

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

This HPA Module is a high gain and Amplifier module for GSM and LTE Repeater use.

Electrical Specifications @ VDD= 31V, 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	54.8dBm (Min.) @ Duty 10% Pulse		
ACLR (LTE 1FA 10MHZ) @ Po=+47.2dBm max.	ACLR	Pre-DPD	-27dBc(Min) @±10MHz	@-30 ~ +60°C @31V
		Post-DPD	-53dBc(Min) @±10MHz	@CFR 7.5dB
GSM Multi Carrier IMD (PAPR 7.5dB)	IMD	Pre-DPD	-25dBc(Min) @±15MHz	@-30 ~ +60°C @31V
		Post-DPD	-55dBc(Min) @±15MHz	@CFR 7.5dB
RF Gain @ 25°C	G	57dB (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, +31V		
Current Consumption	IDD	0.3A @ 5.6V (Max.) 4.2A / 31V (Typ.)		
Efficiency	Eff	40% @ 31V (Typ.)		
Feedback Output level @ 47.2dBm	FB	+8dBm ± 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	Vcc	+31V
3	Vcc	+31V
4	Vcc	+31V
5	GND	GROUND
6	GND	GROUND
7	GND	GROUND
8	GND	GROUND

Yeonho 4Pin-Control (SMW200-04P)

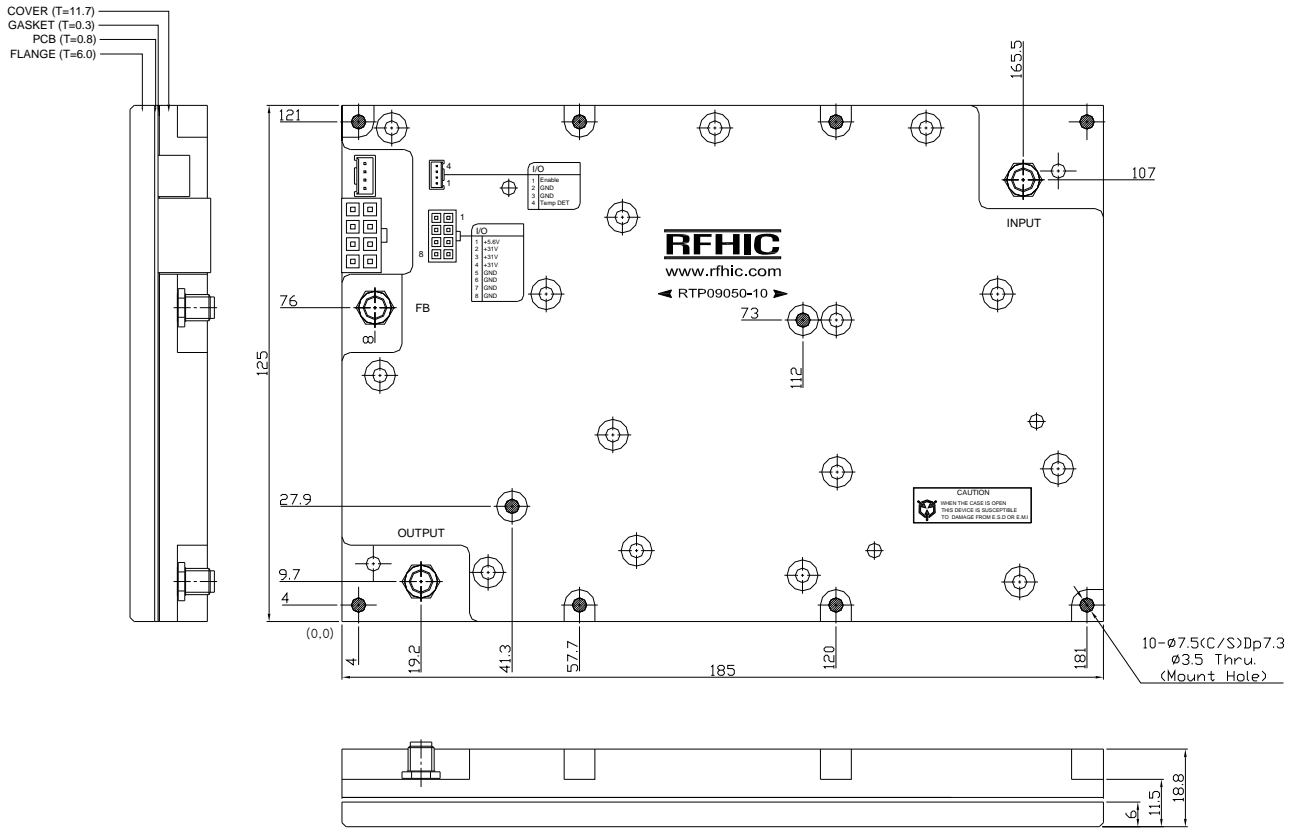
Pin #	Description	Specifications
1	Enable	Amp Enable(+5.6V) / Amp Disable(+0V)
2	GND	GROUND
3	GND	GROUND
4	Temp DET	Temp Sense (0.9V @ 40°C)

