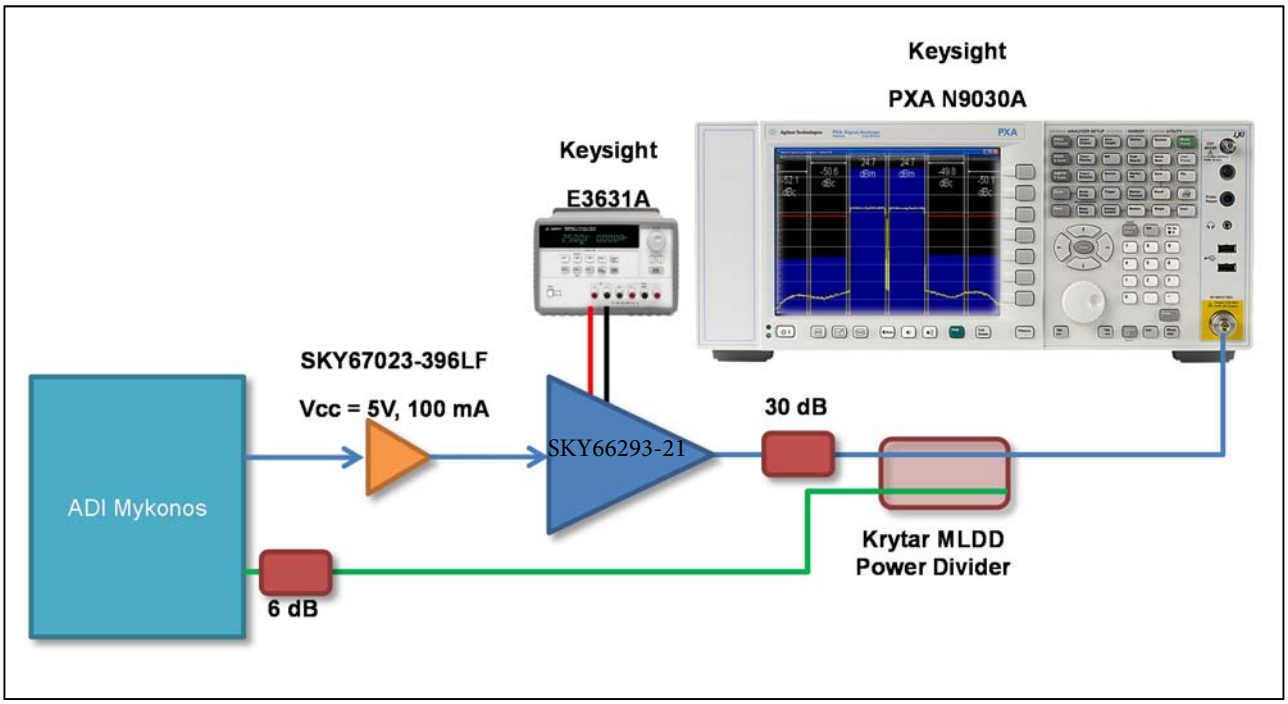
DPD/PA TEST REPORT

RF Transceiver	AD9375
Power Amplifier	SKY66293-21
PA Type	High Efficiency Semi-Linear PA
Transistor Type	SWKS HBT
Operating Frequency Range (MHz)	3400– 3800
Gain (dB)	33.5 (min)
Power Added Efficiency	27%
OP3dB (dBm)	+34.5
Supply Voltage	5V
Bandwidths Tested	20MHz

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 (%)
3540MHz (Bottom)	28	20MHz	ETM3.1 20MHz LTE	-51.02	-50.79	-53.7	-54	27.14
3620MHz (Middle)	28	20MHz	ETM3.1 20MHz LTE	-50.5	-51	-51.4	-54.5	26.62
3670MHz (Top)	28	20MHz	ETM3.1 20MHz LTE	-50.85	-50.77	-54.8	-54.9	26.51

