Test Report E-Doherty 1800-2175MHz

June 24th, 2026

Introduction

The amplifier Are designed with Innogration 50V ITGV22060C6/STCV22W650BY4V GaN

Demo and Transistor

Frequency band : 1800-2175 MHz
Application : Telecom
Configuration : Doherty
Test Signal : Pulsed CW/ WCDMA
Transistor : ITGV22060C6/STCV22W650BY4V
Date code :
PCB : 20 Mil Rogers 4350

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 1

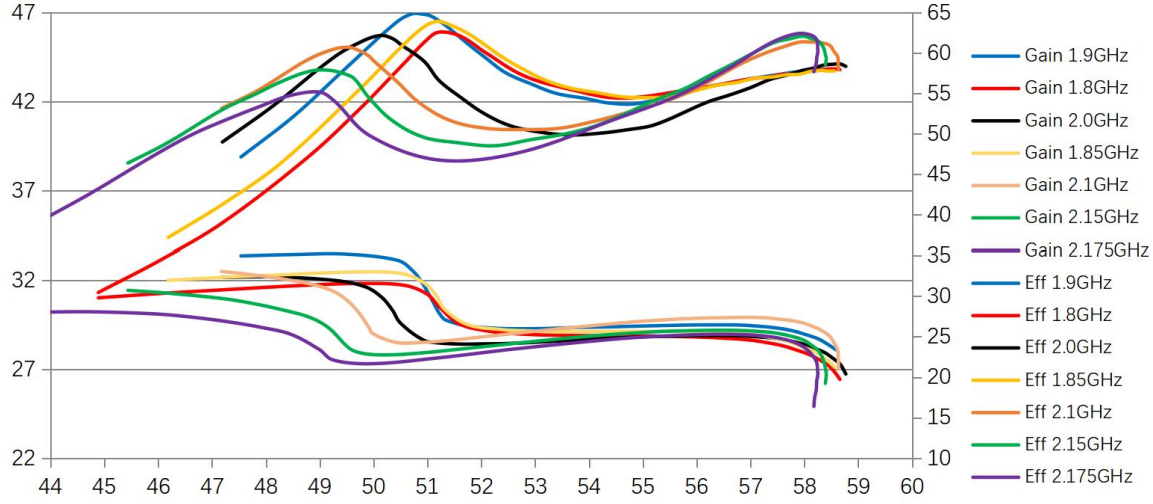
Test Results:

1. Pulsed CW Peak power and Efficiency

V_{DS}= 50V, VgsFinal-main=-3.35V , $I_{DQFinal-Mian}$=110 mA,VgsFinal-peak=-4.9V;Vgsdriver-main=3.41V,$I_{DQdriver-Mian}$=70 mA . Vgsdriver-peak=3.02V,$I_{DQdriver-peak}$=4 mA

Freq (MHz)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)	P3dB Gain(dB)	P5dB (dBm)	P5dB (W)	P5dB Eff(%)
1800	55.59	362.3	55.3	28.83	58.56	718.1	58.0
1850	51.77	150.4	62.3	29.48	58.43	696.6	57.8
1900	51.17	130.9	64.2	30.47	58.38	688.6	57.9
2000	50.67	116.8	60.3	29.2	58.68	737.3	58.6
2100	49.88	97.2	59.8	29.51	58.63	729.3	58.5
2150	49.45	88.1	57.4	28.44	58.40	691.5	59.0
2175	58.22	663.1	61.3	27.24	58.19	658.5	57.9

