



DPD/PA TEST REPORT

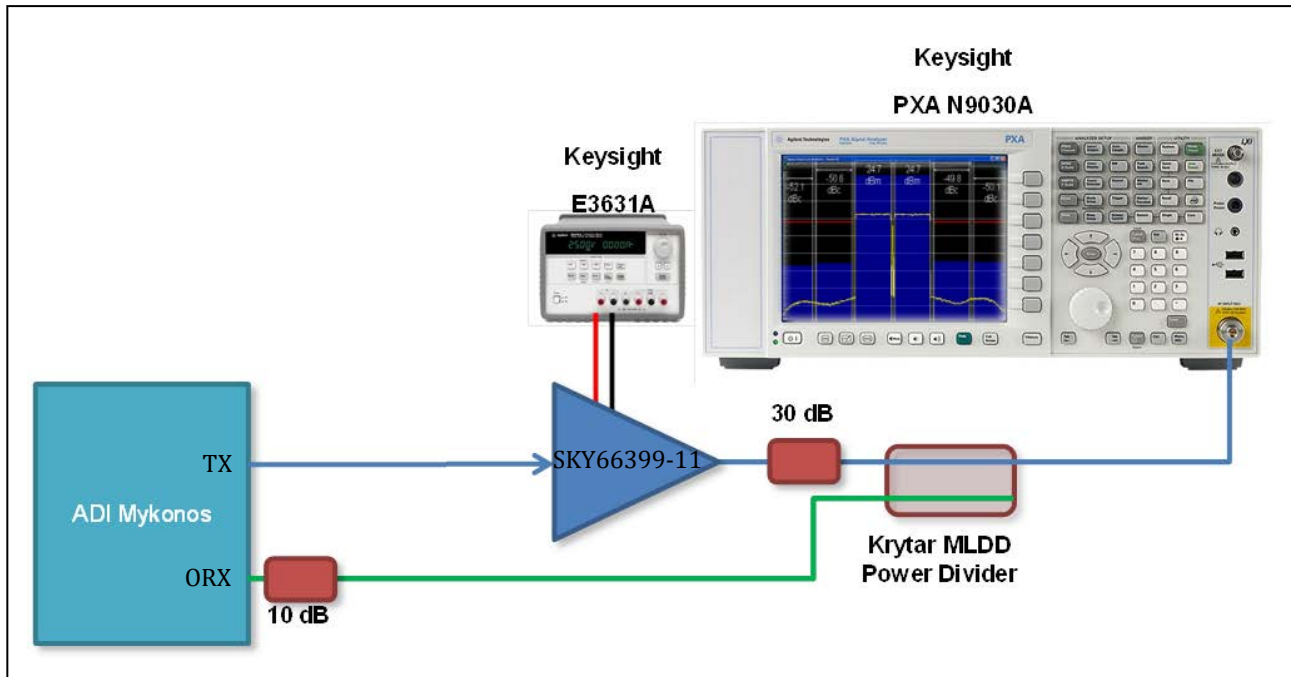
RF Transceiver	AD9375
Power Amplifier	SKY66399-11
PA Type	High Efficiency Semi-Linear PA
Transistor Type	SWKS HBT
Operating Frequency Range (MHz)	1900 – 2000
Gain (dB)	36.5
Power Added Efficiency	35% @ +28 dBm
OP3dB (dBm)	+35.5
Supply Voltage	+5 V
Bandwidths Tested	40 MHz



SUMMARY

Frequency	Output Power (dBm rms)	Signal Bandwidth	Test Signal	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Power Added Efficiency (%)
1920 MHz (Bottom)	+28.0	40 MHz	ETM3.1 20 MHz LTE 2 Carrier	-49.8	-49.8	-51.8	-50.9	35.2
1950 MHz (Middle)	+28.1	40 MHz	ETM3.1 20 MHz LTE 2 Carrier	-51.3	-51.3	-54.1	-52.5	36.2
1980 MHz (Top)	+28.0	40 MHz	ETM3.1 20 MHz LTE 2 Carrier	-50.4	-50.7	-53.3	-53.3	36.0