BLOCK DIAGRAM



ACLR RESULTS BOTTOM/MIDDLE/TOP FREQUENCIES

3540MHZ, 20MHZ BANDWIDTH ACLR RESULTS

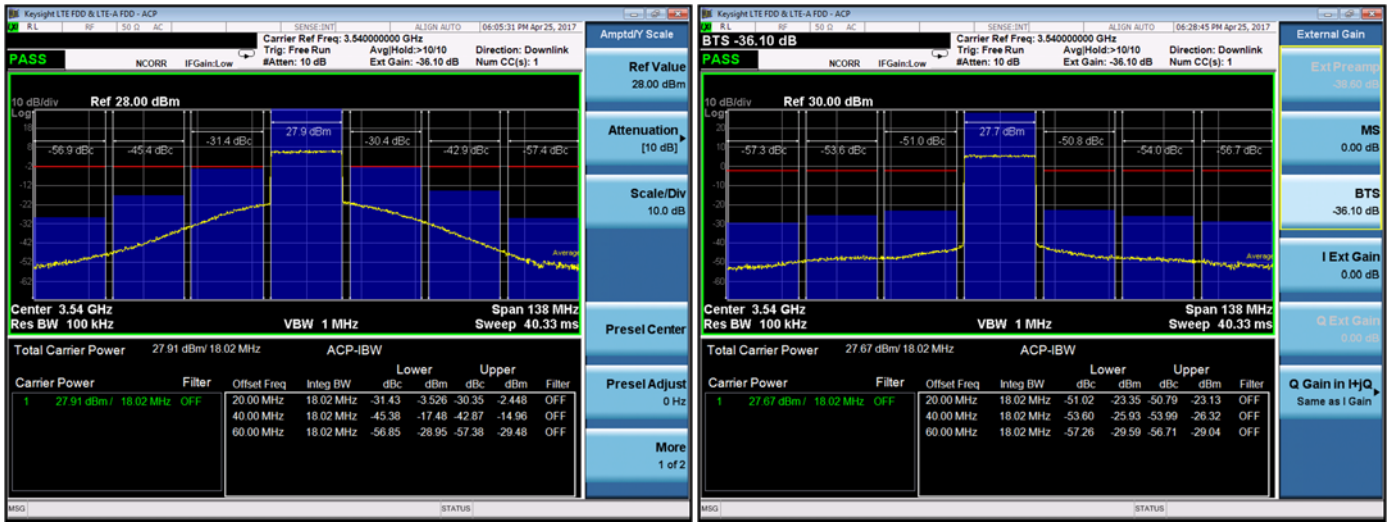


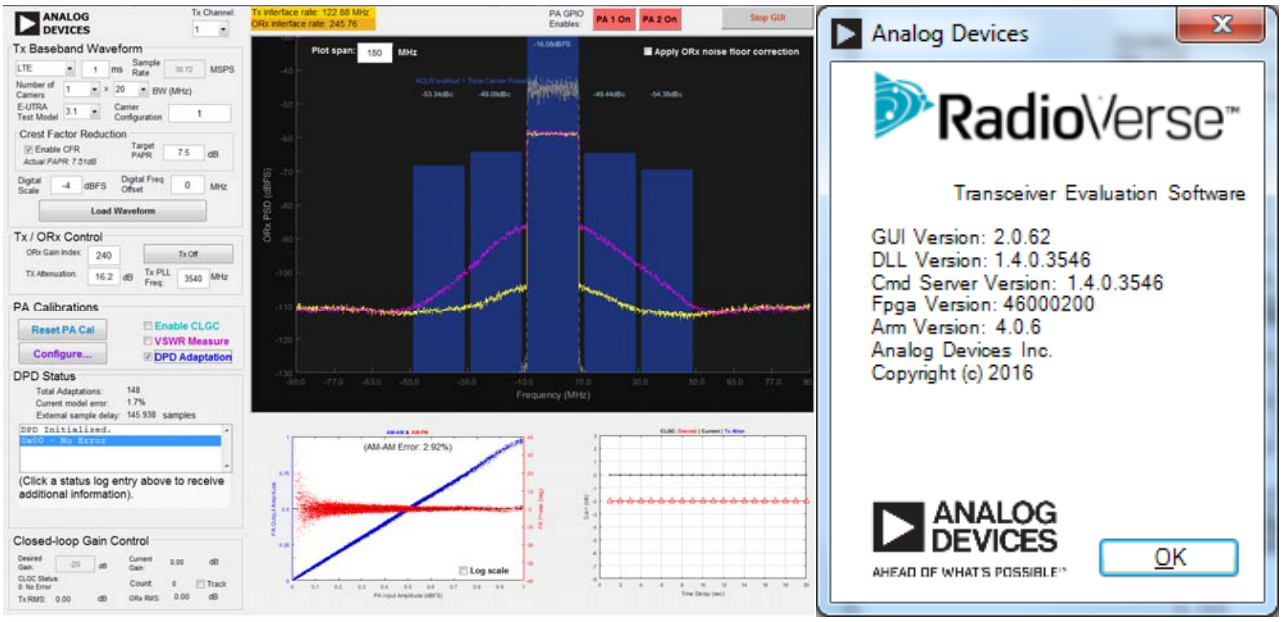
Figure 1. Frequency 3540MHz, 20MHz ETM3.1 Signal

