

LWH-23-22
SMAV3741-70: 3700-4200MHz

Test Report SMAV3741-70 Doherty 3700-4200MHz

Oct 20th, 2023

Introduction

This amplifier is designed with Innogrations 50V SMAV3741-70 GaN

Demo and Transistor

Frequency band : 3700-4200 MHz
 Application : Telecom
 Configuration : Doherty
 Test Signal : Pulsed CW/ WCDMA
 Transistor : SMAV3741-70
 Date code :
 PCB : **20 Mil** Rogers 4350B

The amplifier has been characterized under the following conditions:

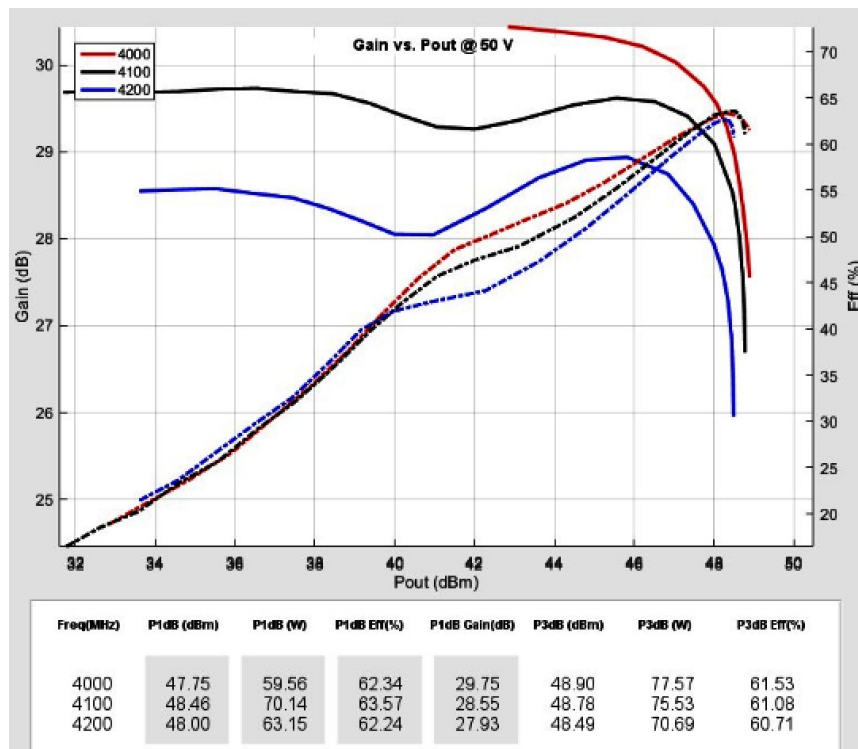
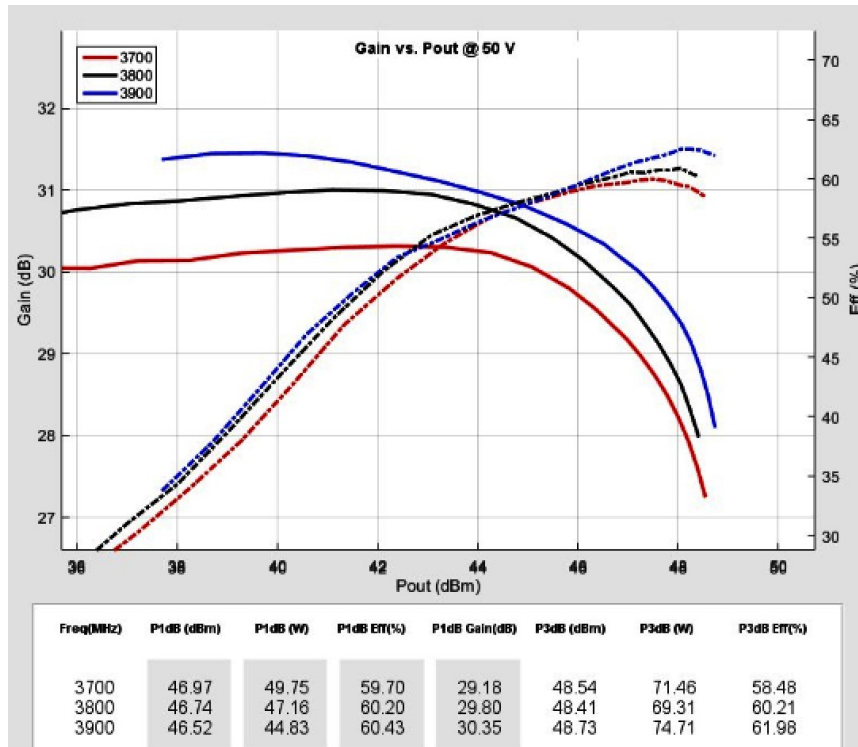
- Network Analyzer plots for gain and IRL.
- P1dB and P3dB Peak power measurement using the Pulse, 20 us width, 10% duty cycle.
- RF Test Bench 2