BLOCK DIAGRAM



ACLR RESULTS BOTTOM/MIDDLE/TOP FREQUENCIES

1920 MHZ, 40 MHZ BANDWIDTH ACLR RESULTS

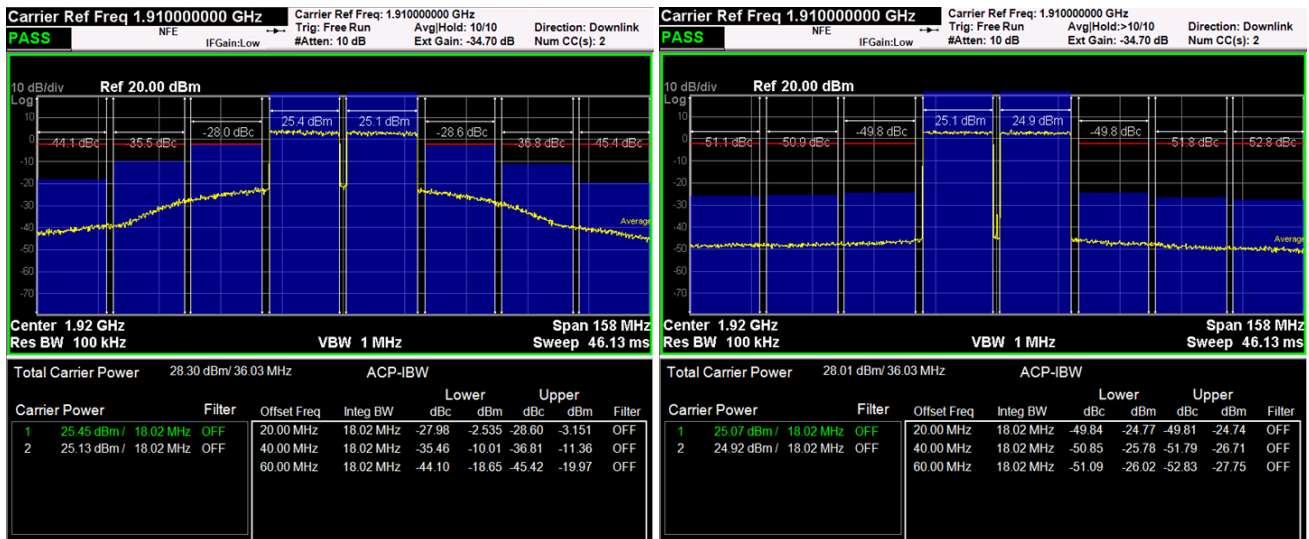


Figure 1. SKY66399-11 @ 1920 MHz, 20 MHz ETM3.1 signal 2Carrier before/after DPD

Before/After DPD	Output Power (rms)	ACLR+1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	ACLR+3 (dBc)	ACLR-3 (dBc)	Drain Current (mA)	PAE (%)
Before DPD	28.3	-28.6	-28.0	-36.8	-35.5	-45.4	-44.1	368	36.7
After DPD	28.0	-49.8	-49.8	-51.8	-50.9	-52.8	-51.1	358	35.2

Table 1. Summary of Results: Frequency: 1920 MHz, 20MHz ETM3.1 Signal 2Carrier

PA settings: Vcc1 = Vcc2 = Vcc3 = VBias = 5.0 V, Ven = 2.0 V Signal Used : ETM3.1

AD9375 DPD configuration

The screenshot shows the Analog Devices RadioVerse software interface. On the left, there are various configuration panels for the transmitter, including Tx Baseband Waveform, Tx ORx Control, PA Calibrations, and DPD Status. The main window displays a spectral plot with a plot span of 180 MHz, showing the carrier signal and its sidebands. Below the spectral plot, there are two smaller plots: one showing the PA Output Amplitude vs. PA Input Amplitude (Log scale) and another showing the CLDC Current vs. Tx Atten. The software version information is displayed on the right side of the window.

1950 MHZ, 40 MHZ BANDWIDTH ACLR RESULTS



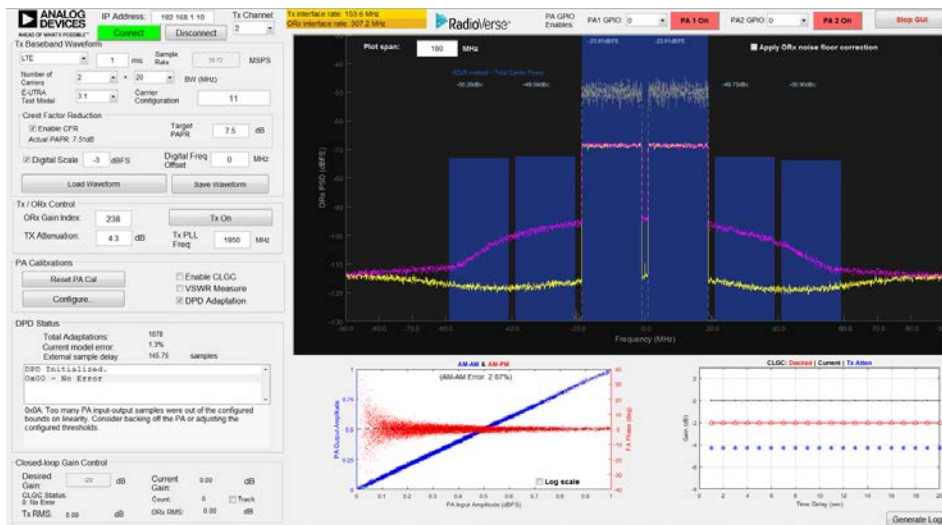
Figure 2. SKY66399-11 @ 1950 MHz, 20 MHz ETM3.1 signal 2Carrier before/after DPD

