



Product Features

- Doherty amplifier design
- Small and light weight
- 50 Ohm Input/Output impedance matched
- Highly reliable and rugged design
- High efficiency, High Gain
- 52.5W typical P_{AVG}

Application

- LTE, GSM RRH



Description

The RTP09050-20 is designed for RF system application frequencies from 925MHz to 960MHz, with high gain. This Pallet Amplifier uses GaN on Sic HEMT technology which performs high breakdown voltage, high linearity, and high efficiency. The RTP09050-20 is a LTE DPD application amplifier

Electrical Specifications @ VDD= 45V, 50Ω System

PARAMETER	Symbol	Specification		
Frequency Range	BW	925 ~ 960MHz		
Operating Bandwidth within BW	OBW	5 ~ 35MHz		
Average Output Power	Pout	47.2dBm(52.5W) Avg. @ LTE 1FA 10MHz		
Peak Output Power	Psat	54.2dBm (Min.) @ Duty 10% Pulse		
ACLR (LTE 1FA 10MHZ) @ Po=+47.2dBm max.	ACLR	Pre-DPD	-26dBc(Min) @±10MHz	@-30 ~ +65°C 45V, CFR 6.5dB
		Post-DPD	-53dBc(Min) @±10MHz	
GSM Multi Carrier IMD (PAPR 7.5dB)	IMD	Pre-DPD	-25dBc(Min) @±15MHz	@-30 ~ +65°C 45V, CFR 7.5dB
		Post-DPD	-55dBc(Min) @±15MHz	
RF Gain @ 25°C	G	55dB (Min.)		
Gain Flatness	ΔG	2.0 dB(Peak to peak) @ Operating Frequency		
Input Return Loss	S11	-12dB (Max.)		
Output Return Loss	S22	-17dB (Max.)		
Normal Operating Voltage	VDC	+5.6V & +45V		
Current Consumption	IDD	0.2A @ 5.6V (Max.)		
		3.0A @ 45V (Typ.)		
Efficiency	Eff	39% @ 45V (Typ.)		
Feedback Output level @ 47.2dBm	FB	+9dBm ± 1.5dB		
Temp Detector	T	0.9V @ 40°C		

Environmental Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Ambient Temperature	Ta	-30		+65	°C
Storage Temperature	Tstg	-40		+130	°C
Relative humidity w/o condensation	RH			80	%

Maximum Rating

Input Overdrive	P _{OD}	-2dBm	Max.
Load VSWR	Ψ	∞ : 1 (All Phase & Amplitude)	Nom.
Operating Case Temperature	Tc	+100	°C

Interface Connector

8-Pin-Control (MOLEX_5267_08)

Pin #	Description	Specifications
1	Vcc	+5.6V
2 - 4	Vcc	+45V
5 - 8	GND	GROUND

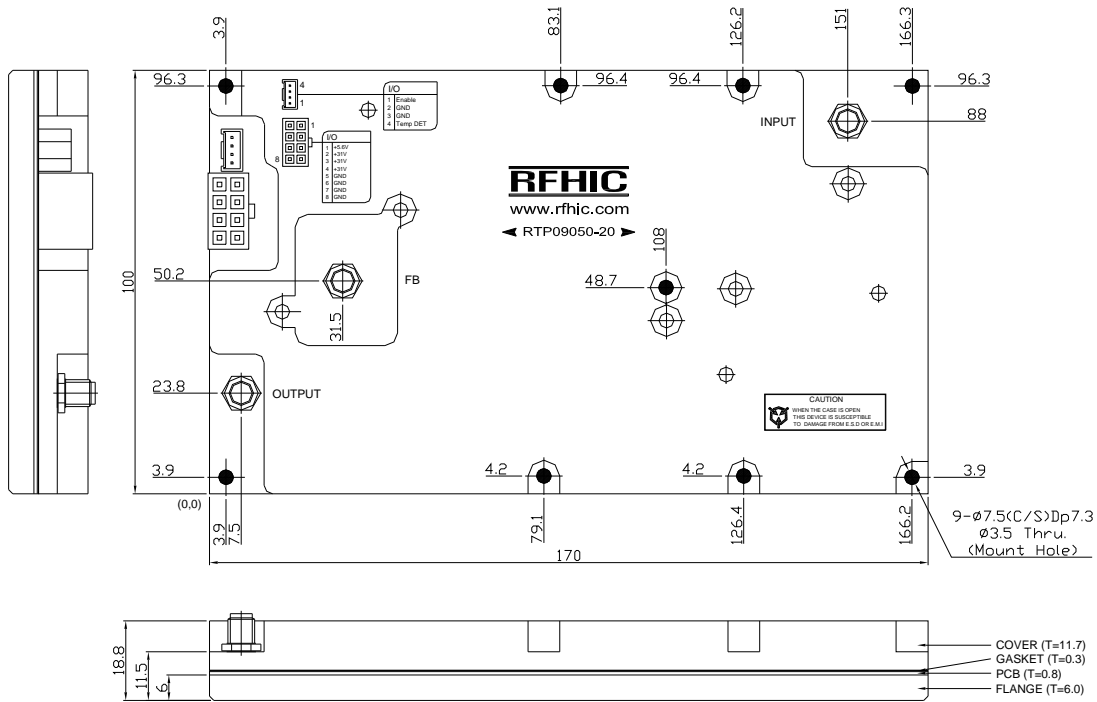
Yeonho 4Pin-Control (SMW200-04P)

