$T_{FALL\ 10\%}$			150	nSec	DVT Only												
Power Consumption @ Cold Standby	I_{SD}			155	VA	Record	121.2											Pass
Power Consumption @ Hot Standby	I_{SB}			285	VA	Record	200.4											Pass
Power Consumption @ P_{OUT} = 500W (ALC mode)	P_D				VA	Record	2520	2176	2313	2036	2520	2988	2618	2727	2831	2559	2447	Fail
Power Consumption @ P_{OUT} = 80W	P_D			750	VA	Record	466	436	425	414	510	595	639	575	502	519	456	Pass
NTE Test, Limiter = 51.2dBm	P_{OOD}			51.2	dBm	Record P_{OUT}	51.2	x	x	x	x	51	x	x	x	x	50.2	Pass
Thermal Overload –Shut down	T_{SD}			115	°C	DVT Only	√											Pass
Reflected Power Reduction Point (Approx. 3.5:1 VSWR trip point; max reduction -6dB)	VSWR			>3:1	VSWR	Verify	√											Pass

Power Reporting Accuracy

Forward Power, 50 Ohm Load (ALC MODE)							
Frequency (MHz)	**Measuremnt Method**	**PIN =0dBm**	**PIN =0dBm**	**PIN =0dBm**	**PIN =0dBm**	**Limits**	**P/F**
20	External Test Equipment	50.9	46.9	43.9	40.9	**±1 dB**	**Pass**
	Ethernet Reporting	50	46	43	40		
	Pass/Fail	**P**	**P**	**P**	**P**		
500	External Test Equipment	50.7	46.6	43.6	40.6	**±1dB**	**Pass**
	Pass/Fail	**P**	**P**	**P**	**P**		
1000	External Test Equipment	50.2	46.2	43.2	40.2	**±1 dB**	**Pass**
	Pass/Fail	**P**	**P**	**P**	**P**		

Reverse Power, Open Load (AGC MODE - RMS Detector)					
Frequency (MHz)	**Measuremnt Method**	**PIN =-10dBm**	**PIN =-8dBm**	**PIN =-7dBm**	**PIN =-6dBm**
20	External Test Equipment FWD PWR	41.2	43.1	44.1	45
	Ethernet Reporting FWD PWR	40.3	42.3	43.1	44.1
	Ethernet Reporting REV PWR	40	42	43	44
500	External Test Equipment FWD PWR	40.8	42.8	43.7	44.8
	Ethernet Reporting FWD PWR	40.5	42.5	43.5	44.4
	Ethernet Reporting REV PWR	39	41	42.9	43
1000	External Test Equipment FWD PWR	40.3	42.3	43.2	44.1
	Ethernet Reporting FWD PWR	40.6	42.5	43.4	44.3
	Ethernet Reporting REV PWR	39	41	42	43

PERFORMANCE PLOTS

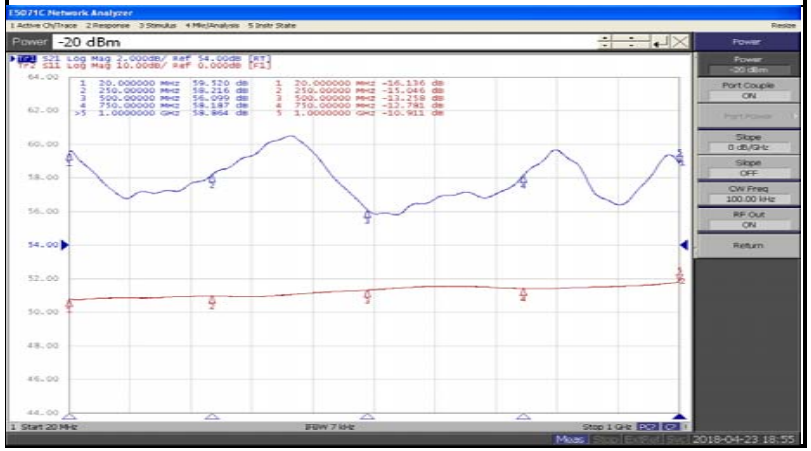
Plot 1 - Small Signal Gain & Input Return Loss

Top Curve: Small Signal Gain @ P_{IN} = -20dBm

Reference: 54dB, 2dB/div.

Bottom Curve: Input Return Loss

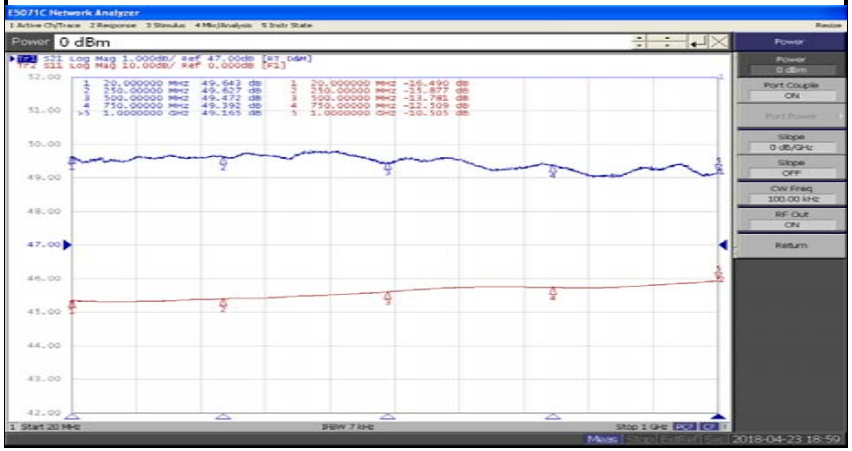
Reference: 0dB, 10dB/div.



Plot 2 - Leveled ALC Flatness - 80W

Top Curve: Power Gain @ Constant PIN = 0dBm

Reference: 47dB, 1dB/Div.



Plot 3 -Gain Adjustment Range

Top Curve: Max Signal Gain @ PIN = -20dBm

Middle Curve: Minumum Signal Gain @ PIN = -20dBm

Reference Level: 30dB, 10dB/div.