

**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<sub>AVG</sub>

**Application**

- LTE application



**Description**

The RTP07050-10 is designed for RF system application frequencies from 746MHz to 780MHz, with high gain. This Pallet Amplifier uses GaN on Sic HEMT technology which performs high breakdown voltage, high linearity, and high efficiency. The RTP07050-10 is a LTE DPD application amplifier.

**Electrical Specifications @ VDD= 31V, 50Ω System**

PARAMETER	Symbol	Specification		
Frequency Range	BW	746 ~ 780MHz		
Operating Bandwidth within BW	OBW	5 ~ 34MHz		
Average Output Power	Pout	47.2dBm(52.5W) Avg. @ LTE 1FA 10MHz		
Peak Output Power	Psat	55.2dBm (Min. Duty Cycle 10% Pulse)		
ACLR (LTE 1FA 10MHz) @ Po=+47.2dBm Avg.	ACLR	Pre-DPD	-27dBc(Min) @ ±10MHz	@-30 ~ +65°C @ 31V
		Post-DPD	-50dBc(Min) @ ±10MHz	@ 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 (Min.)		
Output Return Loss	S22	-17dB (Min.)		
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	+5dBm ± 1.5dBm		
Temp Detector	T	0.9V @ 40°C(LM50)		

**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 <sub>OD</sub>	-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

**4Pin-Control ( SMW200-04P, Yeonho )**

Pin #	Description	Specifications
1	Enable / Disable	Amp Enable(+5.6V) / Amp Disable(+0V)
2	GND	GROUND
3	GND	GROUND
4	Temp DET	Temp Sensor(LM50, Temp=(Vout-500mV)°C/10mV)