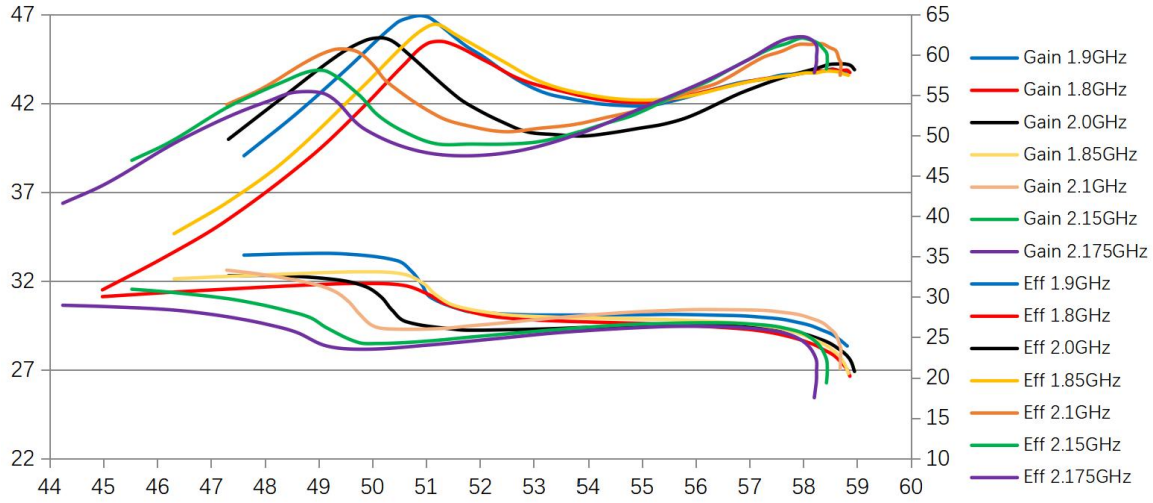
LWH-2026-15 ITGV22060C6+STCV22W650BY4V: 1800-2175MHz



LWH-2026-15 ITGV22060C6+STCV22W650BY4V: 1800-2175MHz

V_{DS}= 50V, VgsFinal-main=-3.35V , $I_{DQFinal-Mian}$=110 mA,VgsFinal-peak=-4.5V;Vgsdriver-main=3.41V,$I_{DQdriver-Mian}$=70 mA . Vgsdriver-peak=3.02V,$I_{DQdriver-peak}$=4 mA

Freq (MHz)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)	P3dB Gain(dB)	P5dB (dBm)	P5dB (W)	P5dB Eff(%)
1800	57.72	591.7	57.4	28.87	58.83	764.2	58.0
1850	57.07	508.9	56.7	29.53	58.72	745.2	57.7
1900	51.53	142.1	62.2	30.54	58.73	746.6	58.0
2000	51.45	139.6	55.5	29.32	58.9	776.7	58.5
2100	49.95	98.9	59.1	29.62	58.69	739.6	58.0
2150	49.73	93.9	55.2	28.55	58.44	697.8	58.6
2175	58.23	665.2	61.3	27.63	58.21	662.6	58.0