Mechanical Specifications

Parameter	Value	Units	Limits
Dimensions	185 × 125 × 18.8	mm	
Weight	0.75(max)	Kg	

RF Input Connector	SMA(Female)		
RF Output Coupling Connector	SMA(Female)		
RF Output Connector	SMA(Female)		
I/O Connector	SMW200 4pin(Male)		
	Molex 8pin(Male)		
Cooling	External Heat-sink		

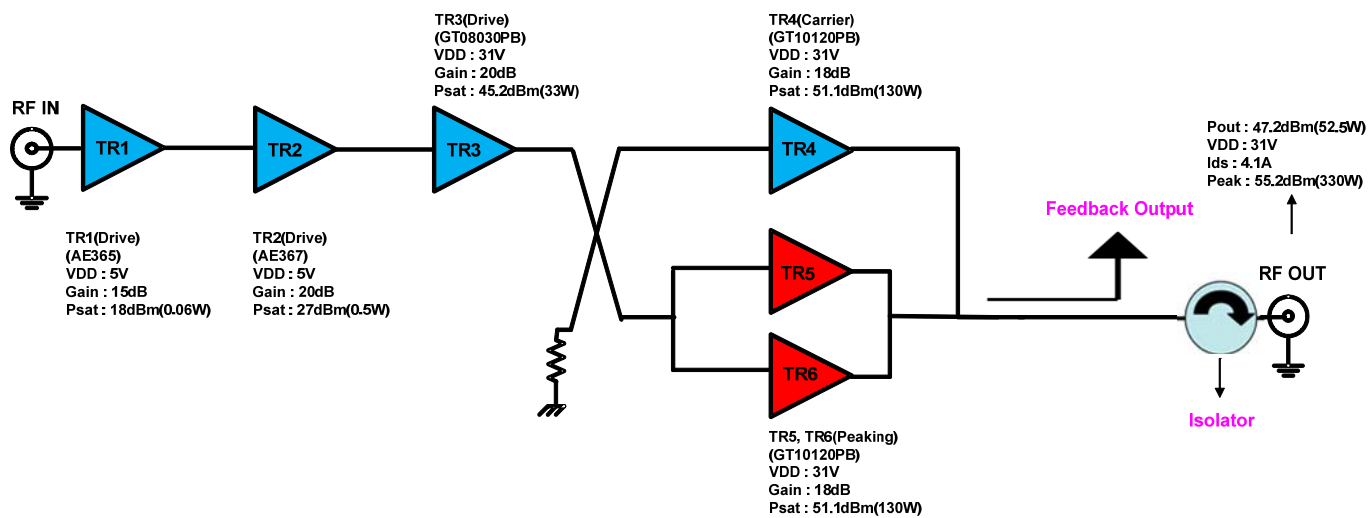
Outline Drawing