Note: The PA is tested with a supply voltage of $V_{DS}=50V$, $I_{DQ-Mian}=43\text{ mA}$ $V_{gs-main}=-3.1V$. $I_{DQ-DRIVER}=15\text{mA}$ $V_{gs-driver}=-2.98V$ $V_{gs-peak}=-5.1V$. all measurements unless otherwise noted.

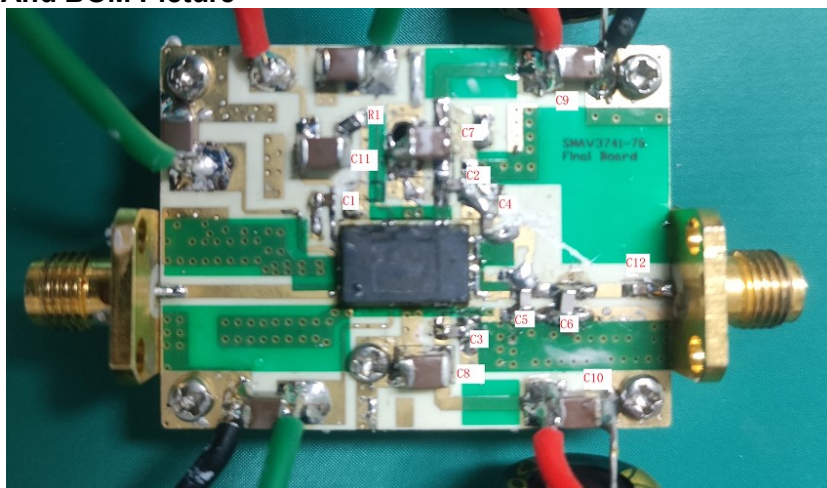
Test Results:

1. Pulsed CW Peak power and Efficiency /WCDMA_1C Pavs and Efficiency

Freq (GHz)	Pulse CW Signal ⁽¹⁾			$P_{avg}=40.5\text{dBm}$ WCDMA Signal ⁽²⁾		
	P1-Gain (dB)	P3 (dBm)	P3 (W)	Gp (dB)	η_D (%)	ACPR _{5M} (dBc)
3.7	29.18	48.54	71.5	29.27	43.26	-28.83
3.8	29.80	48.41	69.5	29.87	44.02	-30.79
3.9	30.35	48.73	74.7	30.00	43.81	-34.41
4.0	29.75	48.90	77.5	29.41	42.05	-35.82
4.1	28.55	48.78	75.5	28.44	41.15	-33.09
4.2	27.93	48.49	70.7	27.55	40.68	-30.07



2. S11 S21 Curve Picture
3. DEMO And BOM Picture



Test Board Bom				
Part	Quantity	Description	Part Number	Manufactur e
C4	1	0.9pFHigh Q Capacitor	251SHS0R9BSE	TEMEX
C5	1	0.7pFHigh Q Capacitor	251SHS0R7BSE	TEMEX
C1,C12	2	8.2pFHigh Q Capacitor	251SHS8R2BSE	TEMEX
C6	1	0.4pFHigh Q Capacitor	251SHS0R4BSE	TEMEX
C7,C8,C9,C10,C11	5	10uF MLCC	RS80R2A106M	MARUWA
C2,C3	2	3.9pFHigh Q Capacitor	251SHS3R9BSE	TEMEX
R1	1	2.7 Ω Power Resistor	ESR03EZPF2R70	ROHM

Notes:

- (1) Pulse Width=100 us, Duty cycle=20%
- (2) WCDMA signal: 3GPP test model 1; 1 to 64 DPCH; Channel Bandwidth=3.84MHz,PAR =10.5 dB at 0.01 % probability on CCDF.