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	-31.43	-30.35	-45.38	-42.87	-56.85	-57.38	480	26.29
After DPD	+28	-51.02	-50.79	-53.6	-53.9	-57.26	-56.71	465	27.14

Table 1. Summary of Results: Frequency: 3540MHz, 20MHZ ETM3.1 Signal

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

AD9375 DPD configuration



3620MHZ, 20MHZ BANDWIDTH ACLR RESULTS

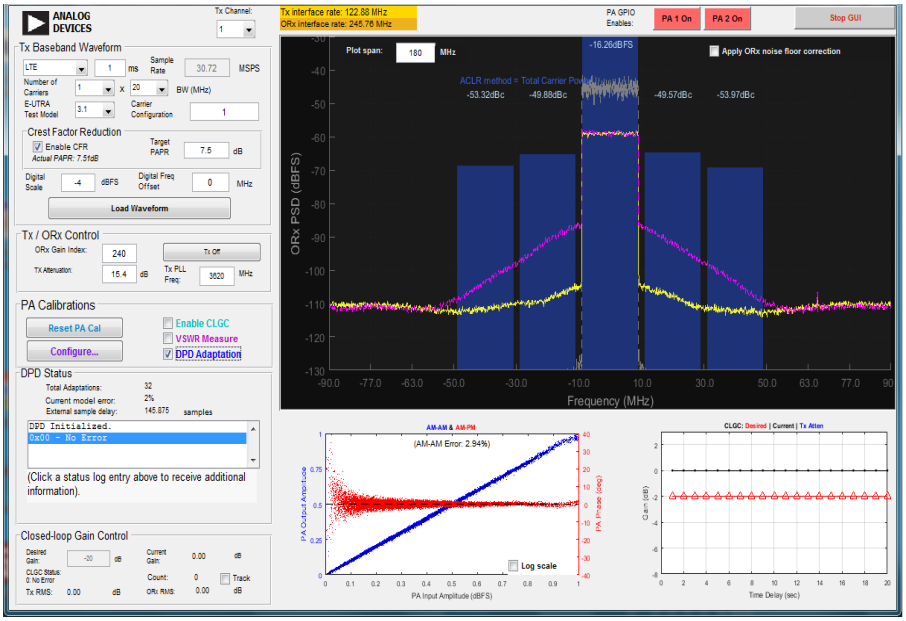
Figure 2. Frequency 3620MHz, 20MHz ETM3.1 Signal

