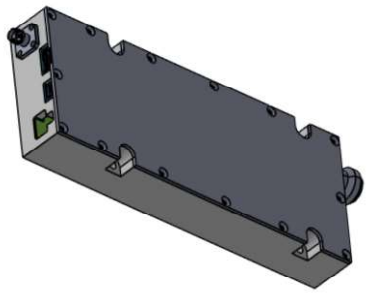
LPA Concepts

LINEAR POWER AMPLIFIER	LPA-AH11-100AB-0860M-0960M-28-00
P3340	

FEATURES

- 860-960MHz Gain 43dB
- LDMOS linearity
- Class AB; Psat=120W
- 28V / 8.5A at 100W
- Fast On/Off, Internal ALC
- Output VSWR protection
- Overcurrent, Over temperature protection
- Visual status with LEDs
- USB monitoring & controls
- RoHS compliant

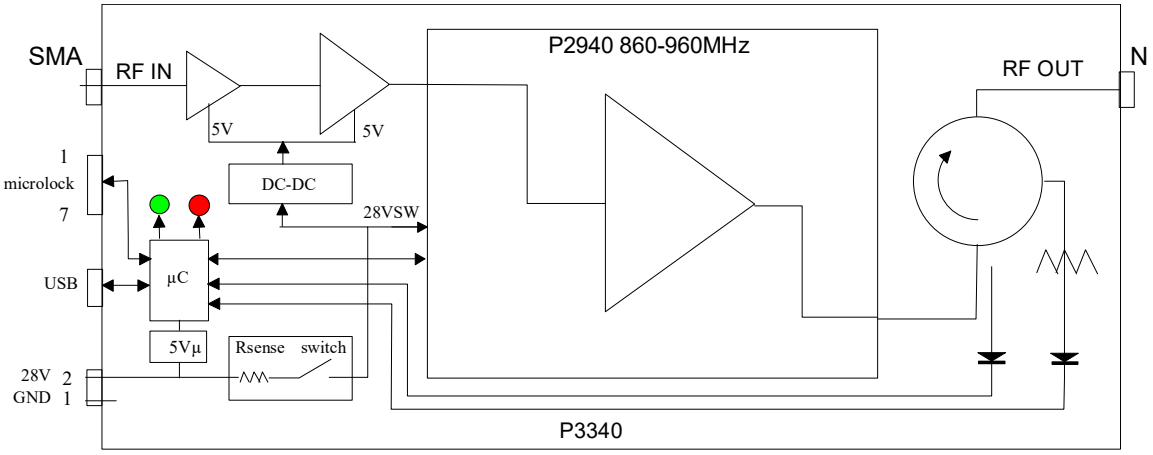
PACKAGE



APPLICATIONS

- Medical
- Jammers

BLOCK DIAGRAM



Electrical characteristics: 50 ohms; +28V; -25°C to +80°C (1, 2)

Ref	Parameter	Conditions	Note	Min	Typ	Max	Units
1	Bandwidth			860		960	MHz
2	Gain small signal	910 MHz; 50°C			43		dB
3	Small sig. gain flatness vs freq.	860-960 MHz				1	dBpp
4	Power gain	100W output			42		dB
5	Power gain vs frequency	100W output				1	dBpp
6	Input return loss	50 ohms				-15	dB
7	Output return loss	50 ohms				-15	dB
10	ALC rise time				300		µs
11	ALC hold time				3		ms
12	Fast On/Off rise time	FAOO from 3V to 0V				1	µs
13	Fast On/Off fall time	FAOO from 0V to 3V				1	µs
14	Second harmonic	f1=910MHz; 100W output			-46		dBc
15	spurious					-30	dBm
16	Current consumption	28V ; idle			1.1		A
17	Current consumption	28V ; 50W output			5.8		A
18	Current consumption	28V ; 100W			8.5		A

1. Unless otherwise specified
2. Hot spot temperature given by temp sensor close to final transistor

Maximum ratings

Ref	Parameter	Conditions	Note	Min	Nom	Max	Units
1	Operating temperature	Hot spot temperature	3	-25°C		+80	°C
2	Supply voltage			26	28	33	V
3	Voltage on Alarm pin					10	V
4	Input CW power	In band	5			+3	dBm
5	Maximum reverse power	>2s	4			100	W
6	Maximum reverse power	continuous				40	W