Before/After DPD	Output Power (rms)	ACLR+1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	ACLR+3 (dBc)	ACLR-3 (dBc)	Drain Current (mA)	PAE (%)
Before DPD	28.4	-30.0	-29.0	-38.8	-36.4	-47.0	-45.3	363	38.1
After DPD	28.1	-51.3	-51.3	-54.1	-52.5	-54.5	-52.3	357	36.2

Table 2. Summary of Results: Frequency: 1950 MHz, 20MHz ETM3.1 Signal 2Carrier

PA settings: Vcc1 = Vcc2 = Vcc3 = Vbias = 5.0 V, Ven = 2.0 V Signal Used: ETM3.1

AD9375 DPD configuration



RadioVerse™
 Transceiver Evaluation Software
 GUI Version: 2.0.68
 DLL Version: 1.5.2.3566
 Cmd Server Version: 1.5.2.3566
 Fpga Version: 46000200
 Arm Version: 5.2.2
 Analog Devices Inc.
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 ANALOG DEVICES
 AHEAD OF WHAT'S POSSIBLE™

1980 MHZ, 40 MHZ BANDWIDTH ACLR RESULTS



Figure 3. SKY66399-11 @ 1980 MHz, 20 MHz ETM3.1 signal 2Carrier before/after DPD

Before/After DPD	Output Power (rms)	ACLR+1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	ACLR+3 (dBc)	ACLR-3 (dBc)	Drain Current (mA)	PAE (%)
Before DPD	28.2	-32.9	-30.1	-42.1	-37.4	-49.2	-46.7	360	36.7
After DPD	28.0	-50.4	-50.7	-53.3	-53.3	-56.4	-54.2	351	36.0

Table 3. Summary of Results: Frequency: 1980 MHz, 20MHz ETM3.1 Signal 2Carrier

PA settings: Vcc1 = Vcc2 = Vcc3 = Vbias = 5.0 V, Ven = 2.0 V Signal Used : ETM3.1

AD9375 DPD configuration

ANALOG DEVICES IP Address: 192.168.1.10 Tx Channel 2 Tx waveform rate: 100.0 MHz (200.0 MHz) PA GPIO Enable PA1 GPIO ID PA 1 On PA2 GPIO ID PA 2 On PA 3 On Stop Out

Transceiver Evaluation Software
 GUI Version: 2.0.68
 DLL Version: 1.5.2.3566
 Cmd Server Version: 1.5.2.3566
 Fpga Version: 46000200
 Arm Version: 5.2.2
 Analog Devices Inc.
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WIDEBAND PLOTS, BOTTOM/MIDDLE/TOP FREQUENCIES

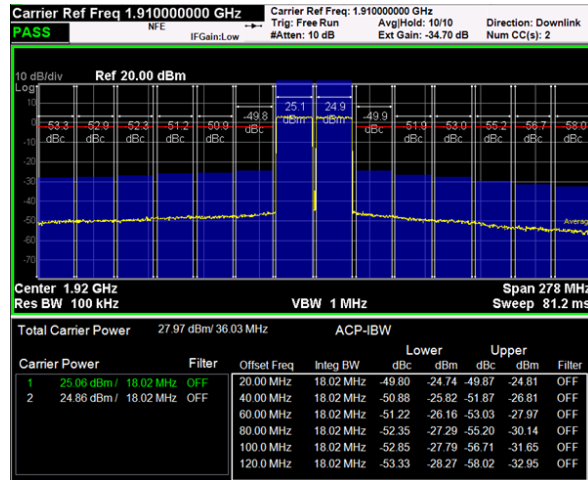


Figure 4. Wideband Spectrum Analyzer Plot: Frequency 1920MHZ, 20 MHz ETM3.1 Signal 2Carrier