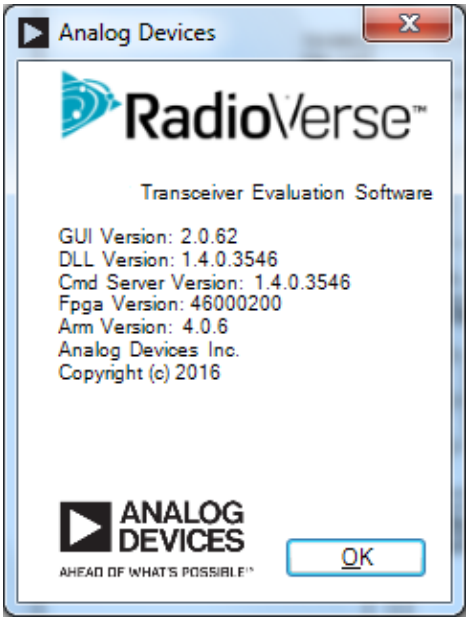
Before/After DPD	Output Power (rms)	ACLR+1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	ACLR+3 (dBc)	ACLR-3 (dBc)	Drain Current (mA)	PAE (%)
Before DPD	+28	-31.11	-30.46	-43.54	-43.39	-56.43	-58.66	485	26.02
After DPD	+28	-50.56	-51.01	-51.4	-54.5	-55.37	-57.44	474	26.62