3. Shuts down at 80°C resume operation at 70°C
4. Will automatically shut down after 2s
5. Will shut down at I>12A (100W)

Protections

Ref	Parameter	Description	Remarks
1	Overvoltage	Shut down if supply > 33 V	
2	Under voltage	Shut down if supply < 20 V	
3	Overcurrent	Shut down if current > 8.7 A	Output power > +51dBm CW
4	Temperature	Shut down if temp > 80°C	Auto recovery (at 75°C)
5	Max reverse power	Shut down if Prev > 40W	Shuts down after 2s for Pout>40W

Analog monitoring & controls

Ref	Characteristic	Description	Remarks
1	Temperature	Analog output	-40°C to +100°C (TMP20)
2	Alarm	Open drain (0V on alarm)	Multiplexed with analog temp
3	PA On/Off	<Amplifier Off when PAOO > 3V	28V switches off
4	Fast On/Off	Amplifier On when FAOO = 0V	

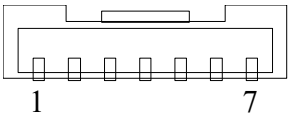
Specifications and information are subject to change without notice

USB Monitoring & controls (6)

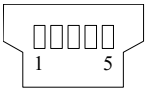
Ref	Characteristic	Description	Remarks
1	Temperature	Hot spot temperature	Digital sensor
2	Supply voltage	Voltage applied by user	
3	Current	Through sense resistor	
4	ON/OFF	Shut down amplifier	
5	Alarm	Provide state of amplifier	

6. Use Interface program PRSI25001V0.2.

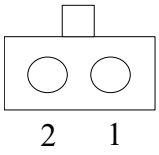
Communication DC Connector Molex Microlock Plus 505567 0771

Pin description			PINOUT
Pin 1 : Fast On/Off			7 circuits Pitch 1.25mm
Pin 2 : PA ONOff		Mate with 505565 0701 505431 crimp terminals AWG 26 wire	
Pin 3 : ALA			
Pin 4 : Temperature			
Pin 5 : Current sense			
Pin 6 : forward power			
Pin 7 : Gnd			

Communication USB 54819-0589

Pin description			PINOUT
Pin 1 : Vbus			Mini USB b
Pin 2 : Data-			
Pin 3 : Data+			
Pin 4 : NC			
Pin 5 : Gnd			

Power Supply DC Connector Molex Minifit Jr 172648-0102

Pin description			PINOUT
Pin 2 : Supply +28V		Mate with 39-01-4020 with 45750-3211 inserts and AWG16 wires	2ckts 4.2mm pitch
Pin 1 : Gnd			