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

Unit : mm

RTP09050-10 Budget



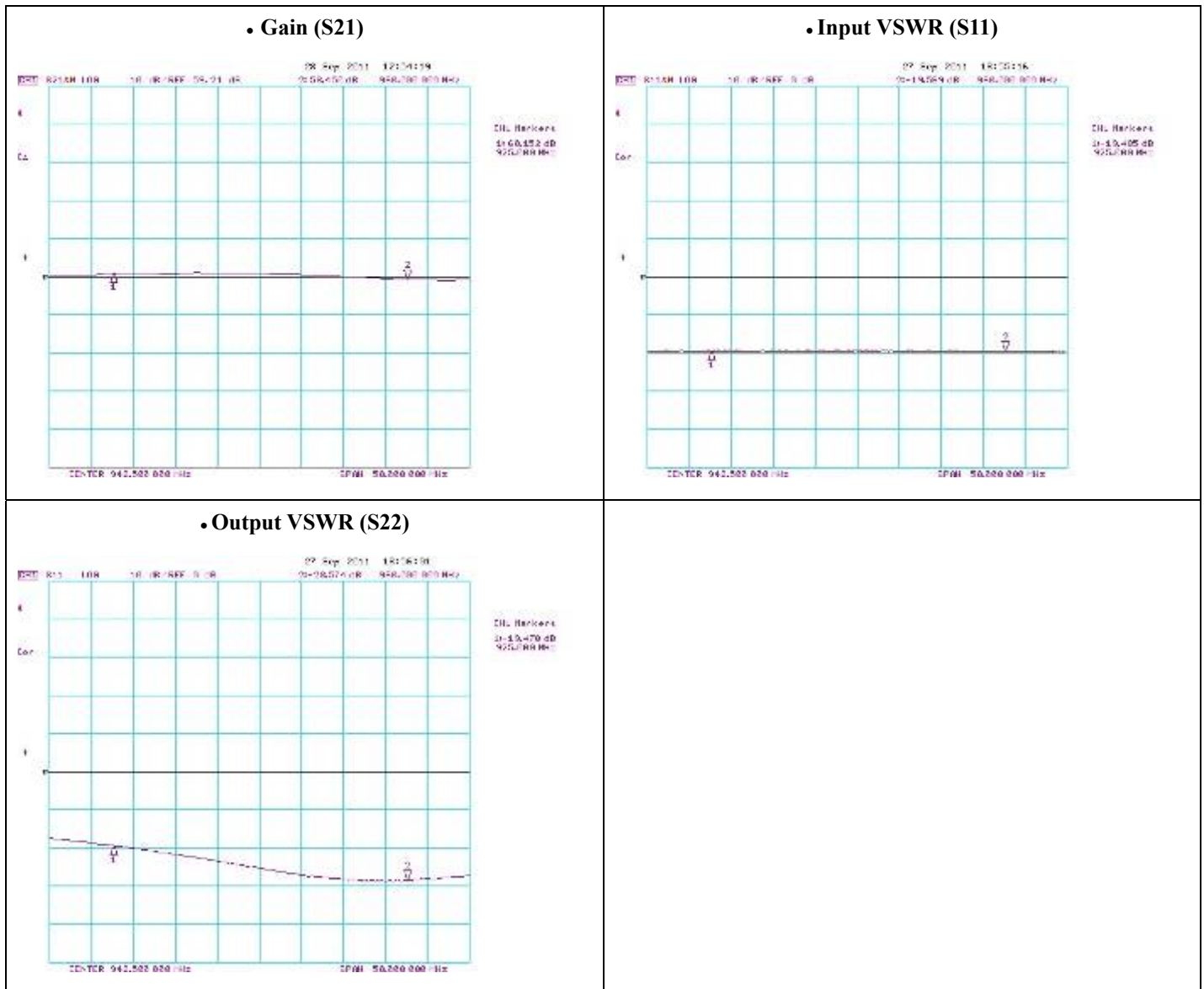
Test Data (Test Results: DPD Operation)

Test Equipments

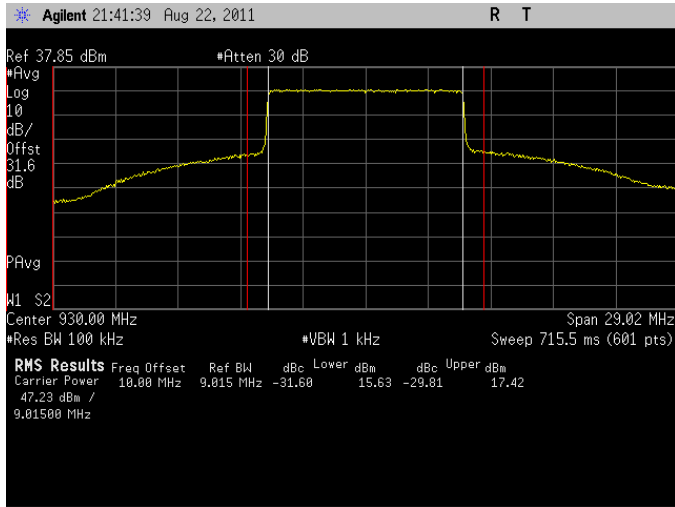
- DPD Engine : Optichron OP6180 Board
- Signal Generator : E4438C (Agilent)
- Spectrum Analyzer : E4440A (Agilent)
- Network Analyzer : 8753ES (Agilent)
- Power Supply : 6674A (Agilent)