Table 2. Summary of Results: Frequency: 3620MHz, 20MHZ ETM3.1 Signal

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

AD9375 DPD configuration





3670MHZ, 20MHZ BANDWIDTH ACLR RESULT

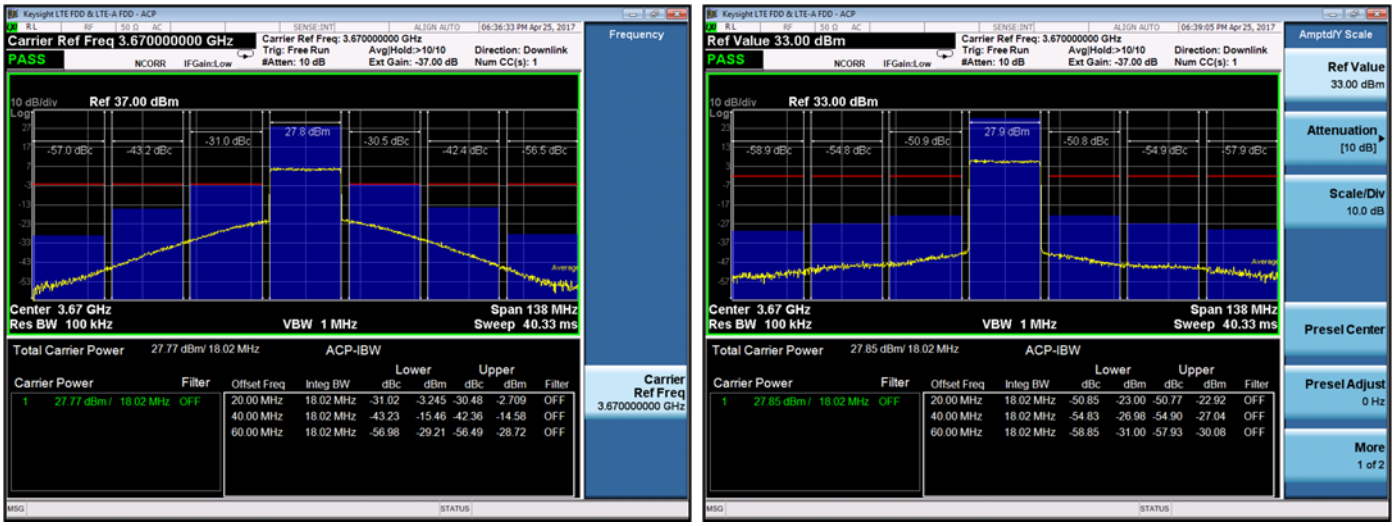


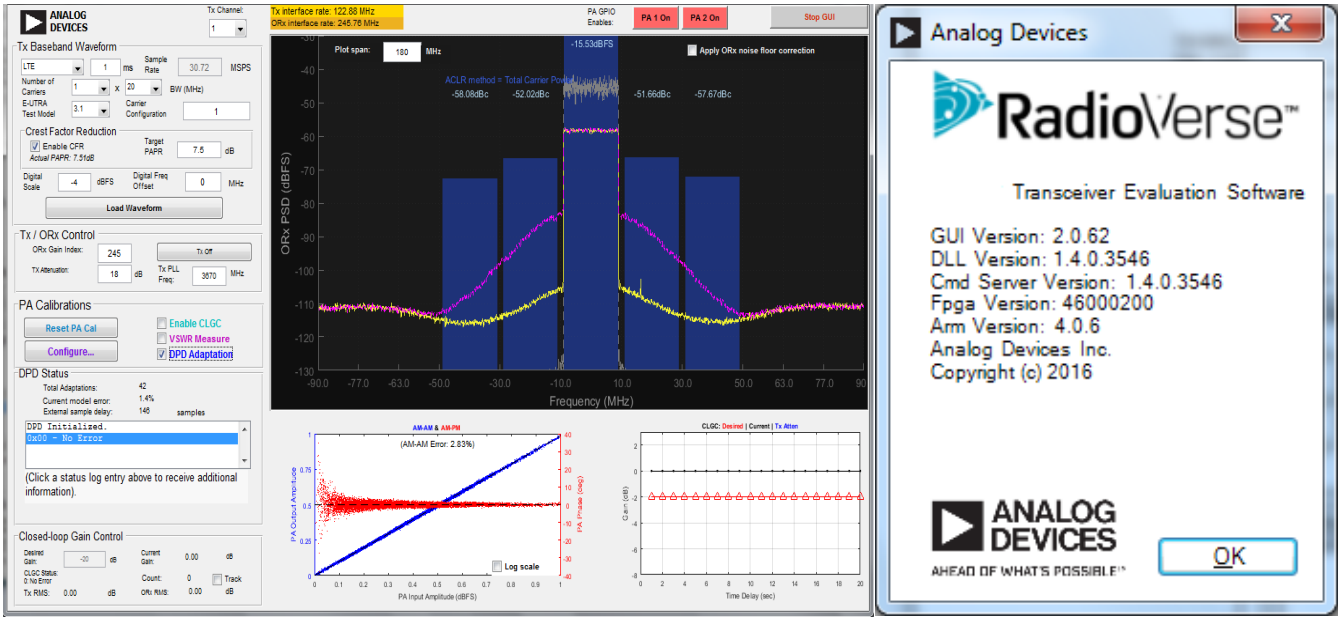
Figure 3. Frequency 3670MHz, 20MHz ETM3.1 Signal

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	+28.0	-31.02	-30.48	-43.23	-42.36	-56.96	-56.49	485	26.02
After DPD	+28	-50.85	-50.77	-54.83	-54.90	-58.85	-57.93	476	26.51

Table 3. Summary of Results: Frequency: 3670MHz, 20MHZ ETM3.1 Signal

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

AD9375 DPD configuration



WIDEBAND PLOTS, BOTTOM/MIDDLE/TOP FREQUENCIES

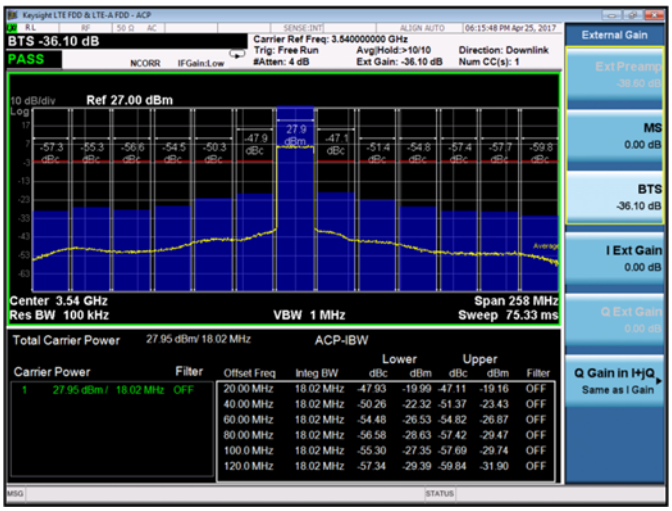


Figure 4. Wideband Spectrum Analyser Plot: Frequency 3540MHZ, 20MHz ETM3.1 Signal