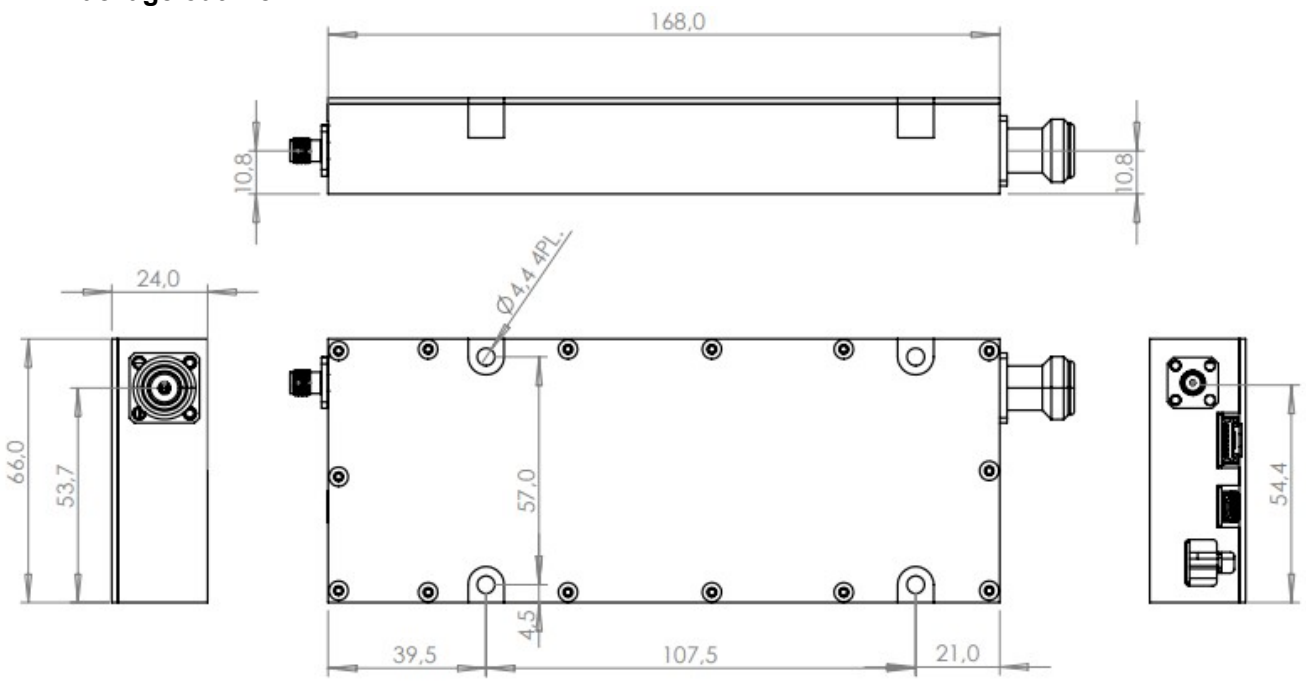
LED significations

LED 1 (green)	LED 2 (red/orange)	Signification
OFF	OFF	Power supply not applied
ON	OFF	Amplifier ON
Blinking	OFF	Amplifier Muted by operator
ON	Orange	Temperature warning, amplifier ON
OFF	Red	Amplifier OFF (Under voltage, over voltage, over temp….)

Mechanical characteristics

Ref	characteristic	description	remarks
1	Housing dimensions	168mm x 66mm x 24mm	
2	Housing cover finish	Electroless nickel	
3	Mounting	4 M4 screws	It is recommended to use a thermal interface material under housing
4	Input RF connectors	SMA	female
5	Output RF connector	N	female
5	DC supply connector	Molex 172648-0102	Male type
6	DC controls connector	Molex 505567-0771	Male type
7	USB connectors	Mini USB B	
8	Weight	460 grams	

Package outline:

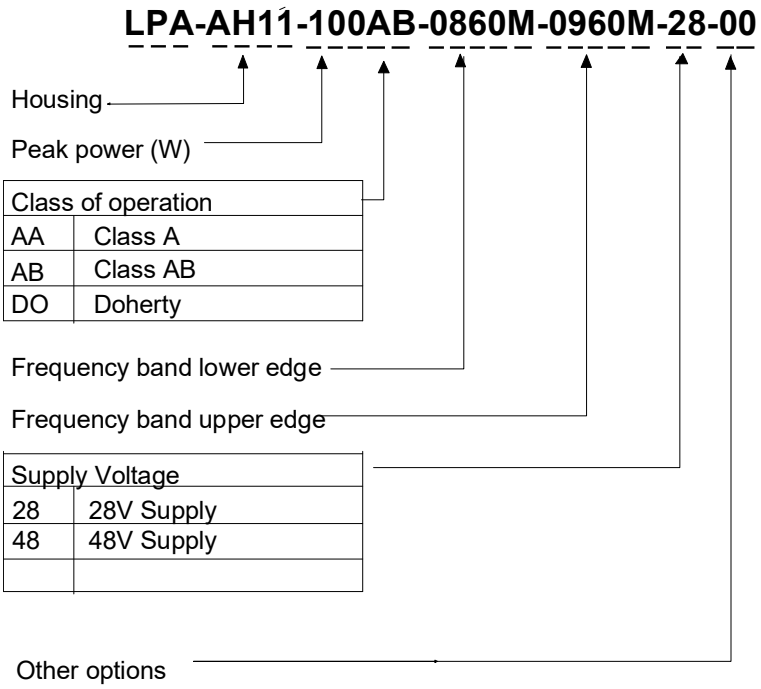


Thermal information

Ref	Parameter	temperature	Condition	Note
1	Temp sensor reading		Hot spot close to final transistor	
2	Housing temperature at 200W CW output	65°C (Shut down condition)	Temp sensor = 80°C (Shut down condition)	7