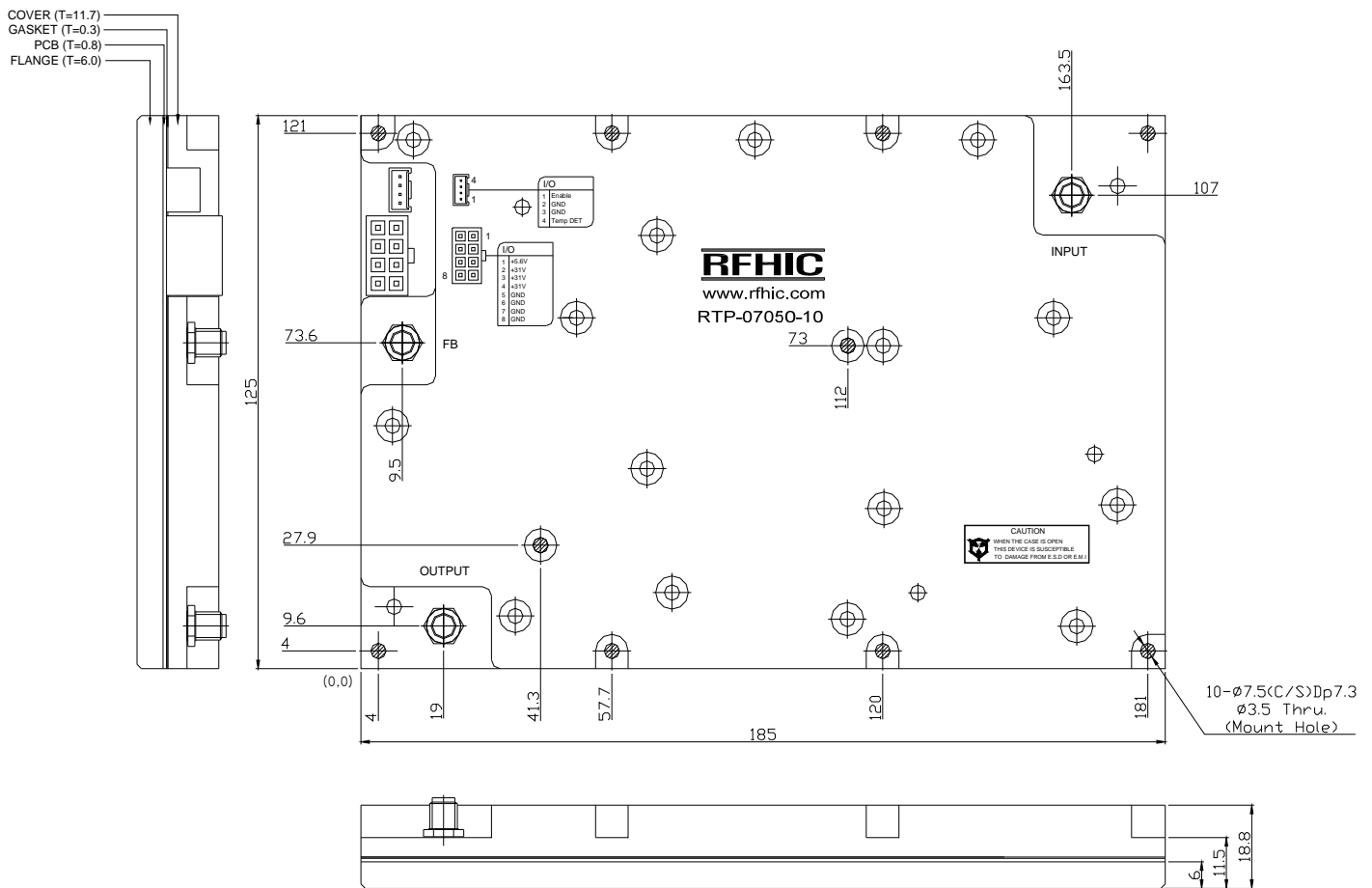
**Mechanical Specifications**

Parameter	Value	Units	Limits
Dimensions	185 x 125 x 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.