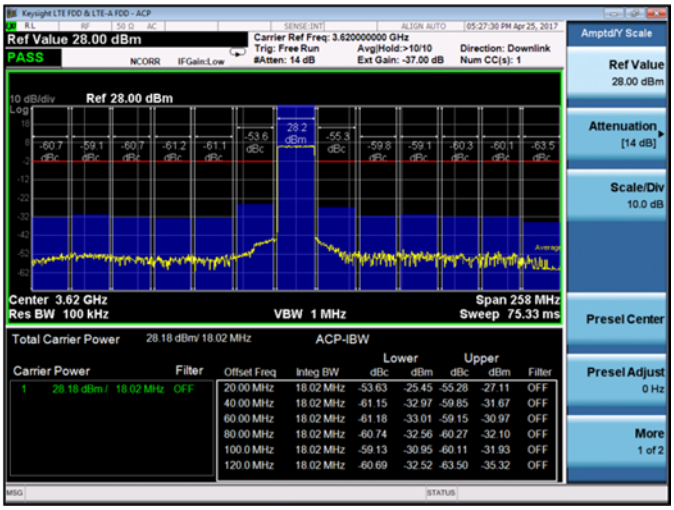


Figure 5. Wideband Spectrum Analyser Plot: Frequency 3620MHZ, 20MHz ETM3.1 Signal

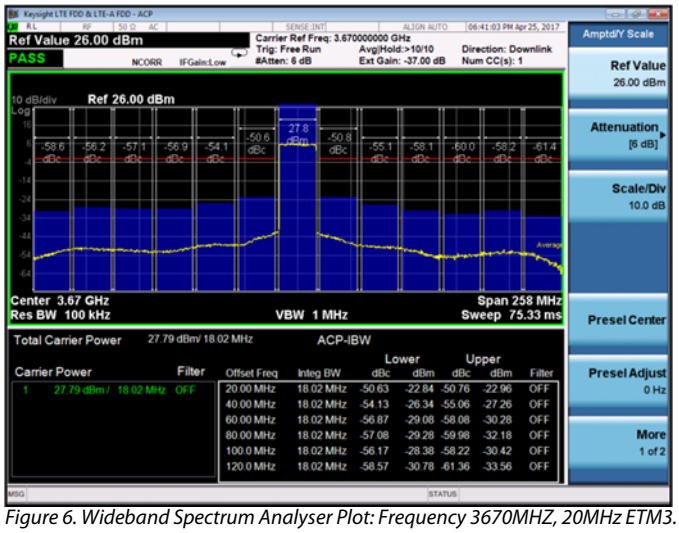


Figure 6. Wideband Spectrum Analyser Plot: Frequency 3670MHZ, 20MHz ETM3.1 Signal