2. WCDMA_1C Pavs and Efficiency

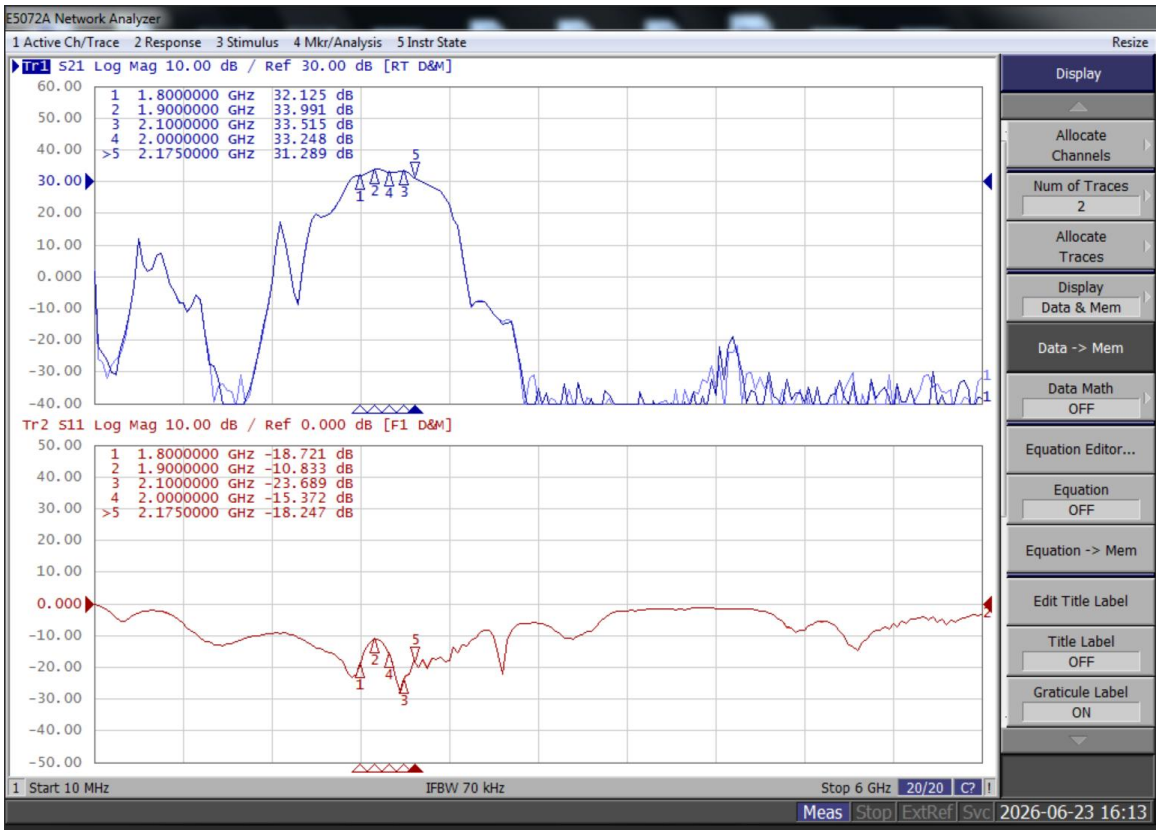
V_{DS}= 50V, VgsFinal-main=-3.35V , $I_{DQFinal-Mian}$=110 mA,VgsFinal-peak=-4.9V;Vgsdriver-main=3.41V,$I_{DQdriver-Mian}$=70 mA . Vgsdriver-peak=3.02V,$I_{DQdriver-peak}$=4 mA

Freq (MHz)	Pout (dBm)	CCDF (dB)	Ppeak (dBm)	Ppeak (W)	ACPR (dBc)	Gain (dB)	Efficiency (%)
1800	49.48	8.84	58.32	679.6	-21.4	30.1	51.4
1850	49.48	8.73	58.21	661.6	-20.8	30.6	53.4
1900	49.49	8.77	58.25	668.8	-20.5	31.1	55.8
2000	49.51	9.18	58.69	739.5	-21.9	29.8	53.4
2100	49.49	9.77	59.25	842.4	-22.0	29.9	53.4
2150	49.50	9.58	59.08	808.3	-23.0	29.1	52.0
2175	49.54	9.54	59.07	807.9	-23.7	28.5	50.8

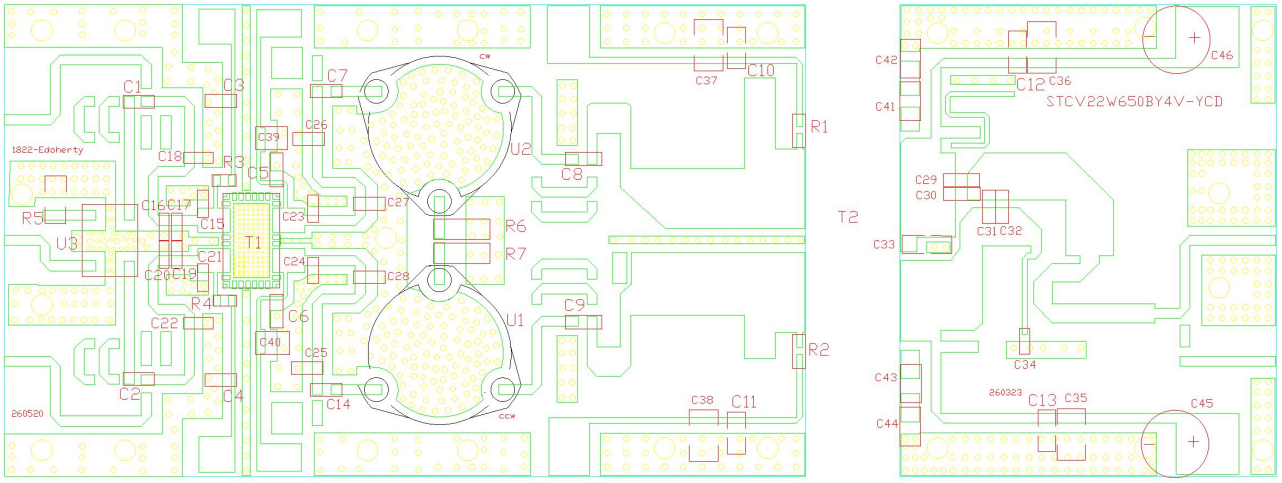
V_{DS}= 50V, VgsFinal-main=-3.35V , $I_{DQFinal-Mian}$=110 mA,VgsFinal-peak=-4.5V;Vgsdriver-main=3.41V,$I_{DQdriver-Mian}$=70 mA . Vgsdriver-peak=3.02V,$I_{DQdriver-peak}$=4 mA