Pin #	Description	Specifications
1	Enable	Amp Enable(+5.6V) / Amp Disable(+0V)
2 - 3	GND	GROUND
4	Temp DET	Temp Sense (0.9V @ 40°C)

Mechanical Specifications

Parameter	Value	Units	Limits
Dimensions	170 × 100 × 18.8	mm	
Weight	0.6(max)	Kg	
RF Connectors (Input, Output, Output Coupling)	SMA(Female)		
I/O Connector	SMW200 4pin(Male)		
	Molex 8pin(Male)		
Cooling	External Heat-sink		

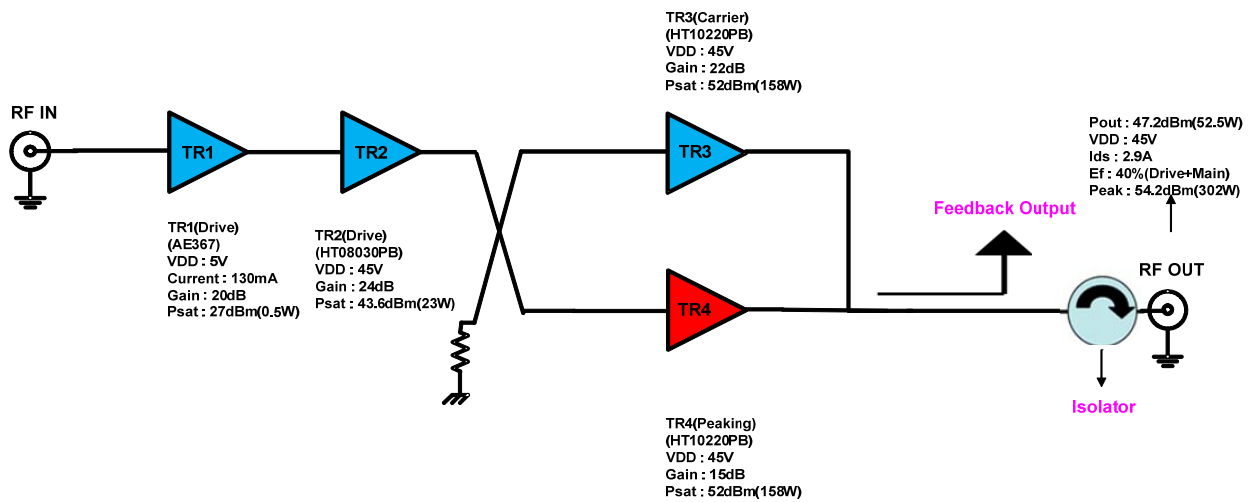
Outline Drawing



*Note : Connector positions and module mount holes may be subjected change.