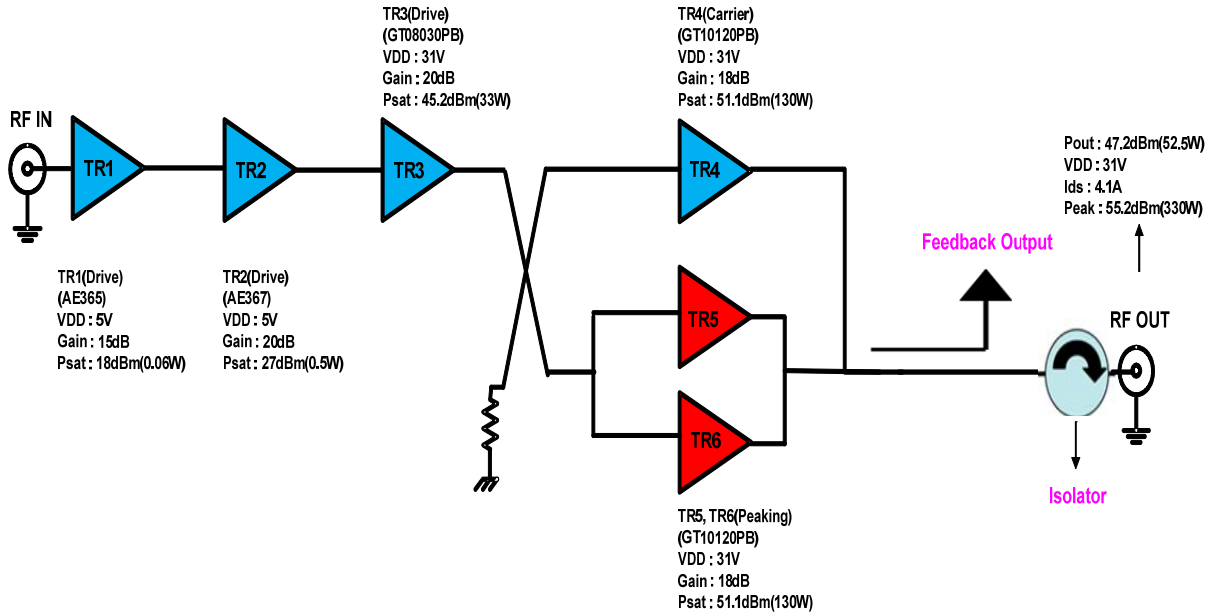


**Unit: mm**

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 • rfsales@rfhic.com

• All specifications may change without notice.  
 • Version 1.1

**RTP07050-10 Budget**



**Test Data (Test Results: DPD Operation)**

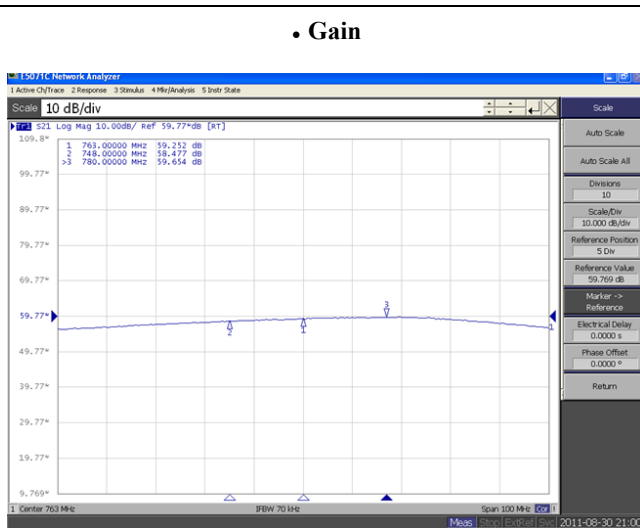
**Test Equipments**

- DPD Engine(TEXAS Instrument GC5325 Board)
- Signal Generator : E4438C (Agilent)
- Spectrum Analyzer : E4440A (Agilent)
- Network Analyzer : 8753ES (Agilent)
- Power Supply : 6674A (Agilent)