Test Condition

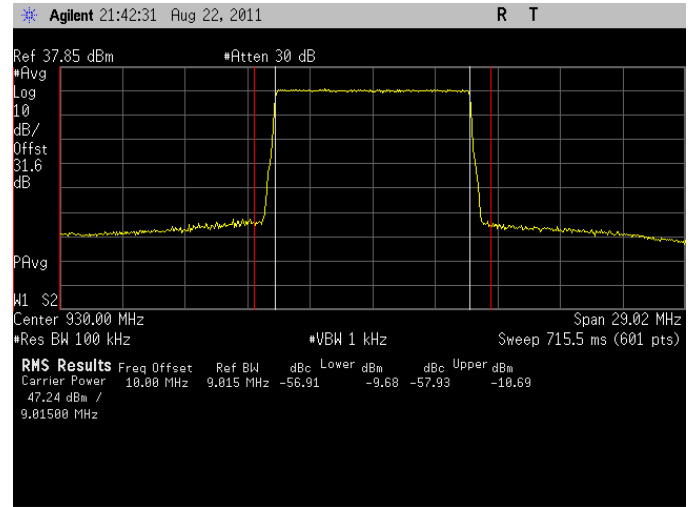
- Signal : LTE 1FA 10MHz(PAPR 7.5dB) & GSM 4FA(PAPR 7.5dB)
- CFR apply
- AMP Temperature: 40°C