Unit : mm

RTP09050-20 Budget



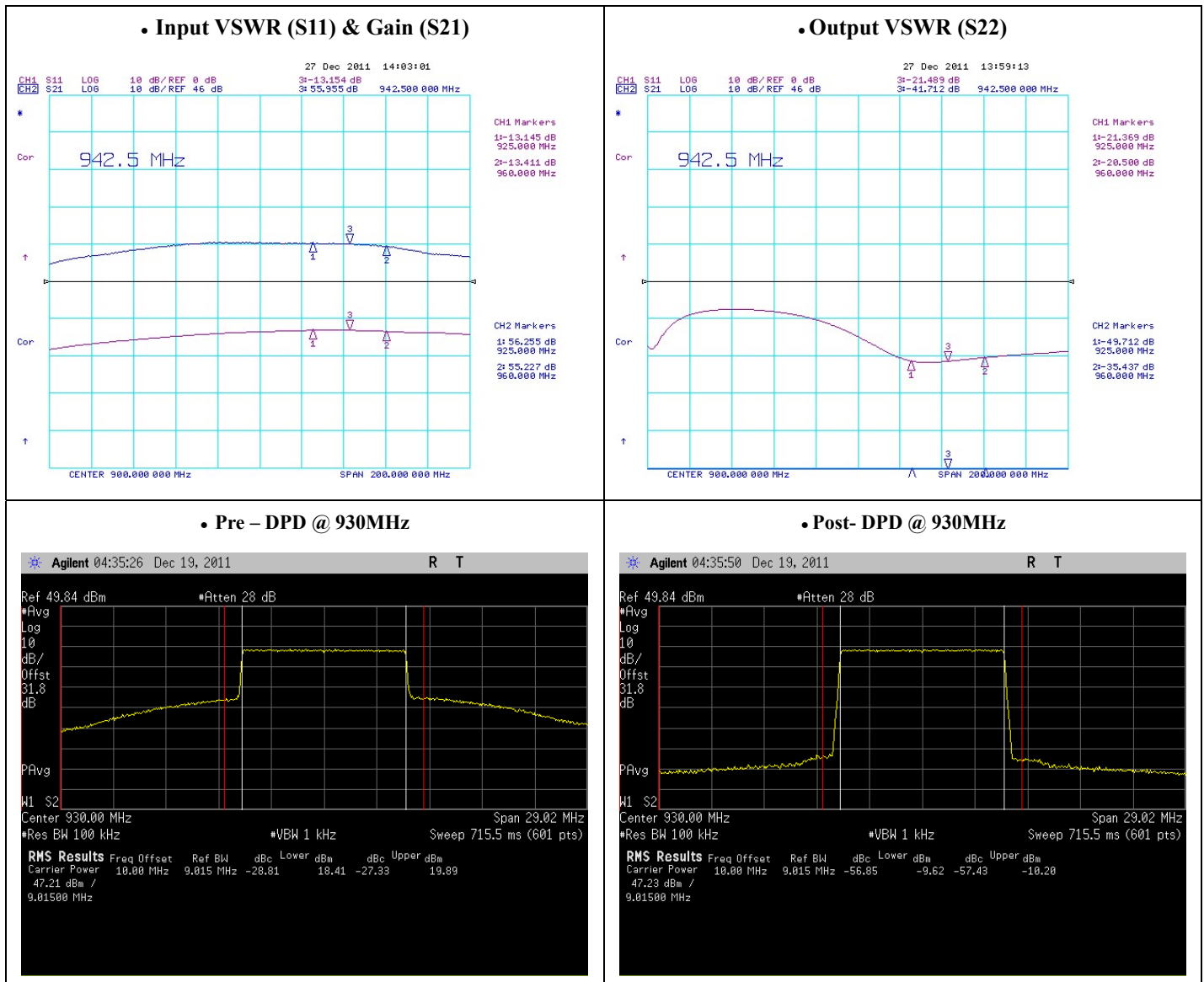
Test Data (Test Results: DPD Operation)