Freq (MHz)	Pout (dBm)	CCDF (dB)	Ppeak (dBm)	Ppeak (W)	ACPR (dBc)	Gain (dB)	Efficiency (%)
1800	49.52	9.02	58.54	715.0	-21.9	30.5	50.2
1850	49.49	8.97	58.46	700.9	-21.4	31.0	52.4
1900	49.47	8.89	58.36	685.5	-21.0	31.6	54.9
2000	49.50	9.19	58.69	739.4	-22.8	30.3	52.5
2100	49.49	9.77	59.25	842.4	-23.0	30.4	52.4
2150	49.50	9.58	59.08	808.3	-24.0	29.5	51.0
2175	49.48	9.50	58.99	791.9	-24.9	29.0	50.0

3. S11 AND S21



3 DEMO And BOM Picture



Test Board Bom				
Part	**Quantity**	**Description**	**Part Number**	**Manufacture**
C1,C2,C3,C4,C5 C7,C8,C9,C10,C11,C12, C13,C14,C34	14	20pFHigh Q Capacitor	251SHS200BSE	TEMEX
C6	1	12pFHigh Q Capacitor	251SHS120BSE	TEMEX
C31,C32	2	3.9pFHigh Q Capacitor	251SHF3R9BSE	TEMEX
C15,C21	2	3.9pFHigh Q Capacitor	251SHS3R9BSE	TEMEX
C17,C19	2	2.0pFHigh Q Capacitor	251SHS2R0BSE	TEMEX
C16,C20	2	0.9pFHigh Q Capacitor	251SHS0R9BSE	TEMEX
C18	1	NC		
C22	1	0.4pFHigh Q Capacitor	251SHS0R4BSE	TEMEX
C23,C24,C27	3	1.5pFHigh Q Capacitor	251SHS1R5BSE	TEMEX
C25,C26	2	0.2pFHigh Q Capacitor	251SHS0R2BSE	TEMEX
C28	1	1.8pFHigh Q Capacitor	251SHS1R8BSE	TEMEX
C29,C30	2	3.0pFHigh Q Capacitor	251SHS3R0BSE	TEMEX
C33	1	1.1pFHigh Q Capacitor	251SHS1R1BSE	TEMEX
C35,C36,C37,C38,C39,C 40,C41,C42,C43,C44	10	10uF MLCC	GRM32EC72A106M E05	Murata
C45,C46	2	470uF		
R1,R2,R3,R4	4	10Ω Power Resistor	ESR03EZPF100	ROHM
R5,R6,R7	3	50Ω Power Resistor	S1206N	RN2
U1	1	Circulator	H3B696(CCW)	HTD
U2	1	Circulator	H3B695(CW)	HTD
U3	1	3 dB Bridge	HC2100P03H	YANTEL
T1	1	60W LDMOS Transistor	ITGV22060C6	Innogration
T2	1	650W GaN Transistor	STCV22W650BY4V	Innogration

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.