7. Housing attached to heatsink with thermal interface material

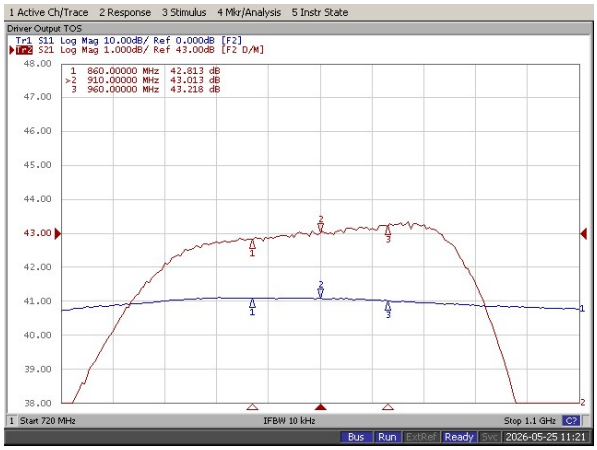
Part numbering:



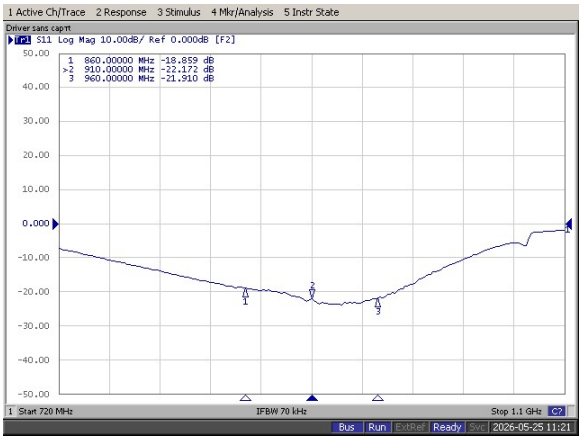
Support material:

Ref	Document type	Document number	Title	Date
1	USB Cable		USB to mini USB B	
2	Interface program	PRSI25001 V0.2.		2025

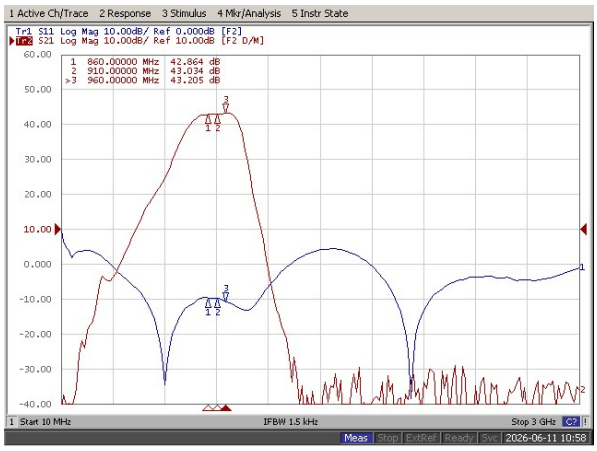
TYPICAL PERFORMANCE



Gain / IRL vs frequency



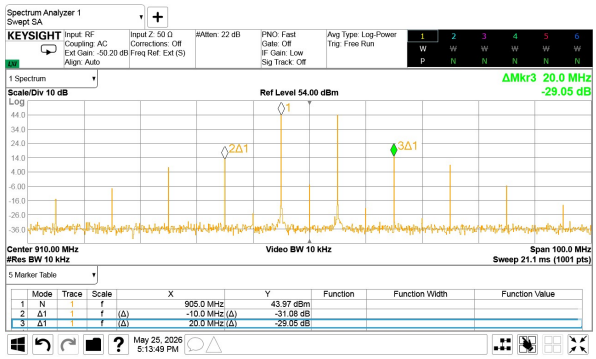
Output return loss vs frequency



Wideband response (10-3000MHz)