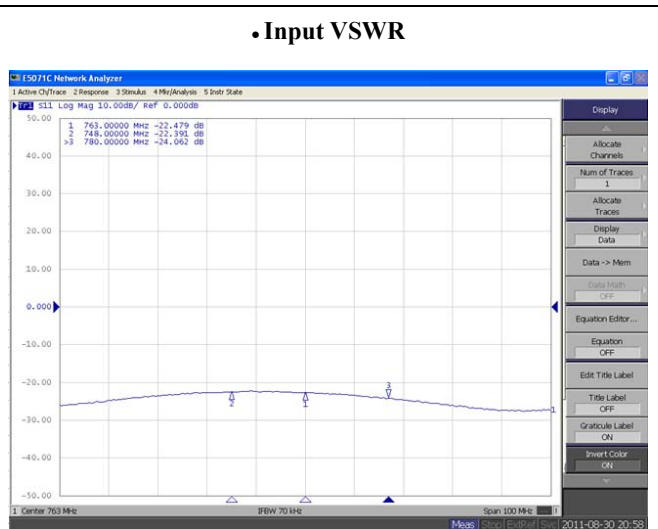
**Test Condition**

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

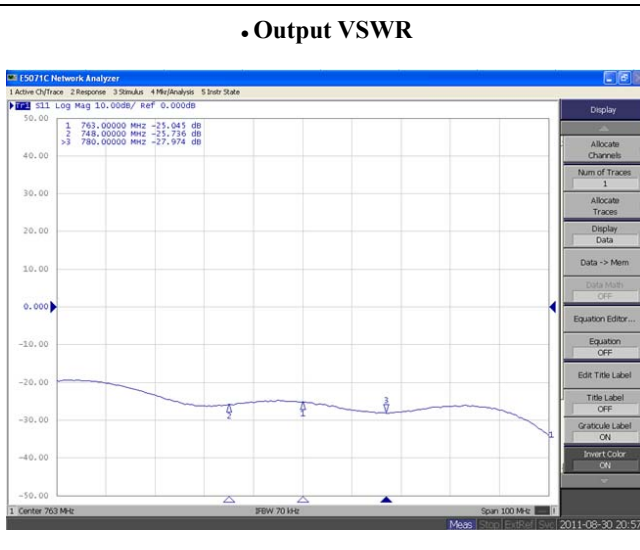
**• Gain**



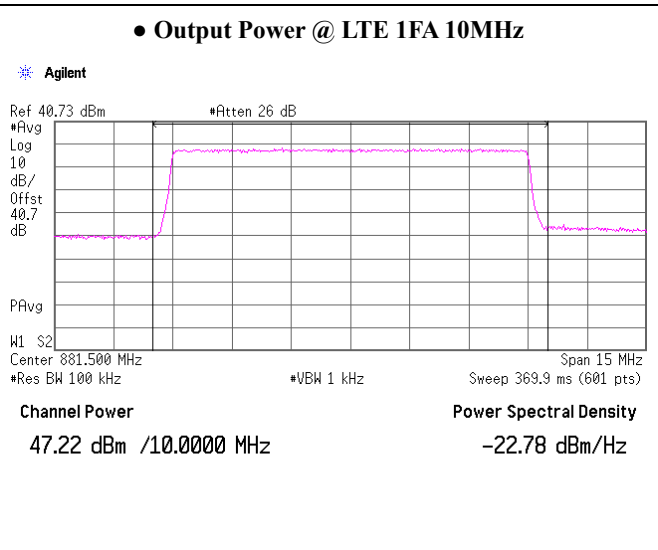
**• Input VSWR**



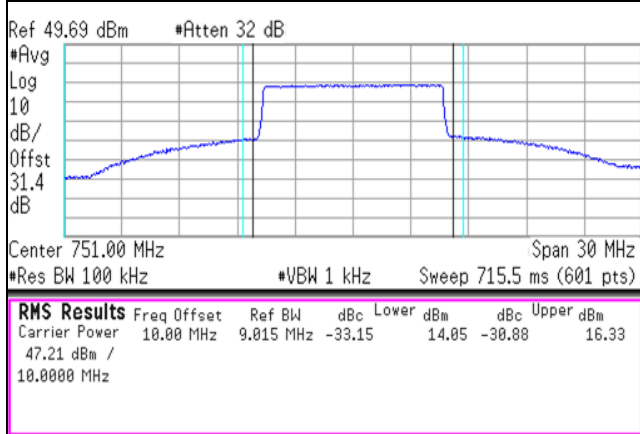
**• Output VSWR**



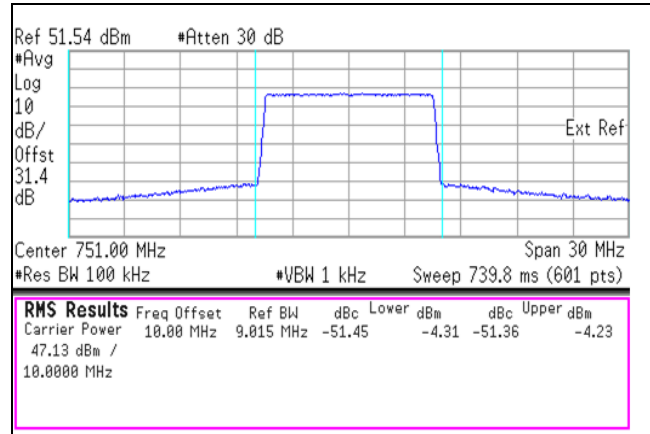
**• Output Power @ LTE 1FA 10MHz**



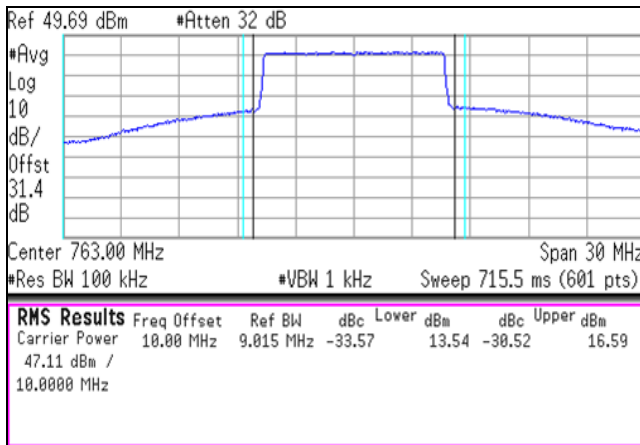
• Pre – DPD @ 751MHz, LTE 1FA 10MHz