Test Equipments

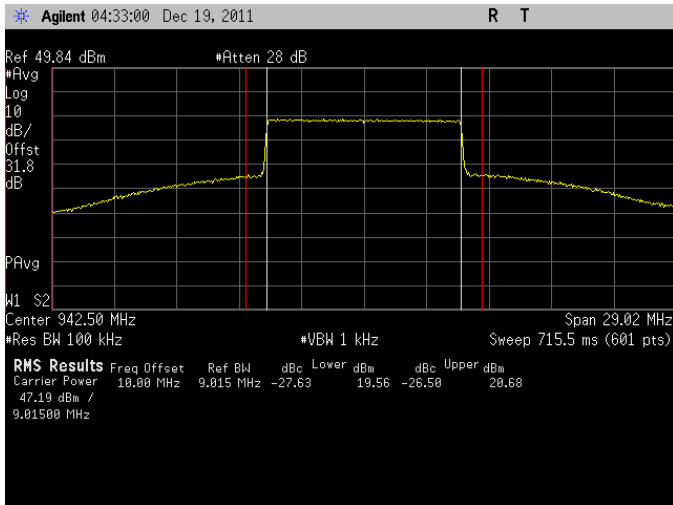
- DPD Engine : Optichron OP6180 Board
- Signal Generator : E4438C (Agilent)
- Spectrum Analyzer : E4440A (Agilent)
- Network Analyzer : 8753ES (Agilent)
- Power Supply : 6674A (Agilent)

Test Condition

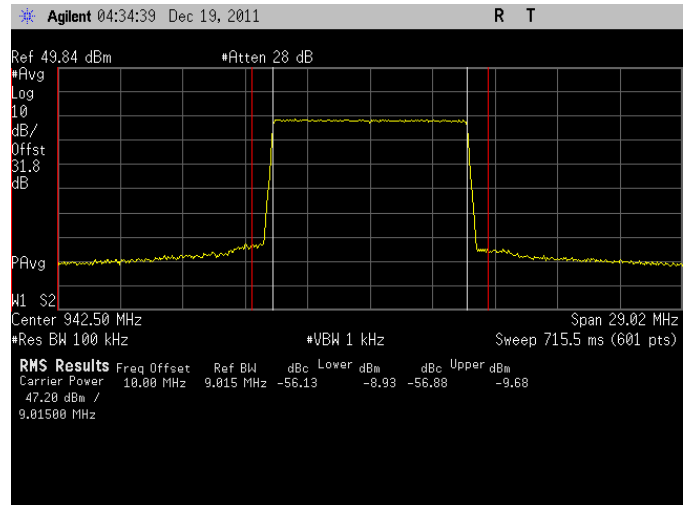
- Signal : LTE 1FA 10MHz(PAPR 6.5dB) & GSM 4FA(PAPR 7.5dB)
- CFR apply
- AMP Temperature: 40°C