2 tones 50Wave 100Wpeak at 865MHz

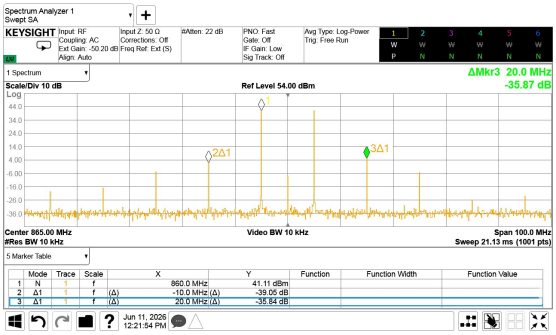


2 tones 50Wave 100Wpeak at 910MHz

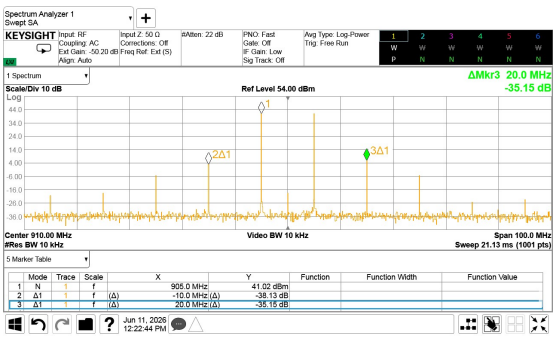


2 tones 50Wave 100Wpeak at 955MHz

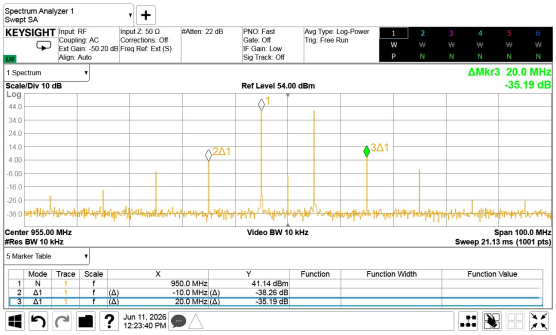
TYPICAL PERFORMANCE (continued)



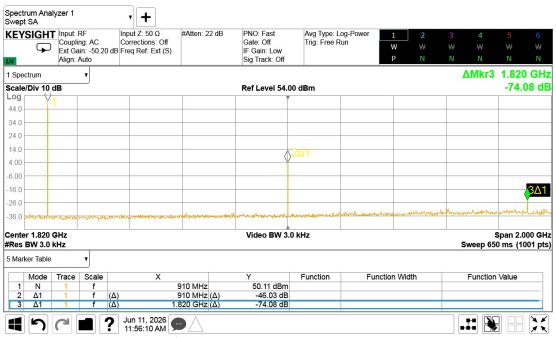
2 tones 41dBm ave / 44dBm peak at 860MHz



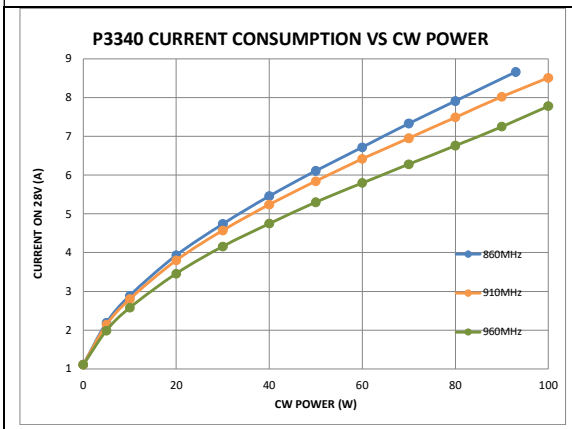
2 tones 41dBm ave / 44dBm peak at 910MHz



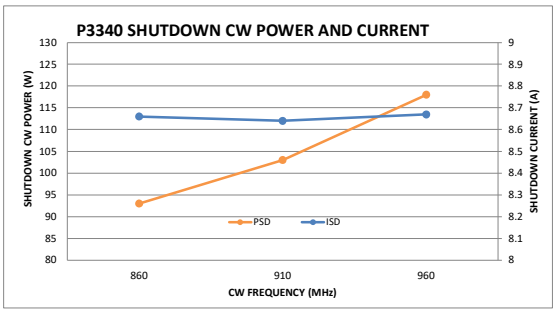
2 tones 41dBm ave / 44dBm peak at 960MHz