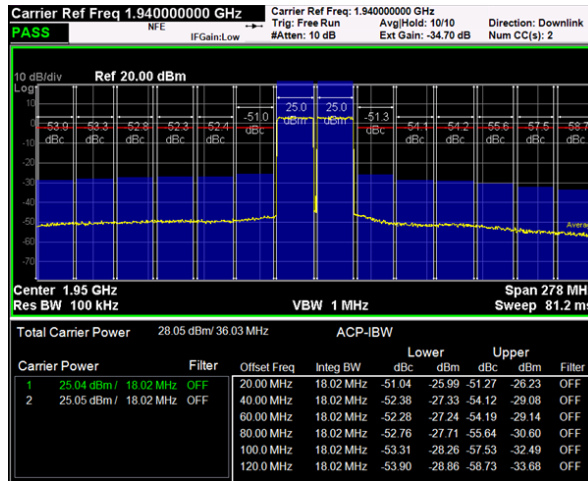


Figure 5. Wideband Spectrum Analyzer Plot: Frequency 1950MHZ, 20 MHz ETM3.1 Signal 2Carrier

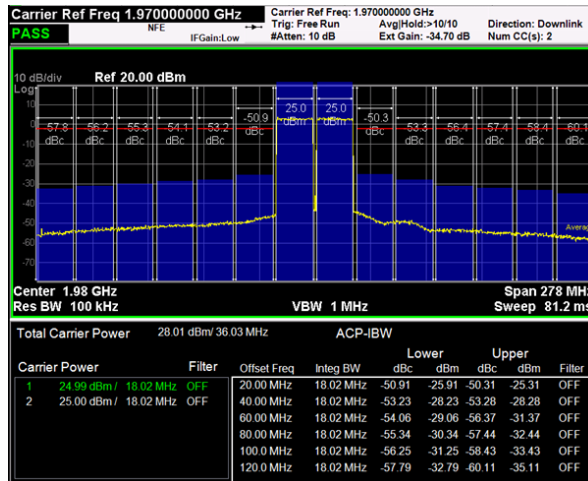


Figure 6. Wideband Spectrum Analyzer Plot: Frequency 1980MHZ, 20 MHz ETM3.1 Signal 2Carrier

ACLR VS POUT

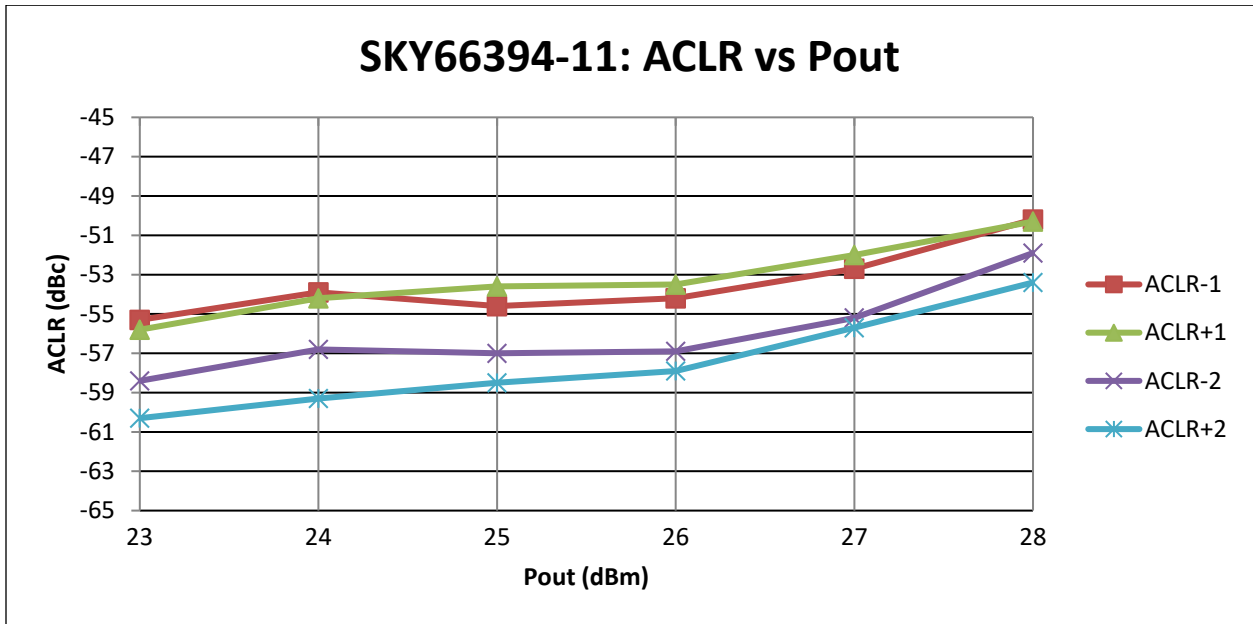


Figure 7. ACLR vs Output Power (1950 MHz)

APPENDIX

TEST BENCH

Keysight PXA Signal Analyzer N9030A with 89601B LTE Option

Keysight E3631A Power Supply 3-Output Power Supply