ACLR VS POUT

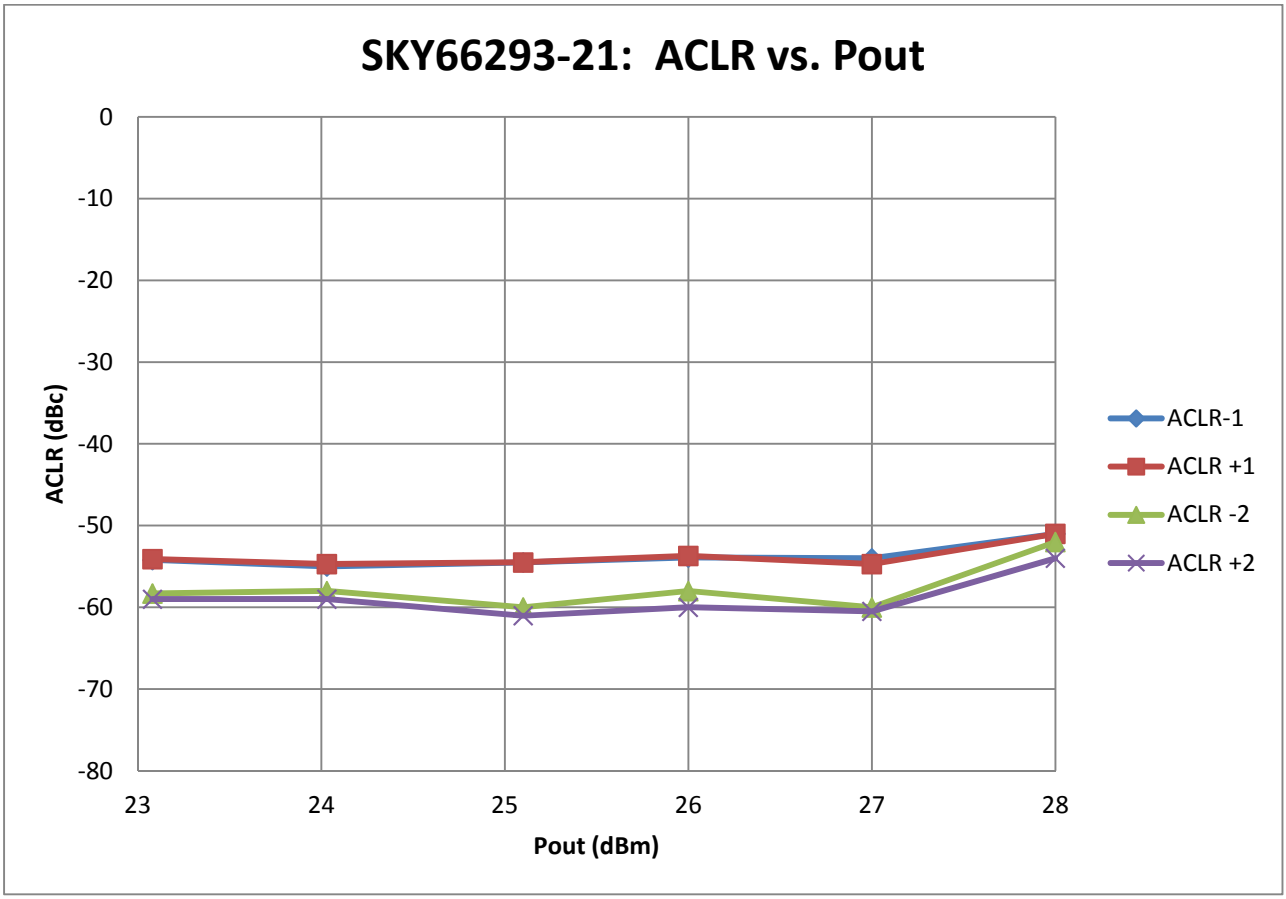


Figure 7. ACLR vs Output Power (3260 MHz)

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DRIVER AMPLIFIER

Part Number	SKY67023-396LF	SKY67153-396LF
Description	Ultra-High linearity driver for applications requiring better ACLR	High linearity driver for applications requiring good ACLR
Frequency Range (GHz) :	2.0-3.8	0.7-3.8
Test Frequency (GHz) :	2.6	0.849 2.50 3.60
Gain Typ. (dB) :	17.3	26 @ 849 MHz 19.0 @ 2.5GHz 16.5 @ 3.8GHz
OIP3 (dBm) :	39.5	34.5 @ 849 MHz 36.0@ 2.5GHz 36.0@ 3.8GHz
OP1 dB (dBm) :	19.5	21.5 @ 849 MHz 20.0@ 2.5GHz 18.0@ 3.8GHz
VDD (V) :	5	5
Supply Current Typ. (mA) :	100	80
Noise Figure Typ. (dB) :	0.89	0.25 @ 849 MHz 0.50@ 2.5GHz 0.70@ 3.8GHz
Package (mm) :	8-pin DFN, 2 x 2 x 0.75	8-pin DFN, 2 x 2 x 0.75

TEST BENCH

Keysight PXA Signal Analyzer N9030A with 89601B LTE Option with Noise Floor Correction enabled

Keysight E3631A Power Supply 3-Output Power Supply