2nd and 3rd Harmonics at 100W output

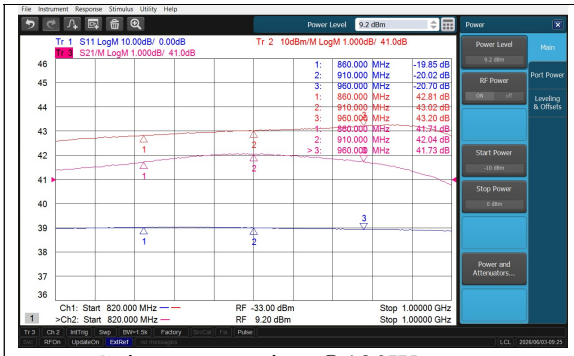


Current consumption on 28V vs CW power

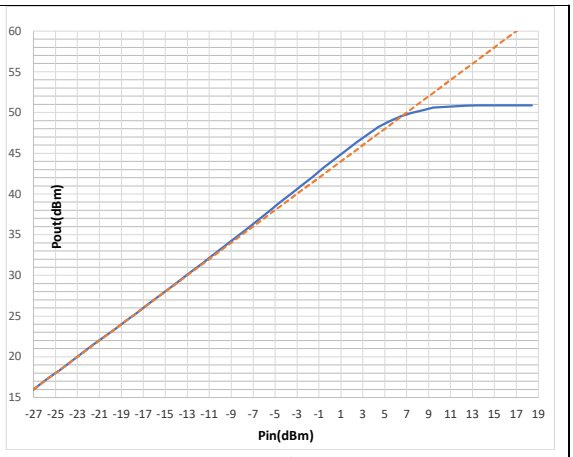


Shutdown current and CW power vs frequency

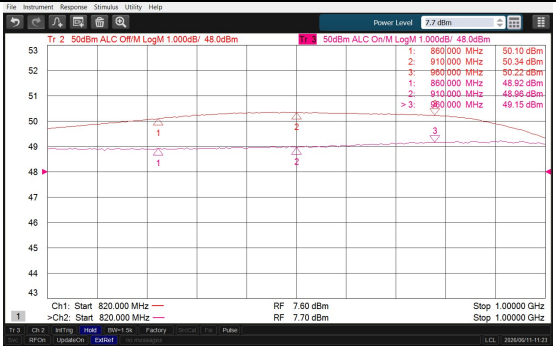
TYPICAL PERFORMANCE (continued)



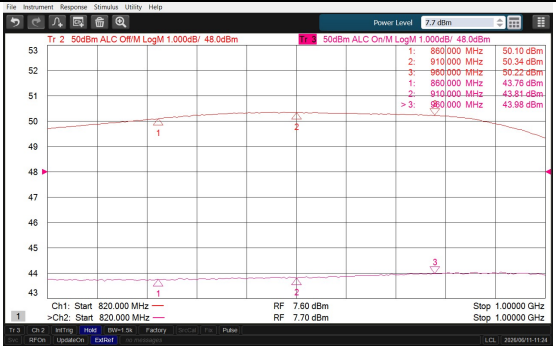
Gain compression @120Woutput
pulse width : 1ms, pulse period : 10ms



P1dB



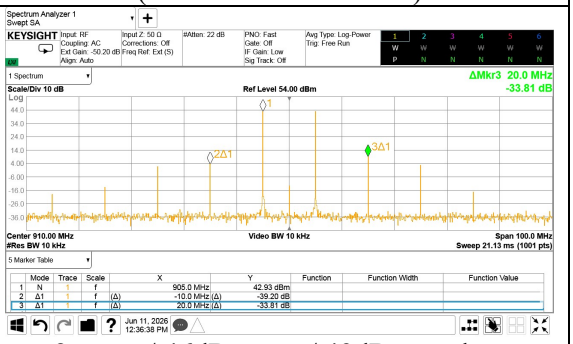
ALC level set at 49dBm, Pout=48.9dBm
(50dBm with ALC Off)