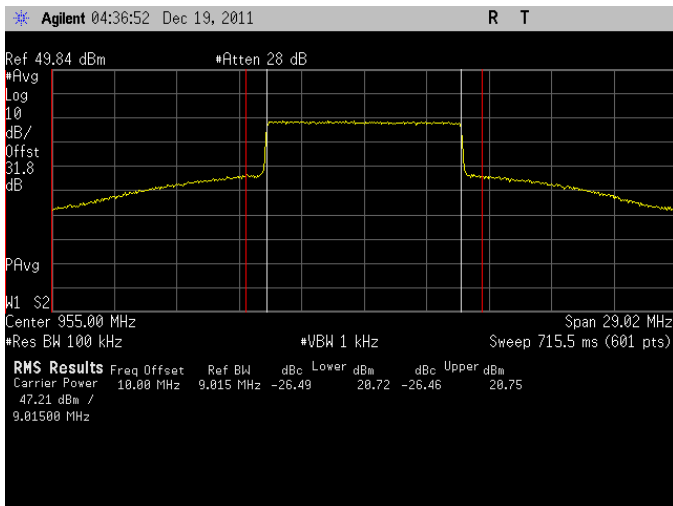
• Pre – DPD @ 942.5MHz



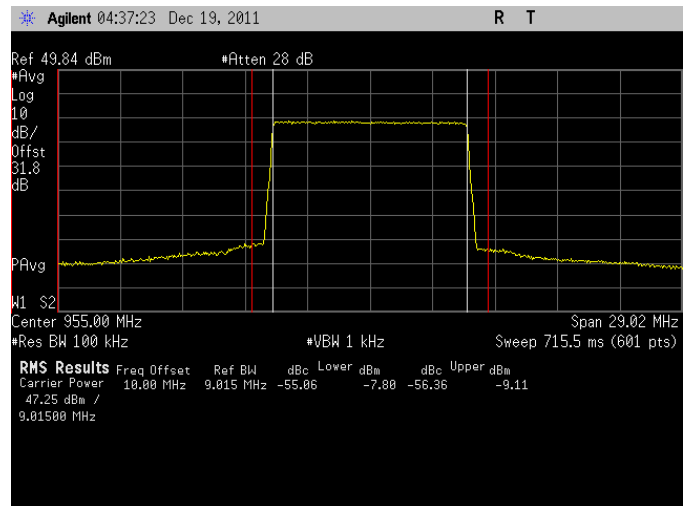
• Post- DPD @ 942.5MHz



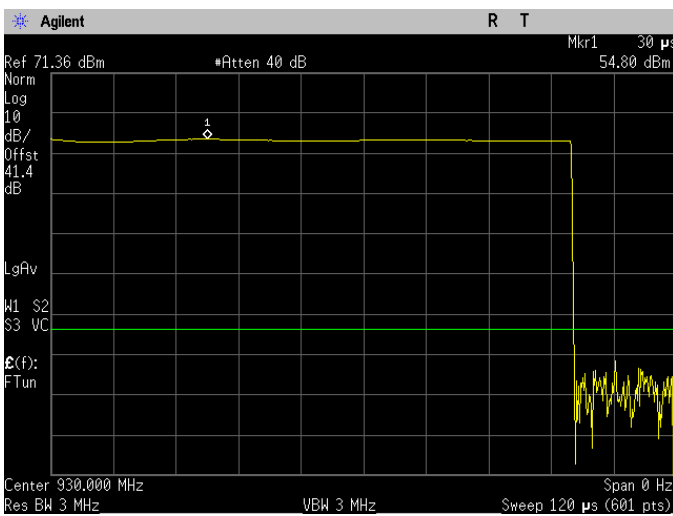
• Pre – DPD @ 955MHz



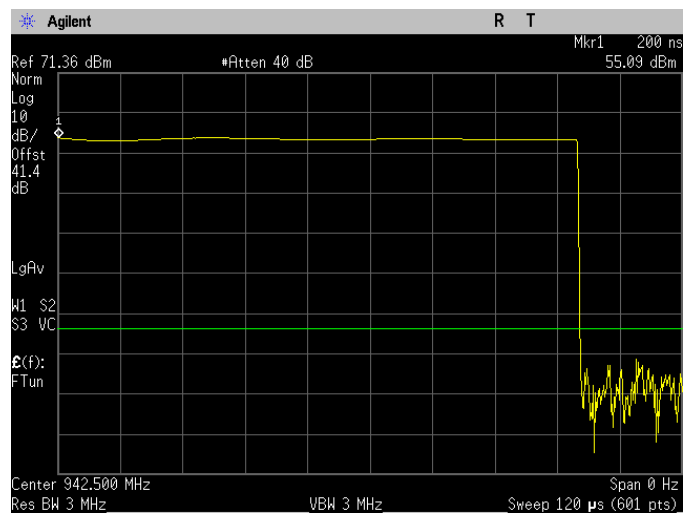
• Post- DPD @ 955MHz



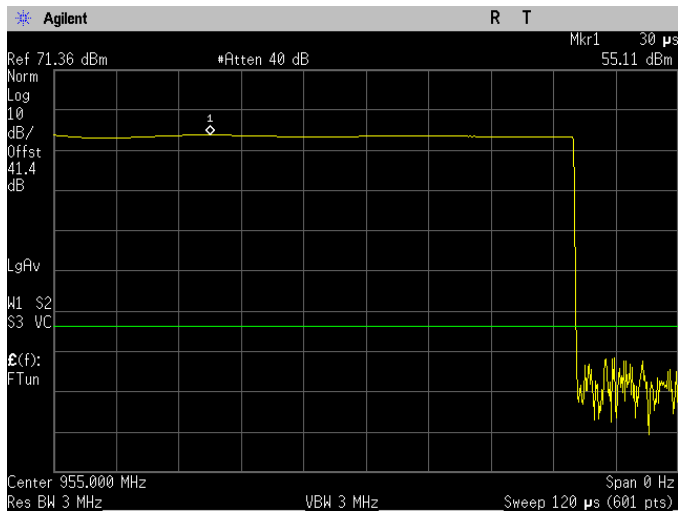
Pulse Duty 10% @ 930MHz



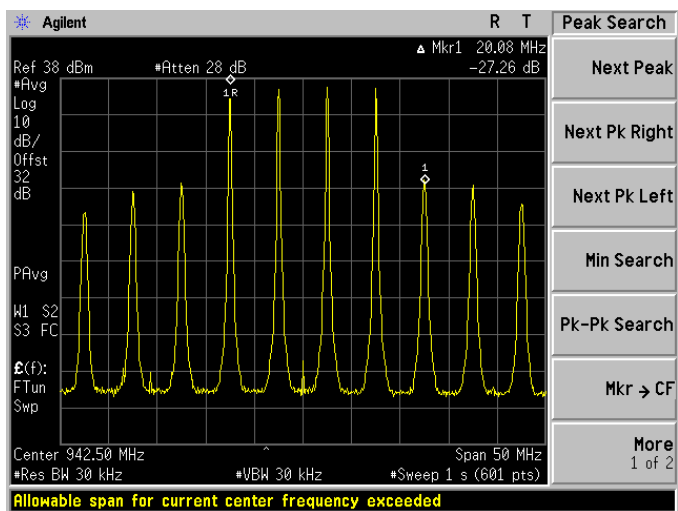
Pulse Duty 10% @ 942.5MHz



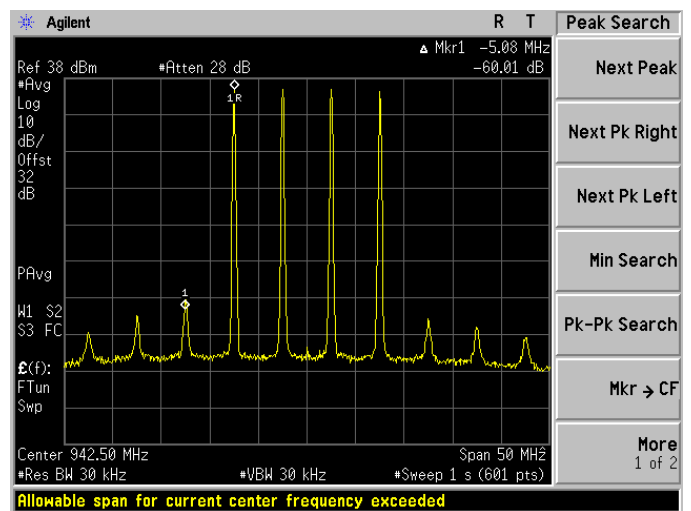
Pulse Duty 10% @ 955MHz



GSM 4FA Tone Spacing 15MHz (Fc = 942.5MHz ,PAPR 7.5dB)



GSM 4FA Tone Spacing 15MHz (Fc = 942.5MHz,PAPR 7.5dB)



Test Sheet

S/N			0001		
Gain			55.2 dB		
Gain Flatness			1.03 dB		
S11(Min)			-13.1 dB		
S22(Min)			-20.5 dB		
Feedback level@ 47.2dBm			9.5 dBm		
Test Frequency (@Center)			930 MHz	942.5 MHz	955 MHz
Psat (dBm)			54.8	55.09	55.11
LTE 10MHz @50W	ACLR@±10MHz (dBc)	Pre-DPD	-27.3	-26.5	-26.4
		Post-DPD	-56.8	-56.1	-55.0
300mA/5.6V, Current/45V		A	2.91	2.9	2.92
Efficiency		%	40	40.2	39.9
GSM 4FA @ Tone Spacing 15MHz (PAPR 7.5dB)	Worst Spurious (dBc)	Pre-DPD	-27.26		
		Post-DPD	-60.01		

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