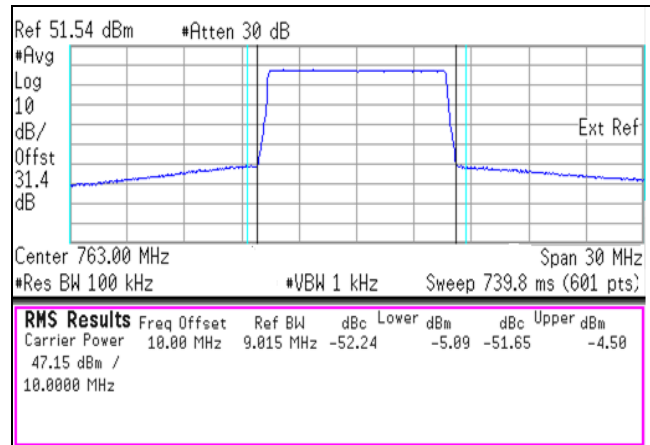
• Post- DPD @ 751MHz, LTE 1FA 10MHz



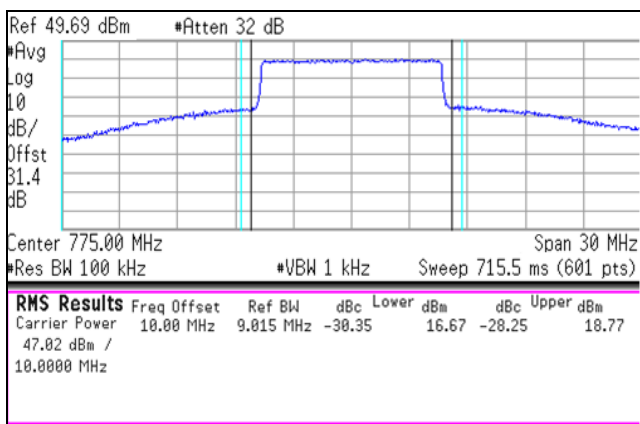
• Pre – DPD @ 763MHz, LTE 1FA 10MHz



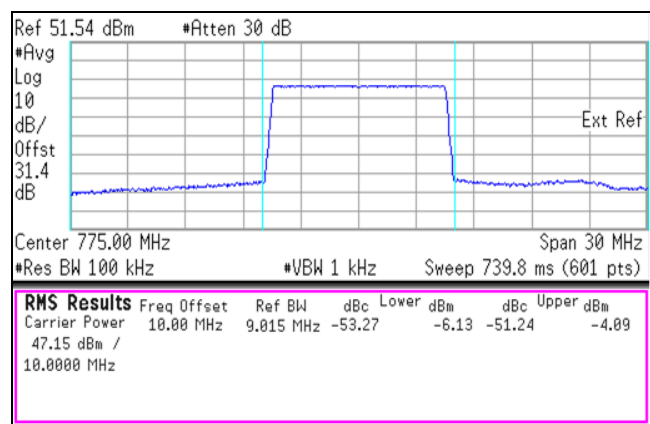
• Post- DPD @ 763MHz, LTE 1FA 10MHz

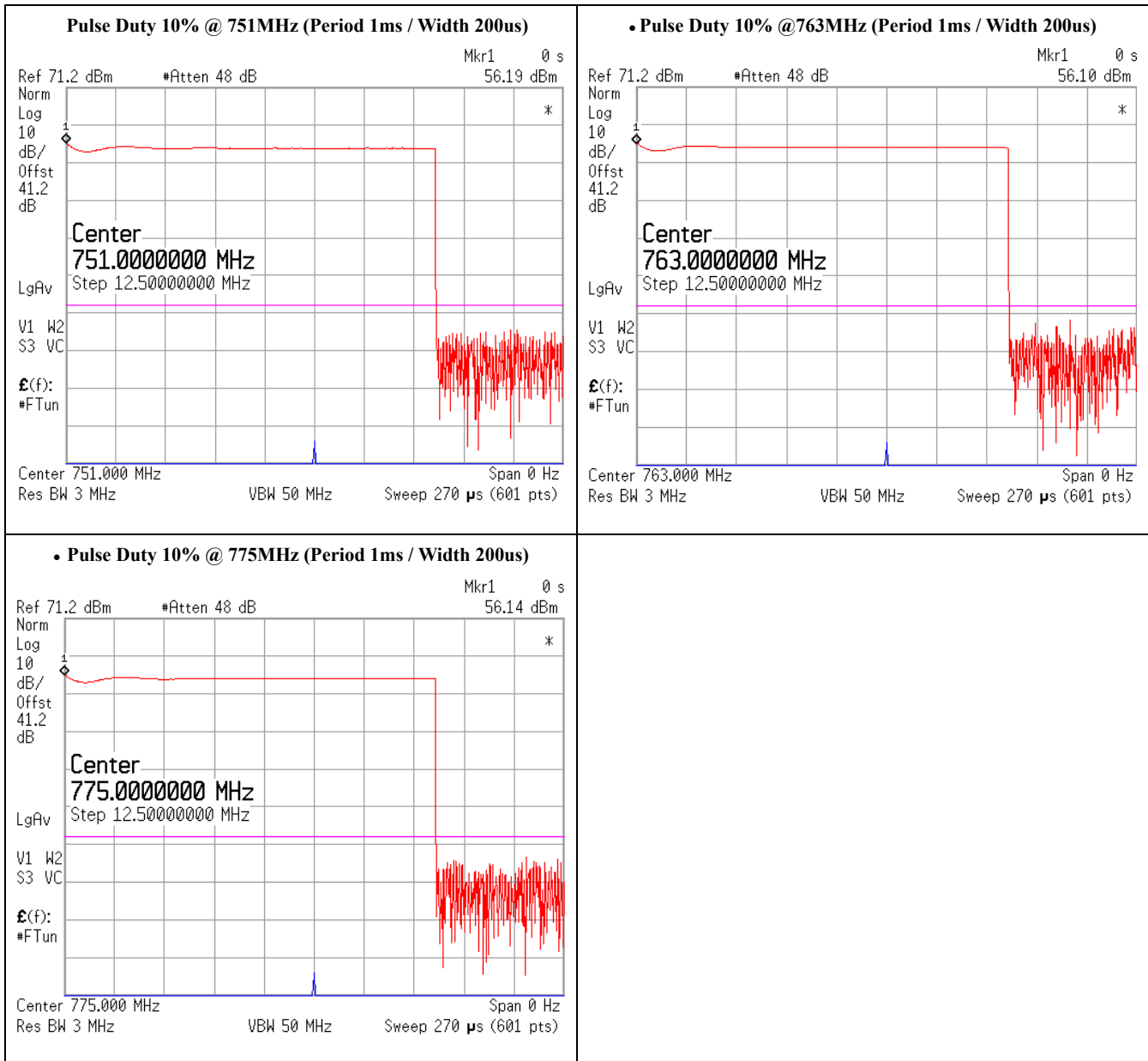


• Pre – DPD @ 775MHz, LTE 1FA 10MHz



• Post- DPD @ 775MHz, LTE 1FA 10MHz





**Test Sheet**

<b>S/N</b>		<b>0001</b>			
<b>Gain</b>		56.9dB			
<b>Gain Flatness</b>		0.5dB			
<b>S11(Min)</b>		-22.47dB			
<b>S22(Min)</b>		-25.04dB			
<b>Feedback level@ 47.2dBm</b>		5.18dBm			
<b>Test Frequency (@Center)</b>		751MHz	763MHz	775 MHz	
<b>Psat (dBm)</b>		56.19	56.1	56.14	
<b>LTE 1FA 10MHz @52.5W</b>	<b>ACLR @ ±10MHz (dBc)</b>	<b>Pre-DPD</b>	-30.8	-30.5	-28.2
		<b>Post-DPD</b>	-51.3	-51.6	-51.2
<b>0.3A/5.6V, Current/31V</b>		<b>A</b>	4.00	4.01	3.98
<b>Efficiency@31V</b>		<b>%</b>	42.3	42.0	42.4

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