ALC level set at 44dBm, Pout=43.8dBm
(50dBm with ALC Off)

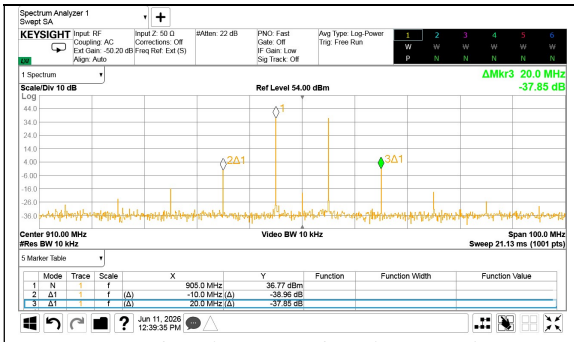


2 tones / 47dBm ave / 50dBm peak at
910MHz
ALC Off

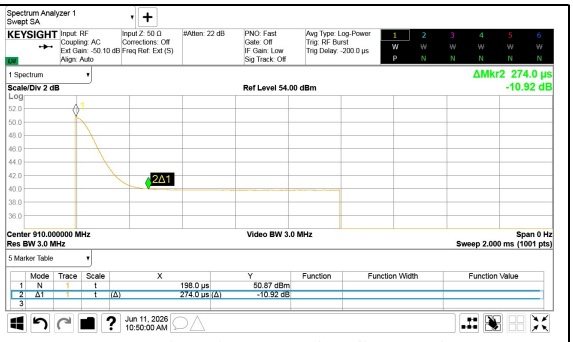


2 tones / 46dBm ave / 49dBm peak at
910MHz
ALC On 1dB depth : 46dBm ave

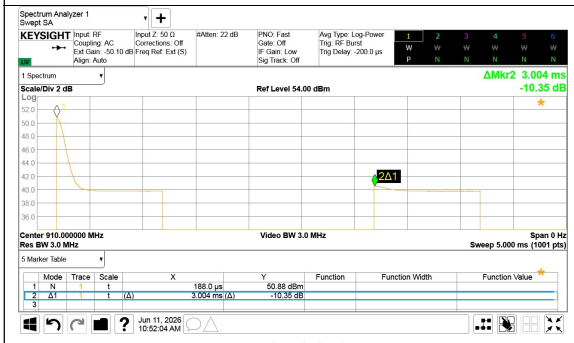
TYPICAL PERFORMANCE (continued)



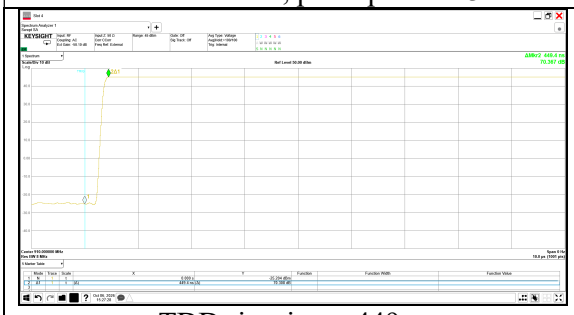
2 tones/ 40dBm ave / 43dBm peak at 910MHz
ALC On 7dB depth: 40dBm ave



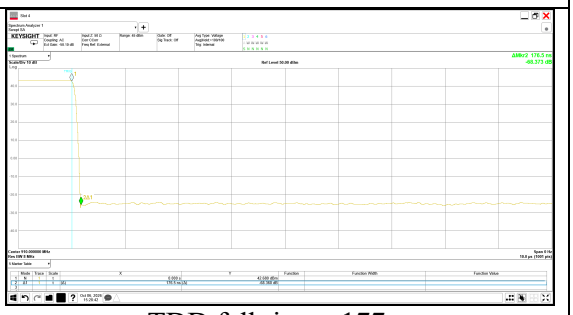
ALC rise time on the first pulse
ALC level set at 40dBm (Pout with ALC Off : 51dBm)
Pulse width : 1ms, pulse period : 3ms



ALC hold time
ALC level set at 40dBm (Pout with ALC Off : 51dBm)
Pulse width : 1ms, pulse period : 3ms



TDD rise time : 449ns



TDD fall time : 177ns