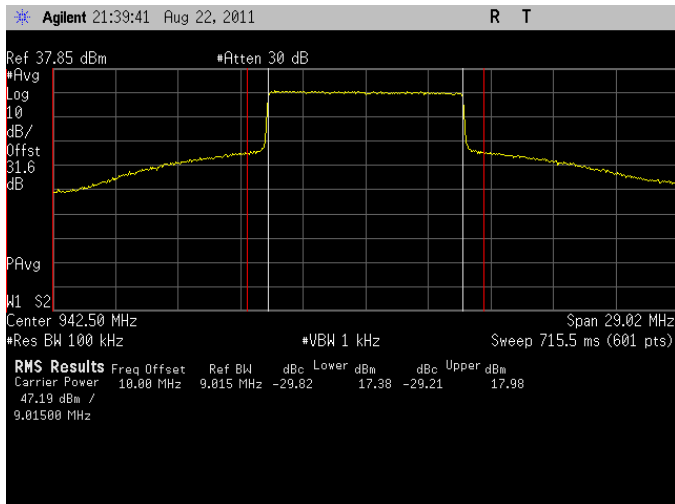
• Pre – DPD @ 930MHz



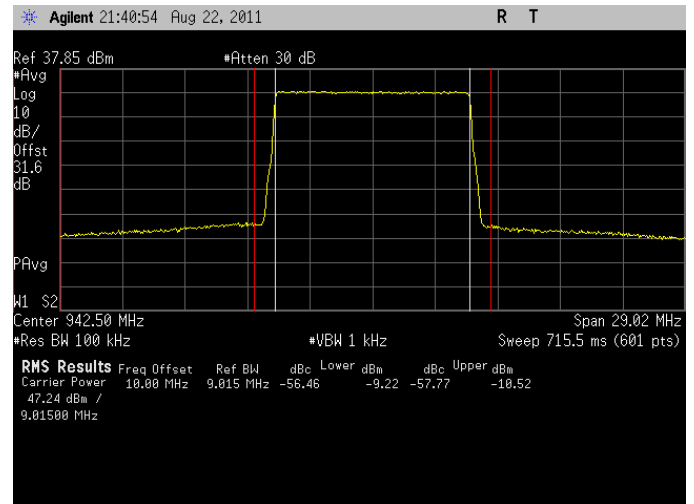
• Post- DPD @ 930MHz



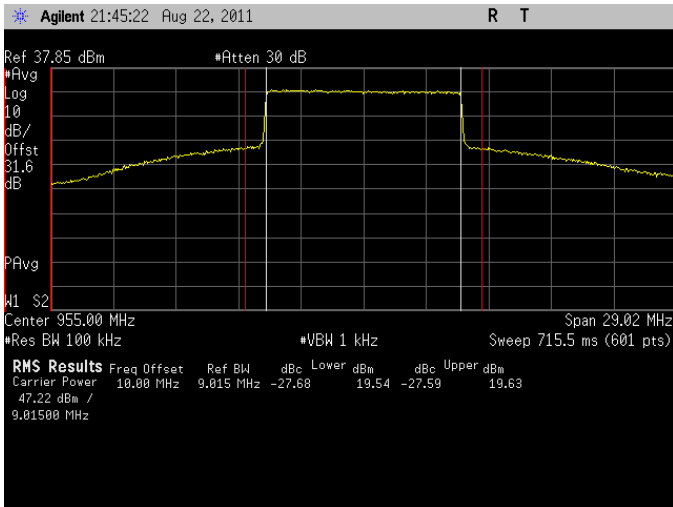
• Pre – DPD @ 942.5MHz



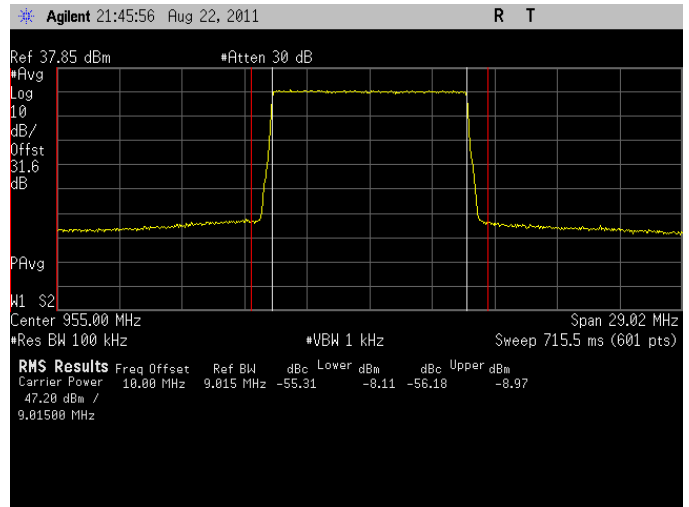
• Post- DPD @ 942.5MHz



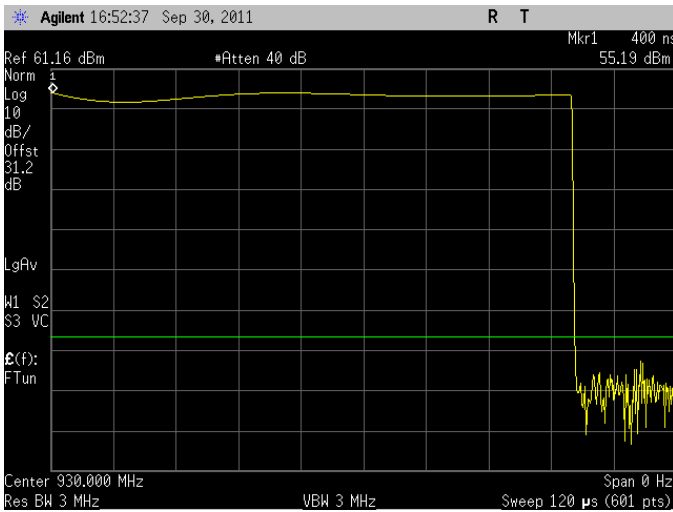
• Pre - DPD @ 955MHz



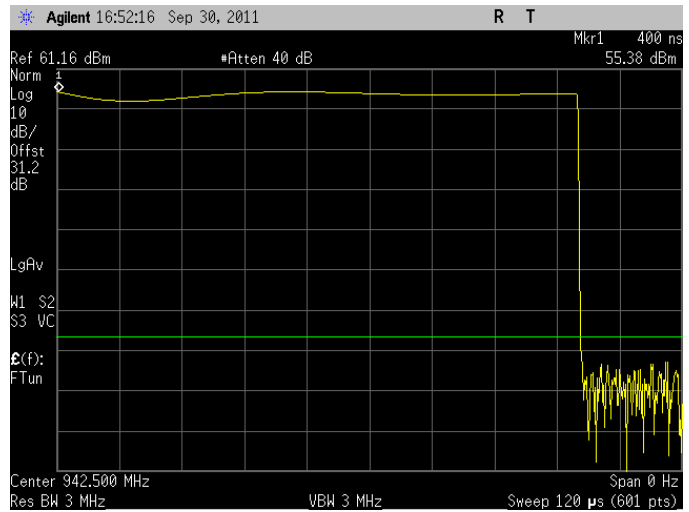
• Post- DPD @ 955MHz



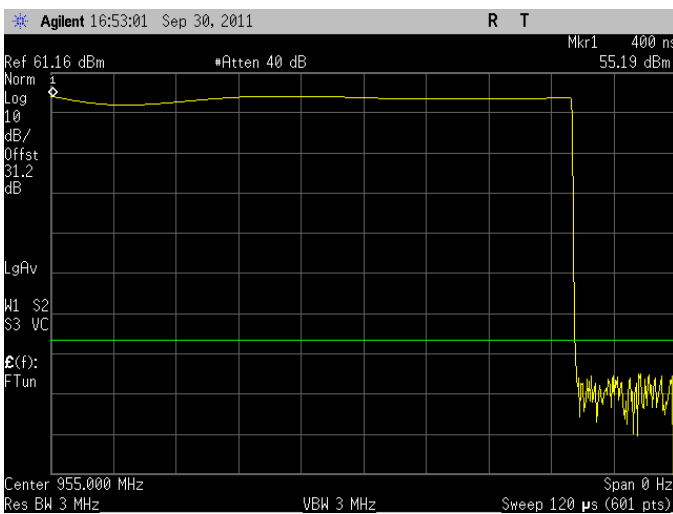
Pulse Duty 10% @ 930MHz

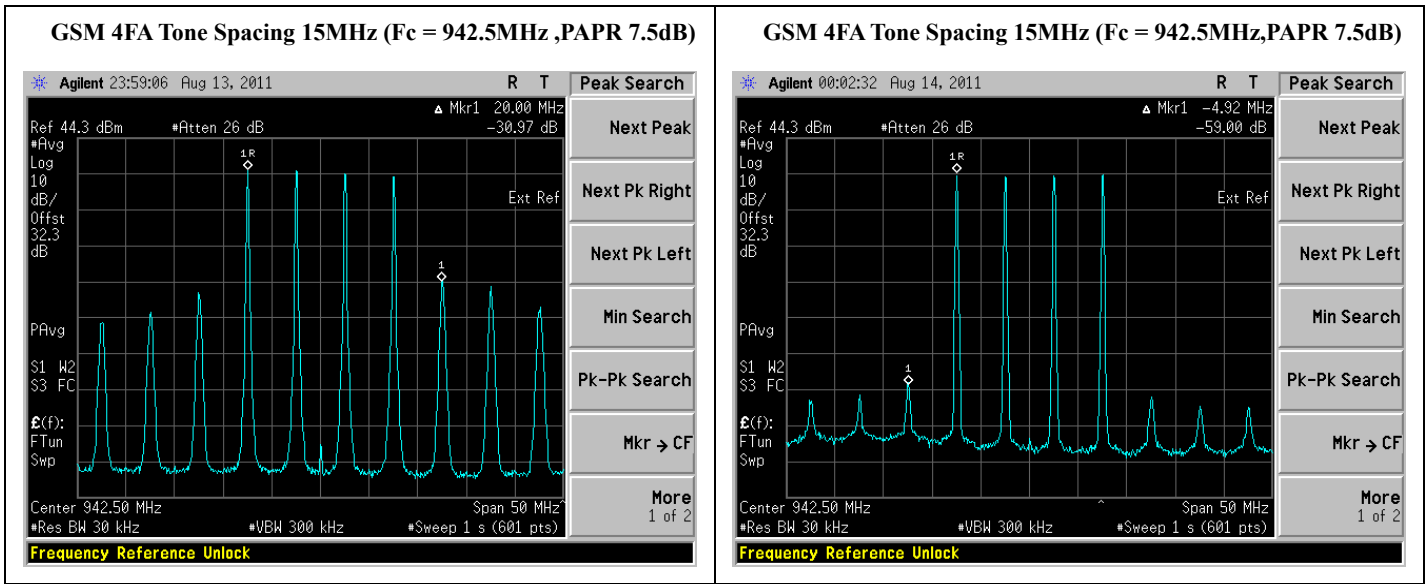


Pulse Duty 10% @ 942.5MHz



Pulse Duty 10% @ 955MHz





Test Sheet

S/N		0001			
Gain		58.4 dB			
Gain Flatness		1.7 dB			
S11(Min)		-19.4 dB			
S22(Min)		-19.5 dB			
Feedback level@ 47.2dBm		6.4dBm			
Test Frequency (@Center)		930 MHz	942.5 MHz	955 MHz	
Psat (dBm)		55.2	55.4	55.2	
LTE 10MHz @50W	ACLR@±10MHz (dBc)	Pre-DPD	-29.8	-29.2	-27.5
		Post-DPD	-56.9	-56.4	-55.3
300mA/5.6V, Current/31V		A	3.81	3.8	3.93
Efficiency		%	44.4	44.5	43.1
GSM 4FA @ Tone Spacing 15MHz (PAPR 7.5dB)	Worst Spurious (dBc)	Pre-DPD	-30.9		
		Post-DPD	-59.0		

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